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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Donald C. Cook Nuclear Plant Unit 1
2011 STEAM GENERATOR TUBE INSPECTION REPORT
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

References:

1. Letter from J. P. Gebbie, Indiana Michigan Power Company, to U. S. Nuclear Regulatory Commission Document Control Desk, "Donald C. Cook Nuclear Plant Unit 1, 2011 Steam Generator Tube Inspection Report," AEP-NRC-2012-17, dated April 17, 2012, Agencywide Documents Access and Management System (ADAMS) Accession Number ML12124A314
2. Memorandum from P. S. Tam, U. S. Nuclear Regulatory Commission, to H. L. Etheridge, Indiana Michigan Power Company, "D. C. Cook Unit 1 - Draft RAI on the 2011 steam generator tube inspection report," dated July 18, 2012, ADAMS Accession Number ML12200A385

By Reference 1, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Unit 1, submitted the 2011 Steam Generator Tube Inspection Report for Nuclear Regulatory Commission (NRC) review. By Reference 2, the NRC communicated a draft Request for Additional Information (RAI) to I&M for information needed to complete the review of the 2011 Steam Generator Tube Inspection Report, with a due date of August 31, 2012.

I&M's response to the RAI is provided as an Enclosure to this letter. There are no new or revised regulatory commitments made as a part of this submittal.

Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Manager, at (269) 466-2649.

Sincerely,

Joel P. Gebbie
Site Vice President

DMB/jmr

A001
NRC

Enclosure:

2011 Steam Generator Tube Inspection Report Response to Request for Additional Information

c: C. A. Casto, NRC Region III
J. T. King, MPSC
S. M. Krawec, AEP Ft. Wayne, w/o enclosures
MDEQ – WHMD/RPS
NRC Resident Inspector
P. S. Tam, NRC Washington, DC

2011 STEAM GENERATOR TUBE INSPECTION REPORT
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

By letter dated April 17, 2012, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, submitted the 2011 Steam Generator Tube Inspection Report for Nuclear Regulatory Commission (NRC) review (Accession No. ML12124A314). The NRC staff reviewed the Steam Generator Tube Inspection Report and by e-mail dated July 18, 2012, the NRC communicated a Request for Additional Information (RAI) for information needed to complete their review. I&M's response to the RAI is provided below.

NRC Item 1

The report indicated that no erosion or degradation was observed on any of the primary or secondary separators inspected. Please clarify whether any degradation was observed on any of the other secondary side components inspected during the outage.

I&M Response to NRC Item 1

No degradation was identified during the inspection on any secondary side steam generator components.

NRC Item 2

Page 4 of the report indicated that the tube in row 33, column 57 had a wear indication attributed to a foreign object. Page 7 does not list this tube as a tube that was plugged; however, this page indicated that the tube in row 66, column 57 was plugged. Please clarify which tube had an indication attributed to a foreign object and indicate whether this tube was stabilized/plugged.

I&M Response to NRC Item 2

The tube in location row 33, column 57 was stabilized and plugged due to a 10% wear indication attributed to a foreign object. This tube should have been listed on Page 7 of the report. This tube was mis-identified in the listing of plugged tubes on Page 7 as being in location row 66 (and not 33), column 57. In fact, location row 66, column 57 does not exist. As a result of the transcription error, the plugging records for each of the tubes presented on Page 7 were re-verified. No other discrepancies were identified.

NRC Item 3

There were three tubes in steam generator 13 that were plugged to bound a foreign object that could not be removed. Presumably these tubes had no detected wear. Please discuss the basis for not stabilizing these tubes. Please discuss your long-term plans for ensuring that these tubes will not cause a loss of tube integrity in adjacent inservice tubes (since tube wear could potentially initiate in these tubes since the foreign object has not been removed and may lead to severance of these tubes).

I&M Response to NRC Item 3

The associated three tubes from SG 13 are in locations row 14, column 42; row 13, column 43 and row 15 column 43. None of these tubes or any of the examined surrounding tubes (two tube bounding area) had any indications of tube wear from the foreign object.

The eddy current potential loose part signals originating from this location were visually confirmed to be from an object that was apparently metallic and tightly wedged between the tubes, located just above the hot leg tubesheet. The object was irretrievable and had to be left in place.

Because the object was both tightly lodged and in an inner bundle location which does not experience high cross flows, any wear that might develop in the future was considered to be small and tube severance unlikely. Being in a lower flow area was credited with lessening the potential for dislodging the object and providing a reduced driving function to initiate significant tube wear prior to the next inspection. As noted in EPRI Report 1020989, Steam Generator Management Program: Foreign Object Prioritization Strategy for Triangular Pitch Steam Generators, "For a typical triangular pitch tube bundle and not including the exclusion zone, fluid velocities eight to ten rows (or columns) into the tube bundle are reduced by approximately 20% from the maximum value on the periphery. Given that the dynamic pressure the object exerts on a tube is proportional to the square of the velocity, wear rates can be significantly lower in this region than they would be on the periphery."

As a result, the affected tubes were plugged but not stabilized. Monitoring (visual and eddy current) of the surrounding tubes will be performed at the next inspection (occurring after one cycle of operation) to ensure that the object has remained in place and tube wear is not occurring.

NRC Item 4

Please discuss whether any tubes were detected that were in close proximity to other tubes and whether any wear was detected in these tubes (including wear at the lattice grids/anti-vibration bars).

I&M Response to NRC Item 4

No tube proximity indications or tube-to-tube wear was detected on any of the tubes. This includes areas of the tubes supported by the lattice grids and anti-vibration bars; i.e., fan bars. As mentioned in the original report, normal lattice grid and fan bar wear was detected. This wear resulted from tube contact with the support structures and not tube-to-tube contact.