Vogtle PEmails

From: Hoellman, Jordan
Sent: Thursday, April 07, 2016 12:59 PM
To: Vogtle PEmails
Subject: Qualitative impact assessment on the Vogtle global seismic model due to proposed changes to Wall N (LAR-131) --UPDATED--
Attachments: DCP-5248_Impacts to Seismic Analysis_Due to Wall N +4in__04-04-2016 WEC 2016-04-07.docx

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From: Patel, Chandu
Sent: Thursday, April 07, 2016 12:57 PM
To: Hoellman, Jordan <Jordan.Hoellman2@nrc.gov>
Subject: FW: Qualitative impact assessment on the Vogtle global seismic model due to proposed changes to Wall N (LAR-131) --UPDATED--

Jordan,

Please put the attachment in ADAMS as publicly available and send a copy to today's attendees.

Thanks,
Chandu

From: Redd, Jason P. [mailto:JPREDD@southernco.com]
Sent: Thursday, April 07, 2016 9:27 AM
To: Patel, Chandu <Chandu.Patel@nrc.gov>
Subject: [External_Sender] Qualitative impact assessment on the Vogtle global seismic model due to proposed changes to Wall N (LAR-131) --UPDATED--

--UPDATED NON-PROPRIETARY ATTACHMENT--

Chandu,

Attached please find the qualitative impact assessment on the Vogtle global seismic model due to proposed changes to Wall N (LAR-131). These proposed changes were previously discussed with the technical Staff, the attached incorporates the technical Staff's desire for additional detail and consideration of impacts on the global seismic model. We look forward to presenting this white paper to the technical Staff during the noticed April 7, 2016 public call. The attached white paper does not contain any SUNSI or Proprietary information. Thank you.

Jason P. Redd, PE
Licensing Supervisor
Nuclear Development Regulatory Affairs
Southern Nuclear Operating Company
(205) 992-6435 / 8-992-6435
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Subject: Qualitative impact assessment on the Vogtle global seismic model due to proposed changes to Wall N (LAR-131) --UPDATED--
Sent Date: 4/7/2016 12:58:50 PM
Received Date: 4/7/2016 12:58:51 PM
From: Hoellman, Jordan

Created By: Jordan.Hoellman2@nrc.gov

Recipients:
"Vogtle PEmails" <Vogtle.PEmails@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	1571	4/7/2016 12:58:51 PM
DCP-5248_Impacts to Seismic Analysis_Due to Wall N +4in__04-04-2016 WEC 2016-04-07.docx	537758	

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

Proposed change of DCP 5248, Rev. A (Applicable to only plants SV3, SV4):

Change Tier 1 Table 3.3-1 wall thickness tolerance from +1" to +4" for Column Line N Wall from Column Lines 2 to 4 (44 feet) from Elevations 98'-1" to 135'-3."

Impacts to Vogtle Nuclear Island Seismic Analysis:

The proposed change does not have an adverse impact to the Vogtle site specific nuclear island seismic analysis or the design response spectra for Vogtle based on the following reasons:

- Considering a +4" tolerance for the 66" thick wall results in a maximum of only 6% increase in mass for this local area of the nuclear island compared to the nominal dimensions. The increase in mass is negligible compared to the total mass of the nuclear island, and will not result in a sizeable change to the dominant modes of the structure.

- The change to the local region of the nuclear island is relatively small, and will not result in a significant change in structural response in this local area or adjacent areas.

- The seismic response spectra generated as input to structures, systems, and components is broadened by +/-15 percent to account for variations in structural frequencies due to uncertainties in parameters such as material and mass properties of the structures and the soil, damping values, seismic analysis technique, and the seismic modeling technique.

Impacts to Vogtle Nuclear Island Seismic Design:

Furthermore, the seismic responses at Vogtle Units 3 & 4 are generally low in comparison to the AP1000 seismic design response spectra. Thus, the seismic design forces and the AP1000 configuration at Vogtle would not be adversely affected.

Wall N:

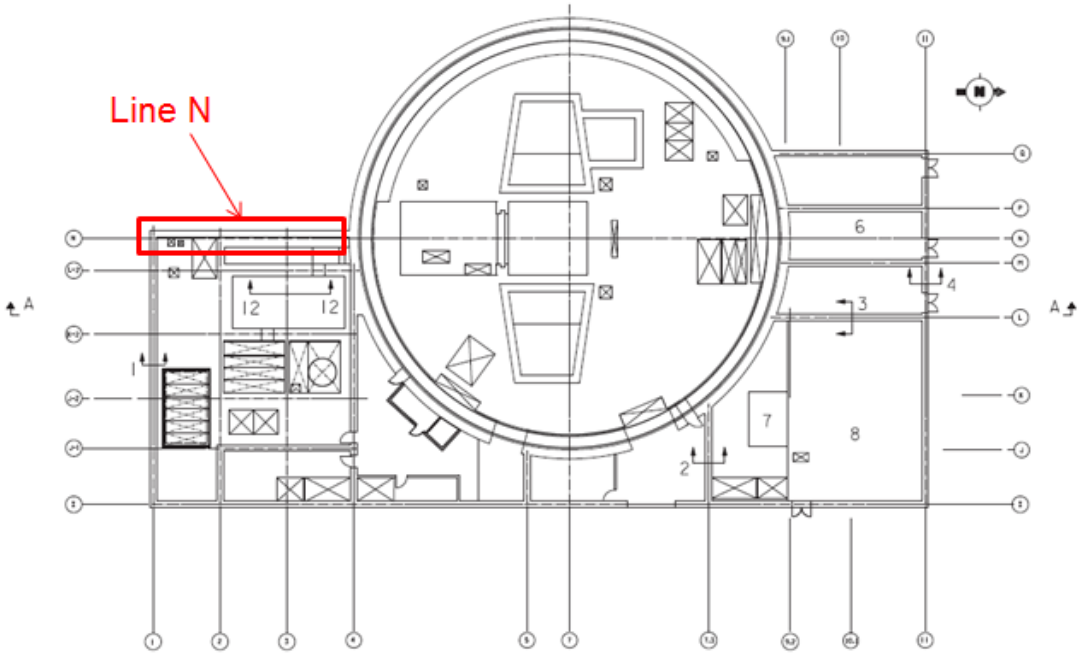

Figure 3H.5-1 (Sheet 1 of 3)
[*Nuclear Island Critical Sections Plan at El. 135'-3"*]*

Vogtle In-Structure Response Spectra (ISRS) vs. Certified Seismic Design Response Spectra (CSDRS)-based Design Envelope - Nearby Node 11111

From VEGP 3&4 – UFSAR, Appendix 3GG, "3-D SSI Analysis of AP1000 at Vogtle Site Using NI15 Model"

Table 1: Key Location for ISRS Comparison with DCD

Node	X* [ft]	Y* [ft]	Z [ft]	Location
10115	1116.5	948.5	116.5	ASB NE Corner at Control Room Floor
11111	929	1000	179.19	ASB Corner of Fuel Building Roof at Shield Building
12052	956.5	1000	327.41	ASB Shield Building Roof Area
10471	1008	1014	134.25	CIS Operating Deck
9007	1000	1000	100	CIS at Reactor Vessel Support Elevation
11224	1000	1000	224	SCV Near Polar Crane

*Note: X=Y=1000 ft at center of ASB and SCV

Vogtle ISRS (red, blue, green) vs. CSDRS ISRS (solid black):

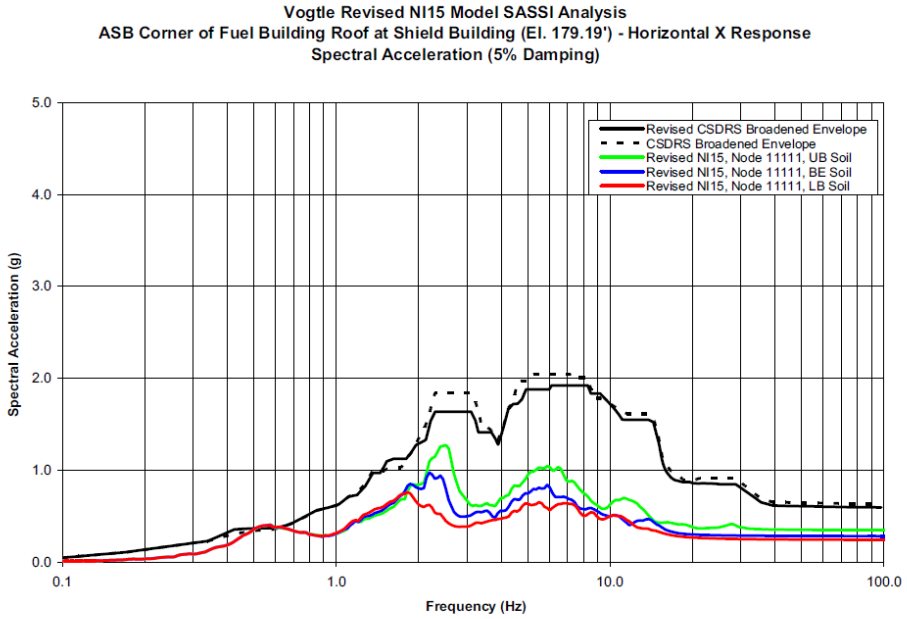

Figure 21 Horizontal X Response Spectra at ASB Corner of Fuel Building Roof at Shield Building (El. 179.19 ft, Node 11111)

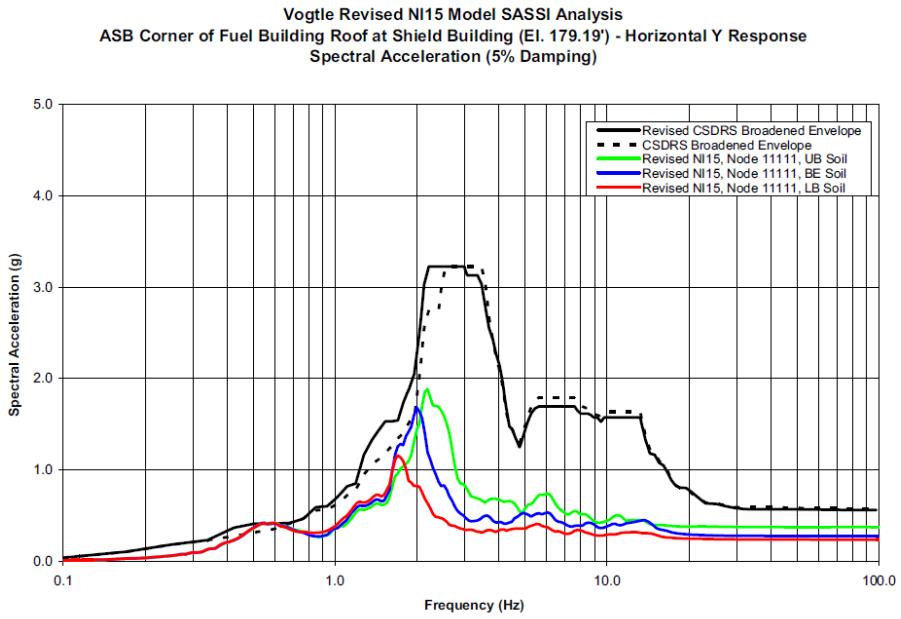

Figure 22 Horizontal Y Response Spectra at ASB Corner of Fuel Building Roof at Shield Building (El. 179.19 ft, Node 11111)

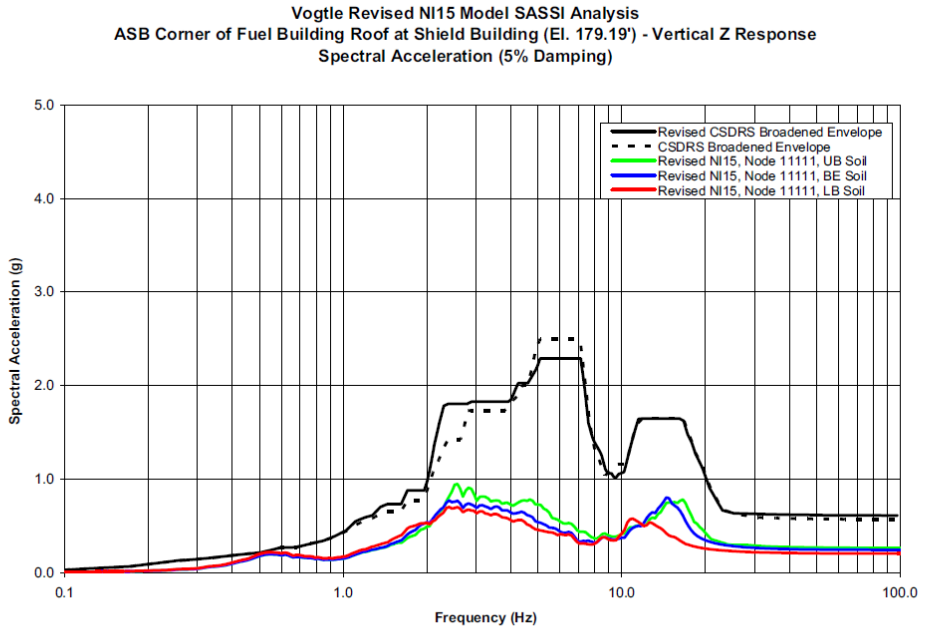

Figure 23 Vertical Z Response Spectra at ASB Corner of Fuel Building Roof at Shield Building (El. 179.19 ft, Node 11111)