January 19, 2011

APPLICANT: DOMINION VIRGINIA POWER

APPLICATION: NORTH ANNA, UNIT 3, COMBINED LICENSE APPLICATION

SUBJECT: SUMMARY OF THE SEPTEMBER 28, 2010, PUBLIC MEETING WITH DOMINION VIRGINIA POWER TO DISCUSS THEIR APPROACH TO SEISMIC ANALYSIS RELATED TO THE NORTH ANNA NUCLEAR POWER PLANT, UNIT 3, COMBINED LICENSE APPLICATION, SECTION 2.5, "SEISMIC," SECTION 3.7, "SEISMIC ANALYSIS" AND SECTION 3.8, "SEISMIC CATEGORY I AND OTHER SEISMIC CATEGORY I STRUCTURES"

On September 28, 2010, the U.S. Nuclear Regulatory Commission (NRC) staff met with Dominion Virginia Power (Dominion) for a Category 1 public meeting. The NRC staff had previously issued a public meeting notice dated September 16, 2010, as documented in the Agencywide Documents Access and Management System (ADAMS) under accession number ML102560194. The meeting notice includes the Meeting Agenda.

The NRC conducted this meeting upon a request from Dominion in order for Dominion to provide its approach to seismic analysis. During the meeting, the NRC staff provided guidance and discussed the regulatory requirements described in the Standard Review Plan (SRP) in order for Dominion to understand how the staff will review the application and the basis for the NRC staff's safety determination. The key issues are summarized below.

Dominion started by presenting the NRC with an overview of the layout of the United States - Advanced Pressurized Water Reactor (US-APWR) at North Anna Nuclear Power Plant (North Anna), Unit 3. The layout showed the Seismic Category I structures. It indicated that the US-APWR containment structure is in the same location as the containment of the formerly proposed Economic Simple Boiling Water Reactor (ESBWR) at the North Anna site.

Dominion conducted additional borings at the proposed site at the end of 2009, including two with shear-wave velocity measurements (Subsequent-Combined License Application Revision 3, dated June 2010). Dominion presented boring data and their interpretation of the data at the meeting. Dominion indicated that the data collected is consistent with original boring data and the intent of Regulatory Guide (RG) 1.132. However, the NRC staff raised questions about the consistency of new data with previous measurements.

The NRC staff raised an issue regarding the control point for Ground Motion Response Spectra (GMRS). The NRC staff stated, "Based on RG 1.208, the horizontal and vertical GMRS are determined in the free field on the ground surface. For sites with soil layers near the surface that will be completely excavated to expose competent material, the GMRS are specified on the outcrop or hypothetical outcrop that will exist after excavation." The Dominion analysis appears to base the control point below the ground at the top of hard rock. Dominion agreed to consider the NRC staff's comments.

Dominion pointed out that Foundation Input Response Spectra (FIRS) exceeded US-APWR Certified Site Design Response Spectra (CSDRS) for Seismic Category I structures. To conform to the guidance of the SRP, Dominion performed a Site-Specific Soil Structure Interaction Analysis using SASSI Structural Modeling and Ground Motion Incoherency calculations. During the presentation, the NRC staff provided a comment that it would like more information such as the approach to handle the difference between the FIRS and the CSDRS and the implementation of the Ground Motion Incoherency calculations. Dominion agreed to consider the NRC staff's comment.

Dominion indicated that equipment seismic qualification methods, including a procedure to address high frequency (HF) ground motion are described in Mitsubishi Heavy Industries', Ltd. Technical Report MUAP-08015 "US-APWR Equipment Qualification Program". Screening will be performed to identify HF sensitive equipment affected by differences, if any, between the plant-specific In-Structure Response Spectra (ISRS) and the certified design ISRS. The NRC staff noted that, in following the Interim Staff Guidance (ISG)-1, Dominion should use the US-APWR design certification document equipment list provided in Table 3D-2 of Appendix 3D, together with the North Anna, Unit 3, site-specific equipment list to identify (1) the equipment that is not HF sensitive and the reason why each piece of equipment identified is not HF sensitive and (2) the equipment that is sensitive to HF ISRS excitation. Dominion should explain how to qualify HF sensitive equipment with respect to both CSDRS ISRS and HF ISRS to satisfy the ISG-1 guidance (Institute of Electrical and Electronic Engineers Standard 344, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations" with five Operating Base Earthquake and one Safe Shutdown Earthquake) to meet the requirements of General Design Criteria 2. The NRC staff expressed the view that more information is needed regarding seismic margins analyses of equipment.

The NRC staff pointed out that, with respect to seismic margins analysis as a part of the probabilistic risk assessment, results in Chapter 19, ISG-20, Section 5.2, provides guidance for seismic fragility evaluation and developing equipment test response spectra to assure adequate margin.

Enclosure 1 provides a list of attendees. The presentation material provided by Dominion is located in ADAMS under accession number ML102790268. Please direct any inquiries to me at 301-415-3025, or via e-mail at Chandu.Patel@nrc.gov.

Sincerely,

/RA/

Chandu Patel, Project Manager
US-APWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-017

Enclosure:
List of Attendees

cc w/encl: See next page

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cc w/encl: See next page

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ADAMS Accession No.: ML110120506 NRC-001

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OFFICIAL RECORD COPY

List of Attendees

Meeting with Dominion Virginia Power to discuss their approach to Seismic Analysis related to the North Anna Nuclear Power Plan, Unit 3, Combined License Application, Section 2.5, "Seismic," Section 3.7, "Seismic Analysis" and Section 3.8, "Seismic Category I and other Seismic Category I Structures."

September 28, 2010

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