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CNS-15-087

October 5, 2015

10 CFR 50.55a

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414
Fourth Inservice Inspection Interval Steam Generator Tube Plan

Pursuant to 10 CFR 50.55a(g)(4), Duke Energy hereby submits the Catawba Nuclear Station, Units 1 and 2 subject plan for the fourth inservice inspection interval applicable to steam generator tubing.

There are no regulatory commitments contained in this letter or its enclosure.

If you have any questions or require additional information, please contact L.J. Rudy at (803) 701-3084.

Very truly yours,

Kelvin Henderson
Vice President, Catawba Nuclear Station

LJR/s

Enclosure

A047
NRR

xc (with enclosure):

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FOURTH INTERVAL STEAM GENERATOR TUBE INSERVICE INSPECTION PLAN

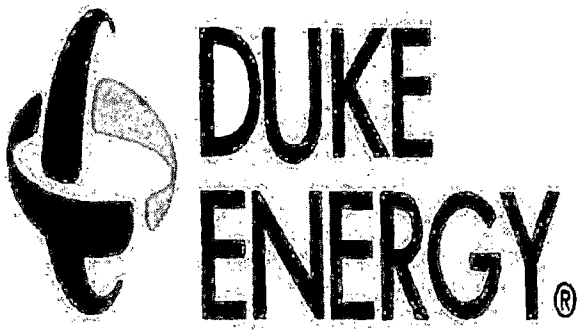
CATAWBA NUCLEAR STATION

UNITS 1 &2

REVISION 0

Document Number C-ISISG-0169.030.0040

QA Condition 1



Prepared By: C. B. Cauthen / C B Cauthen Date 8-13-2015

Checked By: M. R. Hunt / M R Hunt Date 8/17/15

Level III Review: Tim Thulien / Tim Thulien Date 8/18/15

Approved By: J. W. Downing / J W Downing Date 8/19/15

Fourth Interval Steam Generator Tube ISI Plan Revision Sheet

Revision Number	Revision Date	Description of Revision	Special Instructions to Recipients of this Revision
0		Original Issue	None

CATAWBA NUCLEAR STATION

GENERAL INFORMATION

Note: The steam generator tubing is not included in Catawba Nuclear Station's 4th interval general station ISI plan. As a result, this stand-alone SG tubing ISI plan is developed for the 4th Interval.

Plant Location: 4800 Concord Road, York, S. C. 29745

	Unit 1	Unit 2
Commercial Service Date:	June 29, 1985	August 19, 1986
Fourth Interval Start Date:	August 19, 2015	August 19, 2015
Fourth Interval End Date:	December 6, 2024	February 24, 2026

Owner: Duke Energy Carolinas, LLC
526 South Church St.
Mail code EC05A
Charlotte, N. C. 28201-1006

Note: Owner will be referred to as Duke or Duke Energy throughout this document.

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1.0 Applicable Codes and Standards for Inservice Inspection

Based on a fourth interval start date of August 19, 2015 for CNS 1 and CNS 2, the requirements of 10CFR50.55a(g)(4)(ii), inservice inspection activities for Catawba shall be performed in accordance with the 2007 Edition of ASME Section XI with the 2008 Addenda, as modified by the 10CFR50.55a Conditions and ASME Section XI Code Cases included in this Inservice Inspection Plan.

All examinations will be performed to the extent practical within the limitations of design, geometry and materials of construction of the component.

1.1 Additional Codes and Standards Used

a) Catawba Nuclear Station Technical Specifications.

b) Nuclear Energy Institute 97-06 Steam Generator Program Rev 3

c) EPRI Pressurized Water Reactor Steam Generator Examination Guidelines Rev 7

1.2 Code Case Applicable to ASME Boiler & Pressure Vessel Code Section XI

The following code cases will be used for the Fourth Interval Inservice Inspection Program at Catawba Units 1&2 for the Steam Generator Tubing inspections:

N-532-5 Repair/Replacement Activity Documentation Requirements and Inservice Inspection Summary Report Preparation and Submission.

1.3 Applicable Duke Power Administrative Procedures

The following Duke Energy Company procedures will be used to control steam generator tubing inservice inspection activities and inservice inspection plans and reports:

PROCEDURE NUMBER	TITLE
PD-EG-ALL-1701	ASME Section XI Program
PD-EG-ALL-1702	ASME Section XI Inservice Inspection Program Administration
AD-DC-ALL-0001	Document Control
AD-DC-ALL-0002	Records Management
NSD 703	Administrative Instructions for Technical Procedures
AD-HU-ALL-0004	Procedure and Work Instruction Use and Adherence

AD-IT-ALL-0002	Software Quality Assurance (SQA) Program
MP/0/A/7150/125	Steam Generator Controlling Procedure for Interfacing Vendor Procedures
PD-EG-PWR-1801	Steam Generator Management Program
WG-01	Workplace Guide: Preparation and Implementation of ASME Section XI Inservice Inspection Plans

2.0 System Boundary Subject to Inspection

The steam generator tubing is part of the pressure boundary for the Class 1 Reactor Coolant System (NC).

2.1 Inspection Interval and Inspection Periods

Table 2.1-1: Catawba 1 Interval and Period Dates

	Interval 4: August 19,2015 to December 6, 2024		
	1st Period	**2nd Period**	**3rd Period**
	8/19/15 to 8/19/18	8/20/18 to 8/19/22	8/20/21 to 12/06/2024
Outages	Refueling Outage 1 (EOC22)	Refueling Outage 1 (EOC24)	Refueling Outage 1 (EOC27)
	Refueling Outage 2 (EOC23)	Refueling Outage 2 (EOC25)	Refueling Outage 2 (EOC28)
		Refueling Outage 3 (EOC26)	

Table 2.1-1: Catawba 2 Interval and Period Dates

	Interval 4: August 19,2015 to February 24, 2026		
	1st Period	**2nd Period**	**3rd Period**
	8/19/15 to 8/19/18	8/20/18 to 1/19/23	8/20/21 to 2/24/2026
Outages	Refueling Outage 1 (EOC21)	Refueling Outage 1 (EOC23)	Refueling Outage 1 (EOC26)
	Refueling Outage 2 (EOC22)	Refueling Outage 2 (EOC24)	Refueling Outage 2 (EOC26)
		Refueling Outage 1 (EOC25)	

3.0 Inspection Methods and Procedures to Be Used for Inservice Inspection

Inservice inspection of Catawba Units 1, & 2 will be performed using procedures which comply with the requirements of the applicable codes referenced in Section 1 of this plan. The volumetric method of inspection will be used to inspect the steam generator tubing as required. Each inspection will be performed under the QA program of the organization performing the inspection.

Vendor Procedures will be used to perform the steam generator tubing inservice inspection as reviewed and approved by Duke Energy per administrative procedures specified in section 1.3.

3.1 Volumetric Inspection

Steam generator tubing will be examined using the eddy current inspection method as required by the applicable codes and standards referenced in Section 1. The Steam Generator Maintenance and Engineering (SGME) Group of the Nuclear Engineering Support Division has overall responsibility for inspections pertaining to steam generator tubing.

4.0 Description of Inservice Inspection Plan for Steam Generator Tubing

The inservice inspection of the steam generator tubing shall be performed in accordance with the requirements of Article IWB-2000 of Section XI. Specific examinations are defined in table IWB 2500-1, examination category B-Q, to be as required by the plant Technical Specifications. Tube examination extent and frequency will follow CNS Technical Specification 5.5.9.

4.1 Examination Categories and Requirements

The examination category for Steam Generators is listed in Table IWB-2500-1 of Section XI. The specific examination will be identified by an item number similar to those listed in Table IWB-2500-1 of Section XI, plus an additional number to uniquely identify the steam generator being inspected.

Category B-Q **Steam Generator Tubing**

IWB-2500-1 Item	Component To Be Examined	Comments
B16.10	Steam Generator Tubing in Straight Design	N/A for Catawba
B16.20	Steam Generator Tubing in U-Tube Design	S/G Tubing is examined and documented by the SGME Group of the Nuclear Services Division as required by CNS Technical Specifications Sect. 5.5.9.

4.2 Specific Steam Generator Item Number with Corresponding ID Number, General Arrangement and As-Built Drawings

Steam Generator	Item Number	ID Number	Drawing Number
1A	B16.020.001	1SGA - Tubes	CNM 1201.01-0757
1B	B16.020.002	1SGB - Tubes	CNM 1201.01-0756
1C	B16.020.003	1SGC - Tubes	CNM 1201.01-0754
1D	B16.020.004	1SGD - Tubes	CNM 1201.01-0755
2A	B16.020.001	2SGA - Tubes	CNM 2201.01-0113
2B	B16.020.002	2SGB - Tubes	CNM 2201.01-0106
2C	B16.020.003	2SGC - Tubes	CNM 2201.01-0105
2D	B16.020.004	2SGD - Tubes	CNM 2201.01-0114

Right Hand Vessel General Arrangement (A&C) – CNM 1201.01-0524
Left Hand Vessel General Arrangement (B&D) – CNM 1201.01-0525
Vessel General Arrangement – CNM 2201.01-0102

4.3 Steam Generator Tubing Material and Dimensions

Unit 1 Tubing Part Number 5124383- Material SB-163 UNS N06690
- 0.688" Outside Diameter
- 0.040" Wall Thickness

Unit 2 Tubing

Tubing Drawing Numbers

CNM 2201.01-0939	-	Material SB-163 Alloy 600
CNM-2201.01-0635 thru	-	0.750" Outside Diameter
CNM 2201.01-0642	-	0.043" Wall Thickness

5.0 Fourth Interval Examination Information

The Fourth Interval Inspection of Catawba Unit 1& 2 Steam Generators will be performed in accordance with ASME Section XI and the Catawba Technical Specifications section 5.5.9.

6.0 Calibration Standards

6.1 Eddy Current Calibration Standards

Calibration standards that will be used in the Steam Generator tubing inspection include but are not limited to bobbin (ASME), Array, and EDM notch.

6.2 Calibration Standard Description

The SG tubing Eddy Current calibration standards are precision machined materials of the same type/size as the tubing in the Steam Generators with precision machined flaws used to calibrate Eddy Current probes. The standards are built to the specifc type of probe used for the inspections. These standards are built and used per the applicable codes and standards referenced in section 1.