



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 27, 2017

Mr. Mark D. Sartain
Vice President – Nuclear Engineering and
Fleet Support
Virginia Electric and Power Company
Dominion Nuclear Connecticut, Inc.
5000 Dominion Blvd.
Richmond, VA 23261

**SUBJECT: MILLSTONE POWER STATION UNIT NO. 3 – REQUEST FOR
SUPPLEMENTAL INFORMATION REGARDING GENERIC LETTER 2016-01,
“MONITORING OF NEUTRON-ABSORBING MATERIALS IN SPENT FUEL
POOLS” (CAC NO. MF9430; EPID L-2016-LRC-0001)**

Dear Mr. Sartain:

On April 7, 2016, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2016-01, “Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools” (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16097A169), to address the degradation of neutron-absorbing materials (NAMs) in wet storage systems for reactor fuel at power and non-power reactors.

GL 2016-01 requested that licensees provide information to allow the NRC staff to verify continued compliance through effective monitoring to identify and mitigate any degradation or deformation of NAMs credited for criticality control in spent fuel pools.

To facilitate each licensee’s response, GL 2016-01 established four categories: Category 1, Category 2, Category 3, and Category 4. Categories 1, 2, and 3 were established to identify situations where a detailed response to GL 2016-01 would not be required. The categorization criteria were generally based on whether or not a licensee credits NAMs for criticality control and if a licensee has or will soon have an approved monitoring program for NAMs in the plant technical specifications or as a license condition. A full description of these categories can be found in Enclosure 1 to this letter.

By letter dated November 1, 2016 (ADAMS Accession No. ML16312A064), Dominion Nuclear Connecticut, Inc. (the licensee) submitted information in response to GL 2016-01 (Enclosure 2 to this letter references the Millstone Power Station, Unit No. 3 (Millstone) information).

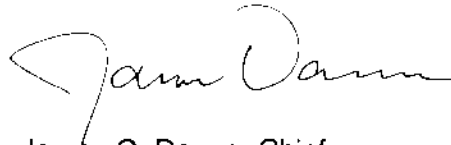
To complete its review, the NRC staff requests the licensee provide the supplemental information for Millstone requested in Enclosure 3 to this letter. During a discussion with your staff on October 16, 2017, it was agreed that you would provide a response within 30 days from the date of this letter.

M. Sartain

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In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter and its enclosures 2 will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

A handwritten signature in black ink that reads "James G. Danna". The signature is written in a cursive style with a large, stylized initial "J".

James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures:

1. List of Generic Letter 2016-01 Categories
2. Millstone Power Station Information
3. Request for Supplemental Information
for Millstone

cc w/Enclosures: Distribution via Listserv

LIST OF GENERIC LETTER 2016-01 CATEGORIES

- Category 1: Power reactor addressees that do not credit neutron-absorbing materials other than soluble boron in the analysis of record (AOR). In some cases, no neutron-absorbing material is present in the spent fuel storage racks, and in other cases, credit for the neutron-absorbing material has been removed through a regulatory action (e.g., approved license amendment). Those addressees may submit a response letter confirming that no neutron-absorbing materials are currently credited to meet NRC subcriticality requirements in the spent fuel pool (SFP).
- Category 2: Power reactor addressees that have an approved license amendment to remove credit for existing neutron-absorbing materials and that intend to complete full implementation no later than 24 months after the issuance of this GL. Licensees may request extensions to this implementation timeframe if there are extenuating circumstances. Those addressees may submit a response letter affirming that they will implement the approved license amendment request within the specified time. However, they must still provide information equivalent to Category 3 or Category 4 for any other neutron-absorbing material credited in the SFP criticality AOR after the license amendment has been fully implemented.
- Category 3: Power reactor addressees that have incorporated their neutron-absorbing material monitoring programs into their licensing basis through an NRC-approved technical specification (TS) change or license condition. Those addressees may submit a response letter referencing their approved TS change or license condition and affirming that no change has been made to their neutron-absorbing material monitoring program, as described in the referenced license amendment request. If a change has been made since NRC approval of the reference, the response letter should also describe any such changes. (Licensees with a monitoring program approved as part of a license amendment request or license renewal application that was not incorporated as a TS change or license condition are considered to belong in Category 4.)
- Category 4: All other power reactor addressees. The NRC seeks information in five areas depending upon the type of neutron-absorber material used by the licensee in the SFP.

MILLSTONE POWER STATION INFORMATION

Plant	Incoming Letter (ADAMS Accession No.)	CAC No.
Millstone Power Station, Unit No. 3	ML16312A064	MF9430

REQUEST FOR SUPPLEMENTAL INFORMATION

DOMINION NUCLEAR CONNECTICUT, INC.

MILLSTONE POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

By letter dated November 1, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16312A064), Dominion Nuclear Connecticut, Inc. (the licensee) provided information in response to Generic Letter 2016-01, "Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools" (ADAMS Accession No. ML16097A169), for Millstone Power Station, Unit No. 3 (MPS3). The U.S. Nuclear Regulatory Commission (NRC) staff requests the following information in order to complete its review.

Plant-Specific Monitoring Information

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.68, "Criticality accident requirements," and 10 CFR Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 62, "Prevention of Criticality in Fuel Storage and Handling," provide the requirements for licensees with regard to maintaining subcriticality in the spent fuel pool (SFP). For licensees that utilize neutron-absorbing materials (NAM) in the SFP, the 10B areal density (AD) of the NAM must be verified so that the assumption for the ¹⁰B minimum AD in the SFP criticality analysis is supported. In order for the NRC staff to verify that the requirements of 10 CFR 50.68 and GDC 62 are met, the staff needs to ensure the programs in place to monitor the condition of the NAM in the SFP are appropriate for their intended purpose. By evaluating the programs that monitor the condition of the NAM in the SFP, the NRC staff will be able to determine whether or not the requirements of 10 CFR 50.68 and GDC 62 will be met. In addition, the condition of the NAM must be considered in the SFP nuclear criticality safety (NCS) AOR. In order to verify whether or not the requirements of 10 CFR 50.68 and GDC 62 will be met, the staff needs to verify that the potential reactivity changes due to degradation or physical changes to the NAM are accounted for in the SFP NCS AOR.

MPS3-1. In the response to question 2)b)ii)4), the licensee states that there may not be enough coupons remaining for the life of the SFP and that two alternatives are being pursued to extend the life of the coupon monitoring program. These alternatives include either extending the interval between tests and/or reinserting the coupons into the SFP.

- a. Provide the potential extended surveillance intervals for the test coupons.
- b. In addition, under what conditions are the Boral coupons that have been previously removed from the SFP being stored?
- c. Provide the justification to reinsert coupons as described in question 2)b)ii)3).

MPS3-2. In the response to question 1)e)iii), the licensee states that there has been no observed degradation of the Boral material. However, the estimated current minimum $^{10}\text{B AD}$ in the response to question 1)e)i) appears to be lower than the minimum as-built $^{10}\text{B AD}$ in the response to question 1)b)ii). Why is the estimated current minimum lower than the as-built, if no signs of degradation have been observed?

M. Sartain

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