NorthAnnaRAIsPEm Resource

From: Klos, John
Sent: Tuesday, August 26, 2014 2:09 PM
To: na3raidommailbox@dom.com
Cc: Weisman, Robert; NorthAnnaRAIsPEm Resource; Klos, John; Quinlan, Kevin
Subject: Draft RAIs FSAR Section 2.3.5, North Anna COLA(52-017)
Attachments: Draft RAI Section 2.3.5.docx

Hi,

Please see the attached draft RAIs for FSAR Section 2.3.5 of North Anna combined license application. Please let me know if you need any clarifications before COB Sept 2nd. Otherwise, it will be issued as final after September 5th, 2014.

Sincerely,

John Klos, Project Manager
U.S. NRC, Office of New Reactors
NRC/NRO/DNRL/LB3, TWFN 6J10
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301.415.5136, 301.415.6323 (fax)
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John.Klos@NRC.gov

From: Patel, Chandu
Sent: Friday, July 18, 2014 3:02 PM
To: 'na3raidommailbox@dom.com' (na3raidommailbox@dom.com)
Cc: Weisman, Robert; NorthAnnaRAIsPE Resource; Klos, John; Williams, Stephen
Subject: Draft RAIs 7556 and 7557, FSAR Section 12.2, North Anna COLA(52-017)

Hi,

Please see attached Draft RAI 7556 and RAI 7557 for FSAR Section 12.2 of North Anna combined license application. Please let me know if you need any clarifications before COB July 23, 2014. Otherwise, it will be issued as final after July 23, 2014.

Sincerely,

Chandu Patel, Senior Project Manager
U.S. NRC, Office of New Reactors
NRC/NRO/DNRL/LB3,
Washington, DC 20555-0001
301.415.3025
MS T6D38

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Subject: Draft RAIs FSAR Section 2.3.5, North Anna COLA(52-017)
Sent Date: 8/26/2014 2:09:13 PM
Received Date: 8/26/2014 2:09:15 PM
From: Klos, John

Created By: John.Klos@nrc.gov

Recipients:
"Weisman, Robert" <Robert.Weisman@nrc.gov>
Tracking Status: None
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Draft RAI Section 2.3.5.docx	23924	

Options
Priority: Standard
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Recipients Received:

The annual average atmospheric dispersion and deposition factors are used in the calculation of offsite concentrations and dose consequences of postulated routine airborne radioactive releases to demonstrate compliance with 10 CFR Part 20 and Appendix I to 10 CFR Part 50. Regulatory Guide 1.111, Revision 1, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," presents criteria for characterizing atmospheric dispersion and deposition conditions for evaluating the consequences of routine releases. Regulatory Guide 1.111 provides source configuration criteria for determining when effluent release points can be considered elevated releases, ground-level releases, or part-time elevated/part-time ground-level (i.e., mixed-mode) releases.

The ESBWR DCD, Revision 10, provides a set of long-term χ/Q and D/Q values for each of the three stacks (Radwaste Building stack, Reactor Building/Fuel Building stack and Turbine Building Stack). For the ESBWR analysis, both ground-level and mixed-mode releases were considered. As stated in Subsection 2.3.5.3 of the Final Staff Evaluation Report for the ESBWR standard design (ML110030027), a ground-level release was considered for releases from the Radwaste Building, while mixed-mode releases were considered for releases from the Reactor Building/Fuel Building stack and the Turbine Building stack based on the criteria set forth in RG 1.111.

Similarly, Subsection 2.3.5.1 of the Fermi 3 FSAR (ML14055A083), which also references the ESBWR standard design, states that a ground-level release was considered for releases from the Radwaste Building and mixed-mode releases were considered for releases from the Reactor Building/Fuel Building stack and the Turbine Building stack.

North Anna 3 COL FSAR Section 2.3.5, "Long-Term (Routine) Diffusion Estimates," describes the input data and assumptions that are used in the XOQDOQ model for routine releases. The North Anna 3 FSAR states that the vent stacks on the Reactor Building/Fuel Building, Turbine Building, and Radwaste Building are all modeled as mixed-mode releases. The North Anna COL FSAR also states that the Radwaste Building stack is close enough to the Turbine Building that the stack will experience building downwash effects from the Turbine Building. According to Tier 2, Table 2B-1 of the ESBWR DCD, the Radwaste Building stack height is 18.15 meters above grade whereas the Turbine Building height is 52.0 meters above grade.

RG 1.111 states that for effluents released from points less than the height of adjacent solid structures, ground-level release should be assumed. Ground-level releases under these circumstances account for the initial mixing of the effluent plume within the building wake.

Considering the source configuration criteria set forth in RG 1.111 and the modeling methodology used in the ESBWR DCD, please either update the FSAR to include a justification for modeling the Radwaste building vent stack as a ground-level release or update the FSAR to implement the mixed-mode source configuration guidance provided in RG 1.111 for Radwaste building vent stack releases.