



October 4, 2010  
NND-10-0362

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

ATTN: Document Control Desk

Subject: Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 Combined License Application (COLA) - Docket Numbers 52-027 and 52-028 Endorsement of R-COLA Voluntary Response to FSAR Chapter 19 Regarding Seismic Margin

References: 1. Vogtle (SNC) Response to Nuclear Regulatory Commission (NRC), Voluntary Response to FSAR Chapter 19 Regarding Seismic Margin, dated September 20, 2010 (ND-10-1811).

The enclosures to this letter provide the South Carolina Electric & Gas Company (SCE&G) response to the items contained in Reference 1. This response also identifies COLA changes to be incorporated in a future COLA update.

Should you have any questions, please contact Mr. Alfred M. Paglia by telephone at (803) 345-4191, or by email at [apaglia@scana.com](mailto:apaglia@scana.com).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 4<sup>th</sup> day of October, 2010.

Sincerely,

Ronald B. Clary  
Vice President  
New Nuclear Deployment

RBW/RBC/jg

Enclosure

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## **COL Information Item 19.59.10-6**

Westinghouse recently provided a response to OI-SRP19.0-SPLA-12 (Westinghouse letter No. DCP\_NRC\_003013, dated August 23, 2010) related to seismic margin. The response to the Design Control Document (DCD) open item (OI) included revisions to the COL information item identified in DCD Subsection 19.59.10.5. In accordance with the letter, DCD Subsection 19.59.10.5 will be revised to include a new COL Item and a change to an existing COL Item. In addition, a change was proposed to DCD Table 1.8-2 to add the new COL Item. The following provides proposed revisions to VCSNS Units 2 and 3 FSAR based on corresponding DCD changes.

### **1- Addition of new COL Item 19.59.10-6**

As specified in the above identified Westinghouse letter, DCD Subsection 19.59.10.5 will be revised to include the following language:

#### **19.59.10.5 Combined License Information**

The Combined License applicant referencing the AP1000 certified design will confirm that the Seismic Margin Assessment analysis documented in Section 19.55 is applicable to the COL site. This will include a confirmation that the COL site seismic demand based on the site GMRS is enveloped by the Certified Seismic Design Response Spectra (CSDRS) seismic demand as defined by Tier 1 criteria for SSE as well as an assessment that no site specific effects such as seismically induced liquefaction settlements, slope stability, foundation failure, and relative displacements have the potential to lower the HCLPF values calculated for the certified design. Further evaluation will be required if the COL site is shown to be outside of the bounds of the SMA analysis documented in Section 19.55.

As required by the above COL item, VCSNS has confirmed the following:

The VCSNS COLA site seismic demand based on the site-specific Ground Motion Response Spectra (GMRS) is enveloped by a seismic demand which combines both the Certified Seismic Design Response Spectra (CSDRS) and Hard Rock High Frequency (HRHF) design response spectra as defined by the AP1000 Design Control Document (DCD) Tier 1 criteria for SSE. Therefore, it can be concluded that the Seismic Margin Assessment analysis documented in FSAR Section 19.55 is applicable to the VCSNS site.

The VCSNS Nuclear Island (NI) is founded on hard (sound) rock which eliminates any potential for site specific effects such as seismically induced liquefaction settlements, slope stability, foundation failure or relative displacements which would lower the High Confidence, Low Probability of Failure (HCLPF) values calculated for the certified design. For non-safety related structures and foundations adjacent to the NI, these site specific effects are evaluated in FSAR Section 2.5.4 and shown to have no effect on the NI; therefore, having no potential to lower the HCLPF values calculated for the certified design.

Appropriate changes corresponding to the above discussion will be included in a future COLA update for FSAR Subsections 19.55.6 and 19.59.10 as identified in the Application Revisions

Section below. In addition, FSAR Table 1.8-202 will be revised to include COL Item 19.59.10-6.

This response is PLANT SPECIFIC; however, the addition of new COL Item 19.59.10-6 is expected to be STANDARD. The changes to FSAR Section 19.55 and Table 1.8-202 are PLANT SPECIFIC.

## **2- Revision to DCD Subsection 19.59.10.5, Item 1:**

As specified in the above identified Westinghouse letter, DCD Subsection 19.59.10.5 Item 1 will be revised as shown below:

1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values.

This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The test response spectra must be chosen so as to demonstrate that no more than one percent rate of failure would be expected when the equipment is subjected to the applicable seismic margin ground motion for the equipment identified to be applicable in the Seismic Margin Insights of the Site-Specific PRA. The range of frequency response that is required for the equipment with its structural support is defined.

Appropriate changes corresponding to the above referenced AP1000 DCD proposed revision are identified in the Application Revisions section below. These changes will be included in a future COLA revision.

This portion of the response is expected to be STANDARD for the S-COLAs.

Westinghouse has indicated that the above noted changes to the DCD will be included in an upcoming amendment to the AP1000 DCD, and as such, these changes to the COL application are not considered to be a departure from the DCD. Should Westinghouse not incorporate these changes as expected, a revision to this response will be provided to address the differences.

## **ASSOCIATED VCSNS COLA REVISIONS:**

1. COLA Part 2, FSAR Chapter 19, Subsection 19.59.10.5, Combined License Information, will be revised to add the following as the last paragraph with LMAs STD COL 19.59.10-6 and VCS 19.59.10-6:

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As discussed in Section 19.55.6.3, it has been confirmed that the Seismic Margin Analysis (SMA) documented in DCD Section 19.55 is applicable to the site. The site-specific effects have been evaluated and it was concluded that the plant-specific plant-level HCLPF value is equal to or greater than 1.67 times the site-specific GMRS peak ground acceleration.

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2. COLA Part 2, FSAR Chapter 19, Subsection 19.55, Seismic Margin Analysis, will be revised from:

### **19.55 SEISMIC MARGIN ANALYSIS**

This section of the referenced DCD is incorporated by reference with no departures or supplements.

To read:

### **19.55 SEISMIC MARGIN ANALYSIS**

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

3. COLA Part 2, FSAR Chapter 19, Subsection 19.55.6.3 will be added with LMA VCS COL 19.59.10-6

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### **19.55.6.3 Site Specific Seismic Margin Analysis**

The VCSNS site seismic demand based on the site-specific Ground Motion Response Spectra (GMRS) is enveloped by a seismic demand which combines both the Certified Seismic Design Response Spectra (CSDRS) and Hard Rock High Frequency (HRHF) design response spectra as defined by the Tier 1 criteria for SSE. Therefore, it can be concluded that the Seismic Margin Assessment analysis documented in FSAR Section 19.55 is applicable to the VCSNS Units 2 and 3 site.

The VCSNS Nuclear Island (NI) is founded on hard (sound) rock which eliminates any potential for site specific effects such as seismically induced liquefaction settlements, slope stability, foundation failure or relative displacements which would lower the HCLPF values calculated for the certified design. For non-safety related structures and foundations

adjacent to the NI, these site specific effects are evaluated in FSAR Section 2.5.4 and shown to have no effect on the NI; therefore, having no potential to lower the HCLPF values calculated for the certified design.

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4. COLA Part 2, FSAR Chapter 1, Table 1.8-202, will be revised to add new COL Item Number 19.59.10-6 as shown below:

COL ITEM	SUBJECT	DCD SUBSECTION	FSAR SUBSECTION(S)	COL APPLICANT (A), HOLDER (H), OR BOTH (B)
19.59.10-6	Confirm that the Seismic Margin Assessment analysis is applicable to the COL site	19.59.10.5	19.55.6.3 19.59.10.5	A

5. COLA Part 2, FSAR Chapter 19, Subsection 19.59.10.5, Combined License Information 19.59.10-1, Item 1 will be revised from:

1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values. This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The range of frequency response that is required for the equipment with its structural support is defined.

To read:

1. Specific minimum seismic requirements consistent with those used to define the AP1000 DCD Table 19.55-1 HCLPF values.

This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). *The test response spectra are chosen so as to demonstrate that no more than one percent rate of failure is expected when the equipment is subjected to the applicable seismic margin ground motion for the equipment identified to be applicable in the seismic margin insights of the site-specific PRA.* The range of frequency response that is required for the equipment with its structural support is defined.

6. COLA Part 10, License Conditions and ITAAC, Section 2, COL Item No. 19.59.10-1, Item 1 will be revised from:

1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values.

This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The range of frequency response that is required for the equipment with its structural support is defined.

To read:

1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values. This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). **The test response spectra are chosen so as to demonstrate that no more than one percent rate of failure is expected when the equipment is subjected to the applicable seismic margin ground motion for the equipment identified to be applicable in the seismic margin insights of the site-specific PRA.** The range of frequency response that is required for the equipment with its structural support is defined.

**ASSOCIATED ATTACHMENTS:**

None