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August 13, 2014

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

10 CFR 52.79

Subject: Duke Energy Carolinas, LLC
William States Lee III Nuclear Station - Docket Nos. 52-018 and 52-019
AP1000 Combined License Application for the William States Lee III Nuclear
Station Units 1 and 2
Response to Request for Additional Information Letter No. 122 (eRAI 7573)
Ltr#: WLG2014.08-03

Reference: Letter from Brian Hughes (NRC) to Robert Kitchen (Duke Energy), Request
for Additional Information Letter No. 122, Related to SRP Section 03.10 –
Seismic and Dynamic Qualification of Mechanical and Electrical Equipment
for the William States Lee III Units 1 and 2 Combined License Application,
dated July 14, 2014 (ML14195A483)

This letter provides Duke Energy's response to the Nuclear Regulatory Commission's request
for additional information (RAI) included in the referenced letter. The response to RAI 03.10-4 is
addressed in separate enclosure.

If you have questions or require additional information, please contact Robert H. Kitchen,
Nuclear Development Licensing Director, at (704) 382-4046.

I declare under penalty of perjury that the forgoing is true and correct. Executed August 13,
2014.

Sincerely,

Christopher M. Fallon
Vice President
Nuclear Development

DO93
NRO

Enclosure:

- 1) Lee Nuclear Station Response to Request for Additional Information (RAI) Letter No. 122,
RAI 03.10-4 (eRAI 7573)

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xc (w/o enclosure):

Frederick Brown, Deputy Regional Administrator, Region II

xc (w/ enclosure):

Brian Hughes, Senior Project Manager, DNRL

Enclosure 1

Lee Nuclear Station Units 1 and 2 Response to Request for Additional Information (RAI)

RAI Letter No. 122

RAI 03.10-4 (eRAI 7573)

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 122

NRC Technical Review Branch: **Seismic and Dynamic Qualification of Mechanical and Electrical Equipment**

Reference NRC RAI Number(s): **03.10-4 (eRAI 7573)**

NRC RAI:

The response to Part (2) of RAI 114, Question 3.10-1 did not address the floor response spectral exceedance between 20 Hz and 30 Hz in y-direction for Node 2212 (Figure 3.7- 210b, Enclosure 2). The applicant is requested to respond to this question in detail, including the impact on equipment affected by this frequency range. This information is needed to address all the potential instances of the floor response spectral exceedance for the WLS station.

Duke Energy Response:

Reference 1, Duke Energy's response to Part (2) of RAI 114, Question 3.10-1, notes that FSAR Figure 3.7-210b reproduces the Y-direction spectrum shown in Figure 5.3-3 of Westinghouse Report WLG-GW-GLR-815 (Reference 2) for the Containment Operating Floor (one of the six key locations identified in AP1000 DCD Table 3G.4-1). Note that Node 2199 (from the AP1000 generic finite element model) corresponds to Node 2212 (from the site-specific finite element model), and thus Nodes 2199 and 2212 are the same point/location within the Containment Internal Structure (CIS) El. 135 West portion of the model. A convenience copy of Figure 5.3-3 is provided in Attachment 1.

The exceedances in the spectra at this key location (including the node 2212 Y-direction exceedance between 20 Hz and 30 Hz) are addressed by considering a larger sampling of spectra at this elevation in the Containment Internal Structure (CIS) that is actually used in establishing design requirements for SSCs in that area. Figure 5.4-11 of WLG-GW-GLR-815 presents the floor response spectrum (FRS) envelope for the CIS 135 West Group, of which Node 2199 and the Node 2212 are a part. A convenience copy of Figure 5.4-11 is also provided in Attachment 1. Figure 5.4-11 indicates that in the Y-direction for the CIS 135 West Group in the 20 to 30 hertz (Hz) frequency range, the Duke Lee FRS for this group of nodes is enveloped by the AP1000 hard rock high frequency (HRHF) FRS envelope. Therefore there is no exceedance in this frequency range for the CIS 135 West Group envelope.

Page 27 of WLG-GW-GLR-815 (Containment Internal Structures at Elevation 134') provides clarification that the Lee horizontal FRS for the CIS at El. 135 feet, as shown in Figure 5.4-11, is below either the horizontal CSDRS or HRHF FRS for the entire frequency range. Although the site-specific vertical spectrum is higher than HRHF at frequencies higher than 70 Hz, it is enveloped by the CSDRS FRS above 70 Hz. Thus, the HF sensitive equipment in this region of the CIS at El. 135 feet has been already qualified to CSDRS and HRHF, and would not need to be tested or reanalyzed for site-specific requirements.

Duke Energy's response (Reference 1) to Part (1) of RAI 114, Question 3.10-1, further concludes that no HF sensitive equipment is qualified by analysis, and all HF sensitive equipment is qualified by testing. Current AP1000 equipment testing programs use test response spectra greater than the Lee site-specific required response spectra. Should site-specific exceedances of AP1000 test response spectra be noted in future testing programs, Duke Energy will re-test that equipment for the envelope of the Lee site-specific RRS in addition to the CSDRS and HRHF RRS as noted in FSAR Subsection 3.7.2.15.

References:

1. Duke Energy Response to Request for Additional Information Letter No. 114 (eRAI 7482), Letter WLG2014.06-02, dated June 5, 2014 (ML14160A720)
2. Westinghouse Electric Company, LLC "Effect of William S. Lee Site Specific Seismic Requirements on AP1000 SSCs," WLG-GW-GLR-815, Revision 0, January 17, 2014 (Submitted as Enclosure 4 to Duke Energy Response to Request for Additional Information Letter No. 105 (eRAI 6419), Letter WLG2014.01-02, dated January 30, 2014 (ML14064A434))

Associated Revision to the Lee Nuclear Station Final Safety Analysis Report:

None

Attachment:

1. Convenience Copies of Selected Figures from Westinghouse Report WLG-GW-GLR-815, Revision 0.

Attachment 1

Lee Nuclear Station Units 1 and 2 Response to Request for Additional Information (RAI)

RAI Letter No. 122

RAI 03.10-4 (eRAI 7573)

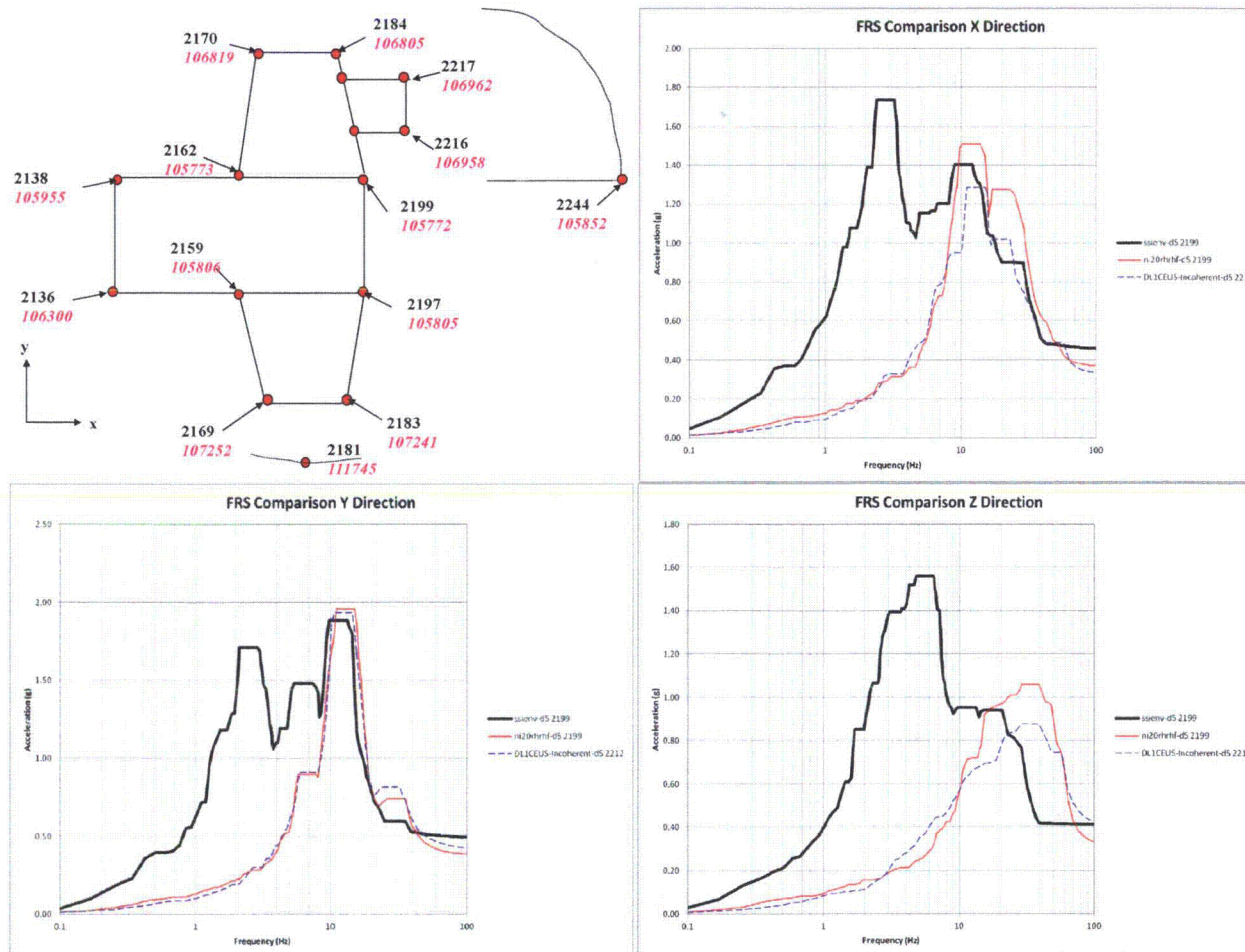
Convenience Copies of Selected Figures from Westinghouse Report

Effect of William S. Lee Site Specific Seismic Requirements on AP1000 SSCs

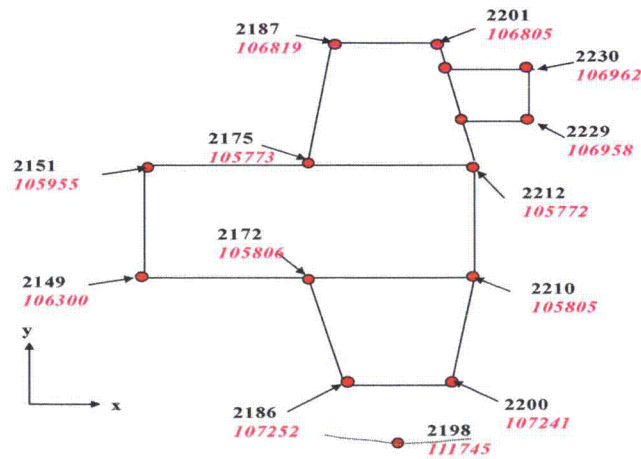
WLG-GW-GLR-815, Revision 0

Figure 5.3-3 Seismic Response Spectra at Containment Operating Floor

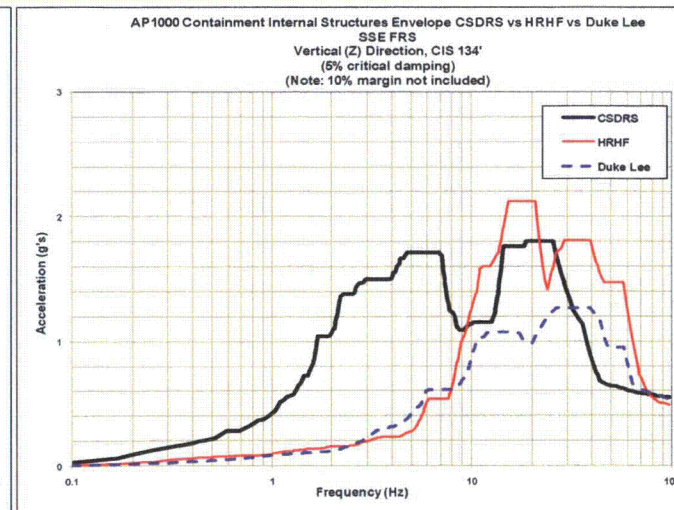
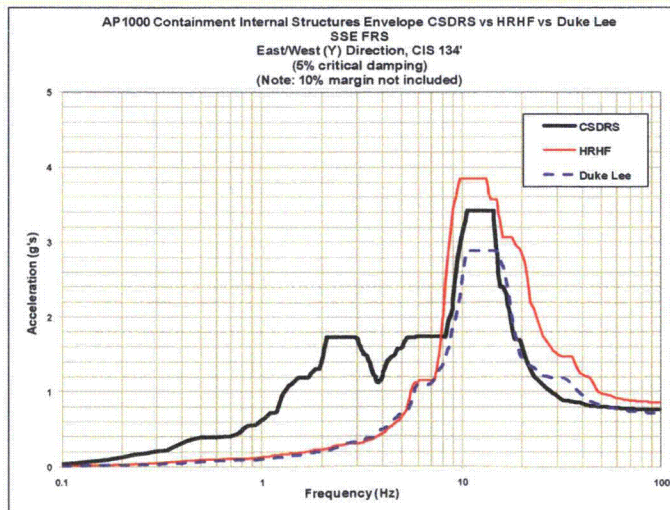
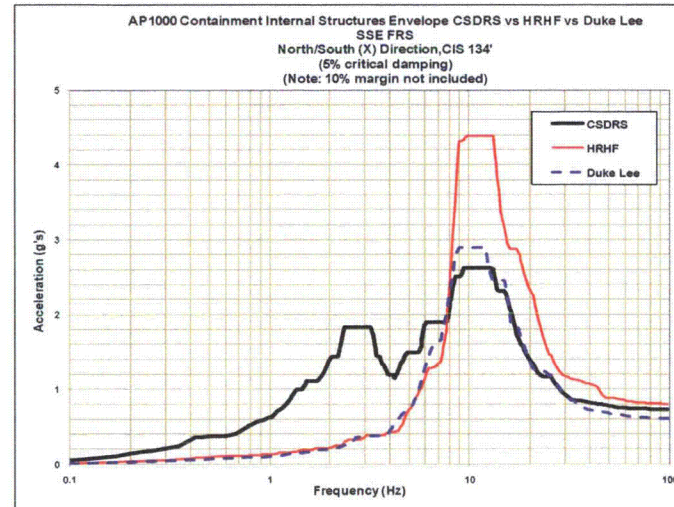
Figure 5.4-11 FRS comparisons – Containment Internal Structures at Elevation 135'



WLG-GW-GLR-815 Figure 5.3-3 Seismic Response Spectra at Containment Operating Floor



Critical nodes for elevation 134.25



WLG-GW-GLR-815 Figure 5.4-11 FRS comparisons – Containment Internal Structures at Elevation 135'