



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 7, 2011

Mr. Preston Gillespie
Site Vice President
Oconee Nuclear Station
Duke Energy Carolinas, LLC
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION, UNIT 1, EVALUATION OF 2009 (CYCLE 25)
STEAM GENERATOR (SG) TUBE INSPECTIONS (TAC NO. ME3843)

Dear Mr. Gillespie

By letter dated March 3, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100640143), as supplemented by letter dated April 1, 2010 (ADAMS Accession No. ML100970270), Duke Energy Carolinas, LLC (the licensee), submitted information summarizing the results of the 2009 SG tube inspections at Oconee Nuclear Station, Unit 1 during the Cycle 25 refueling outage.

The U.S Nuclear Regulatory Commission (NRC) staff has completed its review of these reports and concludes that the licensee provided the information required by their technical specifications and that no additional follow-up is required at this time. The NRC staff's review of the reports is enclosed.

Sincerely,

A handwritten signature in black ink that reads "John Stang".

John Stang, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-269

Enclosure:
Evaluation of SG Tube Inspections

cc w/encl: Distribution via Listserv



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OFFICE OF NUCLEAR REACTOR REGULATION

EVALUATION OF THE 2009 STEAM GENERATOR (SG) TUBE INSPECTIONS

PERFORMED DURING THE 2009 REFUELING OUTAGE

OCONEE NUCLEAR STATION, UNIT 1

DOCKET NO. 50-269

By letter dated March 3, 2010 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML100640143), and is supplemented by letter dated April 1, 2010 (ADAMS Accession No. ML100970270), Duke Energy Carolinas, LLC (the licensee), submitted information summarizing the results of the 2009 SG tube inspections at Oconee Nuclear Station, Unit 1 (Oconee Unit 1). The licensee clarified a few minor points of information with respect to their inspections. The details of these clarifications are summarized below.

Oconee Unit 1 has two replacement once-through steam generators (OTSGs) designed and fabricated by Babcock and Wilcox International (B&W). These SGs were put into service in 2004. Each SG has 15,631 thermally treated Alloy 690 tubes that have a nominal outside diameter of 0.625 inches and a nominal wall thickness of 0.038 inches. The tubes were hydraulically expanded into the tubesheet for 13 inches from the tube end. The tubesheets are 22 inches thick.

The licensee provided the scope, extent, methods, and results of the SG tube inspections in the letters referenced above. In addition, the licensee described the following corrective actions (i.e., tube plugging) taken in response to the inspection findings:

1. UTR means "Upper Tube Region". The code is used in cases where the tube end is damaged and the probe cannot exit the tube, but the roll transition can be seen.

FLT is the code to designate flat wear.

2. The following tubes were plugged in the 1A OTSG:

Row	Tube	Row	Tube	Row	Tube	Row	Tube
6	34	6	51	10	43	10	51
12	57	13	60	16	69	20	79
36	113	56	122	63	3	63	123
69	1	75	118	76	120	78	8
80	122	91	7	94	129	129	85
131	11	140	56	146	15	147	45

Enclosure

The following tubes were plugged in the 1B OTSG:

Row	Tube	Row	Tube	Row	Tube	Row	Tube
6	36	57	6	59	7	63	1
64	116	65	1	66	1	67	15
68	6	70	13	71	11	71	15
71	124	72	14	73	12	73	16
74	13	75	1	75	11	75	130
76	2	76	13	77	12	78	13
78	15	79	1	87	14	89	13
90	10	94	8	98	7	134	13
134	14	141	47	141	48	141	50
142	44	142	46				

Widespread wear degradation of tubing at tube support plate (TSP) locations has been observed at all three Oconee units. The licensee and B&W have determined that the most probable cause of the tube wear indications at TSP locations is the tubes vibrating and impacting the tube support plates. The licensee and B&W have developed a conceptual repair, but the plugging projection model indicates that the Oconee SGs can meet their design life without implementing this repair, although a number of tubes may have to be plugged.

Based on a review of the information provided, the Nuclear Regulatory Commission (NRC) staff concludes that the licensee provided the information required by their Technical Specifications. In addition, the NRC staff concludes that there are no technical issues that warrant follow-up action at this time since the inspections appear to be consistent with the objective of detecting potential tube degradation and the inspection results appear to be consistent with industry operating experience at similarly designed and operated units.

Principal Contributor: C. Hunt, NRR/DCI

Date: March 7, 2011

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Site Vice President
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Sincerely,

/RA/

John Stang, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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Evaluation of SG Tube Inspections

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ADAMS Accession No.: ML110480057

*Memo submitted by Tech Staff dated

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