

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

October 26, 2010

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

Serial No. 10-183B  
NL&OS/ETS R0'  
Docket Nos. 50-280  
50-281  
License Nos. DPR-32  
DPR-37

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)**  
**SURRY POWER STATION UNITS 1 AND 2**  
**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**  
**LICENSE AMENDMENT REQUEST REGARDING RISK-INFORMED**  
**JUSTIFICATION FOR THE RELOCATION OF SPECIFIC SURVEILLANCE**  
**FREQUENCY REQUIREMENTS TO A LICENSEE CONTROLLED PROGRAM**  
**(ADOPTION OF TSTF-425, REVISION 3)**

In a letter dated March 30, 2010 (Serial No. 10-183) and supplemented on August 23, 2010 (Serial No.10-183A), Dominion requested amendments to Facility Operating License Numbers DPR-32 and DPR-37 for Surry Power Station Units 1 and 2, respectively. The proposed amendments will modify Surry TS by relocating specific surveillance frequencies to a licensee-controlled program with the implementation of Nuclear Energy Institute (NEI) 04-10, "Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies." In a September 30, 2010 e-mail from Ms. Karen Cotton to Mr. Gary Miller, the NRC staff requested additional information to complete the NRC review of the amendment request. The attachment to this letter provides the requested information.

The information provided in this letter does not affect the conclusion of the significant hazards consideration discussion provided in the Dominion letter dated March 30, 2010 (Serial No. 10-183) for Surry.

Dominion continues to request approval of the proposed license amendments by April 1, 2011, with the amendment being implemented within 120 days.



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**Attachment**

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
RELATED TO AN AMENDMENT TO IMPLEMENT TSTF-425 REVISION 3**

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)  
SURRY POWER STATION UNITS 1 AND 2**

**Response to Request for Additional Information Related to an Amendment to  
Implement TSTF-425 Revision 3**

**Surry Power Station Units 1 and 2**

Virginia Electric and Power Company (Dominion) identified that it performed a self assessment of its internal events probabilistic risk assessment (PRA) model to the requirements of the standard referenced in Regulatory Guide 1.200 Revision 1. The structure of the standard provides high level and supporting requirements, including separate documentation requirements.

**NRC Questions 1 and 2**

1. In Table 1 of Attachment 2 of the submittal, the licensee presented a summary of the remaining (eight) open findings from this assessment as well as their disposition for this application. In its review, the staff noted that each of the items was identified against a specific non-documentation supporting requirement of the standard, but each was dispositioned as only a documentation issue. Since each high level requirement of the standard has a separate documentation part, it is not clear to the staff why the concerns from an internal self assessment were not identified as-relevant to the documentation requirements, rather than the technical requirements, since the licensee controls the process.
2. Further, one item identified as "Gap #2" is identified as a documentation issue, but then it is stated that the issue will be addressed as a sensitivity for this application. If the issue is documentation, it is not clear how a sensitivity analysis would be applicable.

**Dominion Response**

In early 2007, Dominion started the self-assessment process for each of the five fleet PRA Models. The Surry Power Station (SPS) PRA was the first model to undergo a self-assessment. At the time, the decision was made in order to Meet Category II for a Supporting Requirement (SR), there had to be documented evidence that the SR was met. For example, Gap #1 is to address the lack of documentation for screening out flooding events inside the containment. The Containment Building has been screened out since the equipment contained in the containment is designed to operate in a post-LOCA, flooded environment. However, this reasoning was not clearly documented in the internal flooding notebooks.

Gap #2 addresses the lack of documentation on jet impingement, pipe whip, humidity and other types of failure impacts on plant systems. This issue was also identified in the focused PWR Owners Group (PWROG) PRA Peer Review in February 2010

(See Gap #11 in this attachment). In particular, the peer review identified the lack of component spatial information on the walkdown sheets that would document direct effects (e.g., submergence and critical flood height) and indirect effects (e.g. spray, jet impingement, humidity or pipe whip). The current walkdown sheets only contain check marks for equipment vulnerability. To address Gap #2, the walkdown sheets will be updated to include "yes", "no" or "see comments field" in order to enhance the documentation for model upgrades and peer reviews. The column "importance to application" in the attached table has been updated to reflect the importance of updating the internal flooding walkdown sheets.

In Attachment 2 of the March 30, 2010 submittal, Dominion stated the Surry PRA model underwent a PWROG focused peer review in February 2010 using the PRA Peer Review Certification process. Updated documentation on modeling uncertainty and related assumptions were included for the PWROG focused peer review. The final assessment was not available before the SPS RITS 5b submittal. Since then the PWROG has provided the results of the focused peer review. The peer review identified that Gap #6 had been addressed. New Gaps identified by the PWROG have been included in the following Table 1.

**Table 1 Status of Identified Gaps to NEI 00-02 and Capability Category II of the ASME PRA Standard**

Title	Description	NEI Element /ASME SR	Current Status/Comment	Importance to Application
Gap #1	For each flood area, identify the potential sources of flooding.	IF-B1	No documentation on why floods in containment were screened out.	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.
Gap #2	The NRC clarification for Cat II says to address jet impingement, humidity, etc. qualitatively using conservative assumptions	IF-C3	No documentation discussing how jet impingement, pipe whip, humidity and other types of failures impact plant systems.	<b>Significant:</b> This issue is important for any potential Surveillance Test Interval (STI) change impacted by internal events. Therefore, the walkdown sheets will be completed to contain all requested information. Any impact to flooding scenarios will be added to the sensitivity PRA model when quantifying the effect of a proposed individual STI revision for comparison to acceptance criteria in NEI 04-10, Revision 1.
Gap #3	Document the relative contribution of contributors to LERF	LE-G3	No documentation of LERF contributions for accident sequences.	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.
Gap #4	Uncertainties shall be characterized and documented.	QU-E1 QU-E2 QU-F4 SC-C3	Sources of model uncertainties and assumptions were not identified and documented.	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.
Gap #5	Estimate uncertainty intervals associated with parameter uncertainties.	LE-F3 QU-E3 QU-F2	No parametric uncertainty analysis was performed.	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.
Gap #6	Evaluate the sensitivity of the results.	QU-E4	Documentation has been updated to address QU-E4.	<b>None.</b> Documentation has been updated to categorize model uncertainty in some individual element notebooks. The SPS QU.4 notebook documents the integrated consideration of model uncertainty.
Gap #7	Document the system functions and boundaries.	SY-C2	All documentation requirements are considered met except for completion of walkdown checklists.	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.

**Table 1 Status of Identified Gaps to NEI 00-02 and Capability Category II of the ASME PRA Standard**

Title	Description	NEI Element /ASME SR	Current Status/Comment	Importance to Application
Gap #8	Document uncertainties and assumptions.	AS-C3 DA-E3 HR-I3 IE-D3 IF-F3 SC-C3 SY-C3	Document uncertainties and assumptions associated with: <ul style="list-style-type: none"> <li>• accident sequence analysis</li> <li>• data analysis</li> <li>• human reliability analysis</li> <li>• initiating event analysis</li> <li>• internal flooding analysis</li> <li>• success criteria development system analysis</li> </ul>	<b>None.</b> This is judged to be a documentation consideration only and does not affect the technical adequacy of the PRA model.
*Gap #9	Initiating Event Fault Tree Modeling.	IE-C10 IE-C12	<b>IE-C10:</b> Not all possible combination of cutsets are captured,  <b>IE-C12:</b> No comparison with generic sources for initiating events modeled using fault trees.	<b>Significant:</b> This issue is important for any potential STI change modeled as support system initiating events. Therefore, the system-level initiating events will be revised using the methodology in EPRI TR-1013490 methodology. This will be added to the sensitivity PRA model when quantifying the effect of a proposed individual STI revision for comparison to acceptance criteria in NEI 04-10, Revision 1.
*Gap #10	Use of SPAR-H methodology, which does not meet the intent of several SRs in the HR element.	HR-E3 HR-G4 HR-G6 HR-I2 HR-I3 HR-E4 HR-G1 HR-G3 HR-G5	New Human Error Probabilities (HEPs) added to the SPS PRA were based on SPAR-H. The Peer Review identified the SPAR-H methodology is not a consensus model and has some limitations.	<b>Significant:</b> This issue is important for any potential STI change impacted by HEPs. Therefore, HEPs developed using the SPAR-H methodology will be updated using a more appropriate methodology in the EPRI HRA Calculator. This will be added to the sensitivity PRA model when quantifying the effect of a proposed individual STI revision for comparison to acceptance criteria in NEI 04-10, Revision 1.

**Table 1 Status of Identified Gaps to NEI 00-02 and Capability Category II of the ASME PRA Standard**

Title	Description	NEI Element /ASME SR	Current Status/Comment	Importance to Application
*Gap #11	Walkdown sheets do not contain all the requested information.	IFSO-B2 IFQU-A9	<b>IFSO-B2:</b> Complete the walkdown sheets and verify no impact to IF events. <b>IFQU-A9:</b> Similar to IFSO-B2, need to clearly document the spatial relationship between flood sources and PRA equipment.	<b>Significant:</b> This issue is important for any potential STI change impacted by internal events. Therefore, the walkdown sheets will be completed to include the requested information. Any impact to flooding scenarios will be added to the sensitivity PRA model when quantifying the effect of a proposed individual STI revision for comparison to acceptance criteria in NEI 04-10, Revision 1.
*Gap #12	Document limitations in the quantification process that would impact applications.	QU-F5	Need to update PRA Notebook QU.4 to include a discussion on model limitations.	<b>Significant:</b> It is important to identify modeling limitations before assessing the impact of any potential Surveillance Test Interval (STI) changes. Therefore, this Gap will be addressed before any STI changes.
*Gaps 9 through 12 were identified during the 2010 PWROG focused PRA peer review.				