NorthAnnaRAIsPEm Resource

From: Buckberg, Perry
Sent: Thursday, December 11, 2014 2:58 PM
To: 'na3raidommailbox@dom.com' (na3raidommailbox@dom.com) (na3raidommailbox@dom.com)
Cc: NorthAnnaRAIsPEm Resource; Weisman, Robert; Carpentier, Marcia; Giacinto, Joseph; Rivera-Varona, Aida
Subject: North Anna 3 COLA RAI 151-7708 (02.04.02 - Floods)
Attachments: NA3 COLA RAI 151 RHMB 7708.pdf

By letter dated November 26, 2007, Dominion Virginia Power (Dominion) submitted a Combined License Application for North Anna, Unit 3, pursuant to Title 10 of the *Code of Regulations,* Part 52. The U.S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this COLA.

The NRC staff has identified that additional information is needed to continue portions of the review and a Request for Additional Information (RAI), is enclosed. To support the review schedule, Dominion is requested to respond within 30 days of the date of this request. If the RAI response involves changes to the application documentation, Dominion is requested to include the associated revised documentation with the response.

Thanks,

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Request for Additional Information - 151

Issue Date: 12/11/2014
Application Title: North Anna, Unit 3 - Docket Number 52-017
Operating Company: Dominion
Docket No. 52-017
Review Section: 02.04.02 – Floods
Application Section: 2.4.2

QUESTIONS:

02.04.02-10

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. On examination of the FSAR, the staff noted that FSAR Tables 2.4-201, 2.4-202, and 2.4-203 include information about the application of the rational method for estimating peak discharges. The FSAR text and the tables do not clearly describe how subbasin U1&2, which derives flow from the existing Units 1 and 2 area, was treated in the applicant's analysis. Staff requests that additional details related to how the rational method was applied to estimate peak discharges, particularly the treatment of U1&2 subbasin, be provided and that an edited FSAR section with a summary of this information be provided and included in a future FSAR revision.

02.04.02-11

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. On examination of the FSAR, the staff found little discussion of methods and results for the computation of subbasin discharges based on the times of concentration. Staff's examination of Calculation Package 25161-G-012 revealed an in-depth discussion of methods and intermediate results used to compute times of concentration and subbasin discharges. Provide a description of the estimation of subbasin discharge that includes the estimation of flow type lengths, Manning's roughness coefficients, times of concentration, and discharge computations. Include a list of assumptions and the basis for selecting Manning's roughness coefficients for sheet flow. Staff requests that a detailed discussion be provided and that an edited FSAR section with a summary of this information be provided and included in a future FSAR revision.

02.04.02-12

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. Staff found that the connection of the west drainage channel to the SWM basin as depicted in FSAR Figures 2.4-201 and 2.4-203 does not agree with the connection found by staff in the HEC-RAS input files provided by Dominion and illustrated in Figure 2, "HEC-RAS Schematic," of Calculation Package 25161-G-012. The FSAR figures show the west channel discharging directly to the outfall. The HEC-RAS input shows the west channel discharging to the SWM basin. Staff requests an explanation for the disagreement between the FSAR figures and the HEC-RAS input files and provide any corrections to be included in a future FSAR revision.

02.04.02-13

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. On examination of the FSAR, staff was unable to find any discussion of the basis for specifying expansion-contraction coefficients of 0.3-0.5 in the applicant-supplied HEC-RAS model. Staff's examination of Calculation Package 25161-G-012 also found no discussion of the basis for specifying expansion-contraction coefficients. Staff requests that the applicant provide a discussion of the basis for selection of expansion-contraction coefficients used in the HEC-RAS model analysis and, include a discussion of the basis for selecting expansion-contraction coefficients of 0.3-0.5. Staff requests that an edited FSAR section with a summary of this information be provided and included in a future FSAR revision.

02.04.02-14

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. On examination of the HEC-RAS input files, the staff noted that inline weirs used to evaluate the effect of blocked culverts had weir discharge coefficients of either 2.6 or 2.4. Staff's examination of the FSAR found no discussion pertaining to the specification of weir discharge coefficients; however staff's examination of Calculation Package 25161-G-012 found a discussion of the basis for specifying weir discharge coefficients. Staff requests that a detailed discussion of the basis and computation of the weir discharge coefficients used in the HEC-RAS model be provided and that an edited FSAR section with a summary of this information be provided and included in a future FSAR revision.

02.04.02-15

The NAPS Unit 3 FSAR, Revision 8 provides the documentation of the methods, assumptions, and results of the flooding potential due to local intense precipitation. On examination of the Calculation Package 25161-G-012, the staff found a discussion of runoff depths between passageways of safety-related structures with runoff generated from adjacent roofs and direct precipitation. ANSI/ANS-2.8-1992 Section 11.4 provides guidance related to consideration of roof drainage that staff consider an important aspect of the safety analysis which is not included in the applicant's assessment. Staff requests that the applicant provide:

(a) A discussion of the effects of roof drainage and direct precipitation during local intense precipitation on water levels or depths along passageways between buildings and structures important for safety;

(b) A comparison of these water levels or depths to the elevations of any penetrations or openings housing safety-related structures, systems or components to ensure adequate flooding protection; and,

(c) An edited FSAR section or sections with a summary of this information for inclusion in a future FSAR revision.