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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

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License No. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
END OF CYCLE 16 STEAM GENERATOR TUBE INSPECTION REPORT

By letter dated February 9, 2015, Dominion Nuclear Connecticut, Inc. (DNC) submitted information summarizing the results of the Millstone Power Station Unit 3 (MPS3), End of Cycle 16, steam generator (SG) tube inspections performed during Refueling Outage 16 (3R16). In addition, by letter dated June 23, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff summarized a conference call held with DNC on October 27, 2014, during the 3R16 SG tube inspections. In an email dated August 12, 2015, the NRC transmitted a request for additional information (RAI) to DNC related to the inspection report. DNC agreed to respond to the RAI by September 11, 2015.

The attachment to this letter provides DNC's response to the NRC's RAI.

If you have any questions regarding this submittal, please contact Thomas G. Cleary at (860) 447-1791 Ext. 3232.

Sincerely,


John R. Daugherty
Site Vice President - Millstone

Commitments made in this letter: None

Attachment:

Response to Request for Additional Information Regarding End of Cycle 16 Steam Generator Tube Inspection Report

A001
NRC

cc: U.S. Nuclear Regulatory Commission
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ATTACHMENT

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING END
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MILLSTONE POWER STATION UNIT 3**

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Question 1

Please discuss the results of the secondary side inspections performed during RFO 16.

DNC Response

Secondary side visual inspections were performed in the four SGs during 3R16. These examinations included a post-water lance inspection of the tubesheet annulus and tube lane in each SG using an articulating camera to support viewing into the bundle. The visible tube supports, flow distribution baffle, and wrapper were inspected for degradation to ensure structural integrity of these components.

Since the secondary side inspections were performed after chemical cleaning and water lancing activities, the Top-of-Tubesheet (TTS) inspections revealed exceptionally clean conditions.

Inspection findings were similar in each of the four generators. The chemical cleaning and water lance operations were successful in removing loose deposits throughout the tube bundle and at the TTS. In-bundle views from the periphery showed the tubesheet to be very clean in the four generators. The No-tube lane was clean and the center stay rod and blowdown piping were in good condition in each of the steam generators.

An upper internals inspection was performed in SG A only. The upper internals inspection included inspection of the steam drum and upper bundle region. The secondary moisture separator chevrons appeared to be in good condition. The perforated holes of the outer plate showed minor buildup of sludge in the bore of the hole. No holes were observed to be plugged. The chevrons were straight and showed a light coating of sludge deposit. The primary moisture separator swirl vanes appeared to be in good condition. The vanes had a slight deposit on them but the edges were sharp showing no indication of erosion. It was noted that there was a heavy deposit of sludge on the steam drum shell wall at the upper deck. This deposit became thicker higher up on the shell wall. The ladders, drains, wedges, supports and associated welds throughout the upper internals, appeared to be acceptable.

Thirty J-nozzles located on the main feedwater pipe were internally and externally inspected and found to be in good condition. Overspray from the J-nozzles was also noted on the primary separator riser barrels.

Internal visual inspections of the steam drum, as well as, upper bundle inspections above the 7th tube support plate found SG A to be structurally sound. The majority of the loose sludge deposits in the upper tube bundle region had been removed by the chemical cleaning operation. The views obtained of the broached holes at the periphery revealed no occlusion of the 7th tube support plate.

Overall, the secondary sides of the four MPS3 SGs visually appeared to be in an as-expected condition, with no visible damage, degradation, or abnormalities.

Question 2

Deposit Minimization Treatment and injection of Poly Acrylic Acid were identified in the previous inspection report as two corrective actions that were to address the deposit loading on the secondary side of the SGs. Please discuss the results of these actions.

DNC Response

Deposit Minimization Treatment (DMT) is a soft chemical cleaning technique that was performed during 3R16 to decrease the deposit loading on the secondary side of the SGs and to mitigate occlusion of the quatrefoil openings. The application of DMT, combined with water lancing activities, removed approximately 11,872 lbs. of material from the secondary side of the MPS3 SGs. A visual examination of the uppermost support plate found that the quatrefoil openings were free of any deposit material. DMT is planned to be performed again during 3R17 to further reduce the overall deposit loading.

Polyacrylic Acid (PAA) is a polymeric dispersant used to reduce the SG secondary side deposit fouling rate. The equipment is installed in the plant and the chemicals are on site. Injection of PAA is expected to commence by the end of 2015.

Question 3

Please discuss whether any inspections were performed of the SG channel head. If so, please discuss the results.

DNC Response

Upon opening the SG A and SG C primary channel heads, a general, as-found inspection was performed to identify any obvious abnormalities such as the presence of foreign objects or discoloration. A more detailed bowl scan was then performed which focused on the SG tubesheet cladding, the tube-to-tubesheet welds, the partition divider plate (DP), stub runner (SR), DP-to-channel head cladding weld, SR-to-DP weld, and the SR-to-tubesheet cladding weld. These examinations were performed in each bowl (hot leg and cold leg) to identify any gross degradation of the welds. No degradation of the listed structures was observed during the examinations.

During the as-found and as-left examinations, the cladding was examined visually to identify any discoloration or rust stains which could indicate a breach of the cladding. No discoloration or rust stains were detected.

Question 4

The results of the SG inspections during 3R16 were provided in several tables of the February 9, 2015, letter. Please confirm the following total wear indication numbers are correct for the given locations:

- a. 8 tube support plate (TSP) wear indications in 8 tubes in SG A
- b. 317 anti-vibration bar (AVB) wear indications in 165 tubes in SG A
- c. 6 TSP wear indications in 6 tubes in SG C
- d. 76 AVB wear indications in 39 tubes in SG C

DNC Response

That is correct. The results of the eddy current examinations concluded that in SG A there were 8 TSP wear indications in 8 tubes and 317 AVB wear indications in 165 tubes. In SG C, the eddy current results concluded there were 6 TSP wear indications in 6 tubes and 76 AVB wear indications in 39 tubes.

Question 5

Is there a foreign object remaining near the tube in SG A in row 59, column 60 (since the column for "foreign object remaining" in Table 3 is blank). If a foreign object has been left in service, please discuss the results of any evaluations performed for determining the acceptability of leaving the foreign object in service.

DNC Response

There are no known foreign objects remaining in SG A or SC C.