PMNorthAnna3COLPEmails Resource

From: Patel, Chandu
Sent: Tuesday, December 21, 2010 2:31 PM
To: 'na3raidommailbox@dom.com'
Cc: NorthAnna3COL Resource; Roy, Tarun; Graizer, Vladimir; Cook, Christopher
Subject: RAI LTR 53 (RAIs 5198 and 5199), Section 2.5.2, for North Anna 3 COLA
Attachments: RAI 5198 and 5199 LTR 53-1.doc

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 45 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.

Sincerely,
Chandu Patel

Hearing Identifier: NorthAnna3_Public_EX
Email Number: 919

Mail Envelope Properties (8C658E9029C91D4D90C6960EF59FC0D61AE51FDDEC)

Subject: RAI LTR 53 (RAIs 5198 and 5199), Section 2.5.2, for North Anna 3 COLA
Sent Date: 12/21/2010 2:30:33 PM
Received Date: 12/21/2010 2:30:43 PM
From: Patel, Chandu

Created By: Chandu.Patel@nrc.gov

Recipients:
"NorthAnna3COL Resource" <NorthAnna3COL.Resource@nrc.gov>
Tracking Status: None
"Roy, Tarun" <Tarun.Roy@nrc.gov>
Tracking Status: None
"Graizer, Vladimir" <Vladimir.Graizer@nrc.gov>
Tracking Status: None
"Cook, Christopher" <Christopher.Cook@nrc.gov>
Tracking Status: None
"'na3raidommailbox@dom.com'" <na3raidommailbox@dom.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	781	12/21/2010 2:30:43 PM
RAI 5198 and 5199 LTR 53-1.doc	31738	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

12/21/2010
North Anna, Unit 3
Dominion
Docket No. 52-017
SRP Section: 02.05.02 - Vibratory Ground Motion
Application Section: 02.05.02

QUESTIONS for Geosciences and Geotechnical Engineering Branch 2 (RGS2)

Request for Additional Information (RAI) No. 5198

02.05.02-1

FSAR Section 2.5.2.5 states that the GMRS is defined at a site elevation of 135 ft below finished grade at the hard rock interface (Vs = 9200 ft/sec). Justify that this location for the GMRS is consistent with the description of the SSE found in 10 CFR 100.23(d)(1) and the location of the GMRS as specified in ISG-17 and RG 1.208, which states that

> 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.

As the weathered rock above the hard rock interface has a Vs less than 9200 ft/sec, please provide the base Vs profile along with a complete description of the site response analysis to determine the GMRS for the site.

RAI No. 5199

02.05.02-2
FSAR section 2.5.2.5 Seismic Wave Transmission Characteristics of the Site and 2.5.4.2 Description of Subsurface Materials of the North Anna Site, Figures 2.5-209-210 and Figures 2.5.229-234 demonstrate significant variability in the elevation of the top of competent rock and layer thicknesses at the site under the reactor building complex and other category I structures. Figure 2.5-237 also shows large variations in the shear-wave velocity along the site. Methods of site response calculations including Approach 2 and Approach 3 (see NUREG/CR-6728) used to perform site response analyses are based on one-dimensional subsurface structure approximation, or in other words, flat layer structure.

a) Please justify the assumption of uniformity of layers based on available borings and shear-wave velocity profiles in relation to applicability of 1-D methods such as SHAKE and P-SHAKE to determine the North Anna site amplification.
b) Please describe how the site response analyses for the FIRS and GMRS will adequately capture the significant variability in the top of competent rock across not only the site, but also across the footprint of the Reactor Building and other seismic Category 1 structures.