PMNorthAnna3COLPEmails Resource

From: Patel, Chandu
Sent: Friday, December 03, 2010 4:12 PM
To: 'rlbaker@bechtel.com'; 'gquinn@bechtel.com'; 'dakemp@bechtel.com'; 'askolhek@bechtel.com'; 'twilli2@entergy.com'; 'aschneider@enercon.com'; 'hickste@earthlink.net'; 'na3-col-rai@mhi.co.jp'; 'na3-rai-dominion@mnes-us.com'; 'Regina Borsh'
Cc: NorthAnna3COL Resource; Graizer, Vladimir; Cook, Christopher; Roy, Tarun
Subject: Draft RAI 5198 and 5199 (Section 2.5) for North Anna 3 COLA
Attachments: Draft RAI 5198.doc; Draft RAI 5199.doc

Hi All,

Please see attached draft RAI 5198 and 5199 for NA3 COLA. Please call Tarun Roy if you need any clarifications for these RAI before COB December 8, 2010. Otherwise we will issue it as final after that date.

Thank you,
Chandu

Hearing Identifier: NorthAnna3_Public_EX
Email Number: 890

Mail Envelope Properties (8C658E9029C91D4D90C6960EF59FC0D61AA664F84D)

Subject: Draft RAI 5198 and 5199 (Section 2.5) for North Anna 3 COLA
Sent Date: 12/3/2010 4:12:22 PM
Received Date: 12/3/2010 4:12:23 PM
From: Patel, Chandu

Created By: Chandu.Patel@nrc.gov

Recipients:
"NorthAnna3COL Resource" <NorthAnna3COL.Resource@nrc.gov>
Tracking Status: None
"Graizer, Vladimir" <Vladimir.Graizer@nrc.gov>
Tracking Status: None
"Cook, Christopher" <Christopher.Cook@nrc.gov>
Tracking Status: None
"Roy, Tarun" <Tarun.Roy@nrc.gov>
Tracking Status: None
"'rlbaker@bechtel.com'" <rlbaker@bechtel.com>
Tracking Status: None
"'gquinn@bechtel.com'" <gquinn@bechtel.com>
Tracking Status: None
"'dakemp@bechtel.com'" <dakemp@bechtel.com>
Tracking Status: None
"'askolhek@bechtel.com'" <askolhek@bechtel.com>
Tracking Status: None
"'twilli2@entergy.com'" <twilli2@entergy.com>
Tracking Status: None
"'aschneider@enercon.com'" <aschneider@enercon.com>
Tracking Status: None
"'hickste@earthlink.net'" <hickste@earthlink.net>
Tracking Status: None
"'na3-col-rai@mhi.co.jp'" <na3-col-rai@mhi.co.jp>
Tracking Status: None
"'na3-rai-dominion@mnes-us.com'" <na3-rai-dominion@mnes-us.com>
Tracking Status: None
"'Regina Borsh'" <regina.borsh@dom.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	253	12/3/2010 4:12:23 PM
Draft RAI 5198.doc	29178	
Draft RAI 5199.doc	31226	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal

Expiration Date:
Recipients Received:

Draft Request for Additional Information No. 5198

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)

02.05.02-***

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.

Draft Request for Additional Information No. 5199

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)

02.05.02-***

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 and Figures 2.5.229-234 demonstrate significant variability in the elevation of the top of competent rock at the site under the reactor building complex and other category I structures. Data previously submitted and reviewed by NRC (including Figure 2.5-209 in Rev. 1 submitted in Dec. 2008 as a part of the ESBWR R-COLA) did not demonstrate this significant variability in the shear-wave velocity and layer thickness. This information only became available at the end of 2009 as a result of newly drilled boreholes. Figure 2.5-237 also shows large variations in the shear-wave velocity along the site. Methods of site response calculations including Approach 2 (SHAKE) and Approach 3 (P-SHAKE) 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 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.
c) Please describe the suitability of Zone III and Zone III-IV as the bearing layer for seismic Category I structures.