



January 19, 2012

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

Serial No. 11-696
NSSLWDC R0
Docket No. 50-423
License No. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELOCATION OF SPECIFIC SURVEILLANCE FREQUENCY REQUIREMENTS TO A
LICENSEE CONTROLLED PROGRAM (TAC NO. ME6695)

By letter dated July 5, 2011, as supplemented by letter dated September 12, 2011, Dominion Nuclear Connecticut, Inc. (DNC) submitted a license amendment request (LAR) for Millstone Power Station Unit 3 (MPS3). The proposed amendment would relocate certain technical specification (TS) surveillance frequencies to a licensee controlled program by adopting Technical Specification Task Force (TSTF)-425, Revision 3, "Relocate Surveillance Frequencies of Licensee Control – RITSTF [Risk-Informed Technical Specification Task Force Initiative] 5b." The proposed change would also add a new program, the Surveillance Frequency Control Program, to the TSs, in accordance with TSTF-425. TSTF-425 is approved for use by the Nuclear Regulatory Commission (NRC). In a letter dated December 8, 2011, the NRC transmitted a request for additional information (RAI) to DNC related to the LAR. DNC agreed to respond to the RAI by January 19, 2012.

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

If you have any questions regarding this submittal, please contact Wanda Craft at (804) 273-4687.

Sincerely,


L. N. Hartz

Vice President – Nuclear Support Services

Attachment:

1. Response to Request for Additional Information Regarding Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program

Commitments made in this letter:

1. None

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MRR

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ATTACHMENT 1

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING
RELOCATION OF SPECIFIC SURVEILLANCE FREQUENCY
REQUIREMENTS TO A LICENSEE CONTROLLED PROGRAM**

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

By letter dated July 5, 2011, as supplemented by letter dated September 12, 2011, Dominion Nuclear Connecticut, Inc. (DNC) submitted a license amendment request (LAR) for Millstone Power Station Unit 3 (MPS3). The proposed amendment would relocate certain technical specification (TS) surveillance frequencies to a licensee controlled program by adopting Technical Specification Task Force (TSTF)-425, Revision 3, "Relocate surveillance Frequencies of Licensee Control – RITSTF [Risk-Informed Technical Specification Task Force Initiative] 5b. The proposed change would also add a new program, the Surveillance Frequency Control Program (SFCP), to the TSs, in accordance with TSTF-425. TSTF-425 is approved for use by the Nuclear Regulatory Commission (NRC). In a letter dated December 8, 2011, the NRC transmitted a request for additional information (RAI) to DNC related to the LAR. This attachment provides DNC's response to the NRC's RAI.

Question 1

The licensee has identified five "gaps" in the MPS3 probabilistic risk assessment (PRA) model's conformance to the American Society of Mechanical Engineers internal events PRA standard. These gaps collectively cover eight deficiencies in meeting the supporting requirements (SRs) of the PRA standard, Capability Category II. The "description" and "current status" columns in Table 1, Attachment 2, of the July 5 submittal, adequately describe these gaps. However, the "importance to application" column only restates that the gap is a model logic issue and that sensitivity studies will be conducted. The significance of these gaps to the overall PRA results and to the risk calculations supporting changes to surveillance frequencies is not discussed, and must be addressed in order for the NRC staff to reach a conclusion on the significance of these gaps as related to this amendment request.

- 1. Provide a discussion of the significance of each of the five gaps identified in Table 1 of Attachment 2. Where applicable, provide a quantitative assessment of the sensitivity of core damage frequency (CDF) and large early release frequency (LERF) results. In addition, the following specific concerns should be addressed in your response:*

Gap 1: The lack of modeling ventilation dependencies was specifically identified as a recommendation from the NRC staff's review of the MPS3 Individual Plant Examination (IPE). According to the model update timeline provided in the July 5, submittal, this was completed in December 1995. It is not clear how this same issue arises in a 2007 self assessment. What is unique about these three specific ventilation subsystems which led to them not being modeled as a required support system following the 1995 IPE?

Gap 2: Changes to surveillance test intervals can directly impact an associated pre-initiator human error probability by reducing the opportunities for

identification and restoration of a system misalignment. What is the scope of pre-initiator human errors currently in the PRA model, and what is the basis for their inclusion in the model absent a review of plant procedures and practices? Is resolution of this gap expected to add to the pre-initiator scope significantly?

Gap 4: The NRC staff review of the internal flooding analysis for the IPE also identified the lack of discussion regarding maintenance-induced flooding. What internal flooding sources are currently considered and what is the basis for their frequencies? Is resolution of this gap expected to increase the contribution of internal floods to CDF and LERF significantly? What is the schedule for addressing these contributors?

DNC Response

The MPS3 PRA model is in the final stages of a model update. The updated PRA model, M310A, will address four of the five gaps previously identified in Table 1 of Attachment 2 of the July 5 submittal. The nature of the gaps pertain to modeling of ventilation dependencies, pre-initiator Human Error Probabilities (HEPs), alignment specific basic event values, internal flooding frequencies associated with non-piping failures, and incorporating SAMG operation actions. Upon issuance of the updated PRA Model M310A, four of these five gaps will meet the ASME PRA standard supporting requirements. The significance of the remaining gap, Gap 4 is discussed below. The M310A model will be completed prior to implementation of the SFCP.

GAP 1: Nothing is unique about these three ventilation subsystems. They were inadvertently not included in the PRA model. NRC Regulatory Guide (RG) 1.200, Revision 1, was issued in January 2007. Dominion performed a self-assessment based on guidance from R G 1.200 using the American Society of Mechanical Engineers (ASME) standard (RA-S-2002, RA-Sa-2003, and RA-Sb-2005). As part of the self-assessment, the Heating, Ventilation and Air Conditioning (HVAC) dependencies were reviewed in accordance with the ASME PRA Standard. This review identified lack of modeling for three HVAC dependencies. Completion of the updated MPS Model, M310A, will address the HVAC dependencies identified in Gap 1.

GAP 2: Upon issuance of the updated PRA Model, M310A, Gap 2 will meet SR HR-A1.

GAP 4: The current MPS3 PRA model includes maintenance-induced internal flooding initiating events. The internal flooding contributes ~2% to overall CDF. Resolution of Gap 4 is not anticipated to identify any new internal flooding scenarios. The majority of non-piping components (e.g., pumps, valves, tanks, etc) are identified and included in the internal flooding analysis. The remaining non-piping failures (expansion joints, bellows and inadvertent actuation of fire protection system) are bounded by already analyzed flow rates. Since the remaining non-piping failures make up a small percentage of the overall system

pipng failures, any changes in the internal flooding initiating event frequencies will not have a significant impact to the overall CDF/LERF or impact the SFCP.

Question 2

The licensee identified an industry peer review being conducted in 1999, and stated that the "A" and "B" findings from the review have been addressed. Are there other remaining open findings, from that review, which are related to different issues than those identified in the self-assessment conducted in 2007? Describe any such findings and their potential impact on this application.

DNC Response

There are six level "C" facts and observations (F&Os) remaining open from the 1999 PRA peer review. The level "A" "B" and "D" level findings have previously been addressed. Level "C" F&Os are defined as "considered desirable to maintain the maximum flexibility in PRA Applications and consistency in the industry, but not likely to significantly affect results or conclusions." The six level "C" F&Os will be closed with release of the updated MPS PRA model, M310A.

Question 3

The self-assessment results identified 39 SRs, related to documentation and uncertainty evaluations, which do not meet PRA Capability Category II. The details of these SRs are not discussed in the July 5, submittal. The characterization of uncertainties is essential to assure that PRA results supporting changes in test frequencies are understood by the independent decision-making panel in order to adequately implement TSTF-425. Further, proper documentation is essential for maintaining the PRA model and understanding the results. Finally, the NRC staff is concerned about the number of SRs in these specific areas, and notes that its review of the MPS3 IPE submittal also identified several specific areas where documentation needed enhancement.

Describe the nature of the deficiencies in documentation and uncertainty evaluations, including the current state of the PRA documentation and uncertainty analyses, and schedule for resolution of these items.

DNC Response

In early 2007, Dominion started the self-assessment process for each of the five fleet PRA Models. In order to meet Category II for a supporting requirement, documented evidence that the supporting requirement was met was necessary. For example, supporting requirements IE-A6 and IE-C10 are categorized as not being met due to documentation issues only. Since each high level requirement of the standard has a separate documentation supporting requirement, these two supporting requirements (IE-A6 and IE-C10) could have been categorized as met with the documentation

supporting requirement categorized as not-met. Dominion's approach was to conservatively categorize IE-A6 and IE-C10 as not-met rather than categorize them as met with the documentation supporting requirement categorized as not-met. Therefore, the evaluation process used for the Dominion Fleet PRA models conservatively counts the number of not-met supporting requirements due to documentation issues.

Dominion agrees that documentation is essential in maintaining PRAs and understanding the results. With release of the updated MPS3 PRA model, M310A, 16 of the 39 not-met supporting requirements related to documentation will be addressed. The remaining 23 not-met supporting requirements detailed in the attached table include 15 related to identification of model and assumptions uncertainties, with the remaining 8 related to non-significant model completeness issues (i.e., documentation issues). The table describes the nature of the current "not-met" supporting requirements and the importance to the application.

As part of the PRA model update process for M310A, the parametric and non-parametric uncertainties will be addressed. The model uncertainty evaluation will be completed before the SFCP is used to change a surveillance frequency.

| <p align="center">Millstone Power Station Unit 3 Not-Met Supporting Requirements using PRA Model M310A</p> | | | |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Not-Met Supporting Requirement(s) | Description | Notes | Importance To Application |
| IE-D3, SC-C3, SY-C3, IF-E6, IF-F3, QU-B1, QU-E1, QU-E2, QU-E4, QU-F4, QU-F5, LE-F2, LE-F3, LE-G2, and LE-G4 | Identification of assumptions and model uncertainties. | These supporting requirements will be documented and evaluated in the MPS3 notebook titled, <i>Model Assumptions And Uncertainties</i> . Identification of assumptions and model uncertainties will ensure there is no undue reliability on model uncertainty or assumptions in the SFCP evaluations | Non-Significant. These supporting requirements will be addressed before implementation of the SFCP. |
| IE-A6 and SY-A4 | Documentation of interviews and walkdowns | <p>The Dominion PRA staff has performed many system walkdowns during the development and maintenance of the models. However, no formal documentation of these walkdowns exists at this time to allow closure of ASME/ANS PRA Standard supporting requirements. It is not anticipated that not meeting this requirement will have a significant impact on the model. Formal walkdown checklists have been developed and will be completed in the future. As the walkdowns are completed, they will be included in PRA System Notebooks.</p> <p>Dominion PRA staff works closely with MPS3 system engineers and operators while supporting the various risk informed programs such as Maintenance Rule,</p> | <p>Non-significant.</p> <p>Lack of interview and walkdown documentation is not expected to significantly impact the SFCP risk evaluations for the reasons stated in the Notes column. In addition, the risk evaluation will be presented to the Independent Decision-making Panel (IDP), which includes a licensed senior reactor operator, the subject matter expert, the surveillance coordinator, and two Maintenance Rule expert panel members. The diverse knowledge of the IDP</p> |

| Millstone Power Station Unit 3 Not-Met Supporting Requirements using PRA Model M310A | | | |
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| Not-Met Supporting Requirement(s) | Description | Notes | Importance To Application |
| | | Mitigating System Performance Indicator, Risk-Informed Inservice Inspection, Risk-Informed TS submittals and Significance Determination Process resolution. The plant scheduling staff, along with the Shift Technical Advisors, use PRA for assessing plant risk as required by the Maintenance Rule (a)(4) program. This interaction with the plant staff provides valuable feedback on the PRA model. Also, the PRA staff has extensive plant knowledge with staff members who were previously system engineers, shift technical advisors, and senior reactor operators. Although interviews with the plant staff have not been documented, which would allow closure of ASME/ANS PRA Standard supporting requirements, it is not anticipated that not meeting this requirement will have a significant impact on the model. In the future, formal interviews will be documented by inclusion in System Notebooks. Informal discussions pertinent to the model will also be included in the System Notebooks. | members will compensate for the lack of documentation associated with these supporting requirements. |
| IE-A7 | The MPS3 PRA model does not | Review of MPS3 plant-specific operating experience precursors is not expected to | Non-significant. |

| <p align="center">Millstone Power Station Unit 3 Not-Met Supporting Requirements using PRA Model M310A</p> | | | |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Not-Met Supporting Requirement(s) | Description | Notes | Importance To Application |
| | include a review of plant-specific operating experience for initiating event precursors. | identify any new initiating events. Several PRA models in the Dominion Fleet have completed this type of review and did not identify any significant new initiating events. The MPS3 model includes a review of plant-specific operating experience for initiating events that did occur. Additionally, the MPS3 PRA includes a systematic evaluation of the plant systems to assess the possibility of an initiating event occurring due to a failure of the system. Therefore, a review of plant-specific operating experience precursors should not result in the identification of any new significant initiating events. | This is considered a documentation issue based on the discussion provided under the notes column. |
| IE-C10 | Perform a reasonableness check of the expansion joint rupture frequencies modeled in the PRA | The only expansion joint rupture frequency in the MPS3 PRA is for the service water (SW) system, which is 1.14E-4/yr. The EPRI Pipe Rupture Frequencies (TR-1013141) reports a circulating water (CW) expansion joint major flood as 1.22E-5/reactor-operating-component year. The EPRI document does not delineate SW expansion joints from the pipe rupture rates. The MPS3 SW expansion joint failure is considered conservative since the CW | Non-significant. Model completeness issue only. |

| Millstone Power Station Unit 3 Not-Met Supporting Requirements using PRA Model M310A | | | |
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| Not-Met Supporting Requirement(s) | Description | Notes | Importance To Application |
| | | system generally has a higher flow rate with large diameter pipe resulting in a theoretically higher failure rate for the CW expansion joint ruptures. | |
| SY-B8 | Identify spatial and environmental hazards that may impact multiple systems or redundant components in the same system, and account for them in the system fault tree or the accident sequence evaluation. | The majority of spatial analysis walkdowns have not been completed. The System Analysis notebooks do contain a section to document any spatial or environmental hazard identified during plant walkdowns. To date, spatial and environmental hazard walkdowns have been performed and documented for the internal flooding analysis and for Component Cooling Water and Charging & Chemical Control systems with no new hazards identified. Since comprehensive walkdowns were performed for the internal flooding analysis, it is not expected that the spatial and environmental walkdowns will identify any new significant spatial or environmental hazard. | Non-significant. Identification of a potentially new spatial or environmental hazard is not expected to significantly impact the risk evaluations performed in support of the SFCP. |
| IF-C3b | M310A does not document the potential for flood barrier unavailability or provide a | The identification, documentation and modeling of any potential flood barrier unavailability or drain check valve failure is not expected to result in any significant impact to the MPS3 PRA model. This is based on the conservative internal flooding | Non-significant. Any surveillance frequency increase for internal flooding monitoring equipment will include a sensitivity study to |

| Millstone Power Station Unit 3 Not-Met Supporting Requirements using PRA Model M310A | | | |
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| Not-Met Supporting Requirement(s) | Description | Notes | Importance To Application |
| | summary discussion of the locations of floor drain check valves and the considerations for their potential failure. | initiating event frequencies (see discussion for IF-D5) and small (~2%) contribution to the overall CDF. | address this not-met supporting requirement. The sensitivity study will include potential flood barrier unavailability and drain check valve failure probability. |
| IF-C4A | For multi-unit sites with shared systems or structures, include multi-unit scenarios | No credible multi-unit internal flooding scenarios exist. The path between MPS2 and MPS3 has been addressed. However, propagation from the water treatment facility to MPS3 is non-credible but has not been documented as such. | Non-significant. Documentation issue only. |
| IF-D5 | Determine the flood-initiating event frequency for each flood scenario group by using the applicable requirements | The MPS3 PRA internal flooding initiating event frequencies are based on "per reactor critical year" and does not account for the capacity factor. This is conservative since the internal flooding initiating event frequencies have not been multiplied by capacity factor. Addressing this supporting requirement would result in lower internal flooding initiating event frequencies. | Non-significant. Internal flooding initiating event frequencies are conservatively high and contribute only ~2% to the overall CDF. |