



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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December 20, 2012

Mr. Lawrence J. Weber
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNIT 1 - REVIEW OF THE 2011
REFUELING OUTAGE STEAM GENERATOR TUBE INSERVICE INSPECTION
RESULTS (TAC NO. ME8466)

Dear Mr. Weber:

By letter dated April 17, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12124A314), Indiana Michigan Power Company (the licensee) submitted information summarizing the results of the 2011 steam generator (SG) tube inspections at the Donald C. Cook Nuclear Plant Unit 1 for U.S. Nuclear Regulatory Commission (NRC) staff review. The licensee provided additional information regarding the SG tube inspections in a letter dated August 30, 2012 (ADAMS Accession No. ML12255A402).

The NRC staff has completed its review of the submittal and concludes that the licensee provided the information required by their technical specifications. No additional follow-up is required at this time. The results of the staff's review and observations are enclosed.

Please direct any inquiries to me at 301-415-4037, or thomas.wengert@nrc.gov.

A handwritten signature in black ink that reads "Thomas J. Wengert".

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-315

Enclosure:
As stated

cc w/encl: Distribution via Listserv

OFFICE OF NUCLEAR REACTOR REGULATION
REVIEW OF RESULTS OF 2011 STEAM GENERATOR TUBE INSPECTIONS

DONALD C. COOK NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-315

By letter dated April 17, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12124A314), Indiana Michigan Power Company (the licensee) submitted information pertaining to their 2011 steam generator (SG) tube inspections at the Donald C. Cook Nuclear Plant Unit 1. The licensee provided additional information regarding the SG inspections in a letter dated August 30, 2012 (ADAMS Accession No. ML12255A402).

Donald C. Cook Nuclear Plant Unit 1 has four model 51R recirculation SGs designed and fabricated by Babcock and Wilcox International. Each SG has 3,496 thermally treated, Alloy 690 tubes, each with an outside diameter of 0.875 inches, and a nominal wall thickness of 0.049 inches. The tubes are supported by Type 410 stainless steel, lattice-grid tube supports, and flat fan bars. The tubes were hydraulically expanded at each end for the full depth of the tubesheet.

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

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

A large number of fan bar wear indications (2,013) were identified during this inspection. This was an unexpected result based on the previous inspection in 2006, which only identified 51 fans bar wear indications (as a result of inspecting 50 percent of the tubes). The licensee performed a root cause evaluation and determined that a resonance condition existed in the SG as a result of a reduced temperature and pressure program in the reactor coolant system. The licensee stated that they are planning to restore the temperature and pressure to the previous levels to mitigate the suspected resonance condition. The licensee also stated that extended inspection intervals (multiple cycles between intervals) served to mask the discovery of the indications until the 2011 inspections. The licensee stated that they will perform the next inspection at the end of the current operating cycle in the spring of 2013.

The licensee clarified a discrepancy in the April 17, 2012 report. The tube in location row 33, column 57 was stabilized and plugged due to a 10 percent wear indication attributed to a foreign object. This tube was misidentified in the list of plugged tubes on page 7 of the report as being in location row 66, column 57. The licensee corrected the transcription error and re-verified the accuracy of the plugging records for each of the plugged tubes identified in the report. No other errors were identified.

Enclosure

No tube proximity indications or tube-to-tube wear was detected. This includes areas of the tubes supported by lattice grids and fan bars. The wear that was identified at the supports was a result of tube contact with the supports and not tube-to-tube contact.

Based on a review of the information provided by the licensee, the NRC staff concludes that the licensee provided the information required by their technical specifications. The SG tube inspections at Donald C. Cook Nuclear Plant Unit 1 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 (with the possible exception of the increase in the number of fan bar wear indications).

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/RA/

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ADAMS Accession No.: ML12324A418

*Memo dated 10/5/12 (ML12271A288)

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