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Your ref: Docket No. 52-006
Our ref: DCP_NRC_002712

December 9, 2009

Subject: AP1000 Response to Proposed Open Item (Chapter 2)

Westinghouse is submitting the following responses to the NRC open item (OI) on Chapter 2. These proposed open item response are submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in these responses is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Enclosure 1 provides the response for the following proposed Open Item(s):

OI-SRP2.5-RGS1-04

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Robert Sisk'.

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Enclosure

1. Response to Proposed Open Item (Chapter 2)

cc: D. Jaffe - U.S. NRC 1E
E. McKenna - U.S. NRC 1E
P. Kallan - U.S. NRC 1E
S. Mitra - U.S. NRC 1E
T. Spink - TVA 1E
P. Hastings - Duke Power 1E
R. Kitchen - Progress Energy 1E
A. Monroe - SCANA 1E
P. Jacobs - Florida Power & Light 1E
C. Pierce - Southern Company 1E
E. Schmiech - Westinghouse 1E
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ENCLOSURE 1

AP1000 Response to Proposed Open Item (Chapter 2)

AP1000 DESIGN CERTIFICATION REVIEW

Response to SER Open Item (OI)

RAI Response Number: OI-SRP2.5-RGS1-04
Revision: 0

Question:

In Section 2.5.2.1 of the DCD, the applicant stated that, when site-specific parameters were not enveloped by the AP1 000 standard design, a COL applicant might perform site-specific SSI analyses based on 2-D SASSI models and compare the results with those documented in Appendix 3G to DCD Section 3 to determine the adequacy of the standard design for the site. However, in Section 2.5.2.3 of DCD Revision 15, the applicant stated that site-specific SSI analyses should be performed using the 3-D SASSI models described in Appendix 3G. The staff asked the applicant, in RAI-SRP2.5-RGS1-04, to clarify the inconsistency and explain why the AP1 000 DCD does not require the COL applicant to perform 3-D SSI analysis for a site with conditions that 3-D effects cannot ignore (such as a site with sloping excavation). In response to this RAI, the applicant (1) moved the entire paragraph relating to the COL applicant's performance of site-specific SSI analysis from this section to DCD Section 2.5.2.3 and changed the section title from "Sites with Geoscience Parameters outside the Certified Design" to "Site Specific Evaluation." The applicant also explained that a COL applicant would perform a site specific SSI analysis based on actual site conditions, and if a 2-D analysis was adequate, the 3-D analysis would be unnecessary, as discussed in response to RAI-TR85-SEB1-07 and RAI-TR03-015. Furthermore, the applicant added Sections 2.5.2.3.1, "2-D Analyses," and 2.5.2.3.2, "3-D Analyses," to Revision 17 of the DCD. The staff considered these revisions of the AP1 000 DCD and finds that, although the revised DCD added two separate sections to define when a 2-D or 3-D analysis would be required, it did not fully address the concerns of the staff, as described in RAI-SRP2.5-RGS1-04, as well as in RAI-TR85-SEB1-07 and RAI-TR03-015, about the adequacy of a 2-D SSI analysis for an AP1000 structure where loads are not evenly applied on its foundation. The staff believes that the site-specific analysis should consider a 3-D effect for site conditions outside the certified design.

Westinghouse Response:

Westinghouse agrees to modify the DCD as shown below to address the NRC staff concerns about the adequacy of a 2-D SSI analysis for an AP1000 structure where loads are not evenly applied on its foundation.

Design Control Document (DCD) Revision:

Revise paragraph 2.5.2.3 as shown below

2.5.2.3 Site-Specific Seismic Evaluation

The Combined License applicant may identify site-specific features and parameters that are not clearly within the guidance provided in subsection 2.5.2.1. These features and parameters may be demonstrated to be acceptable by performing site-specific seismic analyses. ~~If the~~

AP1000 DESIGN CERTIFICATION REVIEW

Response to SER Open Item (OI)

~~site specific spectra at foundation level at a hard rock site or at grade for other sites exceed the certified seismic design response spectra in Figures 3.7.1-1 and 3.7.1-2 at any frequency, or if soil conditions are outside the range evaluated for AP1000 design certification, a site specific evaluation can be performed.~~ These analyses may be either 2D or 3D. Results will be compared to the corresponding 2D or 3D generic analyses.

For site specific cases outside of the certified design, such as loads not evenly applied on its foundation that can be caused by soil conditions not evenly applied through out the AP1000 foundation, the site-specific analysis should consider 3-D effects.

PRA Revision: None

Technical Report (TR) Revision: None