



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

April 16, 2015

Vice President, Operations  
Arkansas Nuclear One  
Entergy Operations, Inc.  
1448 S.R. 333  
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 – REVIEW OF THE 2014 STEAM  
GENERATOR TUBE INSPECTIONS DURING REFUELING OUTAGE 2R23  
(TAC NO. MF4653)

Dear Sir or Madam:

By letter dated August 18, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14230A898), as supplemented by letters dated January 12 and February 23, 2015 (ADAMS Accession Nos. ML15014A040 and ML15055A576, respectively), Entergy Operations, Inc. (the licensee), submitted information summarizing the results of the spring 2014 steam generator tube inspections at Arkansas Nuclear One, Unit 2.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the submittals and concludes that the licensee has provided the information required by its Technical Specifications. In addition, the NRC staff concludes that there are no technical issues that warrant follow-up actions at this time. The results of the NRC staff's review are enclosed.

If you have any questions, please contact me at (301) 415-1081 or by e-mail at [Andrea.George@nrc.gov](mailto:Andrea.George@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "A. George".

Andrea E. George, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure:  
As stated

cc w/encl: Distribution via Listserv

OFFICE OF NUCLEAR REACTOR REGULATION  
STAFF REVIEW OF RESULTS OF SPRING 2014 STEAM GENERATOR TUBE  
INSERVICE INSPECTIONS PERFORMED DURING REFUELING OUTAGE 2R23  
ARKANSAS NUCLEAR ONE, UNIT 2  
ENTERGY OPERATIONS, INC.  
DOCKET NO. 50-368

By letter dated August 18, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14230A898), as supplemented by letters dated January 12 and February 23, 2015 (ADAMS Accession Nos. ML15014A040 and ML15055A576, respectively), Entergy Operations, Inc. (the licensee), submitted information summarizing the results of the spring 2014 steam generator (SG) tube inspections at Arkansas Nuclear One, Unit 2. In a letter dated June 23, 2014 (ADAMS Accession No. ML14170A060), the U.S. Nuclear Regulatory Commission (NRC) staff summarized a May 27, 2014, conference call that was held with the licensee during the inspections, which were performed during refueling outage 23.

Arkansas Nuclear One, Unit 2 has two Westinghouse model Delta 109 SGs, each containing 10,637 thermally-treated Alloy 690 tubes. The tubes have a nominal outside diameter of 0.688 inches and a nominal wall thickness of 0.040 inches. The tubes, manufactured by Sandvik, are supported by Type 405 stainless steel tube support plates (TSPs), with broached trefoil-shaped holes, and anti-vibration bars (AVBs).

The licensee provided the scope, extent, methods, and results of its 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.

After reviewing the information provided by the licensee, the NRC staff has the following comments/observations:

- The licensee performed AVB position verification studies. The depth of insertion for most of the AVBs is in accordance with the design information, relative to the typical row where the AVB should intersect the tube. Minor differences between columns were noted to exist when locating a specific bar; however, the licensee concluded that, overall, the AVB bundle is uniform.
- The licensee also performed an evaluation of the blockage of the top TSP. The results indicate that deposit is accumulating within the top TSP, primarily on the hot-leg side of the SGs.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by its technical specifications. In addition, the staff concludes that there are no technical issues that warrant follow-up action at this time, since the inspections

Enclosure

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.

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If you have any questions, please contact me at (301) 415-1081 or by e-mail at [Andrea.George@nrc.gov](mailto:Andrea.George@nrc.gov).

Sincerely,

**/RA/**

Andrea E. George, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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**ADAMS Accession No.: ML15099A152**

\*memo dated

\*\*via email

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