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February 15, 2013

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

Serial No. NA3-11-034RB
Docket No. 52-017
COL/DBE

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
SRP 09.04.05: REVISED RESPONSE TO RAI LETTER 72

On June 3, 2011, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA), which consisted of seven questions. Responses to the seven questions included in Request for Additional Information (RAI) 5658 were provided in Dominion letter NA3-11-034RA, dated August 22, 2011 (ML11237A009).

Due to changes in the design of the ESW and UHS pump houses, as described in the response to RAI 6262, Question 09.04.05-8 (letter NA3-12-012R), Dominion has determined that the response to RAI 5658, Question 09.04.05-4 should be revised. All previously submitted RAI responses were evaluated and are not impacted by the change in the pump house design. A revised response that supersedes the August 22, 2011 response is enclosed. Please note that the revision pertains only to the fourth paragraph in the response, but the entire response is provided for completeness. The revised response is shown in text markup format.

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck

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NRE

Enclosure:

Revised Response to NRC RAI Letter No. 72, RAI 5658, Question 09.04.05-4.

Commitments made by this letter:

None

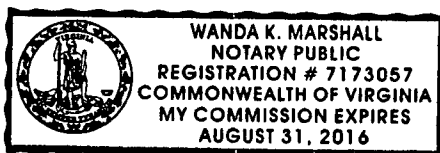
COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Engineering and Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 15th day of February, 2013
My registration number is 7173057 and my
Commission expires: August 31, 2016

Wanda K. Marshall
Notary Public



cc: U. S. Nuclear Regulatory Commission, Region II
C. P. Patel, NRC
T. S. Dozier, NRC
G. J. Kolcum, NRC

ENCLOSURE

Revised Response to NRC RAI Letter No. 72

RAI No. 5658, Question 09.04.05-4

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

**North Anna Unit 3
Dominion
Docket No. 52-017**

RAI NO.: 5658 (RAI LETTER NO. 72)

**SRP SECTION: 09.04.05 – ENGINEERED SAFETY FEATURE VENTILATION
SYSTEM**

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

DATE OF RAI ISSUE: 06/03/2011

QUESTION NO.: 09.04.05-4

Dominion indicated in its letter (ML103160406) to the staff on November 10, 2010 (Serial No. NA3-10-019), that the SCOL applicant does not endorse the RCOL applicant's response to RAI #3232, (CP RAI # 123) Question #09.04.05-5. The staff views the RCOL applicant's response to Question #09.04.05-5 as incomplete and considers this to be an Open Item in the RCOLA. Subsequently, the staff in March, 2011 issued a follow-up NRC RAI ID No. 5585, Q#20497, Question #09.04.05-17 to the RCOL applicant to resolve the outstanding design issues.

Given that the SCOL applicant did not endorse the RCOL applicant's resolution to Question #09.04.05-5, the staff submits the near original RCOL Question to the SCOL applicant for additional information about their intended resolution of the following questions.

Internal Flooding – GDC 4

Section II of SRP section 9.4.5 provides the "Technical Rationale" behind the acceptance criteria for GDC 4. An excerpt from this passage reads: "Compliance with GDC 4 requires that structures, systems, and components important to safety be designed to accommodate the effects of, and be compatible with, environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be protected against dynamic effects (e.g., those of missiles, pipe whipping, and discharging fluids) that may result from equipment failure and from events and conditions outside the nuclear power unit."

Two of the "Review Interfaces" from SRP section 9.4.5 that these "dynamic effects" refer to are captured in SRP section 3.4.1 "Internal Flood Protection For Onsite Equipment Failures" and SRP section 3.6.1 "Plant Design For Protection Against Postulated Piping Failures In Fluid Systems Outside Containment".

The NRC staff notes that US-APWR DCD subsection 3.4.1.1 contains the following excerpt:

"Safety-related SSCs are protected from flooding by external and internal sources. The US-APWR design includes the following:

- The separation of redundant trains of safety-related SSCs as addressed in Chapters 1
- Protective barriers and enclosures, where necessary, as addressed in this section
- The placement of essential SSCs above internal flood levels
- SSCs are mounted above the flood level. While safety-related SSCs that are environmentally protected in accordance with Section 3.11 are permitted below the potential flood level, no components requiring active operation to achieve their intended safety function are located below the potential flood level.

The safety-related design basis contained in the second bullet of the North Anna 3 FSAR subsection 9.4.5.3.6 reads: *"The ESW pump room exhaust fan and the UHS transfer pump room exhaust fan are separated by a three-hour fire rated barrier. Therefore, each fan powered by different Class 1E power supplies is protected and remains functional in the event of a fire in either room."*

The NRC staff requests additional information about the barrier between the ESW pump room and the UHS transfer pump room. SCOL FSAR Appendix 9A "Fire Hazard Analysis" indicates that there may be 3-hour fire rated passages between the two rooms. With respect to the issue of internal flooding, the staff could find no information contained in the SCOL applicant's FSAR subsection 3.4. Please clarify, is there a flood barrier between the UHS ESW pump and the UHS Transfer Pump? Please update the FSAR as appropriate

Revised Dominion Response (This response supersedes Dominion's August 22, 2011 response)

Under the design-centered review approach, Dominion evaluates R-COLA RAI responses to determine whether the response is standard and can be endorsed, or whether a site-specific response is appropriate. In this instance, the R-COLA response to RAI Question 09.04.05-5 specifically made reference to the Updated Tracking Report (UTR) process. The UTR process is unique to the R-COLA and represents a method of providing interim COLA updates to the NRC between formal revisions. The process

difference described in the R-COLA response was a factor in Dominion's decision not to endorse the response as written.

Similarly, the NRC's follow-up question, R-COLA RAI Question 09.04.05-17, requested the R-COLA applicant to make a timely submittal specifically via the UTR process of information discussed in the original response. Because Dominion does not use the UTR process, the R-COLA response was determined to be site-specific and thus not suitable for endorsement as a standard response. It should be noted, however, that the substance of Dominion's response presented in the discussion that follows is essentially the same as that presented in the R-COLA response.

North Anna Unit 3 has been evaluated for internal flood protection for site-specific structures. The evaluation concluded that:

"Postulated internal flooding due to events including Moderate Energy Line Break (MELB) and fire suppression activities cannot adversely affect safe plant operations of the ability of the plant to achieve and maintain a safe shutdown condition, if necessary, in accordance with the single failure criterion."

Floor drains are provided in the ESW pump and UHS transfer pump rooms to allow internal flood water to drain to the basin below. As described in FSAR Appendix 9A, these rooms are different fire areas that are separated by reinforced concrete walls that exceed 3-hour fire resistance, with doors and penetrations in the rooms protected with 3-hour fire resistive seals or components. ~~While not a flood barrier, the 3-hour fire rated doors and walls that separate the ESW pump and UHS transfer pump rooms will reduce the flow of water between the rooms in the event of internal flooding, allowing the floor drain in the unaffected room to maintain the water below the flood level.~~ The ESW pump and UHS transfer pump rooms can be accessed only through exterior doors. Each pump room has an exterior door on the north side of the pump house. The ESW pump rooms also have an exterior door on the south side of the pump house. All of the exterior doors will be similarly designed, with interior missile barriers to protect the entrance to the pump rooms. The ESW and UHS transfer pump rooms are separated by a solid 3-hour fire rated wall with no unsealed penetrations. All penetrations in this fire barrier wall will be sealed with a 3-hour fire rated seal and a water tight seal.

FSAR Sections 3.4.1.3, 3.4.3, and 9.4.5.3.6 will be revised to address the evaluation of internal flooding concerns for site-specific safety-related structures, including the ESW pump and UHS transfer pump rooms. In addition, FSAR Figures 3.8-208 and 3.8-209 will be revised to include a note that describes the floor drains in the pump rooms. COLA Part 10 will also be revised to reflect that the Ultimate Heat Sink Related Structure has no water-tight doors, flood doors, or flood barriers.

Proposed COLA Revision

The proposed revisions associated with the original RAI response submitted on August 22, 2011 were incorporated in the December 2011 COLA submission and remain unaffected by the revised response.