PROPRIETARY INFORMATION-WITHHOLD UNDER 10 CFR 2.390

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Dominion Energy®

May 20, 2021

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

Serial No.	21-154
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 FOR PROPOSED LICENSE AMENDMENT REQUEST TO ADD AN ANALYTICAL METHODOLOGY TO THE CORE OPERATING LIMITS REPORT FOR A LARGE BREAK LOSS OF COOLANT ACCIDENT

By letter dated November 5, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20310A324), Dominion Energy Nuclear Connecticut, Inc. (DENC), submitted a license amendment request (LAR) to the Nuclear Regulatory Commission (NRC) for Millstone Power Station, Unit No. 3 (MPS3). The proposed amendment would revise Technical Specification (TS) 6.9.1.6.b by adding WCAP-16996-P-A, Revision 1, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (Full Spectrum LOCA Methodology)," to the list of methodologies approved for reference in the Core Operating Limits Report (COLR) for MPS3. The added reference identifies the analytical methods used to determine the core operating limits for the large break loss of coolant accident (LBLOCA) event described in the MPS3 Final Safety Analysis Report.

In an email dated March 31, 2021, the NRC issued a draft request for additional information (RAI) related to the proposed LAR. On April 13, 2021, the NRC staff conducted a conference call with DENC staff to clarify the request. In an email dated April 15, 2021, the NRC transmitted the final version of the RAI (ADAMS Accession No. ML21105A115). DENC agreed to respond to the RAI within 45 days of issuance, or no later than May 31, 2021.

The proprietary information in Attachment 3 is supported by an affidavit (Attachment 2) signed by Westinghouse Electric Company LLC., the owner of the information. The attached affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses, with specificity, the considerations listed in paragraph (b)(4) of 10 CFR 2.390. Accordingly, it is respectfully requested that the information that is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.390.

Attachment 3 contains proprietary information that is being withheld from public disclosure under 10 CFR 2.390. Upon separation of Attachment 3, this letter is decontrolled.

Correspondence with respect to the copyright or proprietary aspects of the items listed above, or the supporting Westinghouse affidavit, should reference CAW-21-5177 (Attachment 2) and should be addressed to Camille T. Zozula, Manager, Regulatory Compliance & Corporate Licensing, Westinghouse Electric Company, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

DENC's response to the RAI is provided in Attachment 1 (non-proprietary) and Attachment 3 (proprietary). Westinghouse's affidavit for withholding proprietary information is provided in Attachment 2.

If you have any questions or require additional information, please contact Shayan Sinha at (804) 273-4687.

Sincerely,

Mark D. Sartain
Vice President – Nuclear Engineering & Fleet Support

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Mr. Mark D. Sartain, who is Vice President – Nuclear Engineering and Fleet Support of Dominion Energy 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 20th day of May, 2021.

My Commission Expires: 12/31/24

Notary Public

CRAIG D SLY
Notary Public
Commonwealth of Virginia
Reg. # 7518653
My Commission Expires December 31, 2024

Attachments:

1. Response to Request for Additional Information Regarding LAR to Add an Analytical Methodology to the COLR for a LBLOCA (Non-Proprietary)
2. Westinghouse Affidavit for Withholding Proprietary Information (Non-Proprietary)
3. Response to Request for Additional Information Regarding LAR to Add an Analytical Methodology to the COLR for a LBLOCA (Proprietary)

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission
Region I
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King of Prussia, PA 19406-2713

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NRC Senior Resident Inspector
Millstone Power Station

Director, Radiation Division
Department of Energy and Environmental Protection
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ATTACHMENT 1

Response to Request for Additional Information Regarding LAR to Add an Analytical Methodology to the COLR for a LBLOCA (Non-Proprietary)

MILLSTONE POWER STATION UNIT 3
DOMINION ENERGY NUCLEAR CONNECTICUT, INC.

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The non-proprietary version of DENC's response to the RAI is provided in this attachment.

Background

The added reference identifies the analytical methods used to determine the core operating limits for the large break loss of coolant accident (LBLOCA) event described in the MPS3 Final Safety Analysis Report (FSAR), Section 15.6.5, "Loss-of-Coolant Accidents Resulting from a Spectrum of Postulated Piping Breaks within the Reactor Coolant Pressure Boundary." The amendment also proposes to remove an obsolete COLR reference that is no longer used to support MPS3 core reload analysis.

The NRC staff has determined that additional information is needed to complete its review, as described in the request for additional information (RAI) shown below.

Regulatory Basis:

The regulations in 10 CFR 50.46(b) require during LOCA events, the following criteria are met:

(1) Peak cladding temperature. The calculated maximum fuel element cladding temperature shall not exceed 2200° F.

(2) Maximum cladding oxidation. The calculated total oxidation of the cladding shall nowhere exceed 0.17 times the total cladding thickness before oxidation.

(3) Maximum hydrogen generation. The calculated total amount of hydrogen generated from the chemical reaction of the cladding with water or steam shall not exceed 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react.

(4) Coolable geometry. Calculated changes in core geometry shall be such that the core remains amendable to cooling

RAI-1

In Reference 1, Attachment 3, Limitation and Condition 2, under "Compliance" –

(a) The licensee refers to LTR-NRC-18-30 (Reference 3) and LTR-NRC-19-6 (Reference 4) which describe changes to the Westinghouse small-break loss-of-coolant accident (LOCA) and LBLOCA emergency core cooling system (ECCS) evaluation models and the impact of these changes. These references provide generically estimated effect on the peak cladding temperature (PCT). In Reference 1, Attachment 3, Section 5.0, the FSLOCA Evaluation Model (EM) referred to is Revision 1, dated November 2016 which is not updated by incorporating the errors reported in References 3 and 4. Confirm that the MPS3 LBLOCA analysis was performed with the updated code after removing all errors reported in References 3 and 4. If the code was not updated, provide reasons, and justify quantitatively that the MPS3 LBLOCA analysis performed (without updating the code) has no impact on PCT, maximum local oxidation (MLO), core wide oxidation (CWO), and minimum containment back pressure.

(b) References 3 and 4 do not report the error identified in Reference 5 that impacts the gamma energy redistribution multiplier. If applicable to MPS3, provide an evaluation of its impact on the MPS3 LBLOCA analysis PCT result and its thermal-hydraulic response. In case it is not applicable to MPS3, provide reasons.

DENC Response to RAI-1, part a.

The MPS3 analysis using the FSLOCA EM utilized a version of the WCOBRA/TRAC-TF2 code which incorporated the changes and error corrections described in LTR-NRC-18-30 (Reference 3) and LTR-NRC-19-6 (Reference 4). It is confirmed that the analysis was performed with the updated code which removed the errors applicable to the FSLOCA EM, as reported in References 3 and 4.

DENC Response to RAI-1, part b.

The error related to gamma energy redistribution discussed therein was not an error in the FSLOCA EM or the WCOBRA/TRAC-TF2 code, but rather an error in the plant-specific implementation of the methodology for North Anna Units 1 and 2. As such, the error was not reported in the Westinghouse communications as a methodology error for the FSLOCA EM. The implementation error did not occur in the execution of the MPS3 analysis using the FSLOCA EM, and as a result the as-approved methodology related to gamma energy redistribution was correctly applied. Therefore, the error is not applicable to the MPS3 FSLOCA EM analysis.

RAI-2

In Reference 1, Attachment 3, Section 3.0, the description of Region II analysis does not provide the LBLOCA break spectrum scenarios that were analyzed. Provide the break spectrum, i.e., the PCTs versus break areas and MLOs versus PCTs that were analyzed from which the limiting results reported in Table 5 were obtained.

DENC Response to RAI-2

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]a,c

The uncertainty analysis methodology used in the FSLOCA EM is described in Section 30 of WCAP-16996-P-A, Revision 1. A Monte Carlo sampling of all uncertainty contributors leads to the generation of a sample of simulated results from which upper tolerance limits are derived for the analysis figures of merit (PCT, MLO, CWO).
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[a,c

]a,c

Figure RAI-2-1 [

[ ]a,c

Figure RAI-2-2 [ ]a,c

[a,c

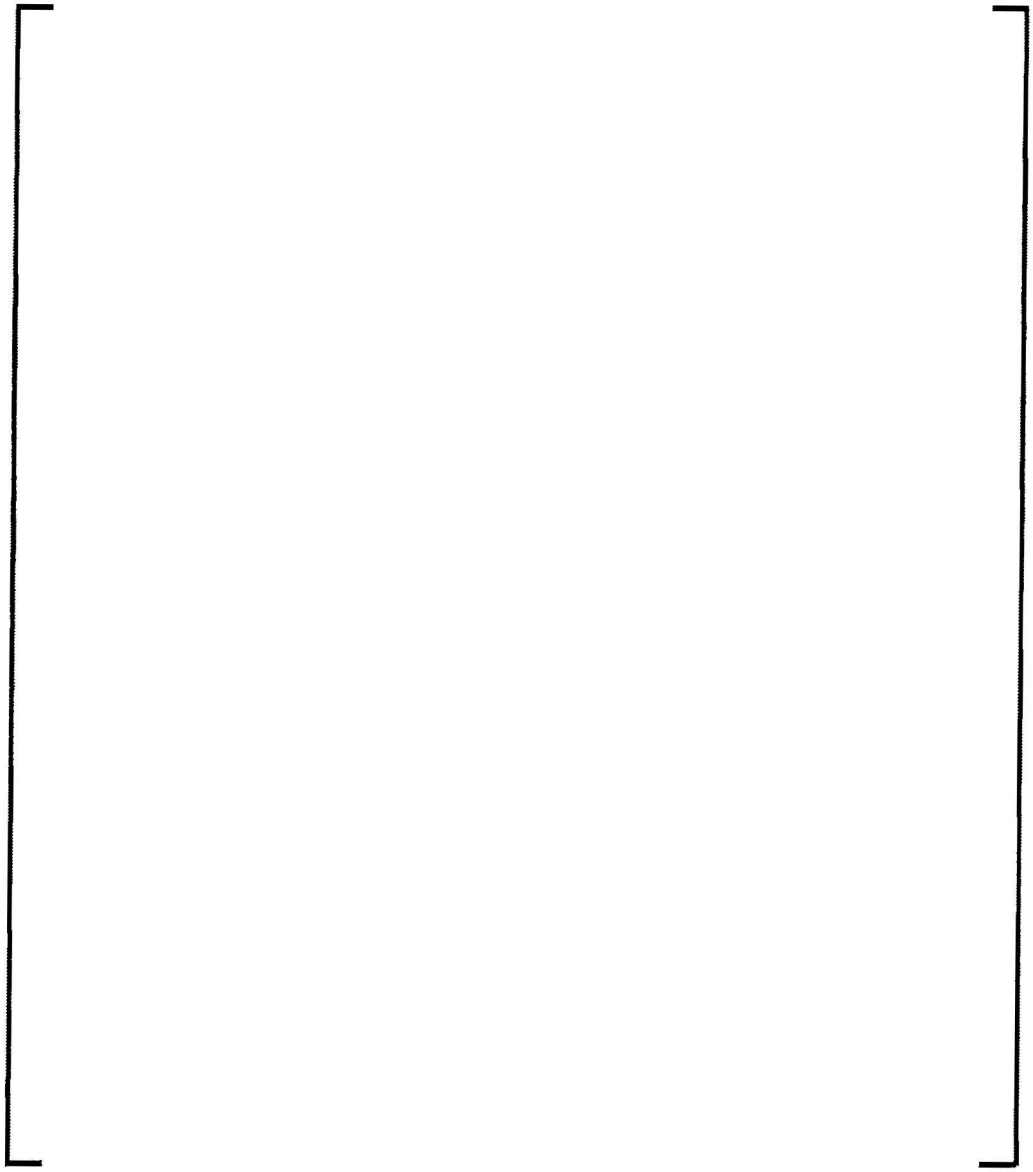

Figure RAI-2-3 [ ]a,c

[a,c

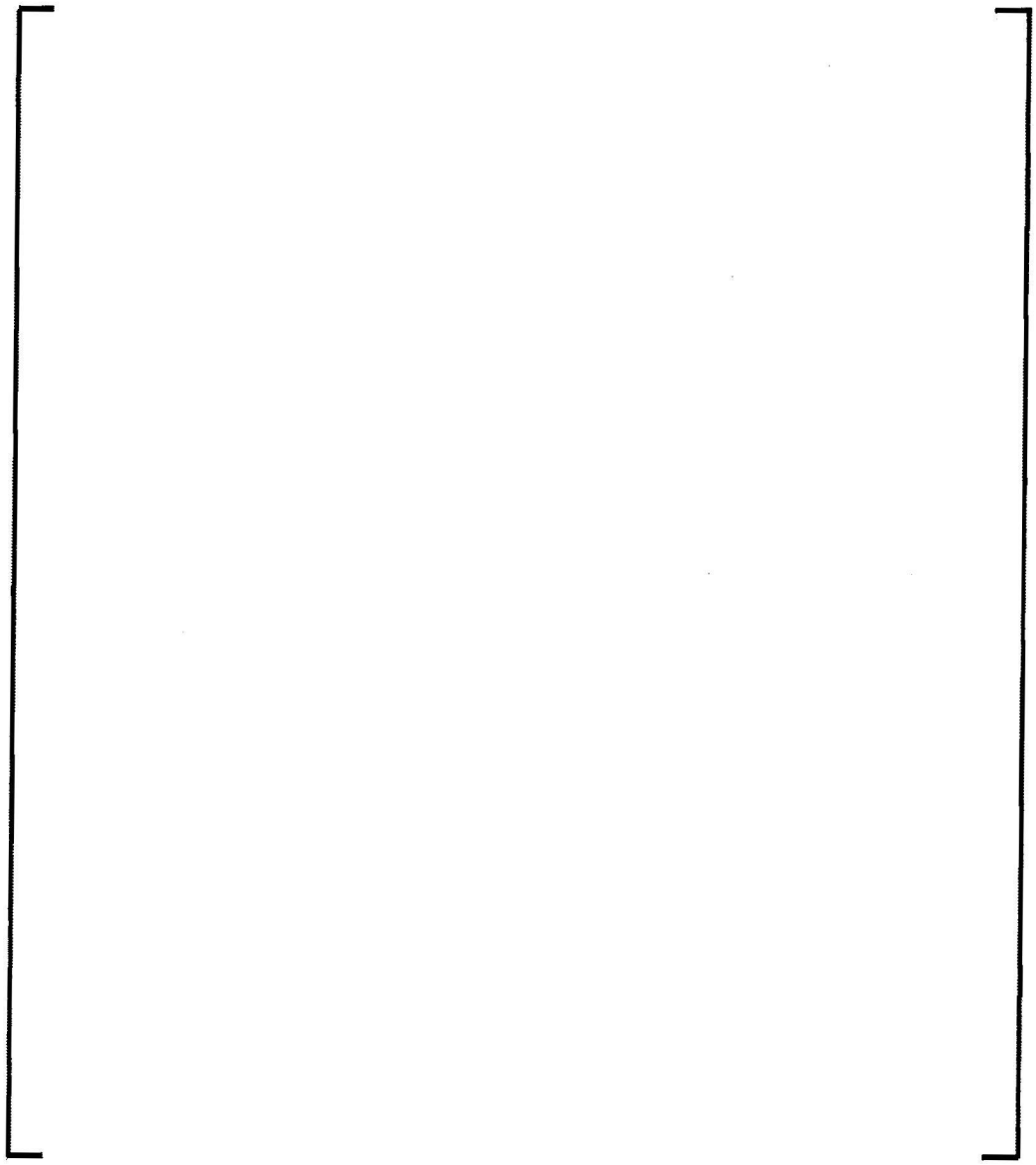

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Figure RAI-2-4 [ ]a,c

RAI-3

In Reference 1, Attachment 3, Section 4.0, under compliance with 10 CFR 50.46(b)(4), second paragraph, last sentence states, "Inboard grid deformation due to combined LOCA and seismic loads is not calculated to occur for Millstone Unit 3." This statement does not explicitly state how this conclusion was determined. Provide the technical basis for this assertion.

DENC Response to RAI-3

Section 32.1 of the NRC-approved FSLOCA EM (Reference 2) discusses that the effects of LOCA and seismic loads on the core geometry do not need to be considered unless fuel assembly grid deformation extends beyond the core periphery (i.e., deformation in a fuel assembly with no sides adjacent to the core baffle plates). The FSLOCA EM analysis does not affect the existing analysis of record related to the combined LOCA and seismic loads. This conclusion is retained from prior calculations and is credited in the current LOCA design basis analysis. As described in Section 4.2.3.4.1 of the MPS3 FSAR, the combined LOCA and seismic loads remain below the allowable grid strength:

> "The maximum grid impact forces for both the seismic accident and asymmetric LOCA occur at the peripheral fuel assembly locations adjacent to the baffle wall. The maximum grid impact forces result from postulated LOCA and seismic loadings, and are required to be less than the allowable grid crush strength. A calculation of the maximum LOCA and seismic grid impact forces, combined using the square root sum of the squares method in accordance with SRP 4.2, Appendix A, demonstrated that the maximum value is below the allowable grid strength."

REFERENCES

1. *Dominion Energy Nuclear Connecticut, Inc letter to NRC, "Dominion Energy Nuclear Connecticut, Inc. Millstone Power Station Unit 3 Proposed License Amendment Request Addition of Analytical Methodology to the Core Operating Limits Report for a Large Break Loss of Coolant Accident (LBLOCA)," November 5, 2020, (ADAMS Accession No. ML20310A324).*

2. *Westinghouse Topical Report WCAP-16996-P-A, Revision 1, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)," November 2016.*

3. *Westinghouse Electric Company letter to NRC, LTR-NRC-18-30, "U.S. Nuclear Regulatory Commission 10 CFR 50.46 Annual Notification and Reporting for 2017," July 18, 2018 (ADAMS Accession No. ML19288A174).*

4. *Westinghouse Electric Company letter to NRC, LTR-NRC-19-6, "U.S. Nuclear Regulatory Commission 10 CFR 50.46 Annual Notification and Reporting for 2018," February 7, 2019 (ADAMS Accession Package No. ML19042A378).*

5. *Virginia Electric and Power Company letter to NRC, "Virginia Electric and Power Company North Anna Power Station Units 1 and 2 Proposed License Amendment Request Addition of Analytical Methodology to the Core Operating Limits Report for a Full Spectrum Loss of Coolant Accident (FSLOCA) Gamma Energy Redistribution Information," August 31, 2020, (ADAMS Accession No. ML20244A336).*

ATTACHMENT 2

Westinghouse Affidavit for Withholding Proprietary Information (Non-Proprietary)

MILLSTONE POWER STATION UNIT 3
DOMINION ENERGY NUCLEAR CONNECTICUT, INC.

Westinghouse Non-Proprietary Class 3

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF BUTLER:

(1) I, Camille T. Zozula, have been specifically delegated and authorized to apply for withholding and execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse).

(2) I am requesting the proprietary portions of LTR-LIS-21-115, Attachment 1 be withheld from public disclosure under 10 CFR 2.390.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged, or as confidential commercial or financial information.

(4) Pursuant to 10 CFR 2.390, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse and is not customarily disclosed to the public.

(ii) The information sought to be withheld is being transmitted to the Commission in confidence and, to Westinghouse's knowledge, is not available in public sources.

(iii) Westinghouse notes that a showing of substantial harm is no longer an applicable criterion for analyzing whether a document should be withheld from public disclosure. Nevertheless, public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable

others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

(5) Westinghouse has policies in place to identify proprietary information. Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage (e.g., by optimization or improved marketability).

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

Westinghouse Non-Proprietary Class 3

(6) The attached documents are bracketed and marked to indicate the bases for withholding. The justification for withholding is indicated in both versions by means of lower-case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower-case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (5)(a) through (f) of this Affidavit.

I declare that the averments of fact set forth in this Affidavit 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: 04 May 2021

Camille Zozula

Camille T. Zozula, Manager
Regulatory Compliance & Corporate
Licensing