

Dominion Nuclear Connecticut, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060

Web Address: www.dom.com

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

December 18, 2015



Dominion®

Serial No. 15-565
NLOS/WDC R0
Docket No. 50-336
License No. DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
ELIMINATION OF THE BORAFLEX MONITORING PROGRAM

In a letter to the NRC dated July 24, 1985, Northeast Nuclear Energy Company (NNECO) committed to a long term inservice surveillance program for Boraflex neutron poisoning material used in the Millstone Power Station Unit 2 (MPS2) spent fuel pool. In letters dated October 24, 1996 and May 7, 1997, NNECO notified the NRC of a change to the Boraflex inservice surveillance program to use destructive testing of a spent fuel rack cell in lieu of coupon testing.

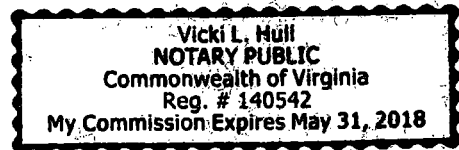
By letter dated December 17, 2012, DNC submitted a license amendment request (LAR) for MPS2 that would remove credit for the use of Boraflex in the criticality analysis for the MPS2 spent fuel pool. DNC requested approval of the LAR by December 2014 with implementation by September 2015.

NRC approval of the December 17, 2012 LAR is anticipated by the end of December 2015. Implementation of the approved LAR will eliminate the need for the Boraflex monitoring program. Per the Boraflex monitoring program, the next Boraflex inspection was planned to be performed near the end of 2015. However, DNC has determined that performance of the next Boraflex inspection is unnecessary pending approval of the December 17, 2012 LAR. Information related to the MPS2 Boraflex monitoring program and justification for not performing the next Boraflex surveillance is provided in the attachment.

Should you have any questions in regard to this submittal, please contact Wanda D. Craft at (804) 273-4687.

Sincerely,

Mark D. Sartain
Vice President – Nuclear Engineering



COMMONWEALTH OF VIRGINIA)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Mark D. Sartain, who is Vice President – Nuclear Engineering of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 18TH day of December, 2015.

My Commission Expires: MAY 31, 2018

Vicki L. Hull
Notary Public

ADD
KRR

Commitments made in this letter: None

Attachment:

1. Justification for Discontinuing the Boraflex Monitoring Program for MPS2

cc: U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd
Suite 100
King of Prussia, PA 19406-2713

Richard V. Guzman
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North, Mail Stop 08 C 2
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Attachment 1

Justification for Discontinuing the Boraflex Monitoring Program for MPS2

**DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2**

In a letter to the NRC dated July 24, 1985, Northeast Nuclear Energy Company (NNECO) committed to a long term inservice inspection program for Boraflex neutron poisoning material used in the Millstone Power Station Unit 2 (MPS2) spent fuel pool. In letters dated October 24, 1996 and May 7, 1997, NNECO notified the NRC of a change to the Boraflex inservice inspection program to use destructive testing of a spent fuel rack cell in lieu of coupon testing.

By letter dated December 17, 2012, DNC submitted a license amendment request (LAR) for MPS2 that would remove credit for the use of Boraflex in the criticality analysis for the MPS2 spent fuel pool. DNC requested approval of the LAR by December 2014 with implementation by September 2015.

The Boraflex monitoring program is described in MPS2 Final Safety Analysis Report (FSAR) Section 15.2.1.2.

MPS2 Boraflex Monitoring Program through 1996

Boraflex inservice surveillance testing through 1996 is detailed in NNECO's response to NRC Generic Letter 96-04, dated October 24, 1996. Coupon measurements, blackness testing results, and destructive examination of two inservice Boraflex panels were discussed in the response to NRC Generic Letter 96-04. The blackness tests verified that total gaps in each panel were less than 4%. Coupon neutron attenuation measurements indicated slight degradation (<7%) in neutron absorption relative to an unirradiated Boraflex sample, but showed no trend with increasing service time. Destructive examination of two Boraflex panels was performed to confirm the results of blackness testing.

MPS2 Boraflex Monitoring Program after 1996

The current MPS2 Boraflex monitoring program includes the following:

- Extract sample material from a high exposure, inservice panel and send material samples to a qualified vendor for neutron attenuation, areal density, and other physical measurements and analysis.
- The presence of gaps greater than assumed in the analysis of record or an areal density less than assumed in the analysis of record, requires a new criticality analysis to be performed.

Boraflex monitoring has been performed by destructive examination since 1996. Poison boxes were removed for analysis at approximately five-year intervals in November 2000, September 2005, and November 2010. During each Boraflex inspection, an inservice Boraflex poison box was physically removed for inspection. The panel with the highest irradiation dose was selected for testing and the stainless steel wrapper enclosing the Boraflex panel was then removed. Visual inspection and gap measurements were then

performed on-site. Four large sections (each 12-15 inches in length) were cut from the test panel and sent for further laboratory measurements including thickness, density, hardness, and B-10 areal density.

Total panel gaps (some panels have more than one gap) were found to be 2-3%, well within the gap area assumed in the criticality analysis of record. Areal density measurements were performed at eight separate locations on each test panel section. The results indicated greater B-10 areal density for each five-year inspection than the original design value (0.030 g/cm²). No areal density trend versus service time or panel dose was evident in the data for each five-year inspection. Only one of the three test panels exhibited erosion of the Boraflex. The area of erosion was small (4 square inches), and corresponded to approximately 10% of the equivalent gap area assumed in the criticality analysis of record.

It is concluded from the results of the MPS2 Boraflex monitoring program that the key attributes of the Boraflex (areal density and gaps) remain well within the conditions assumed in the existing criticality analysis of record. The MPS2 Boraflex inservice monitoring program has provided data indicating the Boraflex poison material has performed satisfactorily to date. The margin between the analyzed condition and most recently inspected condition of the Boraflex, as well as the absence of an adverse trend in gap size and B-10 areal density over the course of the 2000-2010 examinations, provides assurance that the criticality analysis of record has remained valid between the five-year inspection intervals.

NRC approval of the December 17, 2012 LAR is anticipated by the end of December 2015. Implementation of the approved LAR will eliminate the credit for Boraflex in the MPS2 spent fuel pool and therefore the need for the Boraflex monitoring program. Accordingly, DNC has determined performance of the next Boraflex inspection is unnecessary for the following reasons:

- Removal of the poison box for Boraflex testing would preclude the use of a spent fuel rack cell in the future.
- Removal of a poison box for Boraflex testing would result in significant cost and dose.
- The analysis of the Boraflex poison box material is irrelevant regardless of the results, since approval of the LAR will eliminate credit for Boraflex and the need for the inspection.
- Results from the B-10 areal density content testing of the Boraflex would not be available for several months which will be after approval of the LAR.

The MPS2 Boraflex monitoring program has provided data indicating the Boraflex material has performed satisfactorily to date. The results of the monitoring program provide assurance that the criticality analysis of record has remained valid between the five-year inspection intervals. Performance of the next inspection is impractical and unnecessary for the reasons stated above. Therefore, DNC does not intend to remove a poison box to perform a Boraflex inspection prior to approval of the December 17, 2012 LAR.

Approval of the requested December 17, 2012 LAR is anticipated by the end of 2015. Upon implementation of the approved LAR, the Boraflex Monitoring Program for MPS2 will be discontinued.

References:

1. Letter from J. Alan Price (DNC) to USNRC, "Millstone Power Station, Unit No. 2, Technical Specifications Change Request (TSCR) 2-10-01, Fuel Pool Requirements," November 6, 2001. (ADAMS Accession No. ML013510295)
2. Letter from Richard B. Ennis (NRC) to J. A. Price (DNC), "Millstone Power Station, Unit No. 2 - Issuance of Amendment Re: Spent Fuel Pool Requirements (TAC NO. MB3386)," April 1, 2003. (ADAMS Accession No. ML030910485)
3. Letter from T. L. Harpster to T. C. Feigenbaum, Connecticut Yankee Atomic Power Company, Northeast Nuclear Energy Company, to USNRC, "Haddam Neck Plant, Millstone Nuclear Power Station, Unit Nos. 1, 2, and 3, Response to Generic Letter 96-04, Boraflex Degradation in Spent Fuel Storage Racks," October 24, 1996.
4. Letter from J. A. Price to U. S. NRC, "Millstone Power Station, Unit No. 2, Response to a Request for Additional Information Technical Specifications Change Request (TSCR) 2-10-01, Fuel Pool Requirements," dated July 15, 2002.
5. Letter from M. L. Bowling to U. S. NRC, "Millstone Power Station, Unit No. 2, Spent Fuel Rack Poison Surveillance Coupon Program," dated May 7, 1997.