

February 5, 2007

APPLICANT: Westinghouse

SUBJECT: SUMMARY OF THE DECEMBER 12, 13, AND 14, 2006, OPEN AND CLOSED MEETING WITH WESTINGHOUSE TO DISCUSS AP1000 SEISMIC ANALYSES

On December 12, 13, and 14, 2006, an open and closed meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Westinghouse, at the Westinghouse Office in Monroeville, PA. The purpose of the meeting was to review seismic analyses conducted to demonstrate the adequacy of the AP1000 design for a range of selected soil site conditions. A list of meeting attendees is included as Enclosure 1, and the topics discussed is included as Enclosure 2. Enclosure 3 contains Westinghouse's meeting handout, which can be accessed through the Agencywide Documents Access and Management System (ADAMS). This system provides text and image files of NRC's public documents. The handout mentioned above may be accessed through the ADAMS system under Accession No. ML063560342 . If you do not have access to ADAMS or if there are problems in accessing the handouts located in ADAMS, contact the NRC Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737 or by e-mail to pdrc@nrc.gov. A summary of the meeting is included below.

Westinghouse discussed how they validated their hard rock model (NI10) using shell models, as compared to the original stick models. Next, Westinghouse discussed how they have validated their soil model (NI20) against their hard rock model using shell models. Also, Westinghouse detailed how they selected soil cases based on 2D parametric studies, and the development of the floor response spectra and building forces. Westinghouse staff discussed how they planned to respond to requests for additional information (RAIs) issued in NRC letter dated December 5, 2006 (ML063330537) for technical report 3, "Extension of Nuclear Island Seismic Analyses to Soil Sites." The NRC staff provided clarification on the RAIs to ensure that the issues raised in the RAIs are properly addressed. During the discussion, the NRC staff requested that Westinghouse provide a letter to discuss the revised overall approach to modeling seismic response as compared to the approach used and approved in the AP1000 design control document, including the use of incoherency. Also, the NRC staff asked for information about the toe pressure of the nuclear island foundation, and the basis for Westinghouse's evaluation of the sloshing effect on the water in the passive containment cooling system tank. During the closed portion of the meeting, the NRC staff reviewed the models and methodology used to develop the floor response spectra and building forces, using the documents listed in Enclosure 4.

Westinghouse and the NRC staff tentatively scheduled the next audit for late February or early March 2007, to further discuss the NRC evaluation of the extension of the nuclear island seismic analysis to soil sites, the nuclear island foundation, and the containment vessel design adjacent to large penetrations.

Please direct any inquires concerning this meeting to Steven Bloom at (301) 415-1313, or sdb1@nrc.gov.

/RA/

Steven D. Bloom, Senior Project Manager
AP1000 Project Branch 1
Division of New Reactor Licensing
Office of New Reactors

Project No. 740

Enclosures:

1. List of Attendees
2. Topics
3. AP1000 Nuclear Island
Extension to Soils (ML063560342)
4. List of documents audited

cc w/ encls: See next page

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**Meeting with Westinghouse Regarding
Technical Reports Related to AP1000 Seismic Analyses**

**Tuesday, Wednesday, and Thursday, December 12, 13, and 14, 2006
8:30 a.m. to 5:00p.m., (Tuesday - Thursday)
Westinghouse Offices, Monroeville, PA**

Name	Organization
Steven Bloom	NRO\DNRL\NWE1
Thomas Cheng	NRC
Pravin Patel	NRC
Michael Miernicki	NRC
Rich Morante	Brookhaven National Lab
Carl Costantino	Brookhaven National Lab
Don Lindgren	Westinghouse
Lee Tunon-Sanjur	Westinghouse
William LaPay	Westinghouse
Di Tang	Westinghouse
Mego Pena	Westinghouse
Brandon Laskey	Westinghouse
Chris Goossen	Westinghouse
Narendra Pradad	Westinghouse
John Vorees	Bechtel/SNC
Tomohiro Iwasaki	Westinghouse (Obayashi)
Eddie Grant	NuStart

Agenda for Meeting with Westinghouse Regarding AP1000 Seismic Analyses
December 12 through 14, 2006, Westinghouse Office, Monroeville, PA

Tuesday, December 12, 2006

8:30 a.m. - 9:10 a.m.	Introduction and Agenda
9:10 a.m. - 9:45 a.m.	Licensing Status and Process
Closed Session Begins	
9:45 a.m. - 5:00 p.m.	Audit of Seismic Analyses

Wednesday, December 13, 2006

8:30 a.m. - 5:00 p.m.	Audit of Seismic Analyses
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Thursday, December 14, 2006

8:30 a.m. - 4:30 p.m.	Audit of Seismic Analyses
4:30 p.m. - 5:00 p.m.	Public Meeting for Conclusions
5:00 p.m.	Adjourn

Enclosure 3:

Westinghouse Hand-out -
“AP1000 Nuclear Island Extension to Soils”

ML063560342

Documents Audited During Meeting with Westinghouse On AP1000 Seismic Analyses

December 12 through 14, 2006

1. SASSI Verification
2. SSI Analysis for Firm Rock Profiles
3. SSI Analysis for Upper Bound Soft to Medium Soil Profile
4. SSI Analysis for Soft to Medium Profile
5. Additional 2D SASSI Analyses of NI without adjacent buildings
6. SASSI 2D analyses - Nuclear Island with adjacent buildings
7. Nuclear Island Seismic Floor Response Spectra
8. Time history analysis of nuclear island shell model
9. Equivalent Static Seismic Accelerations for Finite element Analyses
10. Reactor Coolant Loop ANSYS Dynamic Models
11. Pressurizer Dynamic Model
12. Nuclear Island - Stability Evaluation
13. N.I. Design Loads, Exterior Walls Below Grade
14. Core Make Up Tank Dynamic Model for AP1000
15. Time History analyses of 3D Model of Containment
16. Reconciliation of Containment Vessel Seismic Design for Soil Sites
17. Auxiliary and Shield Building Finite Element Models
18. Nuclear Island ANSYS Coarse Model
19. Finite Element Solid-Shell Model of Containment Internal Structures - CIS
20. Inputs for 2D SASSI analyses
21. Coarse Finite Element Model (ANSYS) of Containment Internal Structures
22. Nuclear Island 3D SASSI Model
23. Time history verification of Nuclear Island coarse model
24. Inputs for 3D SASSI analyses
25. Selection of soil cases for 3D SASSI analyses
26. AP1000 Polar Crane Dynamic Model
27. Generation of an AP1000 Nuclear Island Model using ANSYS Superelements
28. Finite element Model of Dish
29. Seismic Design Criteria

AP 1000 Mailing List

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