

Guzman, Richard

From: Guzman, Richard
Sent: Wednesday, February 19, 2020 8:12 AM
To: Shayan.Sinha@dominionenergy.com
Subject: Millstone Unit 2 - REQUEST FOR ADDITIONAL INFORMATION: License Amendment Request to Revise TS 3.8.1.1, A.C. Sources - Operating) [EPID: L-2019-LLA-0177]

Shayan,

On February 13, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff sent Dominion Energy Nuclear Connecticut, Inc. (DENC) the subject Request for Additional Information (RAI) as a draft (via e-mail shown below). The draft RAI was initially provided to you via e-mail dated December 23, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19361A038) in support of the NRC staff's audit using an online reference portal (as requested on January 21, 2020, ADAMS Accession No. ML20028C195). This RAI relates to the license amendment request (LAR) submitted by DENC (ADAMS Accession No. ML19234A111), as supplemented by letter dated October 22, 2019 (ADAMS Accession No. ML19304A294), proposing to revise Millstone Power Station, Unit No. 2 Technical Specifications.

On February 6, 2020, the NRC staff conducted a conference call with the licensee staff to clarify the request. On February 17, you indicated that DENC did not desire a follow-up clarification call and could provide a response within 30 days from the issuance of the RAI; therefore, the NRC staff expects DENC's formal response by March 20, 2020. Updated below is the official (final) RAI. A publicly available version of this e-mail and RAI will be placed in the NRC's ADAMS system. Please contact me should you have any questions in regard to this request.

Sincerely,

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**Rich Guzman**

Sr. PM, Division of Operating Reactor Licensing  
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**From:** Guzman, Richard <[Richard.Guzman@nrc.gov](mailto:Richard.Guzman@nrc.gov)>  
**Sent:** Thursday, February 13, 2020 8:38 PM  
**To:** Shayan Sinha (Services - 6) <[Shayan.Sinha@dominionenergy.com](mailto:Shayan.Sinha@dominionenergy.com)>  
**Subject:** [EXTERNAL] Millstone Unit 2 - DRAFT Request for Additional Information: License Amendment Request to revise TS 3.8.1.1, A.C. Sources - Operating) [EPID: L-2019-LLA-0177]

Shayan,

By letter dated August 14, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19234A111), as supplemented by letter dated October 22, 2019 (ADAMS Accession No. ML19304A294), Dominion Energy Nuclear Connecticut, Inc., submitted a license amendment request (LAR) for Millstone Power Station, Unit No. 2 (MPS2). The proposed amendment would revise Technical Specification (TS) 3.8.1.1, "A.C. Sources - Operating," to add a one-time exception to the new proposed Required Action a.3 that would extend the allowed outage time (AOT) to 35 days for one inoperable offsite circuit. One-time use of the 35-day AOT would allow replacement of the Millstone, Unit No. 3 (MPS3), 'A'

reserve station service transformer, its associated equipment, and other 345 kV south bus switchyard components that are nearing the end of their dependable service life. This work is planned to take place no later than the fall 2023 outage (3R22) for MPS3. In addition, the licensee proposed to add a permanent Required Action a.3 that would provide an option to extend the AOT from 72 hours to 10 days for one inoperable offsite circuit.

The Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed to complete its review, as described in the request for additional information (RAI) shown below. This RAI is identified as draft at this time to confirm your understanding of the information needed by the NRC staff to complete its evaluation. If you'd like to have a clarification call, please let me know and I will coordinate availabilities w/the NRC technical staff. I intend to send out the questions below as official by February 21.

Thanks,

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REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION TO SUPPORT THE REVIEW OF LICENSE

AMENDMENT REQUEST

TO REVISE TECHNICAL SPECIFICATION (TS) 3.8.1.1, "A.C. SOURCES – OPERATING"

TO SUPPORT MAINTENANCE AND REPLACEMENT OF THE MILLSTONE UNIT 3 'A' RESERVE STATION

SERVICE TRANSFORMER

AND 345 KV SOUTH BUS SWITCHYARD COMPONENTS

MILLSTONE POWER STATION, UNIT 2

DOCKET NO. 50-336

By letter dated August 14, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19234A111), as supplemented by letter dated October 22, 2019 (ADAMS Accession No. ML19304A294), Dominion Energy Nuclear Connecticut, Inc. (DENC, the licensee) submitted a license amendment request (LAR) for the Millstone Power Station, Unit No. 2 (MPS2). The proposed license amendment would revise Technical Specification (TS) 3.8.1.1, "A.C. Sources - Operating," to add a one-time exception to the new proposed Required Action a.3 that would extend the allowed outage time (AOT) to 35 days for one inoperable offsite circuit. One-time use of the 35-day AOT would allow replacement of the Millstone, Unit No. 3 (MPS3), 'A' reserve station service transformer, its associated equipment, and other 345 kV south bus switchyard components that are nearing the end of their dependable service life. This work is

planned to take place no later than the fall 2023 outage (3R22) for MPS3. In addition, the licensee proposed to add a permanent Required Action a.3 that would provide an option to extend the AOT from 72 hours to 10 days for one inoperable offsite circuit.

The NRC staff has reviewed the request and determined that additional information is necessary to complete the review to determine if the licensee's proposed change implements the risk informed approach, based on Regulatory Guides 1.174 (Revision 3) (ADAMS Accession No. ML17317A256), and 1.177 (Revision 1) (ADAMS Accession No. ML100910008).

RAI 01 – Internal Fire PRA

Regulatory Position C.2.3.2 of RG 1.177 states that the licensee should perform evaluations of core damage frequency (CDF) and large early release frequency (LERF) to support any risk-informed changes to TS. The scope of the analysis should include all hazard groups (i.e., internal events, internal flooding, fires, seismic events, high winds, and other external hazards) unless it can be shown the contribution from specific hazard groups does not affect the decision. In some cases, a PRA of sufficient scope may not be available. This will have to be compensated for by qualitative arguments, bounding analyses, or compensatory measures.

The licensee stated in the LAR (Attachment 1, Section 4.4.1) that the MPS2 does not have an internal fire PRA model. The licensee assessed the fire risk impact qualitatively and stated that the offsite power sources are not listed on the fire safe shutdown equipment list (SSEL), and therefore, are not considered fire safe shutdown equipment. The licensee concluded that the conditional fire risk of unavailability offsite power sources associated with the LAR is considered negligible. However, the impact of fires in the transformers as well as other switchyard equipment does not appear to be considered in the assessment of the internal fire on this application. In addition, the risk management actions listed in Attachment 3 of the LAR do not include any fire watches.

Justify the exclusion of the impact of fires in the transformers and other switchyard equipment on the risk assessment supporting this application. The justification should include discussion on the lack of internal fire related risk management actions. Otherwise, confirm that any proposed change meets the acceptance guidelines after inclusion of the relevant impacts of internal fire risk.

RAI 02 – High Winds Risk

Regulatory Position C.2.3.2 of RG 1.177 states that the licensee should perform evaluations of CDF and LERF to support any risk-informed changes to TS. The scope of the analysis should include all hazard groups (i.e., internal events, internal flooding, fires, seismic events, high winds, and other external hazards) unless it can be shown the contribution from specific hazard groups does not affect the decision. In some cases, a PRA of sufficient scope may not be available.

The licensee evaluated the impacts from high wind and tornado in the LAR (Attachment 5, under Extreme Wind or Tornado, and Hurricane), and screened out high wind and tornado, based on a frequency of occurrence less than 1E-06 per year. Further, several potential failures caused by tornado-generated missiles are also excluded based on their being bounded by the 1E-06 frequency of occurrence. However, the basis for the frequency of occurrence cited by the licensee as well as the frequency being bounding for tornado-generated missile risks is not provided. Further, the discussion does not include consideration of higher frequency high winds events.

Justify the exclusion of the high winds risk from the risk assessment for this application including the basis for (1) the cited occurrence frequency, (2) the tornado-generated missile risk being bounded by the occurrence frequency, and (3) lack of consideration of higher frequency high winds events.

RAI 03 – Key Assumptions and Sources of Uncertainty

Regulatory Position C of RG 1.174 states: "In implementing risk-informed decision-making, LB [licensing basis] changes are expected to meet a set of key principles. ... In implementing these principles, the staff expects

[that]: ... Appropriate consideration of uncertainty is given in the analyses and interpretation of findings. ... NUREG-1855 provides further guidance.” Additionally, NUREG-1855 Revision 1 identifies EPRI Topical Report (TR) 1016737 and EPRI TR 1026511 as providing guidance for identifying and characterizing key sources of uncertainty.

The licensee stated that a list of MPS2 PRA model assumptions and sources of uncertainty were reviewed to identify those significant to this application. In response to RAI 3 for the LAR to adopt 10 CFR 50.69 “Risk-informed categorization of structures, systems, and components” (ADAMS Accession No. ML19284A397), the licensee explained the process followed for identification of “key” assumptions and sources of uncertainty. It is unclear whether the same approach was followed for this application.

- a) Confirm that approach followed for identification of “key” assumptions and sources of uncertainty for this application is identical to that described in response to RAI for the LAR to adopt 10 CFR 50.69.
- b) Presumably some assumptions and sources of uncertainty required more evaluation than other assumptions and sources of uncertainty to determine whether they were “key” or not. Provide representative examples to illustrate the implementation of the process for identification of “key” assumptions and the range of evaluations performed.

RAI 04 – Credit for FLEX Equipment or Actions

The NRC memorandum dated May 30, 2017, “Assessment of the Nuclear Energy Institute 16-06, ‘Crediting Mitigating Strategies in Risk-Informed Decision Making,’ Guidance for Risk-Informed Changes to Plants Licensing Basis” (ADAMS Accession No. ML17031A269), provides the NRC’s staff assessment of the challenges of incorporating diverse and flexible (FLEX) coping strategies and equipment into a PRA model in support of risk-informed decision-making in accordance with the guidance of RG 1.200, Revision 2.

In response to RAI 4 for its LAR to adopt 10 CFR 50.69, “Risk-informed categorization of structures, systems, and components” (ADAMS Accession No. ML19284A397), the licensee stated that FLEX equipment is credited in the MPS2 internal events and internal flooding PRA. The licensee also stated that the FLEX equipment failure data will be considered as a source of uncertainty. The human error probability for FLEX actions, especially related to deployment of portable equipment, can also be a source of uncertainty. However, neither of these sources of uncertainty were identified as key for this application and sensitivity studies determining the impact of these sources are not discussed.

- a) Clarify whether FLEX diesel generator that was originally credited as a supplemental AC source for this application is credited in the MPS2 internal events and internal flooding PRA.
- b) Justify (e.g., using sensitivity studies), that FLEX equipment failure data and human error probability for FLEX actions, especially related to deployment of portable equipment, that are credited in the MPS2 internal events and internal flooding PRA are not “key” assumptions and sources of uncertainty for this application. If FLEX equipment failure data and human error probability for FLEX actions are determined to impact this application, identify any risk management actions, or justify the lack of risk management actions, such as pre-testing and staging relevant FLEX equipment.

RAI 05 – Parameter Uncertainty and Model Uncertainty

RG 1.174, Section C.2.5 identifies the following types of uncertainty that affect the results of PRAs: parameter uncertainty, model uncertainty, and completeness uncertainty. In accordance with regulatory positions in RGs 1.174 and 1.177, uncertainties should be appropriately considered in the analysis and interpretation of findings. Also, RG 1.174 states, the results of the sensitivity studies should confirm the guidelines are still met even under the alternative assumptions.

In Attachment 5 to the LAR, the licensee addresses three types of probabilistic risk assessment uncertainty. For the parameter uncertainty, the licensee increased the failure rates by a factor of 3 for the switchyard bus failure rate, offsite power transformer failure rate, and switchyard breaker failure rate, and

evaluated the conditional CDF and LERF, and calculated ICCDF and ICLERF for one-time 35-day AOT. However, the identified parameter uncertainties as well as the approach for the corresponding sensitivity appear to be similar to the model uncertainty identified by the licensee. The staff is unclear about the difference between the identification and disposition of the parameter and modeling uncertainties.

- a) Discuss the approach used for identifying the three parameter uncertainties stated in Attachment 5 to the LAR.
- b) Explain the difference in the basis and approach between the parameter uncertainty, in which three parameters are selected for sensitivity study, and the model uncertainty, in which one parameter is selected for sensitivity study compared to the modeling uncertainty identified in the same attachment to the LAR.
- c) If a clear distinction cannot be drawn between the modeling and parameter uncertainties stated in Attachment 5 to the LAR provide the results of a sensitivity study which include the impact of all identified uncertainties or justify not combining them.
- d) If a sensitivity is performed in response to item (c) above, discuss the impact of the sensitivity on the importance measures and resulting compensatory actions proposed by the licensee. Identify any additional compensatory actions revealed by the sensitivity or justify their exclusion from the proposed actions for the one-time completion time request.

RAI 06 – Considerations of Common Cause Failures for $\Delta\text{LOOP}_{\text{GR}}$

The guidance in RG 1.177, Section 2.3.3.1, states that, “CCF modeling of components is not only dependent on the number of remaining in-service components but is also dependent on the reason components were removed from service (i.e. whether for preventative or corrective maintenance).”

The licensee’s determination of the increased grid LOOP occurrence frequency ($\Delta\text{LOOP}_{\text{GR}}$) does not appear to include common cause failures. The staff notes that there is a potential for common cause failures for the breakers on the “north bus” as well as the transformers considered in determination of $\Delta\text{LOOP}_{\text{GR}}$.

Justify the exclusion of common cause failures for breakers and transformers in the determination of the increased grid LOOP occurrence frequency or include such failures in the calculation and provide an updated risk assessment. Include an explanation of the changes to the PRA model (e.g., relevant fault tree) for this application as part of the justification. If an updated risk assessment is provided, include the basis for the common cause failure probabilities.

RAI 07 – Avoidance of Risk-Significant Plant Configurations

Section C.2.3 of RG 1.177 discusses Tier 2 of the three-tiered approach for evaluating risk associated with proposed changes to TS CT. According to Tier 2, the avoidance of risk-significant plant configurations limits potentially high-risk configurations that could exist if equipment, in addition to that associated with the proposed change, are simultaneously removed from service or other risk-significant operational factors, such as concurrent system or equipment testing, are involved.

Based on configuration-specific insights provided in the LAR (Attachment 1, Section 4.4.1), the licensee performed analyses to identify risk-significant combinations of equipment out-of-service during the extended time and identified further compensatory actions and restrictions for entry into the extended CT to avoid high risk equipment out-of-service combinations during that time. In addition, the licensee provided a list of systems, structures and components (SSCs) whose unavailability should be minimized during the CT, based upon a review of the quantification results to identify significant equipment outage contributors to CDF and LERF. However, the approach used by the licensee to identify the compensatory actions is not provided.

Discuss the approach and the parameters used (e.g., importance measures or dominant sequences) to identify the compensatory actions listed in Section 4.4.1 of Attachment 1 to the LAR. The discussion should include

examples of the correspondence between the compensatory actions and the parameters used for identification.

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