

July 10, 2008

Mr. David A. Christian
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2, 2007 REFUELING
OUTAGE STEAM GENERATOR TUBE INSPECTIONS (TAC NOS. MD7490 AND
MD7491)

Dear Mr. Christian:

By letters dated November 15, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073200234), and October 9, 2007 (ADAMS Accession No. ML072820576), Virginia Electric and Power Company, Inc. (the licensee), submitted steam generator tube inspection reports for the North Anna Power Station, Unit No. 1, fall 2007 refueling outage and the North Anna Power Station, Unit No. 2, spring 2007 refueling outage, respectively. Additional information regarding the 2007 steam generator tube inspections was provided by the licensee in a letter dated March 18, 2008 (ADAMS Accession No. ML080790343).

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 review of the reports is enclosed.

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:
Inspection Summary Report

cc w/encl: See next page

July 10, 2008

Mr. David A. Christian
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2, 2007 REFUELING
OUTAGE STEAM GENERATOR TUBE INSPECTIONS (TAC NOS. MD7490 AND
MD7491)

Dear Mr. Christian:

By letters dated November 15, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073200234), and October 9, 2007 (ADAMS Accession No. ML072820576), Virginia Electric and Power Company, Inc. (the licensee), submitted steam generator tube inspection reports for the North Anna Power Station, Unit No. 1, fall 2007 refueling outage and the North Anna Power Station, Unit No. 2, spring 2007 refueling outage, respectively. Additional information regarding the 2007 steam generator tube inspections was provided by the licensee in a letter dated March 18, 2008 (ADAMS Accession No. ML080790343).

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 review of the reports is enclosed.

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:
Inspection Summary Report

cc w/encl: See next page

DISTRIBUTION:

Public	RidsNrrLAMO'BrienResource (hard copy)
RidsNrrDciCsgb(AHiser)	RidsAcrcsAcnw_MailCTRResource
LPL2-1 R/F	RidsNrrDorlLpl2-1Resource (MWong)
RidsOgcRpResource	RidsNrrDciCsgbResource (AObodoako)
RidsNrrPMSLingamResource (hard copy)	
RidsRgn2MailCenterResource (EGuthrie)	
RidsNrrDciCsgbResource (KKarwoski)	

ADAMS Accession No. ML081900661

*transmitted by memo dated

OFFICE	NRR/LPL2-1/PM	NRR/LPL2-1/LA	NRR/DCI/CSGB/BC	NRR/LPL2-1/BC
NAME	SLingam	MO'Brien	AHiser	MWong
DATE	7/10/08	7/10/08	6/16/08*	7/10/08

OFFICIAL RECORD COPY

OFFICE OF NUCLEAR REACTOR REGULATION
REVIEW OF THE 2007 REFUELING OUTAGE
STEAM GENERATOR TUBE INSPECTION REPORTS
NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-338 AND 50-339

By letters dated November 15, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073200234), and October 9, 2007 (ADAMS Accession No. ML072820576), Virginia Electric and Power Company, Inc. (the licensee), submitted steam generator (SG) tube inspection reports for the North Anna Power Station, Unit No. 1 (North Anna 1), fall 2007 refueling outage and the North Anna Power Station, Unit No. 2 (North Anna 2), spring 2007 refueling outage, respectively. Additional information regarding the 2007 steam generator tube inspections was provided by the licensee in a letter dated March 18, 2008 (ADAMS Accession Number ML080790343).

North Anna 1 and 2 each have three Westinghouse Model 54F replacement steam generators, each containing 3592 thermally treated Alloy 690 tubes. These SGs were replaced in 1993 and 1995, respectively. The tubes have an outside diameter of 0.875 inches, a wall thickness of 0.050 inches, and are supported by 7 stainless steel tube support plates and a baffle plate. Most of the tube support plate holes are quatrefoil-shaped. The U-bend region of the tubes in rows 1 through 8 was stress relieved after bending.

The licensee provided the scope, extent, methods, and results of the North Anna 1 and 2 SG tube inspections in the documents referenced above. In addition, the licensee described corrective actions (i.e., tube plugging) taken in response to the inspection findings.

The U.S. Nuclear Regulatory Commission (NRC) staff has the following notes as a result of reviewing the aforementioned submittals:

1. In North Anna 1, only SG "A" was inspected during the 2007 outage. In North Anna 2, SGs "A" and "C" were inspected during the 2007 outage.
2. Wear indications were identified in a small number of tubes. These indications were at the tube support plate elevations. In North Anna 2, one of the indications went from no detectable degradation in 2001 to 40-percent through-wall in 2007.
3. Secondary side inspections of the SG upper internals were performed during the 2007 outages. In the 3 SGs inspected (as discussed above), a small clearance was noted between some of the moisture separator drain pipes and their corresponding supporting bracket. This clearance permits slight movement between the pipe and the bracket, however, there was no appreciable wear at the interface between the pipe and the bracket. The condition was evaluated by the licensee and the licensee concluded that this condition will not impact tube integrity prior to the next inspection after 3 fuel cycles of operation.
4. In SG "A" of North Anna 1, ultrasonic thickness measurements of the feedring were taken. The measurements and subsequent analysis of the data (and previous data)

Enclosure

by the licensee indicated that the minimum acceptable wall thickness at the most limiting location would not be reached for an additional 5 operating cycles.

5. Visual inspections of the upper SG bundle region in the 3 SGs inspected (as discussed above) indicated light to moderate deposit buildup at various locations. All broached tube support plate holes viewed were open, with some evidence of light deposit coating on the walls of the broached hole.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by the 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.

North Anna Power Station, Units 1 & 2

cc:

Mr. David A. Christian
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrooks Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

Mr. C. Lee Lintecum
County Administrator
Louisa County
Post Office Box 160
Louisa, Virginia 23093

Ms. Lillian M. Cuoco, Esq.
Senior Counsel
Dominion Resources Services, Inc.
120 Tredegar Street, RS-2
Richmond, VA 23219

Dr. W. T. Lough
Virginia State Corporation Commission
Division of Energy Regulation
Post Office Box 1197
Richmond, Virginia 23218

Old Dominion Electric Cooperative
4201 Dominion Blvd.
Glen Allen, Virginia 23060

Mr. Chris L. Funderburk, Director
Nuclear Licensing & Operations Support
Dominion Resources Services, Inc.
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, Virginia 23060-6711

Office of the Attorney General
Commonwealth of Virginia
900 East Main Street
Richmond, Virginia 23219

Senior Resident Inspector
North Anna Power Station
U. S. Nuclear Regulatory Commission
P. O. Box 490
Mineral, Virginia 23117

Mr. Daniel G. Stoddard
Site Vice President
North Anna Power Station
Virginia Electric and Power Company
Post Office Box 402
Mineral, Virginia 23117-0402

Dr. Robert B. Stroube, MD, MPH
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
Post Office Box 2448
Richmond, Virginia 23218

Mr. Eric Hendrixson, Director
Nuclear Safety & Licensing
Virginia Electric and Power Company
North Anna Power Station
P.O. Box 402
Mineral, VA 23117