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December 21, 2023

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

Serial No. 23-126C
NRA/SS: R0
Docket No. 50-423
License No. NPF-49

DOMINION ENERGY NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
PROPOSED LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL
SPECIFICATIONS FOR REACTOR CORE SAFETY LIMITS, FUEL ASSEMBLIES,
AND CORE OPERATING LIMITS REPORT RELATED TO FRAMATOME GAIA FUEL

By letter dated May 23, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23145A195), Dominion Energy Nuclear Connecticut, Inc. (DENC) submitted a license amendment request (LAR) to the Nuclear Regulatory Commission (NRC) to revise the Technical Specifications (TS) for Millstone Power Station Unit 3 (MPS3). The LAR proposes to revise the MPS3 TSs to support the use of Framatome GAIA fuel with M5™ fuel cladding material, which is currently scheduled for insertion into the MPS3 reactor during the spring 2025 refueling outage. The proposed TS changes include updating the Reactor Core Safety Limits (TS 2.1.1.2), Fuel Assemblies Design Features (TS 5.3.1), and list of approved methodologies for the Core Operating Limits Report (TS 6.9.1.6.b).

In an email dated October 20, 2023, the NRC issued a draft request for additional information (RAI) related to the proposed LAR. On November 6, 2023, the NRC staff conducted a conference call with DENC staff to clarify the request. In an email dated November 14, 2023, the NRC transmitted the final version of the RAI (ADAMS Accession No. ML23318A095). DENC agreed to respond to the RAI within 45 days of issuance, or no later than December 29, 2023.

Proprietary versions and non-proprietary versions of DENC's response to the RAI are provided in Attachment 1 and 2, respectively. Proprietary versions and non-proprietary versions of supplemental information related to ANP-4040P/NP (Millstone Unit 3 Mechanical Design Report for GAIA Fuel Transition), Table 5-1 are provided in Attachment 3 and 4, respectively. Attachment 5 provides an application for withholding and affidavit from Framatome Inc.

Attachments 1 and 3 contain information proprietary to Framatome Inc. (Framatome) and is supported by an affidavit (Attachment 5) signed by Framatome, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations. Accordingly, it is

Attachments 1 & 3 contain information that is being withheld from public disclosure under 10 CFR 2.390. Upon separation from Attachments 1 & 3, this letter is decontrolled.

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Attachment 2

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
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(NON-PROPRIETARY)**

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Millstone Power Station Unit 3**

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This attachment provides the non-proprietary version of DENC's response to the RAI.

RAI 1

In Attachment 3, ANP-4040P, Revision 0, "Millstone Unit 3 Mechanical Design Report for GAIA Fuel Transition, Licensing Report (Proprietary)," Page 4-4, Table 4-1, "Fuel Assembly Drop Accident," and Page 5-21, Section 5.1.7.3, "Fuel Assembly Drop Accident Results," the licensee describes methods and results for fuel assembly drop accidents in containment and in the spent fuel pool.

- a. *Table 4-1 of ANP-4040P does not provide a reference for the methodology used for analyzing a fuel handling accident. Please describe any changes in the analytical approach for this event, relative to the information provided in Section*

15.7.4 and Table 15.7-8 of Revision 30 of the MPS3 Updated Final Safety Analysis Report (UFSAR), which the NRC staff consulted during its review. Please further provide technical justification for any changes to the existing licensing-basis methodology.

- b. Section 5.1.7.3 of ANP-4040P identifies that the number of fuel rod failures predicted for a fuel handling accident in containment [[*

]]. This result differs significantly from the identical results described for these two fuel handling accident scenarios in Section 15.7.4 and Table 15.7-8 of Revision 30 of the MPS3 UFSAR. Please explain the reason for the significant change in the calculated results for the fuel handling accident in containment and provide adequate technical basis.

DENC Response to RAI-1-(a.)

The methodology used for analyzing the fuel handling accident is described in MPS3 FSAR Sections 15.7.4.2.1 and 15.7.4.2.2 and is consistent with Regulatory Guide (RG) 1.183 (except as discussed in the FSAR). No changes have been made to the methodology for analyzing the fuel handling accident, as described in the FSAR. The number of failed rods assumed within the MPS3 fuel handling accident is unchanged by the introduction of Framatome GAIA fuel.

The number of failed fuel rods assumed within the MPS3 fuel handling accident was verified for the Westinghouse RFA-2 fuel as part of the Stretch Power Uprate (SPU) submittal (ADAMS Accession Package ML072000384), Attachment 5, Section 2.9.2.2.7.3, which was approved as Amendment 242 (ADAMS Accession Package ML082180137). The number of failed fuel rods assumed within the MPS3 fuel handling accident was verified for the Framatome GAIA fuel as part of the Mechanical Design Report attached to this LAR submittal.

It should be noted that a transcription error has been identified within the MPS3 SPU LAR (ADAMS Accession Package ML072000384), Attachment 5, Section 2.9.2.2.7.3.1. The maximum drop height value for an assembly in the spent fuel pool was incorrectly reported as 2 feet 8.4 inches (which is the drop height for the insert component fuel handling accident); the correct value is 1.575 ft. The results and conclusions presented in the SPU LAR for the fuel handling accident are consistent with the correct drop height. Therefore, the overall conclusions of the MPS3 SPU LAR are unaffected by the incorrectly reported value.

DENC Response to RAI-1-(b.)

The difference in quantity of failed fuel rods predicted between the containment fuel handling accident and the spent fuel pool fuel handling accident reported in ANP-4040P, is primarily attributed to the significant difference in drop height inputs for each scenario (drop height is approximately 8.5x higher in containment than in the spent fuel pool). The Framatome analysis conservatively assumes that the [[

]]. Thus, Framatome's prediction for number of failed fuel rods during a fuel handling accident is sensitive to drop height.

The Westinghouse analysis allows for the impact energy to be absorbed through deformation of the assembly's structural components (i.e., the lower nozzle of the dropped assembly and the upper nozzle of the impacted assembly). This is offset by conservatively assuming failure of all fuel rods in the dropped assembly, regardless of drop height. Thus, Westinghouse's prediction for the number of failed fuel rods during a fuel handling accident is less sensitive to drop height.

RAI 2

Attachment 3, ANP-4040P, Revision 0, "Millstone Unit 3 Mechanical Design Report for GAIA Fuel Transition, Licensing Report (Proprietary)," Table 4-11, Limitation and Condition (L&C) 2 states, " If there are changes involving the power peaking maps or other input parameters for the response surface applications, the core protection analysis should be submitted for review." Please clarify the manner in which the licensee envisions complying with this limitation and condition for the first operating cycle with GAIA fuel. Are there any events for which DNB is predicted for which the BAW-10183 methodology would be applied, and if so, are the envisioned MPS3 core designs bounded by the power peaking maps and other input parameters discussed in the NRC staff's accompanying safety evaluation?

DENC Response to RAI-2

There are no events for which DNB is predicted where the BAW-10183 methodology will be applied for the first operating cycle with GAIA fuel at MPS3. Thus, the methodology of BAW-10183 is not needed to support transition to Framatome GAIA fuel at MPS3. If it becomes necessary to apply the methodology of BAW-10183 to GAIA fuel at MPS3 in the future, the change will be evaluated under the provisions of 10 CFR 50.59. Any applications of BAW-10183 that require prior NRC approval (per 10 CFR 50.59 evaluation) will be submitted for NRC review before implementation.

RAI 3

Regarding Attachment 3, ANP-4040P, Revision 0, "Millstone Unit 3 Mechanical Design Report for GAIA Fuel Transition, Licensing Report (Proprietary)," Page 4-22, Table 4-14, please explain the basis for the conclusion that L&C 1 is satisfied. In particular, unlike L&C 2 in the same table, there is no explicit exclusion stated in L&C 1 for components for which buckling establishes the load limit. Furthermore, considering that [[

]], it is not clear to the staff that an exclusion for all buckling-limited components was intended. Please provide an acceptable technical basis that L&C 1, parts b. and c. are satisfied or not applicable.

DENC Response to RAI-3

L&C 1, parts b. and c. are satisfied. [[

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RAI 4

Regarding the [[*]] in Section 5.1.6.3.2.1 of ANP-4040, please provide additional information concerning the acceptability of this outcome, particularly:*

a. Clarification [[

]] (e.g., as compared to the uniform plastic deformation limits established in the ANP-10337 methodology for peripheral fuel assemblies).

b. A more detailed basis for [[

]].

c. Discussion concerning whether any [[

]].

d. Please clarify whether the proposed LAR is [[

]].

DENC Response to RAI-4-(a.) & RAI-4-(b.)

[[

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DENC Response to RAI-4-(c.)

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DENC Response to RAI-4-(d.)

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Attachment 4

SUPPLEMENTAL INFORMATION RELATED TO ANP-4040P/NP, TABLE 5-1
(NON-PROPRIETARY)

Dominion Energy Nuclear Connecticut, Inc.
Millstone Power Station Unit 3

The purpose of this attachment is to provide supplemental information (non-proprietary version) in support of the NRC's review of the Millstone Power Station Unit 3 (MPS3) license amendment request (LAR) dated May 23, 2023 (ML23145A195).

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Dominion Energy Nuclear Connecticut, Inc. (DENC) has reviewed these corrections, and determined that there is no impact to the overall conclusions of the subject MPS3 LAR submittal.

Attachment 5

FRAMATOME APPLICATION FOR WITHHOLDING AND AFFIDAVIT

**Dominion Energy Nuclear Connecticut, Inc.
Millstone Power Station Unit 3**

A F F I D A V I T

1. My name is Morris Byram. I am Product Manager, Licensing & Regulatory Affairs for Framatome Inc. (Framatome) and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by Framatome to determine whether certain Framatome information is proprietary. I am familiar with the policies established by Framatome to ensure the proper application of these criteria.

3. I am familiar with the Framatome information contained in Attachment D to Dominion Energy letter Serial No. 23-126C(O), entitled "Millstone Unit 3: GAIA Fuel Transition Mechanical Design Report Letter S/N 23-126C Request for Additional Information Responses," and referred to herein as "Document." Information contained in this Document has been classified by Framatome as proprietary in accordance with the policies established by Framatome for the control and protection of proprietary and confidential information.

4. This Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by Framatome and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in this Document as proprietary and confidential.

5. This Document has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in this Document be withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure is requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information."

6. The following criteria are customarily applied by Framatome to determine whether information should be classified as proprietary:

- (a) The information reveals details of Framatome's research and development plans and programs or their results.
- (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.
- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for Framatome.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for Framatome in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by Framatome, would be helpful to competitors to Framatome, and would likely cause substantial harm to the competitive position of Framatome.

The information in this Document is considered proprietary for the reasons set forth in paragraph 6(c) and 6(d) above.

7. In accordance with Framatome's policies governing the protection and control of information, proprietary information contained in this Document has been made available, on a limited basis, to others outside Framatome only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. Framatome policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: (12/15/2023)

(NAME)
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