UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

May 6, 2002

Mr. M. S. Tuckman
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SUBJECT: MCGUIRE AND CATAWBA NUCLEAR STATIONS - NRC INSPECTION REPORT 50-369/02-05, 50-370/02-05, 50-413/02-05 AND 50-414/02-05

Dear Mr. Tuckman:

On March 22, 2002, the NRC completed an inspection regarding your application for license renewal for the McGuire and Catawba Nuclear Stations. The enclosed inspection report presents the results of that inspection. The results of this inspection were discussed with members of your staff on March 22, 2002, in a public exit meeting at the Duke Energy Corporation offices.

The purpose of this inspection was to examine activities that support your application for renewed license for the McGuire and Catawba facilities. The inspection consisted of a selected examination of procedures and representative records, and interviews with personnel regarding the process of scoping and screening plant equipment for aging management review. In addition, for a sample of plant systems, inspectors performed a visual examination of accessible portions of the systems to observe any effects of equipment aging.

As a result of the inspection, we conclude that the scoping and screening portion of your license renewal activities were conducted as described in your License Renewal Application and that documentation supporting your application is in an auditable and retrievable form. We also concluded that your scoping and screening process was generally successful in identifying those systems, structures, and components required to be considered for aging management.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this report, please contact Caudle Julian at (404) 562 - 4603.

Sincerely,

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Victor M. McCree, Deputy Director
Division of Reactor Projects

Docket Nos. 50-369, 50-370 and 50-413, 50-414
License Nos. NPF-9, NPF-17 and NPF-35, NPF-52

Enclosure: NRC Inspection Report

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.	50-369, 50-370 and 50-413, 50-414
License Nos.	NPF-9, NPF-17 and NPF-35, NPF-52
Report No:	50-369/02-05, 50-370/02-05, 50-413/02-05 AND 50-414/02-05
Licensee:	Duke Energy Corporation (DEC)
Facility:	McGuire Nuclear Station, Units 1 & 2 and Catawba Nuclear Station, Units 1 & 2
Location:	12700 Hagers Ferry Rd. Huntersville NC 28078 4830 Concord Rd. York SC 29745
Dates:	March 18 - 22, 2002
Inspectors:	B. Crowley, Reactor Inspector R. Franovich, Licensing Project Manager, NRR R. Moore, Reactor Inspector K. Van Doorn, Reactor Inspector H. Wang, Operations Engineer, NRR
Approved by:	Caudle Julian Team Leader Division of Reactor Safety

TABLE OF CONTENTS

I

SUMMARY OF FINDINGS

IR 05000369-02-05, IR 05000370-02-05, 05000413-02-05, 05000414-02-05; 03/18-22 /2002; Duke Energy Corporation, McGuire Nuclear Station, Units 1 & 2 and Catawba Nuclear Station, Units 1 & 2. License Renewal Inspection Program, Scoping and Screening.

This inspection of License Renewal activities was performed by four regional office engineering inspectors, and two staff members from the office of Nuclear Reactor Regulation. The inspection program followed was NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. This inspection did not identify any "findings" as defined in NRC Manual Chapter 0610.

The inspectors concluded that the scoping and screening portion of the applicant's license renewal activities were conducted as described in the License Renewal Application and that documentation supporting the application is in an auditable and retrievable form. The inspection concluded that the scoping and screening process was successful, with minor exceptions, in identifying those systems, structures, and components required to be considered for aging management.

The inspectors concluded that, the license renewal and plant design basis documents for McGuire and Catawba fire protection programs had differing, conflicting, and sometimes vague definitions of the QA Condition 3 program. Therefore, the basis for license renewal scoping of fire protection equipment is not clear, and the inspectors were unable to confirm that scoping and screening for fire protection systems and components had been performed successfully in accordance with 10 CFR 54.4(a)(3).

The inspectors observed that the applicant had relied on a proposed modification of the Recirculated Cooling Water System (KR) at McGuire to downgrade the piping classification that was not yet implemented when the LRA was submitted. Upon completion, the modification method had changed and a portion of the piping system had remained Class F and, therefore, should have been in LR scope. This was the only case identified by the inspectors where the applicant had relied on a proposed modification. The applicant stated that the KR system for McGuire would be added to the LR scope when the annual update to the LRA was submitted.

Attachment 1 presents a partial list of persons contacted and a list of the documents reviewed. Attachment 2 presents the inspection sample selected. Attachment 3 presents a list of acronyms used in this report.

Report Details

I. Inspection Scope

This inspection was conducted by NRC Region II inspectors and members of the NRR staff to interview applicant personnel and to examine a sample of documentation which supports the license renewal application (LRA). This inspection reviewed the results of the applicant's scoping of plant systems and screening of components within those systems to identify the list of components that need evaluation for aging management. The team selected a sample of systems, structures, and component groups (SSCs) from the LRA scoping results to verify the adequacy of the applicant's scoping and screening documentation and implementation activities. For the selected in-scope systems/structures, the associated license renewal boundary drawings, and the active/passive and short/long-lived determinations of the selected SSCs were reviewed to confirm the accuracy of the applicant's results. In addition to the in-scope systems and structures, some systems that the applicant had determined not to be in scope for license renewal were selected for inspection. The team reviewed supporting documentation and interviewed applicant personnel to confirm the accuracy of the LRA conclusions. The SSCs selected for review during this inspection are listed in Attachment 2 to this report.

II. Findings

A. Evaluation of Scoping and Screening of Mechanical Systems

By letter dated January 17, 2002, the NRR staff issued a request for additional information (RAI) pertaining to Section 2.1, the license renewal scoping and screening methodology, of the license renewal application. One of the requests, RAI 2.1-1, concerned a Duke Energy (Duke) specification that cited superseded regulatory language and the associated impact, if any, to the scoping results (for mechanical systems and structures) for Catawba and McGuire. In its response to this request, submitted to the NRR staff by letter dated March 1, 2002, Duke stated that the scoping methodology specifications would be revised to incorporate the current scoping criteria in accordance with the language of 10 CFR 54.4(a)(1)(iii). The inspectors reviewed specification CNS-1274.00-00-0002, Revision 6, to confirm that reference to 10 CFR 54 reflected the current language of the rule. The inspectors verified that specification CNS-1274.00-00-0002 had been revised on March 4, 2002, to incorporate the current criteria of 10 CFR 54.4(a)(1)(iii). This revision satisfies Duke's commitment (listed in Attachment 3 to the March 1, 2002, Duke response letter) to revise its scoping methodology specification by June 30, 2002.

The inspectors evaluated the applicant's scoping and screening process for mechanical components by reviewing a number of plant systems that the applicant determined to be within the scope of license renewal (LR). The applicant performed scoping at the system level by first identifying safety-related mechanical systems. As designated by original plant design criteria, Duke Piping Class A, B, and C were designed to meet these criteria. Next, non-safety-related mechanical systems which could adversely affect safety-related systems were identified. Duke piping Class F was designated by original design to meet these criteria. Then, systems committed to support the five NRC regulated events in 54.4(a)(3) were identified.

After system scoping, screening was accomplished by: establishment of LR system boundaries by creating from official station drawings highlighted license renewal boundary flow diagram

drawings: identifying components and component groups subject to an aging management review using a menu list of all passive, long-lived, mechanical components; and identification of intended function(s) of each mechanical component. The screening process and results were documented in individual system LR Component Screening and Aging Management Review Specifications.

The inspectors reviewed the applicant's methodology for inclusion of non-safety-related (NSR) mechanical systems in scope which could affect safety-related (SR) systems. This subject was included in a NRC RAI dated January 17, 2002. The inspectors reviewed the LRA, the applicant's original piping system design guidance standards, and held discussions with applicant personnel. The original designer areas of concern were the effects of NSR falling (seismic interaction) or NSR leakage affecting other systems by spray or flooding. The applicant designated SR systems as Classes A, B, and C. An original design piping Class F was established for NSR systems which could affect SR systems via seismic interaction or leakage. This class was seismically mounted and additional quality requirements were required for welds. The original design Class F category of piping systems was what the applicant included in scope of license renewal for the effects of NSR systems on SR systems.

The original design guidance required designers to route NSR piping as much as possible so as to not affect SR systems. If piping was located above SR systems and was greater than 1-inch nominal pipe size (NPS) it was considered for seismic mounting or optionally providing deflector shields for the SR equipment. Non-seismic piping, less than 4-inch NPS, but greater than or equal to 2 ½-inch NPS, was not considered capable of damaging any component except instrumentation devices and tubing, flex-hose, and unsupported cables. Non-seismic piping less than 2 ½-inch NPS, but greater than 1-inch NPS, was not considered capable of damaging any component except instrumentation devices and tubing. All non-seismic piping 4-inch NPS and greater was considered capable of damaging other piping with less than ½ its diameter. The review of LR drawings showed that most piping in containment was seismically mounted SR or Class F or was typically less than or equal to 1-inch NPS. The applicant had designated some NSR Classes E, G, and H piping as seismically designed, if failure could result in undesirable movement, although the pressure boundary function was not required to be maintained during a seismic event. The inspectors noted some Class G Nuclear Service Water piping in containment which was seismically mounted.

For leakage considerations, the applicant had designed all high energy piping in safety related areas as SR or Class F. Systems in the containment were designed for leakage effects. For effects of spray in areas outside of containment, the applicant had postulated through wall cracks at all welds for greater than 1-inch NPS located within 30 feet of the equipment being evaluated. Solutions for spray effects considered were relocation, qualification of equipment for spray, providing spray shields, or designing piping as Class F. For flooding, the applicant had postulated a 30 minute operator reaction time to terminate the release. The applicant designed for flooding, such as providing curbs, or designing piping as Class F. The various considerations for effects of NSR on SR systems appeared acceptable, however, the inspectors questioned the justification for not considering spray effects for piping less than or equal to 1-inch NPS. The licensee stated that they believed that spray effects of other piping would bound this small piping and that very little of this piping is believed to be located in positions to have a spray effect. The applicant indicated that the criteria for NSR effects on SR systems and the justification for not considering the spray effect for the smaller piping would be provided in the response to the RAI described above. Further NRC review of this is issue is planned and, in addition, plant walkdowns of piping in various areas by the inspectors are planned.

Unless otherwise noted, the paragraphs below address both McGuire and Catawba. The following mechanical systems were reviewed:

1. Reactor Coolant (NC) System

The NC System consists of systems and components designed to contain and support the nuclear fuel, contain and provide pressure boundary for the reactor coolant, and transfer the heat produced in the reactor core to the steam and power conversion system. For each unit, the system consists of four heat transfer loops connected in parallel to the reactor vessel (RV). Each loop contains a reactor coolant pump, steam generator, and associated piping and valves. In addition, the system includes a pressurizer, a pressurizer surge line, a pressurizer relief tank, interconnecting piping, and instrumentation necessary for operational control. Piping connections are provided in the reactor coolant piping for auxiliary systems, such as safety injection and residual heat removal. For license renewal, the applicant included the following components in the LRA under the NC System: reactor coolant piping valves and pumps; presssurizer; reactor vessel and CRDM pressure boundary, reactor vessel internals, and steam generators. The inspectors reviewed the applicable LRA sections, applicable NRR RAIs, Updated Final Safety Analysis Report (UFSAR), System Design Basis Specifications (DBSs), LR drawings, and applicable LR specifications for the system. All of the major components and associated piping, including instrumentation piping, the reactor coolant pump oil collection system, and non-Class 1 (Classes B and C) piping and valves, were considered in scope by the applicant. In addition, all Duke Class F piping (non-safety-related affecting safety-related) was considered to be in scope.

The inspectors identified the following piping where LR boundary highlighting had been inadvertently omitted:

> Drawing MCFD-2553-02-00, Zone E-4, a short section of Class B piping and valve (2NC0252)
> Drawing MCFD-2553-02-01, Zones I-11 and I-12, three short sections of Class C piping and valves (also identified in RAI 2.3.1-6)
> Drawing CN-1553-1.1, Zone C-11, a short section of Class B piping
> Drawing MCFD-1553-01.00, Zones L-2, L-4, L-13, three short section of Class A piping

Since these omissions did not result in any new types of components or material/environment combinations which would require revision to the aging management review tables, they were not considered significant.

The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

2. Component Cooling (KC) System

The KC system is an intermediate closed cooling water system that transfers heat from safety-related and non-safety-related components to the nuclear service water (NR) system during normal and emergency operation. In addition to providing cooling to essential header components, the system maintains an intermediate pressure boundary between the reactor coolant system and the nuclear service water system to prevent potential radioactive release, provides containment isolation, and maintains containment closure for shutdown. The system consists of a split volume surge tank, two trains with two pumps and one heat exchanger for each train, and associated piping and valves. Some of the more important cooling loads are:

the residual heat removal system and pump seal heat exchangers, letdown and excess letdown heat exchangers, spent fuel cooling water heat exchangers, seal water heat exchangers, and various reactor coolant system components (pump thermal barrier, pump bearings). The inspectors reviewed the applicable LRA sections, applicable NRR RAIs, UFSAR, the DBS, LR drawings, and applicable LR specifications for the system. The applicant considered essentially all of the KC system, including major KC components, associated KC piping and valves, and safety related heat load components, in LR scope. In addition, all Duke Class F piping (non-safey-related affecting safety-related) was considered to be in scope.

For LR Drawing CN-1573-1.3, Zone I-13, the inspectors identified a short section of Class B pipe where LR boundary highlighting had been inadvertently omitted. Since this omission did not result in any new types of components or material/environment combinations which would require revision to the aging management review tables, the omission was not considered significant. In addition, the inspectors noted that the reactor vessel support coolers and piping (Class C) for all four units were not highlighted as being in LR scope. Class C piping (safety-related) would normally be in scope. When questioned by the inspectors, the applicant stated the coolers are not required and are permanently valved out. Operations procedure checklists were provided showing the isolation valves are administratively closed. This issue is the subject of RAI 2.3.3.5-5.

The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

3. Feedwater (CF) System

The CF system consists of piping and components required to heat condensate water to improve the plant's thermal cycle efficiency and deliver it at the required flow rate, pressure and temperature to the steam generators. It is designed to maintain proper vessel water levels with respect to reactor power output and turbine steam requirements. It is also designed to: provide for isolation following an accident or steam line break, preclude blowdown of all steam generators following a feedwater line break, provide containment isolation, and prevent steam generator overfill and resulting overcooling. The CF system consists of two 50% steam turbine driven pumps, two stages of high pressure feedwater heaters, and associated piping and valves. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The applicant considered the Duke Class B portion of the CF system, which includes the portion of the system from and including the secondary side of the steam generators to and including the outermost containment isolation valves, to be in scope. In addition, safety-related components associated with level indication and the non-safety-related Duke Class F (non-safety-related affecting safety-related) piping were considered in scope.

For LR Drawing MCFD-2591-01-01, Zone H-3, the inspectors identified a short section of Class B pipe where LR boundary highlighting had been inadvertently omitted. Since this omission on the LR drawings did not result in any new types of components or material/environment combinations which would require revision to the aging management review tables, the omission was not considered significant. The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

4. Condensate (CM) System

The CM system provides chemically treated water to the suction of the main feedwater pumps. The system consists of the hotwell, hotwell strainers, hotwell pumps, low-pressure and intermediate-pressure feedwater heaters, demineralizers, condensate coolers, condensate booster pumps, and associated piping and valves. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The applicant determined that none of the CM system at either plant was safety-related 54.4(a)(1) or supports any of the regulated events 54.4(a)(3). However, for Catawba only, short sections of system piping were determined to be non-safety-related Duke Class F (non-safety-related affecting safety-related) and therefore, in LR scope. No class F piping was identified for McGuire. The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

5. Condensate Storage (CS) System

The CS system provides a source of water for various plant equipment as required during all modes of plant operations. The system consists of an upper surge dome tank, two upper surge tanks, a condensate storage tank, two condensate storage pumps, an auxiliary feedwater condensate storage tank, and associated piping and valves. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The applicant determined that none of the CS system at either plant was safety-related (54.4(a)(1)) or supports any of the regulated events (54.4(a)(3)). However, for Catawba only, short sections of system piping were determined to be non-safety-related Duke Class F (non-safety-related affecting safety-related) and therefore, in LR scope per 50.54. No class F piping was identified for McGuire. The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

6. Feedwater Pump Turbine Hydraulic Oil (LP) System

The LP system supplies high pressure oil to the feedwater pump turbine governing and control system. The system consists of pumps, oil reservoir, oil coolers, hydraulic turbine control assembly, and associated piping and valves. The applicant determined the LP system performs 54.4(a)(2) non-safety-related support functions of emergency tripping of the feedwater pump turbine steam valves and overspeed exercisers for Anticipated Transient Without Scram (ATWS) mitigation. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The components necessary for this emergency tripping function were considered in LR scope. The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

7. Main Steam (SM) and Main Steam Vent to Atmosphere (SV) System

In addition to transporting steam produced in the Steam Generators (SG) to the main turbine, the SM and SV systems prevent the uncontrolled blowdown of more than one steam generator following a main steam line rupture, provide over-pressure protection of the main steam system, dissipate reactor coolant system heat following a reactor or turbine trip in a controlled manner, provide steam to the auxiliary equipment system, limit the temperature reached in containment in the event of a steam line rupture in containment, provide steam generator pressure indication, and maintain containment closure for shutdown. The systems consist of piping from

the SGs to the main turbine, safety and relief valves, main steam isolation valves, steam dump valves, and moisture separator reheaters. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The SGs and all main steam piping and valves which define the SG secondary side pressure boundary are Duke Class B. All lines greater than 2-1/2 inches which connect to the main steam lines upstream of the main steam isolation valves are also Duke class B. Piping between the main steam isolation valves and the turbine building wall is Duke Class F due to pipe break considerations, The applicant considered all class B and Class F piping and components to be in LR scope.

For LR Drawing MCFD-1593-01-03, Zone D-12, the inspectors identified a short section of Class B pipe where LR boundary highlighting had been inadvertently omitted. In addition, for LR Drawing MCFD-1593-01-00 (Zones C-7 and I-7), the inspectors identified an inconsistency in highlighting identical sections of Duke Class F low-point drain piping. After further review, the applicant identified some errors in a recent revision to the corresponding station drawing relative to location and piping class designation, which could have resulted in the inconsistency in highlighting the LR drawing. The applicant immediately issued Problem Investigation Process (PIP) M-02-01617 to address this issue with the station drawing. Since this omission on LR drawing 01-03 and the inconsistency on drawing 01-00 did not result in any new types of components or material/environment combinations which would require revision to the aging management review tables, they were not considered significant.

The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

8. Main Steam Supply to Auxiliary Equipment (SA) and Feedwater Pump Turbine Exhaust (TE) Systems

The SA system supplies and regulates the steam to drive the auxiliary feedwater pump turbine and supplies steam to the condenser steam air ejectors. The TE system vents the auxiliary feedwater pump turbine exhaust to atmosphere, drains condensate between isolation valves and the auxiliary feedwater turbine, drains the auxiliary feedwater pump turbine subsystem, and provides exhaust and drainage for the main feedwater turbines. The systems consists of supply piping and valves to the auxiliary feedwater pump turbines, exhaust and drainage piping and associated valves from the auxiliary feedwater turbine and the main feedwater turbine. The inspectors reviewed the applicable LRA sections, UFSAR, DBS, LR drawings, and applicable LR specifications for the system. The applicant considered the safety-related portions (the portion of the systems supporting the auxiliary feedwater pump turbine) and the Class F portion of the systems to be in scope. For McGuire, no part of the TE system is safety-related or Duke Class F, and therefore, the TE system was not considered in scope. The inspectors found that the applicant had performed scoping and screening for this system in accordance with the methodology described in the LRA and the rule.

9. Feedwater Condensate Seal (CL)

The CL system is a support system for the main feedwater pump turbine that provides condensate sealing for the turbine. The system consists of two pumps, two seal injection heat exchangers, and associated pumps and valves. Since the main feedwater pump and turbine perform no 54.4(a) functions and no portion of the CL system is safety related or contains Duke Class F piping, the system was not considered in LR scope. The inspectors agreed with the applicant's determination.

10. Feedwater Pump Turbine Lube Oil (LF) System

The LF is a support system for the main feedwater pump turbine that provides lube oil for the turbine. The system consists of an oil reservoir, two pumps, and two lube oil coolers. Since the main feedwater pump and turbine perform no 54.4 (a) functions and no portion of the LF system is safety related or contains Duke Class F piping, the LF system was not considered in LR scope. The inspectors agreed with the applicant's determination.

11. Feedwater Pump Turbine Steam Seal (TF) System

The TF system is a support system for the main feedwater pump turbine that provides sealing steam for the turbine. The system consists of piping and associated valves from the main turbine steam sealing system to the feedwater pump turbine steam sealing. Since the main feedwater pump and turbine perform no 54.4 (a) functions and no portion of the TF is safety related or contains Duke Class F piping, the TF system was not considered in LR scope. The inspectors agreed with the applicant's determination.

12. Steam Supply to Feedwater Pump Turbine (SP) System

The SP system is a support system for the main feedwater pump turbine that provides steam to the turbine. The system consists of supply piping and associated valves from the main steam system to the main feedwater turbine. Since the main feedwater pump and turbine perform no 54.4 (a) functions and no portion of the SP is safety related or contains Duke Class F piping, the SP system was not considered in LR scope. The inspectors agreed with the applicant's determination.

13. Chemical and Volume Control System (NV)

The NV functions to maintain proper water inventory in the NC, maintain seal water flow to the NC pumps, maintain NC chemistry and activity level, and provide the high pressure injection and recirculation of the Emergency Core Cooling System (ECCS). The NV consists of two independent trains of piping, valves, and instrumentation and it's major components include pumps, filters, boric acid tanks, demineralizers, heat exchangers, and a volume control tank. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. Some of the LR drawings did not have some piping and components highlighted which the licensee intended to include in scope. However, no new types of components or material/environment combinations were identified which would require revision to the aging management review tables. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

14. Containment Spray System (NS)

The NS functions to remove thermal energy from the containment to limit post-accident peak pressure and also serves to reduce post-accident airborne iodine. The NS consists of piping, valves, instrumentation, pumps, spray nozzles, and heat exchangers. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant

considered all of the safety-related and Class F portions of the system in scope. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

15. Containment Valve Injection Water System (NW) (Catawba)

The NW (applicable at Catawba Station only) functions to inject water between the two seating surfaces of double disc gate valves used for containment isolation to prevent leakage of containment atmosphere through the valves after an accident. The system consists of piping, valves, tanks, and tubing. The inspectors reviewed the UFSAR, LR drawings, scoping and screening documents, and design basis information for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

16. Nuclear Service Water System (RN)

The RN functions to provide cooling water from the local lake or the Standby Nuclear Service Water Pond to various safety-related heat exchangers and provides emergency makeup water to various systems during postulated events. Some non-safety-related heat exchanger loads are also supplied during normal operations. For McGuire Station the RN provides the normal supply of water for the Containment Ventilation Cooling Water System. For Catawba Station the RN provides water for fire protection hose stations for EDGs and the RN pump house. The RN consists of piping, valves, instrumentation, pumps, heat exchangers, pump oil coolers, and strainers. The inspectors reviewed the UFSAR, LR drawings, plant drawings, scoping and screening documentation, and design basis information. The applicant considered all of the safety-related and Class F portions of the system in scope. One LR drawing did not have two in scope heat exchangers highlighted but the aging management review tables included the components and material/environment combination. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

17. Recirculated Cooling Water System (KR)

The KR is a closed cooling water system that delivers cooling water to various non-safety-related loads in the Turbine, Auxiliary, and Service Buildings. The KR consists of piping, valves, instrumentation, pumps, and heat exchangers. The inspectors reviewed the UFSAR, LR drawings, plant drawings, and scoping and screening documentation. The applicant considered portions of piping and valves which were Class F for Catawba Station in scope. A review of McGuire Station drawings disclosed similar sections of the system which were Class F, however, the applicant had failed to include these in scope. Discussions with the applicant and review of documentation showed that the applicant had relied on a proposed modification to downgrade the piping classification in this area that was not yet implemented. Upon completion, the modification scope had changed and a portion of the system had remained Class F. This appeared to be the only case where the applicant had relied on a proposed modification. The applicant stated that the KR system for McGuire would be added to the LR scope when the annual update to the LRA was submitted. The inspector reviewed procedures which the applicant had developed to assure future plant changes were evaluated for LR

concerns. A thorough process had been developed via the Engineering Directives Manual. The Nuclear System Directive for modifications thoroughly addressed LR considerations and a user friendly Site LR Handbook had been developed for the applicant's Oconee station which the applicant planned to also develop for McGuire and Catawba. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule except for portions of the system at McGuire Station which the applicant plans to add via the LRA update.

18. Refueling Water System (FW)

The FW functions to provide a source of borated water to be used during refueling, for ECCS and NS systems following postulated accidents, and for spent fuel pool makeup. The FW consists of piping, valves, instrumentation, and the Refueling Water Storage Tank. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. One of the LR drawings did not have a pipe and valve section highlighted which was in scope but no changes to the aging management review tables was required due to this omission. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

19. Residual Heat Removal System (ND)

The ND functions to transfer heat from the NC to the KC to reduce the NC to cold shutdown conditions and also functions as the low pressure ECCS system following postulated accidents. Secondary functions include transfer of refueling water, overpressure protection of NC during shutdown, letdown flow for pressure control and purification during shutdown, and auxiliary spray. The ND consists of piping, valves, instrumentation, pumps, and heat exchangers. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. Several of the LR drawings did not have some piping and valves highlighted which were in scope. However, no new types of components or material/environment combinations were identified which would require revision to the aging management review tables. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

20. Safety Injection System (NI)

The NI constitutes a major portion of the ECCS system along with the ND and NV to provide emergency cooling to the core, control reactivity, and preclude reactor vessel boron precipitation following postulated accidents. The NI consists of piping, valves, instrumentation, pumps, and cold leg accumulator tanks. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. Some LR drawings did not have some piping and valves highlighted which were in scope. However, the aging management review tables included the component types and material/environment combinations. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

21. Spent Fuel Cooling System (KF)

The KF functions to remove heat from the spent fuel pool and maintain purity and optical clarity of the pool water for fuel handling operations. The KF consists of piping, valves, instrumentation, pumps, and heat exchangers. The inspectors reviewed the UFSAR, LR drawings, and scoping and screening documents for the system. The applicant considered all of the safety-related and Class F portions of the system in scope. One LR drawing did not have a pipe and valve section highlighted which was in scope but no changes were required for the aging management review tables. The inspectors concluded that the applicant had performed scoping and screening for this system and identified the mechanical components subject to aging management in accordance with the methodology described in the LRA and the rule.

22. Reactor Building Control Rod Drive Ventilation (VR)

The VR functions to provide cooling to the control rod drive mechanism shroud during normal operation. This system does not perform a safety-related function. The inspectors reviewed the UFSAR, plant drawings, and design basis information for this system. The applicant considered this system not to be in scope. The inspectors agreed with the applicant's conclusion.

23. Annulus Ventilation System (VE)

The Annulus Ventilation System is an Engineered Safety Feature (ESF) that creates and maintains a negative pressure zone in the annulus space between the steel primary containment and the Reactor Building (secondary containment). The system function is to limit operator and site boundary doses following a design basis accident (DBA), to within the guidelines specified in 10 CFR100. The system also provides long term fission product removal capability within the annulus through holdup and filtration. There are redundant trains in each unit consisting of fans, moisture eliminator, filter train and associated piping, duct, and valves. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

24. Containment Air Return & Hydrogen Skimmer System (VX)

This system maintains containment pressure less than design pressure during any High Energy Line Break (HELB), limits hydrogen concentration during a LOCA, and maintains containment isolation integrity for system piping penetrating containment. The mechanical components included in the LR scope include piping, valves, duct, expansion joints and tubing. Ventilation dampers and housings were not specifically included as LR in-scope equipment. This is addressed in a currently unresolved RAI 2.3-2, scheduled for resolution April 15, 2002. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

25. Diesel Building Ventilation System (VD)

This system maintains temperature control for each diesel building when its associated diesel generator is operating. The system components included ventilation fans, duct, piping, valves

and dampers. Damper housings were not included as equipment requiring aging management review, and this is addressed in RAI 2.3-2. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule, with the exception of the unresolved RAI.

26. Auxiliary Building Ventilation System (VA)

This system automatically aligns to maintain the Emergency Core Cooling System (ECCS) pump rooms at a negative pressure so that air exhausted from these rooms is filtered prior to being released, following a DBA. The system includes fans, filtration unit, duct, piping, and dampers to provide a flow path from the Auxiliary Building through the filtration unit to the vent stack. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

27. Fuel Handling Building Ventilation System (VF)

This system maintains ventilation to the spent fuel pools area to permit personnel access. Additionally, the exhaust portion of the system controls air borne radioactivity in the fuel pool area during normal operation, anticipated transients, and postulated fuel handling accidents. The system equipment includes fans, filtration units, duct, piping, dampers and valves that provide a flow path from the Fuel Handling Building to the vent stack. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

28. Containment Ventilation System (McGuire)

The upper and lower containment ventilation systems at McGuire provide cooling to the upper and lower containment compartments during normal operation and shutdown. The mechanical components perform no safety related or LR scope functions. The system was considered in scope for McGuire because it includes resistance temperature detectors (RTDs) which are required for post-accident monitoring of containment temperature in accordance with the Environmental Qualification (EQ) rule. Instrumentation is not included in the mechanical systems scoping and screening activity. The RTDs are included as electrical commodities and were screened out as active components in MCS-1274.00-00-0006, Electrical Component Integrated Plant Assessment and Evaluations of Time Limited Aging Analyses for License Renewal, revision 1. The Catawba Containment Ventilation system performed no safety related or regulated function. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

29. Diesel Generator Air Intake and Exhaust system (VN)

This system supplies fresh air for combustion and exhaust gas cooling to the diesel engines and directs the engine exhaust outside the building. The system includes intake and exhaust silencers, air coolers, duct, piping, valves and dampers, and turbochargers. The housings for

the turbochargers and the intake and exhaust manifolds were not included as components subject to an aging management review. This issue is currently unresolved and is addressed in RAI 2.2.3.11-1 scheduled for resolution on April 15, 2002. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule, with the exception of the unresolved RAI.

30. Diesel Generator Engine Crankcase Vacuum System (ZD)

This system purges the diesel engine crankcase to reduce the concentration of combustible gases and prevent/mitigate the occurrence of crankcase explosion when the diesel is operating. The McGuire system includes blowers, oil separators, orifices, and piping. The Catawba system is passive and includes piping only. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

31. Diesel Generator Engine Fuel Oil System (FD)

This system provides two independent trains of fuel oil storage and supply for the Emergency Diesel Generators (EDGs) for a minimum of five days (McGuire) or seven days (Catawba). Additionally, the system provides a return path to the day tank for excess fuel oil delivered to the engine and collects and removes fuel oil that leaks or drips from the fuel injector nozzles and pumps. The system components include pumps, valves, filters, tanks, flame arrestors, orifices, strainers and piping. The inspectors noted minor errors on LR boundary drawings for the McGuire fuel oil system. The undesignated portions of the applicable LR drawing did not identify new equipment types or material/environment combinations not already addressed in the aging management program. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

32. Diesel Generator Cooling Water System (KD)

This system maintains the temperature of the EDG engine and support systems within a required operating range. Support system cooling includes the turbocharger intercooler and engine lube oil. The system includes surge tanks, heat exchangers, pumps, orifices, piping and valves. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

33. Diesel Generator Engine Lube Oil System (LD)

This system supplies lubricating oil to the diesel engine and its bearing, crankshaft, thrust faces, and other friction surfaces during both standby and operating modes. The system components include pumps, heat exchangers, filters, strainers, and valves. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the

applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

34. Diesel Generator Room Sump Pump System (WN)

This system removes leakage from equipment drains in the EDG building and protects the EDG from flooding due to a Nuclear Service Water System pipe rupture in one of the EDG rooms in conjunction with a Turbine Building flood. The system equipment includes sumps, pumps, piping, orifices, (McGuire) and valves to transfer sump contents to the Waste Water Treatment System. The inspectors reviewed the system scoping and screening documents and design basis information for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

35. Diesel Generator Starting Air System (VG)

This system provides the fast start capability for the EDGs using compressed air to roll the engine until it starts. The system also supplies compressed air to the diesel controls to operate and shutdown the engine. The system includes air compressors, air storage tanks, filters, dryers, valves and piping. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

36. Instrument Air System (VI)

This system provides a dry, oil-free air for instrumentation, testing, and control air requirements. The safety function of the system is to provide a piping flow path for a nitrogen supply from the Cold Leg Accumulators to the Pressurizer PORVs, containment penetration piping, containment isolation valves, and the diesel instrument air system. The system includes air compressors, storage tanks, accumulators, piping and valves. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

37. Standby Shutdown Diesel System (AD)

This system provides an alternate and independent means of achieving and maintaining a Hot Standby condition for one or both Units following a postulated fire event or Loss of All AC Power (Station Blackout). The standby diesel generator provides power for the components, instrumentation, and controls to achieve and maintain the Hot Standby condition for 72 hours. The system includes a diesel engine and the subsystems required for engine operation, such as fuel oil, lube oil, cooling water, exhaust and ventilation for the standby shutdown facility. The inspectors reviewed the system scoping and screening documents, design basis information, and site SBO Coping Strategy for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

38. Turbine Building Sump Pump System (Catawba)

This system provides for the collection of Liquid Radwaste System sumps when radiation levels of the contents are below a predetermined level as identified by radiation monitors in the discharge lines. Although the system performs no safety related or regulated function, portions of the piping at Catawba enter the Auxiliary Building and a postulated failure of this piping could impact safety related equipment. This portion of piping is seismically designed and included in the LR boundary. The McGuire Turbine Building Sump Pump System has no potential impact on safety related equipment and therefore this system at McGuire is not within the LR scope. The inspectors reviewed the system scoping and screening documents, design basis information, and drawings for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

39. Auxiliary Feedwater System (CA)

This system assures a feedwater supply to the steam generators for decay heat removal if the main condensate and feedwater systems are not available. The system includes pumps, tanks, piping, valves, a steam turbine, and pump oil coolers. The water sources include the safety related assured source, Nuclear Service Water System, and non-safety related sources of the Condensate Storage Tanks, and the embedded portion of the Condenser Circulating Water System (RC). The latter source is identified as within the LR boundary. RAI 2.3.36-4 requested additional information from the applicant regarding the adequacy of this source. This was previously addressed in NRC Inspection Report No. 50-369,370/01-06 at McGuire. The inspection included a review of procedures, system configuration, and calculation MCC-1223.42-00-0003, Determine Water Available for Secondary Side Makeup During a Security Event, rev. 3. The conclusion of the report was that the embedded RC pipe was an adequate water source for postulated security events, which included SBO. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

40. Containment Isolation System

The Containment Isolation System is an Engineered Safety Feature that provides for closure of all fluid penetration not required for operation of the Engineered Safeguards System, to prevent leakage of uncontrolled or unmonitored radioactive materials to the environment. This system contains many systems that achieve this isolation function including, Breathing air, Containment Air Release & Addition Water System, Containment Purge Ventilation (McGuire), Containment Purge (Catawba), Containment Ventilation Cooling Water Recycle, Station Air, Steam Generator Blowdown (Catawba), Conventional Chemical Addition, Equipment Decontamination, and Steam Generator Wet Layup Recirculation. The inspectors reviewed the system scoping and screening documents, design basis information and applicable UFSAR sections, for Catawba and McGuire. The inspectors concluded that the applicant had performed scoping and screening for this system in accordance with the LRA and the Rule.

41. Auxiliary Fuel Oil System (McGuire)

This was a system to provide fuel oil to an auxiliary boiler. The system was abandoned. The inspectors reviewed available documentation and drawings and concluded there was adequate basis for exclusion of this system from the LR scope.

42. Vacuum Priming System

This system provides a means for ensuring air removal from portions of the RC and Nuclear Service Water Systems. There were no functions of the system that met the criteria for LR scoping. The inspectors reviewed available documentation, plant drawings, and discussed the system function with the applicant staff. The inspectors concluded that there was adequate basis for exclusion of this system from LR scope.

43. Containment Chilled Water System (Catawba)

This system functions in conjunction with the Containment Ventilation System to maintain acceptable temperature limits within the Reactor Building to ensure proper operation of equipment and contents during normal operation and shutdown. The system provides no safety related function, is not required to mitigate the effects of a postulated event, nor supports the regulated functions included in LR scoping. The inspectors reviewed the design basis documentation and drawings and concluded there was adequate basis for exclusion of this system for the LR scope.

44. Containment Ventilation System (Catawba)

This system functions in conjunction with the Containment Chilled Water System to maintain acceptable temperature limits within the Reactor Building to ensure proper operation of equipment and contents during normal operation and shutdown. The system provides no safety related function, is not required to mitigate the effects of a postulated event, nor supports the regulated functions included in LR scoping. There are no post accident monitoring functions provided by this system at Catawba as there is for the similar McGuire System. The inspectors reviewed the design basis documentation and drawings and concluded there was adequate basis for exclusion of this system for the LR scope.

B. Evaluation of Scoping and Screening of Electrical Systems

The inspectors reviewed the document MCS-1274.00-00-0002 McGuire Systems and Structures Scoping For License Renewal, Rev 05, 9/12/01 and a nearly identical document for Catawba. Section 3.3 describes the applicant's electrical system and component scoping process. The applicant assumes that all electrical components are within the scope of license renewal unless a specific scoping evaluation is performed that demonstrates they are not within the scope of license renewal.

The inspectors reviewed document DPS(MCS,CNS) 1274.00-00-0006 Electrical Component Integrated Plant Assessment and Evaluation of Time-Limited Aging Analysis for License Renewal, Rev. 01, 6/12/2001. This document applies to both McGuire and Catawba plants. The purpose of the document is to describe in more detail the screening and scoping process used by the applicant to identify electrical components that are subject to an aging management review and to present the results of that process.

The applicant begins the process with a list of electrical commodities which is the generic list from Appendix B of the industry document NEI 95-10 Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The license Renewal Rule. Next the applicant applies passive screening that eliminates from the list all commodities that are active rather than

passive i.e.,components that perform an intended function without moving parts or without a change in configuration. The remaining seven passive commodities are:
insulated cables and connections, uninsulated ground connectors, transmission conductors, phase bus, switchyard bus, electrical portions of electrical penetrations, and high-voltage insulators.

The application states that electrical components in the Environmental Qualification (EQ) Program do not meet the long-lived screening criterion of 10 CFR 54.21(a)(1)(ii). Consequently, electrical cables and connectors that are in the EQ program are not subject to an aging management review. The application also states that none of the electrical portions of all electrical and I&C penetration assemblies are subject to an aging management program because they are included in the EQ program. The resulting list includes only non-EQ electrical components.

Section 4.3.1 of the LRA is a scoping evaluation for phase bus in the switchyard systems EA, EB, and ES of both plants. The evaluation states that the switchyard systems are not safety related, not systems whose failure would cause the failure of other safety systems, and are not part of the regulatory commitments for the five regulated events. Therefore the switchyard systems do not meet the scoping criteria of 10 CFR 54.4(a) and are not in scope for license renewal.

Section 4.3.2 of the LRA presents an identical analysis for the Unit Main Power System EPA which has the function to supply offsite auxiliary power from the transmission network when the generators are not in operation. Section 4.3.3 presents an identical argument for the 6.9 kV Normal Auxiliary Power System EPB which has the function to supply power to all large unit and station loads. These evaluations conclude that nonsegregated-phase bus installed in these systems are not in scope for license renewal.

NRR sent the applicant RAIs questioning why the switchyard systems are not in the scope of license renewal because they are relied on in safety analyses or plant evaluations to perform a function in the recovery from station blackout (SBO). The applicant's response states that they decided that for both plants, the power paths for offsite power from the switchyard are within the scope of license renewal in accordance with the SBO scoping criterion of 54.4(a)(3). This power path includes portions of the switchyard systems, the unit Main Power system and the 6.9kV Normal auxiliary Power Systems. The inspectors agreed with this conclusion.

Section 4.3.4 of the LRA is a scoping evaluation for uninsulated ground conductors e.g. copper cable, copper bar, or steel bar, used to electrically ground the elecrical equipment housings, cable trays, building structural steel, etc. The function of such uninsulated ground conductors is to enhance the capability of electrical systems to withstand electrical faults and lightning strikes and for personnel protection. The applicant makes the argument that these components are not safety related, not systems whose failure would cause the failure of other safety systems, and are not part of the regulatory commitments for the five regulated events. Thus the application concluded that uninsulated ground conductors do not meet the scoping criteria of 54.4(a) and are not within the scope of license renewal. The NRR staff sent the applicant an RAI 2.5-3 questioning why these components are not in scope. The applicant responded to the RAI on March 8, 2002 and the NRR staff is reviewing the response.

C. Evaluation of Scoping and Screening of Structural Components

1. Structural Scoping and Screening Process

The Duke license renewal scoping and screening of McGuire and Catawba are documented in the following two documents: MCS-1274.00-00-0002, “McGuire Systems and Structures Scoping and Screening for License Renewal,” Revision 6, 3/4/02 and CNS-1274.00-00-0002, “Catawba Systems and Structures Scoping and Screening for License Renewal,” Revision 6, 3/4/02. During the inspection, the inspectors inquired how the applicant drew the boundaries of each structure to show which part is in scope and which part is not. The applicant stated that, if any part of a structure is in scope then the entire structure is in scope unless otherwise specified. The inspectors agreed with this method.

Section 4.2 and Table 4.2-1 of the LRA list the scoping results of structures at each site. The applicant does not have separate screening results for the structures, rather the applicant lists the screening results in the aging management assessment document.

The inspectors also requested that the applicant provide site drawings that show the power plant layout and location of all structures. The applicant provided a master site plan for each plant. For McGuire, DWG MC-1003-1, “McGuire Nuclear Station Units 1&2, Plot Plan, General Arrangement,” Revision 95, 5/13/99 shows all the in scope structures. DWG MC-1002-01.00, “McGuire Nuclear Station Units 1&2, General Plan,” Revision 10, 10/22/99 shows the Standby Nuclear Service Water Pond. For Catawba, DWGs CN-1003-10, “Plot Plan, General Arrangement, “ Revision 22, 5/11/99 shows the in scope structures and CN-1003-15, “Master Site Plan, “Revision 1, 2/21/01 shows the Standby Nuclear Service Water Pond and other structures.

2. Structures that the LRA concludes are within the scope of license renewal.

a. Catawba Upper Head Injection (UHI) Tank Building

Table 2.2-2 of the LRA indicates that the Catawba UHI Tank Building is within the scope of license renewal. Section 2.4 of the LRA indicates that this structure is in scope for Catawba only. Section 2.4.2.1 of the LRA states that the UHI Tank Building at Catawba is a reinforced concrete structure that houses equipment that is within the scope of license renewal.

To determine why the UHI Tank Building was in scope for Catawba only, the inspectors requested information to understand the design differences between McGuire and Catawba. The applicant provided McGuire drawing MC-1204-2-A, “Auxiliary Building Units 1 and 2 - Floor El 750+0, General Arrangement Plan - Sheet 1 of 2,” and MC-1204-3-A, “Auxiliary Building Units 1 and 2 - Floor El 750+0, General Arrangement Plan - Sheet 2 of 2,” to demonstrate that the UHI tanks are located in the McGuire Auxiliary Building and not in a separate structure. The drawings depicted the UHI tanks as an “accumulator water tank” and an “accumulator gas tank.” To demonstrate that these tanks were associated with the UHI system, the applicant furnished an excerpt from the Fire Hazards Analysis (FHA) pertaining to Fire Area 21, which linked the accumulator water and gas tanks to the UHI system. The inspectors were satisfied that a UHI Tank Building was in scope for Catawba only because this structural component did not exist at the McGuire site.

b. The Catawba Auxiliary Building Structures.

The Auxiliary Building Structures are a collection of structures including the Auxiliary Building (AB), the Diesel Generator Building (DGB), the Fuel Building (FB), the Fuel Pool, the Control Complex, the Doghouses, and the Upper Head Injection Buildings.

Section 4.1 of CNS-1274.00-00-0007, "Catawba Units 1&2, Structures & Structural Components Screening and Aging Management Review for License Renewal," Revision 1, 6/8/01 describes the screening process and results of the screening review for the Catawba Auxiliary Building Structures. The AB is identified as a seismic Category I structure that houses the Nuclear Steam Supply System auxiliary equipment. The AB is a free standing reinforced concrete structure and it performs many Part 54 intended functions. The applicant determined that the entire AB is within the scope of license renewal. The inspectors agreed with that determination.

The Catawba Control Complex actually is part of the Auxiliary Building. The Control Complex includes the Control Room, the Battery Room, and the Cable Room. It is constructed integrally with the AB and hence is within the scope of license renewal.

The DGB is a reinforced concrete structure that provides environmental protection and missile shielding for the diesel generators. The building is divided in half by a reinforced concrete wall isolating each of the two diesel generators. Both the diesel generator intake and exhaust are equipped with louvers. The louvers are not designed to withstand a design event (tornado or seismic). Therefore, the louvers are not within the scope of license renewal. The applicant stated that failure of the louvers will not restrict the flow area or degrade the performance of the diesel generator structure. The inspectors requested further explanation of this statement, and the applicant indicated that the louvers are fixed louvers, so failure of the louvers will only enlarge the flow area, not reduce it. The inspectors agreed with this explanation. The entire DGB is within the scope of license renewal (except the fixed louvers) and the inspectors agreed with this assessment.

c. The Catawba Nuclear Service Water Structures

The Catawba Nuclear Service Water (NSW) Structures include the NSW and the Standby Nuclear Service Water (SNSW) Pump Structure, the NSW Conduit Manholes, the NSW Intake Structures, the SNSW Discharge Structures, the SNSW Pond Outlet, the SNSW Pond, and the SNSW Pond Dam.

The NSW and SNSW Pump Structure is a reinforced concrete structure founded on solid rock. The Pump Structure provides tornado missile protection and the interior concrete walls provide fire barriers for the pumps. Reinforced concrete roof hatches are provided to allow access to equipment. Water enters the pit area of the pump house through a pipe and passes a baffle wall to reduce water velocity. The water then flows through a screen assembly to remove trash that could damage the pump. Table 3.1-1 of CNS-1274.00-00-0007 indicates the Pump Structure and the screen assembly are all within the scope of license renewal.

The NSW conduit manholes at Catawba are seismic Category I reinforced concrete box shaped structures. The manholes and covers provide missile protection to the nuclear service water conduit. Both the manholes and covers are within the scope of license renewal.

The NSW Intake structure is a box shaped reinforced concrete structure. This structure is submerged in the plant's intake channel. It houses the intake pipe and the entrance is protected by trash screens. Drawing CN-1347-01-3, "NSW & SNSW Intake Structure, Concrete, Reinforcing, and Miscellaneous Steel, Plan and Details," Revision 9, 7/9/95 depicts that the entrance to the intake pipe is protected from all directions by trash racks which are anchored into the concrete. The Intake Structure, trash racks and screens are all within the scope of license renewal.

The Spent Fuel Building is part of the Fuel Building (FB). The FB is a composite free standing reinforced concrete and steel structure that is subdivided into the Spent Fuel Building (SFB) and the New Fuel Building (NFB). The NFB is designed to receive, store, and ship new nuclear fuel. The SFB houses the Spent Fuel Pool (SFP) and cask handling area. The SFP is enclosed on three sides by seismic Category I concrete structure. Spent nuclear fuel is stored in the SFP in submerged storage racks. The side that is common to the NFB is enclosed by a non-seismic Category I steel structure that also encloses the New Fuel Vault. The SFP is lined with stainless steel liner to prevent leakage. Table 3.1-1 of CNS-1274,00-00-0007 indicates that the SFB, the stainless liner, and the spent fuel storage racks are within the scope of license renewal.

d. The McGuire Reactor Building Structures

License Renewal document MCS-1274-00-00-0007, "Structures and Structural Components Screening and Aging Management Review for License Renewal," Revision 1, 6/8/01 provides the screening results of all structures and structural components of the McGuire Nuclear Station for license renewal.

Section 4.3 of MCS-1274.00-00-0007 contains the screening results of the McGuire Reactor Building Structures. The Reactor Building Structures consists of three major structures; the Reactor Building, the Steel Containment Vessel, and the Containment Internal Structures. The Reactor Building is a reinforced concrete structure composed of a right vertical cylinder with a shallow dome and flat circular foundation mat. The annulus floors are part of the Reactor Building.

The Steel Containment is a free standing welded steel shell with a vertical cylinder, hemispherical dome and a flat base. The containment is anchored to the Reactor Building foundation mat. Hatches and penetrations penetrate through the containment vessel.

The Containment Internal Structures consist of many major structures. They are: the containment base slab, the reactor vessel cavity wall, the upper reactor cavity, control rod drive mechanism missile shield system, the refueling canal, the crane wall, the steam generator enclosures, the pressurizer enclosure, the divider deck, the equipment floor, the ice condenser floor, the pressure seals and gaskets, and the accumulator wing walls.

As listed in Table 3.1-1, the applicant concluded that the entire Reactor Building Structures are within the scope of license renewal. The inspectors agreed with that assessment.

e. The McGuire Main Steam Doghouse

The Main Steam Doghouse is part of the McGuire Auxiliary Building Structures. The McGuire Main Steam Doghouses exist for each reactor unit on opposite sides of the reactor buildings. The interior doghouses are those situated between the two reactor buildings. The Main Steam

Doghouses are free standing reinforced concrete structures that house the high pressure main steam and feedwater piping and the main steam relief and isolation valves. The Doghouses are all within the scope of license renewal.

f. The McGuire Condenser Cooling Water Intake Structure

The Condenser Cooling Water Intake Structure is within the scope of license renewal because it houses the three main fire pumps which are relied on in safety analyses or plant evaluation to perform a function in compliance with the fire protection rule.

g. The McGuire Yard Structures

The McGuire Yard Structures include the Refueling Water Storage Tank (RWST) and Reactor Makeup Water Storage Tank foundations, RWST missile wall, trenches, and equipment and component supports located outside. Trenches that are within the scope of license renewal are the RWST pipe trenches, the Standby Shutdown Facility trenches, and the Condenser Cooling Water Intake Structure trenches.

The RWST pipe trench provides missile protection for the safety related electrical and mechanical systems located within the trench. The trench is a free standing reinforced concrete structure which runs between the Auxiliary Building and the RWST.

The Standby Shutdown Facility (SSF) trench provides protection for the electrical and mechanical components located within the trench. The trench is a reinforced concrete structure located between the SSF and the Unit 1 Turbine Building.

The Condenser Cooling Water (CCW) Intake Structure trench houses power supply cabling to the three main fire pumps. The trench is a reinforced concrete structure routed between the CCW Intake Structure and the Unit 1 Turbine Building. Because the RWST, SSF, and the CCW Intake Structure are all within the scope of license renewal and these trenches contain power supply cable or pipe to the equipment and components housed in those structures, these trenches are in scope. The inspectors agreed with this decision.

h. Catawba Yard Structures

The Catawba Yard structures include the Low Pressure Service Water (LPSW) Intake Structure, the yard drainage system, the RWST foundation and missile shield, the RWST pipe trenches, and other components located in the yard, such as piping supports, and foundations.

The LPSW Intake Structure is a reinforced concrete structure that houses the LPSW pumps and the main fire pumps. The LPSW pumps are not within the scope of license renewal but the main fire pumps are within the license renewal scope. Therefore the LPSW Intake Structure and other structural components that support the main fire pumps are within the scope of license renewal.

The inspectors reviewed Drawing CN-1340-1, “Low Pressure Service Water Intake Structure, General Arrangement, Plan, Sections, & Details,” Revision 12, 11/3/99 which depicts that the intake structure consists of four bays. Only one bay supports the fire pumps. Trash racks & traveling screens preventing damaging debris are not in scope. The applicant indicates that there are strainers which are designed to prevent debris from damaging the fire pumps which

are in scope. Most of the structure is underwater, but the fire pumps are exposed to weather and are painted to prevent corrosion.

The RWST foundation and missile shield are free standing reinforced concrete structures. The foundation supports the RWST and the missile shield protects the RWST from tornado missiles. The RWST foundation and missile shield are capable of containing a certain minimum amount of cooling water for post accident core cool down in the event that the RWST has ruptured. The RWST foundation and missile shield are within the scope of license renewal. The inspectors agreed with these decisions.

i. The McGuire Standby Shutdown Facility

The McGuire SSF is designed to provide an alternate and independent means to achieve a reactor hot standby condition. The McGuire Nuclear Station also takes credit for the SSF diesel generator as an alternate source of power to cope with station blackout.

The SSF is a steel framed, reinforced concrete, and masonry structure and is designed to resist design basis seismic loading. The SSF consists of a diesel generator room, electrical equipment room, battery room, and control room. The SSF structure is considered to be within the scope of license renewal.

3. Structures that the LRA concludes are not within the scope of license renewal

a. The McGuire Diesel Building #7434

In response to the staff's RAI 2.2.1-2, the applicant stated that: 'Diesel Building #7434 houses the back up power for the non-vital telecommunication building. This diesel is located outside the protected area and northeast of the Office Shop Building. Diesel Building #7434 does not perform a Part 54.4 function and is not within the scope of license renewal. The inspectors agreed with the applicant's decision.

b. The Catawba Spare Diesel Generator

In the license renewal application, the applicant listed the Catawba spare diesel generator as not within the scope of license renewal. The applicant stated that the spare diesel generator is being used as spare parts for the other diesel generators. The spare diesel generator is stored in a steel shelter outside the protected area and is not and will not be connected to perform any function. Therefore, this diesel generator is not in the license renewal scope. The inspectors agreed with this determination.

c. The Catawba Electrical Cable Trenches

Drawing CN-1398-01,"General Plan," Revision 60, 2/16/99 depicts the electrical trenches of the Catawba site. Most of the trenches are used to run power cable for non-safety systems such as road lighting. The only trench that houses cables related to license renewal is the SSF trench which houses electrical power cables for the SSF as described on Page 62 of CNS-1274.00-00-0007. The inspectors agreed that these trenches do not need to be in the scope of license renewal.

d. The Catawba Low Pressure Service Water Discharge Structure

Section 9.2.8.1 of the Catawba UFSAR states that the conventional LPSW system is designed to supply lake water for various makeup and cooling functions on the secondary side of the plant. Furthermore, the safety evaluation contained in Section 9.2.3.3 of the UFSAR states that the conventional LPSW system does not perform any safety related functions. Since the LPSW Discharge Structure does not perform or support any license renewal function and its failure will not affect any safety related equipment, it is not within the scope of license renewal. The inspectors agreed with this assessment.

D. Fire Protection

Section 2.1.1.3.1, "Fire Protection," of the LRA states that Duke Quality Assurance (QA) Condition 3 applies uniquely to fire protection (FP) systems, structures, components (SSCs), and services. In addition, this section of the LRA states that systems designated as QA Condition 3 are those systems that promptly detect, control and extinguish fires to limit their damage and provide protection for systems, structures, components and services so that a fire will not prevent the safe shutdown of the plant. Section 2.3.3.19, Fire Protection System, of the LRA states that, for McGuire and Catawba, the interior/exterior FP system provides fire suppression to protect the capability to shut down the reactor and maintain it in a safe shutdown condition and to minimize radioactive releases to the environment in the event of a fire.

On September 18 and 20, 2001, conference calls between the NRR and Duke were conducted to discuss the methodology used by the applicant to perform a scoping evaluation of FP equipment. A summary of these conference call was issued by NRR October 15, 2001. During these conference calls, the applicant indicated that existing plant drawings and documents were reviewed to identify structures and components designated as QA Condition 3, and thus within the scope of license renewal. The applicant also stated that FP SSCs that are identified in the UFSAR as being required to comply with 10 CFR 50.48 are also identified in the QA Condition 3 program.

On October 3, 2001, a conference call between the NRR and Duke was conducted to further discuss the applicant's licensing basis, as described in the UFSAR, and the results of the applicant's scoping evaluation of FP equipment. A summary of this conference call was issued by NRR November 2, 2001. During the conference call, the applicant indicated that only fire protection features that protect safety-related equipment were required to comply with 10 CFR 50.48. The applicant further indicated that these fire protection features (those that protect safety-related equipment) were designated QA Condition 3.

To better understand the methodology used by the applicant to identify FP SSCs within the scope of license renewal, the inspectors reviewed license renewal basis specifications. Specifications MCS (CNS)-1274.00-00-0002, "McGuire (Catawba) Systems and Structure Scoping for License Renewal," Revision(s) 6, describe the methodology used to perform license renewal scoping; identify the intended functions for in-scope systems and structures; and present the results of the scoping evaluations. Section 3.6.1 of these specifications state that systems and structures relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with 10 CFR 50.48 are within the scope of license renewal. The specifications define QA Condition 3 systems as those systems that promptly detect, control and extinguish fires to limit their damage and provide protection for SSCs and services so that a fire will not prevent the safe shutdown of the plant. These specifications also indicate that the fire protection intended function applies to systems that are required to remain functional to

ensure a safe shutdown following a fire and demonstrate compliance with the regulatory requirements in 10 CFR 50.48.

McGuire Specification MCS 1274.RF-00-0001, “Interior Fire Protection System Component Screening and Aging Management Review for License Renewal,” Revision 2, states that the FP system is required to achieve five objectives to ensure compliance with 10 CFR 50.48. Among the five objectives are (1) to provide fire extinguishment by fixed water sprinkler system or Halon 1301 extinguishing systems in areas of the plant containing equipment required to bring the unit to a safe shutdown condition, and (2) to provide automatic water spray (deluge) systems over oil hazard areas. This specification does not indicate that protection of equipment that is safety-related or important to safety was an objective of the FP system to meet 10 CFR 50.48 requirements.

In contrast, Catawba Specification CNS-1274.RF-00-0001, “Interior Fire Protection System Component Screening and Aging Management Review for License Renewal,” Revision 2, states that the exterior FP system is required to maintain water to the FP system and for fire suppression throughout the exterior of the plant. This specification states that the interior FP system is required to maintain fire suppression throughout the interior of the plant such that a failure does not cause a reactor trip, safety system actuation, or a safety system to fail its function. Additionally, the interior FP system maintains fire suppression for the emergency diesel generator and auxiliary feedwater turbine-driven pump rooms. This specification further states that components identified as QA Condition 3 are required to support system functions needed to meet the requirements of 10 CFR 50.48. This specification does not address the protection of systems or components in terms of their classification as safety-related, important to safety, or required to achieve and maintain safe shutdown.

To better understand the scope of FP equipment designated as QA Condition 3 and required by 10 CFR 50.48, the inspectors requested the applicant to explain the QA Condition 3 program. The applicant indicated that the QA Condition 3 designation applied only to FP systems that protect equipment relied upon to achieve and maintain safe shutdown. Because this definition differed from the one provided during the October 3, 2001, conference call, the inspectors requested the applicant to furnish documentation that defined the scope of the QA Condition 3 program.

The inspectors were provided Catawba and McGuire design basis specifications and fire protection acceptance specifications. McGuire Specification MCS-1465.00-00-0002, “Design Basis Specification for System Class,” Revision 2, does not address the QA Condition 3 system or equipment designation. However, Catawba Specification CNS-1465.00-00-0002, “Plant Design Basis Specification for System Class,” Revision 5, defined QA Condition 3 equipment as FP piping and components designated to protect nuclear safety-related equipment.

McGuire Specification MCS-1435.00-00-0001, “Fire Protection Acceptance Specification,” Revision 18, states that QA Condition 3 FP features are provided to (1) protect SSCs and services so that a fire will not prevent the safe shutdown of the plant, and (2) otherwise satisfy FP concerns of the USNRC as defined in the McGuire Nuclear Station Fire Protection Review. The McGuire Nuclear Station Fire Protection Review is provided in Appendix A of Specification MCS-1465.00-00-0008, “Plant Design Basis Specification for Fire Protection,” Revision 4, and consists of (1) Duke’s response to Appendix A to Branch Technical Position (BTP) 9.5-1, and (2) the McGuire Fire Hazards Analysis. McGuire Specification MCS-1435.00-00-0001 also states that the QA Condition 3 program for fire protection features involves water systems supplying fire suppression equipment; fire detection systems; fire barriers; penetration fire

stops; fixed water fire suppression systems; halon fire suppression systems; fire barrier insulating materials; fire doors and dampers; fire hose standpipe systems and equipment; and hand-carried and wheeled portable fire extinguishers.

Catawba Specification CNS-1435.00-00-0001, "Fire Protection Acceptance Specification," Revision 24, states that QA Condition 3 FP features are provided to (1) protect nuclear safety-related SSCs, and (2) otherwise satisfy FP concerns of the USNRC as defined in CNS-1465.00-00-0006, "Plant Design Basis Specification for Fire Protection." Catawba Specification CNS-1435.00-00-0001 also states that the QA Condition 3 program for fire protection features involves water systems supplying fire suppression equipment; fire detection systems; fire barriers; penetration fire stops; fixed water suppression systems; CO_2 fire suppression systems; fire barrier insulating materials; fire doors and dampers; fire hose standpipe systems and equipment; and hand-carried and wheeled portable fire extinguishers.

McGuire Specification MCS-1465.00-00-0008, "Plant Design Basis Specification for Fire Protection," Revision 4, states that the design bases of the fire protection system are to prevent fires, promptly detect and suppress fires, and to design plant safety systems so that a fire will not affect the ability to achieve and maintain safe shutdown. Catawba Specification CNS-1465.00-00-0006, "Plant Design Basis Specification for Fire Protection," Revision 4, states that the design bases of the fire protection system are to prevent fires, promptly detect and suppress fires, and protect SSCs important to safety so that a fire will not prevent safe shutdown. Further review of Duke's responses to Appendix A to BTP 9.5-1 for the Catawba and McGuire, provided in Appendix A of these specifications, indicates that (1) carbon filters are protected by built-in water spray systems; (2) jockey pumps are provided to prevent frequent starting of the fire pumps by maintaining pressure in the yard mains; and (3) local hose stations are provided to protect safety-related water tanks (e.g., refueling water storage tanks). These items are the subject of several RAIs from the NRR staff who questioned the basis for excluding these components from the scope of license renewal.

As noted in the staff's request for additional information (RAI 2.3.3.19-1), issued to Duke by letter dated January 28, 2002, Chapter 17 of the UFSAR, Quality Assurance Topical Report, Amendment 28, states that "QA Condition 3 covers those systems, components, items, and services which are important to fire protection as defined in the Hazards Analysis for each station. The Hazards Analysis is in response to Appendix A of NRC Branch Technical Position APCSB 9.5-1." The applicant acknowledged that the McGuire and Catawba design basis documents have not been maintained and updated to completely and accurately reflect the current licensing bases of the plants' compliance with fire protection regulations.

The inspectors concluded that, contrary to the applicant's verbal discussion during the inspection that the QA Condition 3 program applied only to FP systems that protect equipment relied upon to achieve and maintain safe shutdown, the design basis documents indicated that the QA Condition 3 program was much broader in scope. However, because the license renewal and plant design basis documents for McGuire and Catawba had differing, conflicting, and sometimes vague definitions of the QA Condition 3 program, the basis for license renewal scoping of FP equipment is not clear. Therefore the inspectors were unable to confirm that scoping and screening for FP systems and components had been performed successfully in accordance with 10 CFR 54.4(a)(3). A number of RAIs have been issued from NRR to Duke to resolve concerns pertaining to the use of the QA Condition 3 designation as a license renewal scoping criterion for FP SSCs.

The inspectors reviewed McGuire component drawing MCM 1203.03-0002, Main Fire Protection Pump, and Catawba component drawing CNM 1203.03-7, Main Fire Pumps, and verified that the pump strainers (referenced in RAI 2.3.3.19-5) are in-line with the submerged pump bowl assembly such that no strainer pressure boundary function is needed for the pump to perform its intended function. The inspectors also reviewed Catawba flow diagram CN-1599-2.3, which had been revised (Revision 29) to reflect implementation of a modification (CN-50492), and confirmed that the nuclear service water structure hose racks (referenced in RAI 2.3.3.19-10) are no longer used for fire protection.

E. Visual Observations of Plant Equipment (McGuire Unit 2)

On March 7, 2002, during the McGuire Unit 2 refueling outage, an inspector performed walkdown inspections of accessible portions of plant systems, components, structures, and electrical cable inside the containment to observe material condition and inspect for aging conditions that might not have been recognized and accounted for in the LRA. The observations of general material conditions included: inspection of piping components for evidence of leaks or corrosion, inspection of coatings (piping, tanks, and structural components), and inspection of electrical cable for visual deterioration. In general, material condition was good and no aging management issues were identified. The following is a partial list of equipment observed:

presssurizer and surge line
pressurizer spray valve line and control valve (2NC-29B)
PRT and piping to PRT
reactor coolant pump motors
steam generators
“D” RC loop piping, steam generator, and reactor coolant pump
various small diameter reactor coolant and CVCS piping
component cooling water piping
“B” and “C” lower containment ventilation units and associated piping
RHR piping
SI piping and valves
auxiliary spray control valve (2NV-21A) and piping (CVCS)
excess letdown valve (2NV-24B) and piping
letdown primary isolation valve (2NV-1A) and piping
charging cold leg isolation valve (2NV-13) and piping
service water piping
various electrical cable and cable trays
“A” cold leg accumulator and piping
various structural steel
pressurizer and steam generator vertical supports
containment liner, including coating (inside and outside surfaces)
various concrete structures including shield wall and inside reactor building wall
reactor coolant drain tank

III. Conclusions

The inspection concluded that the scoping and screening portion of the applicant's license renewal activities were generally conducted as described in the License Renewal Application and that documentation supporting the application is in an auditable and retrievable form.

McGuire and Catawba documents differ on the definition of Quality Assurance Condition 3 for Fire protection equipment. But all documents state that QA-3 includes more fire protection equipment than just that needed to assure a safe shutdown in the event of fire. Therefore the inspectors could not conclude that the scoping of fire protection was complete.

The inspection concluded that, with the exception of fire protection equipment, the scoping and screening process was successful in identifying those systems, structures, and components required to be considered for aging management.

Exit Meeting Summary

The results of this inspection were discussed on March 22, 2002 with members of the applicant's staff in an exit meeting open for public observation at the Duke Energy Corporation offices. The applicant acknowledged the findings presented and presented no dissenting comments. During the exit meeting the inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. Applicant representatives replied that no proprietary material was reviewed during the inspection.

ATTACHMENT 1
SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Applicant

S. Chu, License Renewal Engineer
T. Cox, License Renewal Engineer
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R. Gill, License Renewal Manager
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T. Shiel, Duke Public Relations

NRC

R. Franovich, Licensing Project Manager, NRR
V. McCree, Deputy Division Director, Division of Reactor Projects

Public

M. Gandy, South Carolina Department of Health and Environmental Control

LIST OF DOCUMENTS REVIEWED

General License Renewal Documents

Application To Review the Operating Licenses for McGuire Nuclear Station Units 1 and 2 and Catawba Nuclear station Units 1 and 2

McGuire Nuclear Station Updated Final Safety Analysis Report, Revision 13

Catawba Nuclear Station Updated Final Safety Analysis Report, Revision 8

Specification DPS-1274.00-00-0001, CNS-1274.00-00-0001, MCS -1274.00-00-0001, License Renewal Technical Information Development Guide, Revision 3

Specification CNS-1465.00-00-0002, Plant Design Basis Specification for System Class, Revision 5

MCS-1274.00-00-0002, McGuire Systems and Structures Scoping for License Renewal, Revision 6

CNS-1274.00-00-0002, Catawba Systems and Structures Scoping for License Renewal, Revision 6

DPS/MCS/CNS-1274.00-00-0003, Mechanical Component Screening and Aging Management Review Methodology for License Renewal, Revision 1

Specification DPS/MCS/CNS-1274.00-00-0004, Aging Effects Identification, Revision 3

DPS/MCS/CNS-1274.00-00-0006 Electrical Component Integrated Plant Assessment and Evaluation of Time-Limited Aging Analysis for License Renewal, Revision 1

MCS-1274.00-00-0007, Structures and Structural Components Screening and Aging Management Review for License Renewal, Revision 1

CNS-1274.00-00-0007, Structures and Structural Components Screening and Aging Management Review for License Renewal, Revision 1

EDM-229, Engineering Oversight of License Renewal Aging Management Programs and Activities, Revision 0

Nuclear System Directive 301, Nuclear Station Modifications, Revision 23

System Component Screening and Aging Management Reviews

MCS-1274.CF-00-0001, Feedwater System Component Screening and Aging Management Review, Revision 2

CNS-1274.CF-00-0001, Feedwater System Component Screening and Aging Management Review, Revision 2

CNS-1274.CM-00-0001, Condensate System Component Screening and Aging Management Review, Revision 0

CNS-1274.CS-00-0001, Condensate Storage System Component Screening and Aging Management Review, Revision 0

MCS-1274.KC-00-0001, Component Cooling System Component Screening and Aging Management Review, Revision 2

CNS-1274.KC-00-0001, Component Cooling System Component Screening and Aging Management Review, Revision 2

MCS-1274.LP-00-0001, Feedwater Pump Turbine Hydraulic Oil System Component Screening and Aging Management Review, Revision 1

CNS-1274.LP-00-0001, Feedwater Pump Turbine Hydraulic Oil System Component Screening and Aging Management Review, Revision 1

MCS-1274.NC-00-0001, Reactor Coolant System Component Screening and Aging Management Review, Revision 1

CNS-1274.NC-00-0001, Reactor Coolant System Component Screening and Aging Management Review, Revision 0

MCS-1274.NC-00-0002, Reactor Coolant System (Non-Class 1) Component Screening and Aging Management Review, Revision 2

CNS-1274.NC-00-0002, Reactor Coolant System (Non-Class 1) Component Screening and Aging Management Review, Revision 2

MCS-1274.NC-00-0003, Reactor Coolant System Reactor Coolant Pump Motor Oil Collection Sub-System Component Screening and Aging Management Review, Revision 2

CNS-1274.NC-00-0003, Reactor Coolant System Reactor Coolant Pump Motor Oil Collection Sub-System Component Screening and Aging Management Review, Revision 2

MCS-1274.SA-00-0001, Main Steam Supply to Auxiliary Equipment System Component Screening and Aging Management Review, Revision 0

CNS-1274.SA-00-0001, Main Steam Supply to Auxiliary Equipment System Component Screening and Aging Management Review, Revision 0

MCS-1274.SM-00-0001, Main Steam System Component Screening and Aging Management Review, Revision 2

CNS-1274.SM-00-0001, Main Steam System Component Screening and Aging Management Review, Revision 2

MCS-1274.SV-00-0001, Main Steam Vent to Atmosphere System Component Screening and Aging Management Review, Revision 0

CNS-1274.SV-00-0001, Main Steam Vent to Atmosphere System Component Screening and Aging Management Review, Revision 0

MCS-1274.TE-00-0001, Turbine Exhaust Atmosphere System Component Screening and Aging Management Review, Revision 0

CNS-1274.TE-00-0001, Turbine Exhaust System Component Screening and Aging Management Review, Revision 0

MCS-1274.NV-00-0001, Chemical and Volume Control System Component Screening and Aging Management Review, Revision 2

CNS-1274.NV-00-0001, Chemical and Volume Control System Component Screening and Aging Management Review, Revision 2

MCS-1274.NS-00-0001, Containment Spray System Component Screening and Aging Management Review, Revision 2

CNS-1274.NS-00-0001, Containment Spray System Component Screening and Aging Management Review, Revision 2

CNS-1274.NW-00-0001, Containment Valve Injection Water System Component Screening and Aging Management Review, Revision 2

MCS-1274.RN-00-0001, Nuclear Service Water System Component Screening and Aging Management Review, Revision 2

CNS-1274.RN-00-0001, Nuclear Service Water System Component Screening and Aging Management Review, Revision 2

CNS-1274.KR-00-0001, Recirculated Cooling Water System Component Screening and Aging Management Review, Revision 2

MCS-1274.FW-00-0001, Refueling Water System Component Screening and Aging Management Review, Revision 2

CNS-1274.FW-00-0001, Refueling Water System Component Screening and Aging Management Review, Revision 2

MCS-1274.ND-00-0001, Residual Heat Removal System Component Screening and Aging Management Review, Revision 2

CNS-1274.ND-00-0001, Residual Heat Removal System Component Screening and Aging Management Review, Revision 2

MCS-1274.NI-00-0001, Safety Injection System Component Screening and Aging Management Review, Revision 2

CNS-1274.NI-00-0001, Safety Injection System Component Screening and Aging Management Review, Revision 2

MCS-1274.KF-00-0001, Spent Fuel Cooling System Component Screening and Aging Management Review, Revision 2

CNS-1274.KF-00-0001, Spent Fuel Cooling System Component Screening and Aging Management Review, Revision 2

MCS-1274-VU-00-0001, Upper Containment Ventilation System Component Screening and Aging Management Review, Revision 1

MCS-1274.VD-00-0001, EDG Ventilation System Component Screening and Aging Management Review, Revision 2

MCS-1274.CA-00-0001, Auxiliary Feedwater (CA) System Component Screening and Aging Management Review, Revision 2

MCS-1274.WN-00-0001, EDG Room Sump Pump System Component Screening and Aging Management Review, Revision 2

CNS-1274.VI-00-0001, Instrument Air System Component Screening and Aging Management Review, Revision 2

MCS 1274.RF-00-0001, Interior Fire Protection System Component Screening and Aging Management Review, Revision 2

CNS-1274.RF-00-0001, Interior Fire Protection System Component Screening and Aging Management Review, Revision 2

License Renewal Drawings

McGuire Nuclear Station Unit 1

MCFD-1553-01.00, 02.00, 02-01, 04-00, Reactor Coolant System (NC)
MCFD-1573-01.00, 01.01, 02-00, 02-01, 03-00, 03-01, 04-00, Component Cooling System (KC)
MCFD-1591-01.01, Feedwater System, (CF)
MCFD-1593-01-00, 01.01, 01-03, Main Steam System (SM), Main Steam Vent Atmosphere (SV)
MCFD-1593-01.02, Main Steam Supply to Auxiliary Equipment System (SA), Turbine Exhaust System (TE)
MCFD-1593-02.00, Main Steam Supply to FDWP Turbine System (SP), Turbine Exhaust System (TE), Moisture SEP. Reheater Bleed STM. System (HM)
MCFD-1612-04.00, FDW Pump Turbine Condenser 1A and 1B Connections Condensate System (CM) Turbine Exhaust (TE) Condensate Circulation water (RC)
MCFD-1616-01.00, Feedwater Pump Turbine 1A Lube Oil And Hydraulic Oil system (LF,LP)
MCFD-1616-02.00, Feedwater Pump Turbine 1B Lube Oil And Hydraulic Oil system (LF,LP)
MCFD-1554-01.00, 01.01, 01.02, 01.03, 02.00, 02.01, 03.00, 03.01, 04.00, and 05.00; Chemical and Volume Control System (NV)
MCFD-1563-01.00, Containment Spray System (NS)
MCFD-1574-01.00, 01.01, 02.00, 02.01, 03.00, 03.01, and 04.00; Nuclear Service Water System (RN)
MCFD-1571-01.00, Refueling Water System (FW)
MCFD-1561-01.00, Residual Heat Removal System (ND)
MCFD-1562-01.00, 02.00, 02.01, 03.00, 03.01, and 04.00; Safety Injection System (NI)
MCFD-1570-01.00 and 01.01, Spent Fuel Cooling System (KF)
MCFD-1592-01.01. Auxiliary Feedwater System (CA)
MCFD-1560-01.00,02.00, Standby Shutdown Diesel System (AD)
MC-1557-1, Containment Air Return Exchange and Hydrogen Skimmer System (VX)
MCFD-1604-01.01, Turbine Building Sump Pump System & Dewatering Pump System

McGuire Nuclear Station Unit 2

MCFD-2553-01.00, 02.00, 02-01, 04-00, Reactor Coolant System (NC)
MCFD-2573-01.00, 01.01, 02-00, 02-01, 03-00, 03-01, 04-00, Component Cooling System (KC)
MCFD-2591-01.01, Feedwater System, (CF)
MCFD-2593-01-00, 01.01, 01-03, Main Steam System (SM), Main Steam Vent Atmosphere (SV)
MCFD-2593-01.02, Main Steam Supply to Auxiliary Equipment System (SA), Turbine Exhaust System (TE)
MCFD-2593-02.00, Main Steam Supply to FDWP Turbine System (SP), Turbine Exhaust System (TE), Moisture SEP. Reheater Bleed STM. System (HM)
MCFD-2612-04.00, FDW Pump Turbine Condenser 2A and 2B Connections Condensate System (CM) Turbine Exhaust (TE) Condensate Circulation water (RC)
MCFD-2616-01.00, Feedwater Pump Turbine 2A Lube Oil And Hydraulic Oil system (LF,LP)
MCFD-2616-02.00, Feedwater Pump Turbine 2B Lube Oil And Hydraulic Oil system (LF,LP)
MCFD-2554-01.00, 01.01, 01.02, 01.03, 02.00, 02.01, 03.00, 03.01, 04.00, and 05.00, Chemical and Volume Control System (NV)

MCFD-2563-01.00, Containment Spray System (NS)
MCFD-2574-01.01, 02.00, 02.01, 03.00, 03.01, and 04.00; Nuclear Service Water System (RN)
MCFD-2571-01.00, Refueling Water System (FW)
MCFD-2561-01.00, Residual Heat Removal System (ND)
MCFD-2562-01.00, 02.00, 02.01, 03.00, 03.01, and 04.00; Safety Injection System (NI)
MCFD-2570-01.00 and 01.01, Spent Fuel Cooling System (KF)
MCFD-2609-07.00, EDG Room Sump Pump System (WN)
MCFD-2609-01.00, 01.01, EDG cooling Water System (KD)
MCFD-2609-02.00, 02.01, EDG Lube Oil System (LD)
MCFD-2609-03.00, 03.01, EDG Fuel Oil System (FD)
MCFD-2609-06.00, EDG Crankcase Vacuum System (ZD)
MCFD-2609-05.00, EDG Air Intake and Exhaust System (VN)
MCFD-2577-1, Auxiliary Building Ventilation (VA)
MC-25773, Fuel Handling Ventilation System, (VF)
MC-2579-1, EDG Building Ventilation System (VD)
MC-2564-1, Annulus Ventilation System (VE)

Catawba Nuclear Station Unit 1

CN-1553-1.0, 1.1, 1.2, 1.3, Reactor Coolant System (NC)
CN-1573-1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9, 2.0, 2.1, 2.2, 2.3, Component Cooling System (KC)
CN-1590-1.8, Condensate System (CM)
CN-1590-2.1, Condensate Storage System (CS)
CN-1591-1.1, Feedwater System, (CF)
CN-1593-1.0, Main Steam System (SM), Main Steam Vent Atmosphere (SV)
CN-1593-1.1, Main Steam to AUX. Equipment (SA), Main steam Bypass to Condenser (SB)
CN-1593-1.2, Steam Supply to F.D.W.P. Turbine (SP), F.D.W.P. Turbine Exhaust (TE) Systems
CN-1593-1.3, 1.7, Main Steam System (SM)
CN-1616-1.0, FDWP Turbine 1A Lube Oil System (LF)
CN-1616-1.1, FDWP Turbine 1B Lube Oil System (LF)
CN-1616-2.0, FDWP Turbine 1A Hydraulic Oil System (LP)
CN-1616-2.1, FDWP Turbine 1B Hydraulic Oil System (LP)
CN-1554-1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, and 1.8; Chemical and Volume Control System (NV)
CN-1563-1.0, Containment Spray System (NS)
CN-1569-1.0, Containment Valve Injection Water System (NW)
CN-1574-1.0, 1.1, 1.2, 1.4, 1.5, 2.0, 2.1, 2.2, 2.4, 2.5, and 2.8; Nuclear Service Water System (RN)
CN-1600-1.1, Recirculated Cooling Water System (KR)
CN-1571-1.0, Refueling Water System (FW)
CN-1561-1.0 and 1.1, Residual Heat Removal System (ND)
CN-1562-1.0, 1.1, 1.2, and 1.3; Safety Injection System (NI)
CN-1570-1.0 and 1.1, Spent Fuel Pool Cooling System (KF)
CN-1609-3.0, 3.1, EDG Fuel Oil System (FD)
CN-1609-4.0, 4.1, EDG Starting Air System (VG)
CN-1609-2.0, 2.2, EDG Lube Oil System (LD)
CN-1609-1.0, EDG Cooling Water System (KD)
CN-1609-6.0, EDG Crankcase Vacuum system (ZD)
CN-1605-1.4, 1.5, 1.14, Instrument Air System (VI)

CN-1557-1.0, Containment Air Return Exchange and Hydrogen Skimmer System (VX)
CN-1577-1.0, 1.2, 1.3, 1.8, Aux. Bldg. Ventilation System (VA)
CN-1577-3.0, Unit 1 Vent Stack
CN-1560-1.0, 2.0, Standby Shutdown Diesel System (AD)
CN-1579-1.0, EDG Building Ventilation System (VD)
CN-1592-1.0, 1.1, Auxiliary Feedwater System (CA)
CN-1565-2.2, Liquid Radwaste System (WL)
CN-1584-1.0, Steam Generator Wet Layup Recirculation System (BW)
CN-1609-5.0, EDG Air Intake and Exhaust System (VN)
CN-1609-7.0, EDG Room Sump Pump system (WN)

Catawba Nuclear Station Unit 2

CN-2553-1.0, 1.1, 1.2, 1.3, Reactor Coolant System (NC)
CN-2573-1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 2.0, 2.1, 2.2, 2.3, Component Cooling System (KC)
CN-2590-1.8, Condensate System (CM)
CN-2590-2.1, Condensate Storage System (CS)
CN-2591-1.1, Feedwater System, (CF)
CN-2593-1.0, 1.3, Main Steam System (SM), Main Steam Vent To Atmosphere (SV)
CN-2593-1.1, Main Steam to AUX. Equipment (SA), Main steam Bypass to Condenser (SB)
CN-2593-1.2, Steam Supply to FDWP Turbine (SP), FDWP Turbine Exhaust (TE) Systems
CN-2593-1.7, Main Steam System (SM)
CN-2616-1.0, FDWP Turbine 2A Lube Oil System (LF)
CN-2616-1.1, FDWP Turbine 2B Lube Oil System (LF)
CN-2616-2.0, FDWP Turbine 2A Hydraulic Oil System (LP)
CN-2616-2.1, FDWP Turbine 2B Hydraulic Oil System (LP)
CN-2554-1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, and 1.8; Chemical and Volume Control System (NV)
CN-2563-1.0, Containment Spray System (NS)
CN-2569-1.0, Containment Valve Injection Water System (NW)
CN-2574-2.0, 2.1, 2.2, 2.4, 2.5, and 2.7; Nuclear Service Water System (RN)
CN-2571-1.0, Refueling Water System (FW)
CN-2561-1.0 and 1.1, Residual Heat Removal System (ND)
CN-2562-1.0, 1.1, 1.2, and 1.3; Safety Injection System (NI)
CN-2570-1.0 and 1.1, Spent Fuel Pool Cooling System (KF)

STATION DRAWINGS

MCFD-1591-02-00, Flow Diagram of FDWP Condensate Seal System (CL), Revision 1
CN-1591-2.0, Flow Diagram of Feedwater Pump Condensate Seal system (CL), Revision 10
MCFD-1616-02.00, Feedwater Pump Turbine 1B Lube Oil and Hydraulic Oil System (LT, LP), Revision 8
CN-1616-1.1, FDWP Turbine 1B Lube Oil System (LP), Revision 7
MCFD-1608-02.00, Feedwater Pump Turbine Steam Seal (TF) System, Revision 2
CN-1608-2.0, FDWP Turbine Steam Seal (TF) System, Revision 4
MCFD-1593-02.00, Steam Supply to FDWP Turbine System (SP) Turbine Exhaust System (TE) Moisture SEP, Reheater Bleed STM System (HM), Revision 2
CN-1593-1.2, Steam Supply to F.D.W.P. Turbine (SP) F.D.W.P. Turbine Exhaust (TE) Systems, Revision 13
MC-1576-4, Lower Containment Ventilation System, Revision 10
MCFD-1600-01.00, Flow Diagram of Recirculated Cooling Water System (KR), Revision 0

MCFD-1600-01.01, Flow Diagram of Recirculated Cooling Water System (KR), Revision 5
MCFD-1600-02.00, Flow Diagram of Recirculated Cooling Water System (KR), Revision 3
MCFD-1600-02.01, Flow Diagram of Recirculated Cooling Water System (KR), Revision 5
MCFD-1600-02.02, Flow Diagram of Recirculated Cooling Water System (KR), Revision 1
MCFD-1600-03.00, Flow Diagram of Recirculated Cooling Water System (KR), Revision 4
MCFD-1600-03.01, Flow Diagram of Recirculated Cooling Water System (KR), Revision 1
MCFD-1600-03.02, Flow Diagram of Recirculated Cooling Water System (KR), Revision 1
MCFD-1600-03.03, Flow Diagram of Recirculated Cooling Water System (KR), Revision 1
MCFD-2600-02.00, Flow Diagram of Recirculated Cooling Water System (KR), Revision 4
MCFD-2600-02.01, Flow Diagram of lRecirculated Cooling Water System (KR), Revision 3
CN-2491-RN056, Reactor Building Nuclear Service Water System (RN), Revision 8
CN-2491-RN063, Reactor Building Nuclear Service Water System (RN), Revision 5
CN-2491-RN004, Reactor Building Nuclear Service Water System (RN), Revision 14
CN-2491-RN005, Reactor Building Nuclear Service Water System (RN), Revision 14
CN-1492-YV002, YV003, Aux. Bldg. Roof - Containment Chilled Water System (YV), Revision 3,2
MCM 1203.03-0002, Main Fire Protection Pump
CNM 1203.03-7, Main Fire Pumps
CN-1003-15,Catawba Nuclear Station Master Site Plan, Revision 1
MC-1003-1, McGuire Nuclear Station Units 1&2 Plot Plan - General Arrangement, Revision 95
MC-1002-01.00, McGuire Nuclear Station - Units 1&2 General Plan, Revision 10
MC-1200-01.01, Main Steam Doghouse Unit 1 Auxiliary Building - General Arrangement, Revision 6
MC-1200-07.02, Main Steam Doghouse Unit 1 Auxiliary Building - Plans, Revision 3
MC-1200-07.03, Main Steam Doghouse Unit 1 Auxiliary Building - Sections, Revision 1
CN-1398-1 ,Miscellaneous Yard Structures - Conduit Manhole #17 Concrete, Plans & Sections, Revision 4
CN-1398-2, Miscellaneous Yard Structures - NSW Conduit Manholes No.4 & No. 8 Concrete Plans & Sections, Revision 2
CN-1398-3, Miscellaneous Yard Structures - NSW Conduit Manholes No.2, 3, & 8, Revision 2
CN-1022-6, Grading Sections & Details [for the Standby Nuclear Service Water Pond Dam], Revision 23
MC-1027-2, Standby Nuclear Service Water Pond Intake Structure & Missile Protection Slab Layout, Sections & Details, Revision 4
MC 1027-3, Standby Nuclear Service Water Pond Discharge Pipe Wall & Missile Protection Shield Layout, Sections & Details, Revision 0
CN- 1397-24, Miscellaneous Yard Structures, Reactor Refueling Water Storage Tank Foundation Missile Wall, Concrete & Reinforcing Plans, Revision 19
CN-1397-25, Miscellaneous Yard Structures, Reactor Refueling Water Storage Tank Foundation Missile Wall Concrete & Reinforcing Sections, Revision 8
CN-1040-18, Standby Shutdown Facility, General Arrangement, Revision 13
CN-1040-18-2, Standby Shutdown Facility Architectural Sections, Details & Schedules, Revision 13

DESIGN BASIS SPECIFICATIONS

MCS-1553.NC-00-0001, NC System, Revision 9
CNS-1553.NC-00-0001, Reactor Coolant (NC) System, Revision 17
MCS-1593.SM-00-0001, Main steam (SM), Main Steam Vent to Atmosphere (SV), and Main Steam Bypass to Condenser (SB) Systems, Revision 8

CNS-1593.SM-00-0001, Main steam (SM), Main Steam Vent to Atmosphere (SV), and Main Steam Bypass to Condenser (SB) Systems, Revision 18
MCS-1593.SA-00-0001,Main Steam to Auxiliary Equipment System (SA) and FWP Turbine Exhaust System (TE), Revision 5
CNS-1593.SA-00-0001, Main Steam to Auxiliary Equipment System (SA) and FWP Turbine Exhaust System (TE), Revision 20
MSC-1591.CF-00-0001, Feedwater System (CF), Revision 6
CNS-1591.CF-00-0001, Feedwater System (CF), Revision 16
CNS-1590.CS-00-0001, Condensate Storage System (CS), Revision 9
MSC-1573.KC-00-0001, Component Cooling system (KC), Revision 8
CNS-1573.KC-00-0001, Component Cooling system (KC), Revision 20
CNS-1569.NW-00-0001, Containment Valve Injection Water System, Revision 12
CNS-1574.RN-00-0001, Nuclear Service Water System, Revision 23
MCS-1576.VU-00-0001, Ventilation Systems (VL/VR/VT/VU), Revision 8
CNS-1576.VV-00-0001, Containment Ventilation System (VV/YV), Revision 12
MCS-1579.VD-00-0001, Diesel Bdg. Ventilation System, Revision 8
MCS-1564.VE-00-0001, Annulus Ventilation System, Revision 11
CNS-1609.ZD-06-0001, EDG Crankcase Vacuum System, Revision 0
MCS-1465.00-00-0019, Design Basis Specification for SBO Rule, Revision 0
MCS-1609.ZD-00-0001, EDG Crankcase Vacuum System, Revision 3
MCS-1465.00-00-0008, Plant Design Basis Specification for Fire Protection, Revision 4
CNS-1465.00-00-0006, Plant Design Basis Specification for Fire Protection, Revision 4
MCS-1435.00-00-0001, Fire Protection Acceptance Specification, Revision 18
CNS-1435.00-00-0001, Fire Protection Acceptance Specification, Revision 24
MCS-1465.00-00-0002, Design Basis Specification for System Class, Revision 2
CNS-1465.00-00-0002, Plant Design Basis Specification for System Class, Revision 5

Engineering Documents

MDPE-PR 10.0, Workplace Procedure for Determining In-Plant Flood Levels, Revision 2
MDPE-PR 6.0, Workplace Procedure for Moderate Energy Spray Evaluation, Revision 5
PPDS-PDC-120, Non-Seismic Piping Interactions, Revision 3
MCC-1381.05.00-0199, Station Blackout (SBO) Coping Study, Revision 2

Miscellaneous Documents

OP-MC-SPS-SY-ZP, Operator Training Lesson Plan - Vacuum Priming System, dated 9/17/84

ATTACHMENT 2

MCGUIRE AND CATAWBA NUCLEAR STATIONS
LICENSE RENEWAL INSPECTION PLAN

Mechanical Systems within the Scope of License Renewal

Annulus Ventilation
Auxiliary Building Ventilation
Auxiliary Feedwater
Chemical & Volume Control
Component Cooling
Condensate (Catawba only)
Condensate Storage (Catawba only)
Containment Air Return Exchange & Hydrogen Skimmer
Containment Spray
Containment Valve Injection Water (Catawba only)
Diesel Building Ventilation
Diesel Generator Engine Air Intake And Exhaust
Diesel Generator Engine Cooling Water
Diesel Generator Engine Crankcase Vacuum
Diesel Generator Engine Fuel Oil
Diesel Generator Engine Lube Oil
Diesel Generator Room Sump Pump
Diesel Generator Engine Starting Air
Feedwater
Feedwater Pump Turbine Exhaust (Catawba only)
Feedwater Pump Turbine Hydraulic Oil
Fire Protection
Fuel Handling Building Ventilation
Instrument Air
Lower Containment Ventilation (McGuire only)
Main Steam
Main Steam Supply To Auxiliary Equipment
Main Steam Vent To Atmosphere
Nuclear Service Water
Reactor Coolant
Recirculated Cooling Water (Catawba only)
Refueling Water
Residual Heat Removal
Safety Injection
Spent Fuel Cooling
Standby Shutdown Diesel
Turbine Building Sump Pump (Catawba only)
Turbine Exhaust
Upper Containment Ventilation (McGuire only)

The following McGuire and Catawba mechanical systems **are** within the scope of license renewal only because a portion of each system provides valves and piping for containment isolation purposes. These systems are described collectively in Section 2.3.2.2, Containment Isolation System:

Breathing Air
Containment Air Release & Addition System
Containment Purge Ventilation (McGuire only)
Containment Purge (Catawba only)
Containment Ventilation Cooling Water
Conventional Chemical Addition (McGuire only)
Equipment Decontamination
Ice Condenser Refrigeration
Makeup Demineralized Water
Station Air
Steam Generator Blowdown (Catawba only)
Steam Generator Blowdown Recycle (McGuire only)
Steam Generator Wet Lay-Up Recirculation

McGuire Mechanical Systems Not within the Scope of License Renewal

Auxiliary Fuel Oil
Condensate
Condensate Storage
Feedwater Pump Condensate Seal
Feedwater Pump Turbine Lube Oil
Feedwater Pump Turbine Steam Seal
Main Steam To Feedwater Pump Turbine
Reactor Building I Control Rod Drive Ventilation
Recirculated Cooling Water
Turbine Room Sump Pump
Vacuum Priming

Catawba Mechanical Systems Not within the Scope of License Renewal

Containment Chilled Water
Containment Ventilation
Feedwater Pump Condensate Seal
Feedwater Pump Turbine Lube Oil
Feedwater Pump Turbine Steam Seal
Steam Supply To Feedwater Pump Turbine
Vacuum Priming

McGuire and Catawba Structures within the Scope of License Renewal

Auxiliary Building
Control Building
Diesel Generator Building
Main Steam Doghouses (McGuire only)
Reactor Buildings
Refueling Water Storage Tank Missile Wall
Refueling Water Storage Tank Foundation
Standby Nuclear Service Water Pond Dam
Standby Nuclear Service Water Pond Discharge Structure
(Nuclear Service Water Discharge Structure - McGuire only)
Standby Nuclear Service Water Pond Intake Structure
(Nuclear Service Water Intake Structure - McGuire only)
Nuclear Service Water and Standby Nuclear Service Water
Pump Structure (Catawba)
Nuclear Service Water Conduit Manholes (Catawba only)
Nuclear Service Water Intake Structure (Catawba only)
Standby Shutdown Facilities
Trenches - RWST piping, SSF cables, McGuire CCW Intake

McGuire Structures Not within the Scope of License Renewal

Diesel Building (#7434)

Catawba Structures Not within the Scope of License Renewal

Electrical Cable Trenches
Spare Diesel Generator
Low Pressure Service Water Discharge Structure

McGuire and Catawba Electrical Systems within the Scope of License Renewal

Electrical scoping was performed at the system and component level. Switchyard Systems, Unit Main Power System, Nonsegregated-Phase Bus in the 6.9kv Normal Auxiliary Power System and uninsulated ground conductors were found not to meet any of the scoping criteria of §54.4(a). Other electrical and instrumentation and control systems and components are within the scope of license renewal as part of a bounding scope. No scoping was performed for insulated cables and connections and all insulated cables and connections are in scope as part of a bounding scope.

ATTACHMENT 3
LIST OF ACRONYMS USED

AB	Auxiliary Building
AMR	Aging Management Review
ATWS	Anticipated Transient Without Scram
BTP	Branch Technical Position
CCW	Condenser Circulating Water
CFR	Code of Federal Regulations
DBS	Design Basis Specification
DGB	Diesel Generator Building
EQ	Environmental Qualification program
FB	Fuel Building
FHA	Fire Hazards Analysis
FP	Fire Protection
HELB	High Energy Line Break
LPSW	Low Pressure Service Water
LR	License Renewal
LRA	License Renewal Application
NFB	New Fuel Building
NPS	Nominal Pipe Size
NSR	Non-Safety-related
NSW	Nuclear Service Water
NRR	NRC Office of Nuclear Reactor Regulation
PIP	Problem Investigation Process
QA	Quality Assurance
RAI	Request for Additional Information
RWST	Refueling Water Storage Tank
RTD	Resistance Temperature Detector
SBO	Station Blackout event
SFP	Spent Fuel Pool
SG	Steam Generator
SNSW	Standby Nuclear Service Water
SR	Safety-related
SSC	Systems, Structures, and Components
SSF	Standby Shutdown Facility

TLAA	Time-Limited Aging Analysis
UFSAR	Updated Final Safety Analysis Report
UHI	Upper Head Injection System

Duke two letter system designator system

AD	Standby Shutdown Diesel System
CA	Auxiliary Feedwater System
CF	Feedwater System
CL	Feedwater Condensate Seal System
CM	Condensate System
CS	Condensate Storage System
FD	Diesel Generator Engine Fuel Oil System
FW	Refueling Water System
KC	Component Cooling Water
KD	Diesel Generator Cooling Water System
KF	Spent Fuel Cooling System
KR	Recirculated Cooling Water System
LD	Diesel Generator Engine Lube Oil System
LF	Feedwater Pump Turbine Lube Oil System
LP	Feedwater Pump Turbine Hydraulic Oil System
NC	Reactor Coolant System
ND	Residual Heat Removal System
NI	Safety Injection System
NS	Containment Spray System
NV	Chemical and Volume Control System
NW	Containment Valve Injection Water System
RC	CondenserCirculating Water System
RN	Nuclear Service Water System
SA	Main Steam Supply to Auxiliary Equipment
SM	Main Steam System
SP	Steam Supply to Feedwater Pump Turbine System
SV	Main Steam Vent to Atmosphere System
TE	Feedwater Pump Turbine Exhaust
TF	Feedwater Pump Turbine Steam Seal System
VA	Auxiliary Building Ventilation System
VD	Diesel Building Ventilation System

VE	Annulus Ventilation System
VF	Fuel Handling Building Ventilation System
VG	Diesel Generator Starting Air System
VI	Instrument Air System
VN	Diesel Generator Air Intake and Exhaust System
VR	Reactor Building Control Rod Drive Ventilation System
VX	Containment Air Return & Hydrogen Skimmer System
WN	Diesel Generator Room Sump Pump System
ZD	Diesel Generator Engine Crankcase Vacuum System