August 19, 2008

Mr. Eugene S. Grecheck
Vice President - Nuclear Development
Dominion
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 026 (SRP SECTIONS: 02.04.13, 03.09.02, 05.03.02, 11.05) RELATED TO THE NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION

Dear Mr. Grecheck:

By letter dated November 26, 2007, Dominion Virginia Power (Dominion) submitted a combined license application for North Anna Unit 3 pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application.

The staff has identified that additional information is needed to continue portions of the review and the request for additional information (RAI) is contained in the enclosure to this letter. To support the review schedule, Dominion is requested to respond within 45 days of the date of this letter. If the RAI response involves changes to application documentation, Dominion is requested to include the associated revised documentation with the response.

Should you have questions, please contact me at (301) 415-0224 or Thomas.Kevern@nrc.gov.

Sincerely,

/RA/

Thomas A. Kevern, Senior Project Manager
ESBWR/ABWR Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-017

Enclosure: Request for Additional Information

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Vice President - Nuclear Development
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Docket No. 52-017
Enclosure: Request for Additional Information
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DATE	07/17/08	07/18/08	07/22/08	08/11/08	08/19/08
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DATE	07/07/08	07/07/08	07/08/08	08/19/08	
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NAME	NRay*	AHowe*	CPatel*	TKevern*	
DATE	07/09/08	08/07/08	08/07/08	08/19/08	

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information
North Anna, Unit 3
Dominion
Docket Number 52-017

SRP Sections: 02.04.13 - Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters; 03.09.02 - Dynamic Testing and Analysis of Systems Structures and Components; 05.03.02 - 05-03 Branch Technical Position - Fracture Toughness Requirements; 11.05 - Process and Effluent Radiological Monitoring Instrumentation and Sampling Systems,
Application: FSAR Sections 02.04.13, 03.09.06, 5.3.2, 11.5.4.6

QUESTIONS

02.04.13-1

The NRC staff has reviewed the radionuclide transport analysis results described in FSAR Section 2.4.13. In accordance with 10 CFR 100.20(c)(3) and 10 CFR 52.79(a)(1)(iii), please provide information on the presence or absence of chelating agents in the tank used for the source in the accidental release analysis.

02.04.13-2

The NRC staff has reviewed the radionuclide transport analysis results described in FSAR Section 2.4.13. In accordance with 10 CFR 100.20(c)(3) and 10 CFR 52.79(a)(1)(iii), please provide the technical basis for concluding that using literature-derived Kd values in the transport analysis that were larger than site-specific observed values is a conservative approach. Given the reported presence of rock fragments in the saprolite, provide a discussion of the potential effect of rock fragments on radionuclide adsorption and the technical basis for neglecting this effect in a conservative analysis. Also, provide a discussion of the effect of pH on measured Kd values and the technical basis for neglecting this effect in a conservative analysis.

02.04.13-3

The NRC staff has reviewed the radionuclide transport analysis results described in FSAR Section 2.4.13. In accordance with 10 CFR 100.20(c)(3) and 10 CFR 52.79(a)(1)(iii), please provide a discussion of the consistency between the MODFLOW model results for post-construction groundwater heads in FSAR 2.4.12 and the groundwater transport analysis of FSAR 2.4.13, especially with respect to the conservativeness of the transport analysis and consistency of the transport pathway. Please provide technical justification for using a hydraulic conductivity value in the groundwater transport analysis (1.04 m/d) that is less than the maximum observed value (3.017 m/d). Please provide a discussion of the alternative groundwater transport pathways considered and a technical justification for the selected pathway being considered conservative.

03.09.02-1

The FSAR incorporates by reference Section 3.9.2, “Dynamic Testing and Analysis of Systems, Components, and Equipment,” in the ESBWR DCD Tier 2, which addresses criteria, testing procedures, and dynamic analyses employed to ensure the structural and functional integrity of piping systems, mechanical equipment, reactor internals, and their supports under vibratory loadings. ESBWR DCD Subsection 14.2.8.1.42, “Expansion, Vibration and Dynamic Effects Preoperational Test,” states that its objective is to verify that critical components and piping runs are properly installed and supported such that expected steady-state and transient vibration and movement due to thermal expansion does not result in excessive stress or fatigue to safety-related plant systems and equipment. Nuclear power plant operating experience has revealed the potential for adverse flow effects from vibration caused by hydrodynamic loads and acoustic resonance within reactor coolant, steam, and feedwater systems as well as reactor internal components such as steam dryers. Please describe the implementation of the program to address potential adverse flow effects on safety-related piping and components in these systems.

03.09.02-2

The staff needs sufficient time to review the comprehensive flow induced vibration assessment program for reactor internals. In accordance with RG 1.20, Rev 3 and SRP Sections 3.9.2 and 3.9.5., Dominion is requested to indicate when it proposes to submit to NRC an implementation schedule for these programs. The schedule should allow sufficient time for the NRC staff to review these programs prior to implementation.

05-03 Branch Technical Position-1

FSAR Section 5.3, Reactor Vessel, incorporates by reference sections of the ESBWR DCD including Section 5.3.2.1, which addresses pressure-temperature (P-T) limits and contains representative P-T curves. DCD Revision 4 deleted the COL information item considered necessary by the staff [5.3-1-A Pressure/Temperature Limits and Fracture Toughness Data (Deleted)]. Based upon staff-applicant interactions, it is the staff's understanding that (1) GEH will develop a topical report containing either a) bounding P-T limits for NRC review and approval or b) a pressure temperature limit report (PTLR) along with other appropriate supporting documents (following NRC Generic Letter 96-03) that will contain bounding pressure temperature limits for NRC review and approval; and, (2) the COL applicant will update FSAR Chapter 5 and technical specifications with appropriate P-T limits for NRC review and approval. Please confirm the staff's understanding of the resolution of this issue. In addition, consider the following as COL information item 5.3-X-H, “The COL Holder shall update the P/T limits along with a request for license amendment prior to fuel loading, if required, using the plant-specific material properties for NRC review and approval.”

11.05-4

A review of North Anna Unit 3 FSAR Section 11.5.4.6 and ESBWR DCD Tier 2, Revision 5, Section 9.2.6.2 indicates that the supplemental information presented in FSAR Table 11.5-201 does not include a system line item identifying sampling provisions for condensate water that might be present in the condensate storage tank basin. The condensate storage tank basin is designed to contain the entire volume of the storage tank in the event of a tank rupture or spill. The basin's design includes a sump with provisions to pump water out of the basin to the LWMS or to release it to the storm drain, depending on radionuclide concentrations and requirements of Table 2, Col. 2 of Appendix B to Part 20 and design objectives of Appendix I to Part 50. FSAR Table 11.5-201 does not identify any sampling provisions and criteria for the case where water contained in the condensate tank basin would be discharged to the storm drain. Accordingly, a new system line item should be added to Table 11.5-201 in describing sampling provisions and criteria given the possibility of discharging such water to the storm drain. This information would ensure that such provisions are clearly identified in the FSAR and not likely to be omitted during the development of the sampling and analysis program for the plant specific offsite dose calculation manual in confirming compliance with liquid effluent concentration limits of Table 2 in Appendix B to Part 20 and numerical design objectives of Appendix I to Part 50.