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February 25, 2013

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

Serial No. 12-678A  
NLOS/WDC R0  
Docket No. 50-336  
License No. DPR-65

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 2**  
**SUPPLEMENT TO LICENSE AMENDMENT REQUEST REGARDING PROPOSED**  
**TECHNICAL SPECIFICATIONS CHANGES FOR SPENT FUEL STORAGE**

By letter dated December 17, 2012, Dominion Nuclear Connecticut, Inc. (DNC) submitted a license amendment request (LAR) for Millstone Power Station Unit 2 (MPS2). The proposed amendment would revise Technical Specification (TS) 1.39 "Storage Pattern," TS 3.9.18, "Spent Fuel Pool – Storage," TS 3.9.19, "Spent Fuel Pool – Storage Patterns," TS 5.3.1 "Fuel Assemblies," TS 5.6.1, "Criticality," and TS 5.6.3, "Capacity" with conforming changes to Technical Specifications Bases (TSB) 3/4.9.18 and 3/4.9.19. The proposed changes would reflect the results and constraints of a new criticality safety analysis for fuel assembly storage in the MPS2 fuel storage racks. DNC requested approval of the LAR by December 2014 with implementation by September 2015, to allow time to load multiple dry storage casks and rearrange fuel in the spent fuel pool.

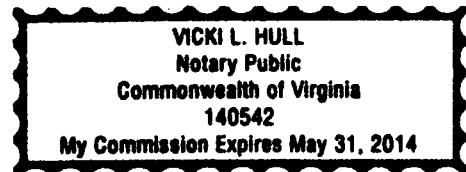
In a letter dated February 11, 2013, the NRC provided DNC an opportunity to supplement the LAR identified above. The NRC requested the justification for the continued credit for Boraflex.

Attachment 1 provides DNC's response to the NRC's request.

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

Sincerely,

Eugene S. Grecheck  
Vice President – Nuclear Engineering and Development



COMMONWEALTH OF VIRGINIA                    )  
  )  
COUNTY OF HENRICO                            )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President – Nuclear Engineering and Development 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 25<sup>TH</sup> day of February, 2013.

My Commission Expires: 5-31-14

*Vicki L. Hull*  
Notary Public

A001  
NRK

Commitments made in this letter: None

Attachments:

1. Supplement to License Amendment Request Regarding Proposed Technical Specifications Changes For Spent Fuel Storage – Justification for Continued Credit for Boraflex

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**Attachment 1**

**Supplement to License Amendment Request Regarding Proposed Technical  
Specifications Changes For Spent Fuel Storage – Justification for Continued Credit  
for Boraflex**

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

## **Justification for Continued Credit for Boraflex**

In a letter dated February 11, 2013, the NRC provided DNC an opportunity to supplement the license amendment request (LAR) related to spent fuel storage submitted to the NRC in a letter dated December 17, 2012 (DNC letter Serial No. 12-678). The LAR would eliminate credit for Boraflex. The NRC requested justification for the continued credit for Boraflex from now until approval of the LAR. The discussion for the continued credit for Boraflex provided below also applies to the interim period after LAR approval and before implementation of the approved LAR.

The requested information is provided below:

### Current Licensing Basis for the Millstone Power Station, Unit 2 Spent Fuel Pool

The existing Spent Fuel Pool (SFP) criticality analysis licensing basis for Millstone Power Station, Unit 2 (MPS2) was submitted in Reference 1 and approved in Reference 2. The Reference 1 analysis credits Boraflex, in the Region A and B racks, which were installed in 1986.

Region A permits fuel assembly storage with maximum burnup credit of 6.835 GWd/MTU. Region B permits storage of fuel with up to 4.85 wt% U-235 initial enrichment with no burnup credit in a 3-out-of-4 configuration. Boraflex panels in Regions A and B are modeled in the criticality analysis using as-designed dimensions except for the assumption of a single 5.65 inch gap in each panel (representing 4% axial shrinkage) located near the midplane of the fuel. Boraflex B-10 areal density is assumed to be 0.025 g/cc, which is significantly less than the design value of 0.033 g/cc.

### MPS2 Boraflex Monitoring Program through 1996

The Boraflex monitoring program is described in MPS2 FSAR Section 15.2.1.2. Boraflex in-service testing through 1996 is detailed in the Northeast Utilities Service Company response to NRC Generic Letter 96-04 dated October 24, 1996 [Reference 3]. Coupon measurements, blackness testing results, and destructive examination of two in-service Boraflex panels are discussed in Reference 3. 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 panels was performed to confirm the results of blackness testing.

### MPS2 Boraflex Monitoring Program after 1996

Boraflex monitoring has been performed by destructive examination since 1996 (2000, 2005, and 2010). During each Boraflex inspection effort, an in-service Boraflex poison box was physically removed for inspection. The test panel was selected from among those with the highest irradiation dose and the stainless steel wrapper enclosing the Boraflex panel was then removed. Visual inspection and gap measurements were performed on-

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

Total panel gaps (some panels have more than one gap) have been found to be 2-3%, well within the amount assumed in the criticality analysis. Areal density measurements were performed on eight separate locations of each panel section with results that indicated greater B-10 areal density for all measurements in the three examinations than the original design value (0.033 g/cc). No areal density trend versus service time or panel dose was evident in the data for these three examinations. Only one of the three panels exhibited erosion of the Boraflex. The area of erosion was small (4 square inches), and corresponds to approximately 10% of the equivalent gap area assumed in the criticality analysis.

#### Conclusions Regarding MPS2 Compliance with the Requirements of 10CFR50.68

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. The MPS2 Boraflex in-service testing (IST) program: (1) has provided data indicating the Boraflex material has performed acceptably to date; and (2) provides acceptable methods for assessing Boraflex degradation in the future. The margin between the analyzed and most recently tested condition of Boraflex, as well as the absence of an adverse trend in gap size and B-10 areal density in the 2000-2010 examinations, provides assurance that the criticality analysis remains valid between the five year inspection campaigns. The MPS2 criticality analysis and the credit taken for Boraflex remains in compliance with the applicable regulatory requirements in 10 CFR 50.68. Current results indicate continued compliance through September 2015, at which time DNC is proposing to eliminate the credit for Boraflex.

#### 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.