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10 CFR 54.37(b)

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July 1, 2013

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

**Subject:** Duke Energy Carolinas, LLC (Duke Energy)  
Oconee Nuclear Station, Units 1, 2, and 3  
Docket Nos. 50-269, 50-270, 50-287  
Aging Management Reviews for Newly Identified Systems, Structures and  
Components as of December 31, 2012

Pursuant to 10 CFR 54.37(b), attached are aging management reviews (AMR) for those Oconee Nuclear Station systems, structures and components (SSC) that have been newly identified as of December 31, 2012. These AMRs support changes to the aging management program summaries provided in the 2012 revision of the Updated Final Safety Analysis Report (UFSAR) for Oconee Nuclear Station that will be submitted under separate cover on or before July 1, 2013.

The following are the SSCs that have AMRs attached to this letter:

- 1) Standby Shutdown Facility - Auxiliary Service Water
- 2) Fan and Damper Housings
- 3) Keowee Turbine Guide Bearing Oil Coolers

This submittal document contains no regulatory commitments.

If there are any questions, please contact Susan Perry at (864) 873-4370.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 1st day of July, 2013.

Sincerely,

Scott L. Batson

Attachment

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xc:

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**Aging Management Reviews  
For  
Newly Identified Oconee Nuclear Station  
Systems, Structures and Components  
as of December 31, 2012**

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## Introduction

This summary report is in lieu of adding a level of detail to the Oconee Nuclear Station (ONS) Updated Final Safety Analysis Report (UFSAR) that is greater than the remainder of the UFSAR, including the License Renewal Supplement. An entry on the NRC website, "Frequently Asked Questions (FAQs) About License Renewal Inspection Procedure (IP) 71003, 'Post-Approval Site Inspection for License Renewal,'" relates to the amount of detail required per 10CFR 54.37(b). It states, "The NRC staff will consider it acceptable if the summary information included in the FSAR update is consistent with the requirements of 10 CFR 54.21(d), and the guidance provided by Revision 1 of NUREG-1800, 'Standard Review Plan for License Renewal Applications for Nuclear Power Plants' (SRP-LR), provided that the licensee has supplied the technical details (as described in RIS 2007-16) in another documented submittal to the NRC." The information in this report is consistent with the technical information previously submitted to the NRC with the License Renewal Application (LRA) and subsequent requests for additional information (RAIs).

In July 1998, ONS submitted a LRA to the NRC to renew the operating licenses for ONS Units 1, 2, and 3 for an additional 20 years beyond the original license expiration dates of February 6, 2013, October 6, 2013, and July 19, 2014, respectively. Within the LRA, system descriptions were provided to define the component types, intended functions, and the Aging Management Programs (AMPs) that applied. Lists of individual components within the scope of license renewal were not required to be provided. The renewed operating licenses were issued in May 2000 to extend the operating licenses for ONS Units 1, 2, and 3 for an additional 20 years.

For holders of a renewed operating license, 10 CFR 54.37(b) requires that newly-identified systems, structures, or components (SSCs) be included in the UFSAR update required by 10 CFR 50.71(e) describing how the effects of aging will be managed. Newly-identified SSCs are those SSCs that were installed in the plant at the time of the LRA submittal but were not evaluated as part of the LRA.

A review of engineering changes, newly generated License Renewal Boundary Drawings, and items identified using the Problem Investigation Program (PIP) were reviewed from January 1, 2012 through December 31, 2012. From this review, three Aging Management Reviews (AMRs) were performed for "newly identified" items. All newly identified components have been assigned to existing AMPs and appropriate actions to detect and manage aging effects throughout the period of extended operation (PEO) have been taken.

The components for which AMR results are already addressed within the LRA or are addressed by responses to NRC RAIs are not discussed here, since the results of the AMR have been previously submitted and found acceptable.

Summaries of the completed AMRs included in this report are:

- 1 - Standby Shutdown Facility - Auxiliary Service Water (SSF-ASW) System Changes
- 2 - Fan and Damper Housings
- 3 - Keowee Turbine Guide Bearing Oil Coolers

## **1.0 Standby Shutdown Facility - Auxiliary Service Water (SSF-ASW) System Changes**

During the LRA, the SSF-ASW piping was classified as having external environments of sheltered and yard pipe. Yard pipe was considered piping above ground piping. In addition, it was initially thought that the SSF-ASW had an internal environment of just service water.

ONS had a leak in a section of underground SSF-ASW piping. During the Failure Investigation Process (FIP), it was identified that the LRA did not appropriately represent the SSF-ASW piping. A portion of the SSF-ASW piping is buried piping (external environment -Underground). It was also identified that certain sections of SSF-ASW piping are filled with demineralized (treated) water. An EC was performed to replace a portion of the underground portion of piping. The existing material was carbon steel, and the new material used was stainless steel.

### **Impact on ONS UFSAR Chapter 18**

No changes are required in Chapter 18 of the UFSAR for the Condenser Circulating Water Internal Coating Inspection Program or the Service Water Piping Corrosion Program.

**Tables 1.1 and 1.2 contain the AMR review summary for internal and external environments.**

**Table 1.1**  
**Aging Management Review Summary Table**  
**SSF-ASW System Internal Environments**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Pipe	Pressure Boundary	Carbon Steel	Treated Water	Loss of Material Galvanic Corrosion General Corrosion Pitting Corrosion	Service Water Piping Corrosion Program
		Stainless Steel	Treated Water	Loss of Material Pitting Corrosion	Service Water Piping Corrosion Program

**Table 1.2**  
**Aging Management Review Summary Table**  
**SSF-ASW System External Environments**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Pipe	Pressure Boundary	Carbon Steel	Underground	Loss of Material Galvanic Corrosion General Corrosion Pitting Corrosion MIC	Condenser Circulating Water Internal Coating Inspection Program
		Stainless Steel	Underground	Loss of Material Pitting Corrosion MIC	Condenser Circulating Water Internal Coating Inspection Program

## **2.0 Fan and Damper Housings**

In accordance with RIS 2007-16, the NRC expects applicants to identify active mechanical component housings that require an AMR pursuant to 10 CFR 54.21. This determination considers whether failure of the housing would result in a failure of the associated active mechanical component to perform its intended function, and whether the housing meets the long-lived and passive criteria as defined in the Rule.

Specifically, housings for fans and dampers that perform a pressure retention and/or structural integrity function, which if not maintained, could prevent the associated active mechanical component from performing its intended function. Housings that perform these functions and meet the long-lived and passive criteria are subject to an AMR.

ONS considered the non-active part of a component that performs a function within the scope of Part 54 (e.g., Fan and Damper Housings). These reviews considered not just the active mechanical component, but also the intended function of its associated housing. The following Air Conditioning, Heating, Cooling and Ventilation Systems within the scope of License Renewal were evaluated as part of this process:

- Standby Shutdown Facility HVAC
- Reactor Building Cooling System
- Auxiliary Building Ventilation System
- Control Room Pressurization and Filtration System
- Penetration Room Ventilation System
- Reactor Building Purge System

Although the Fan and Damper Housings were evaluated as an integral part of the “Ductwork” commodity in the original LRA since they also perform a pressure boundary component intended function, these components were not explicitly identified as a commodity group such as “Fan and Damper Housings” in the submittal.

### **Impact on ONS UFSAR Chapter 18**

New UFSAR sections have been generated and incorporated into Chapter 18, Section 3.17, Preventative Maintenance Activities.

**Tables 2.1 and 2.2 contain the AMR review summary for internal and external environments.**

**Table 2.1**  
**Aging Management Review Summary Table**  
**Fan and Damper Housings Internal Environments**

<b>System</b>	<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Reactor Building Purge System	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
	Damper Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
Penetration Room Ventilation System	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
Reactor Building Cooling System	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
Auxiliary Building Ventilation System	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None



<b>System</b>	<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Auxiliary Building Ventilation System	Damper Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
Control Room Pressurization and Filtration System	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
	Damper Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
Standby Shutdown Facility HVAC	Fan Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None
	Damper Housings	Pressure Boundary	Aluminum	Air	None	None
			Galvanized Steel	Air	Loss of Material - General Corrosion	Preventative Maintenance Activities
			Stainless Steel	Air	None	None

**Table 2.2**  
**Aging Management Review Summary Table**  
**Fan and Damper Housings External Environments**

System	Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program/Activity
Reactor Building Purge System	Fan Housings	Pressure Boundary	Aluminum	Reactor Building	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
				Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
			Galvanized Steel	Reactor Building	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
				Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Reactor Building	None	None
				Sheltered	None	None
	Damper Housings	Pressure Boundary	Aluminum	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
			Galvanized Steel	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None

System	Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program/Activity
Penetration Room Ventilation System	Fan Housings	Pressure Boundary	Aluminum	Sheltered	None	None
			Galvanized Steel	Sheltered	Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None
Reactor Building Cooling System	Fan Housings	Pressure Boundary	Aluminum	Reactor Building	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
			Galvanized Steel	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None
Auxiliary Building Ventilation System	Fan Housings	Pressure Boundary	Aluminum	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
			Galvanized Steel	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None

<b>System</b>	<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Auxiliary Building Ventilation System	Damper Housings	Pressure Boundary	Aluminum	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
			Galvanized Steel	Sheltered	Loss of Material – Boric Acid Wastage	Boric Acid Corrosion Program
					Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None
Control Room Pressurization and Filtration System	Fan Housings	Pressure Boundary	Aluminum	Sheltered	None	None
			Galvanized Steel	Sheltered	Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None
	Damper Housings	Pressure Boundary	Aluminum	Sheltered	None	None
			Galvanized Steel	Sheltered	Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None
Standby Shutdown Facility HVAC	Fan Housings	Pressure Boundary	Aluminum	Sheltered	None	None
			Galvanized Steel	Sheltered	Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None

<b>System</b>	<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Standby Shutdown Facility HVAC	Damper Housings	Pressure Boundary	Aluminum	Sheltered	None	None
			Galvanized Steel	Sheltered	Loss of Material - General Corrosion	Inspection Program for Civil Engineering Structures and Components
			Stainless Steel	Sheltered	None	None

### **3.0 Keowee Turbine Guide Bearing Oil Coolers**

The Turbine Guide Bearing Oil System includes the Turbine Guide Bearing Oil Coolers that are within the scope of License Renewal. The Turbine Guide Bearing Oil Coolers provide the necessary flow of lubricating oil to the Keowee turbine guide bearings.

Although the Turbine Guide Bearing Oil Coolers were originally included within the scope of License Renewal in the original LRA, the heat transfer intended function for these heat exchangers was not identified at that time, only the pressure boundary intended function. Heat transfer has since been identified as a License Renewal intended function for these components as part of the Problem Investigation Program (PIP).

#### **Impact on ONS UFSAR Chapter 18**

A new UFSAR section has been generated and incorporated into Chapter 18, Section 3.17, Preventative Maintenance Activities.

**Tables 3.1 and 3.2 contain the AMR review summary for internal and external environments.**

**Table 3.1**  
**Aging Management Review Summary Table**  
**Keowee Turbine Guide Bearing Oil Coolers Internal Environments**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Tubes	Heat Transfer	Stainless Steel	Raw Water	3.1.1 Heat Transfer Degradation - Fouling	3.1.2 Preventative Maintenance Activities

**Table 3.2**  
**Aging Management Review Summary Table**  
**Keowee Turbine Guide Bearing Oil Coolers External Environments**

<b>Component Type</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program/Activity</b>
Tubes	Heat Transfer	Stainless Steel	Oil	Heat Transfer Degradation - Fouling	Keowee Oil Sampling Program Preventative Maintenance Activities