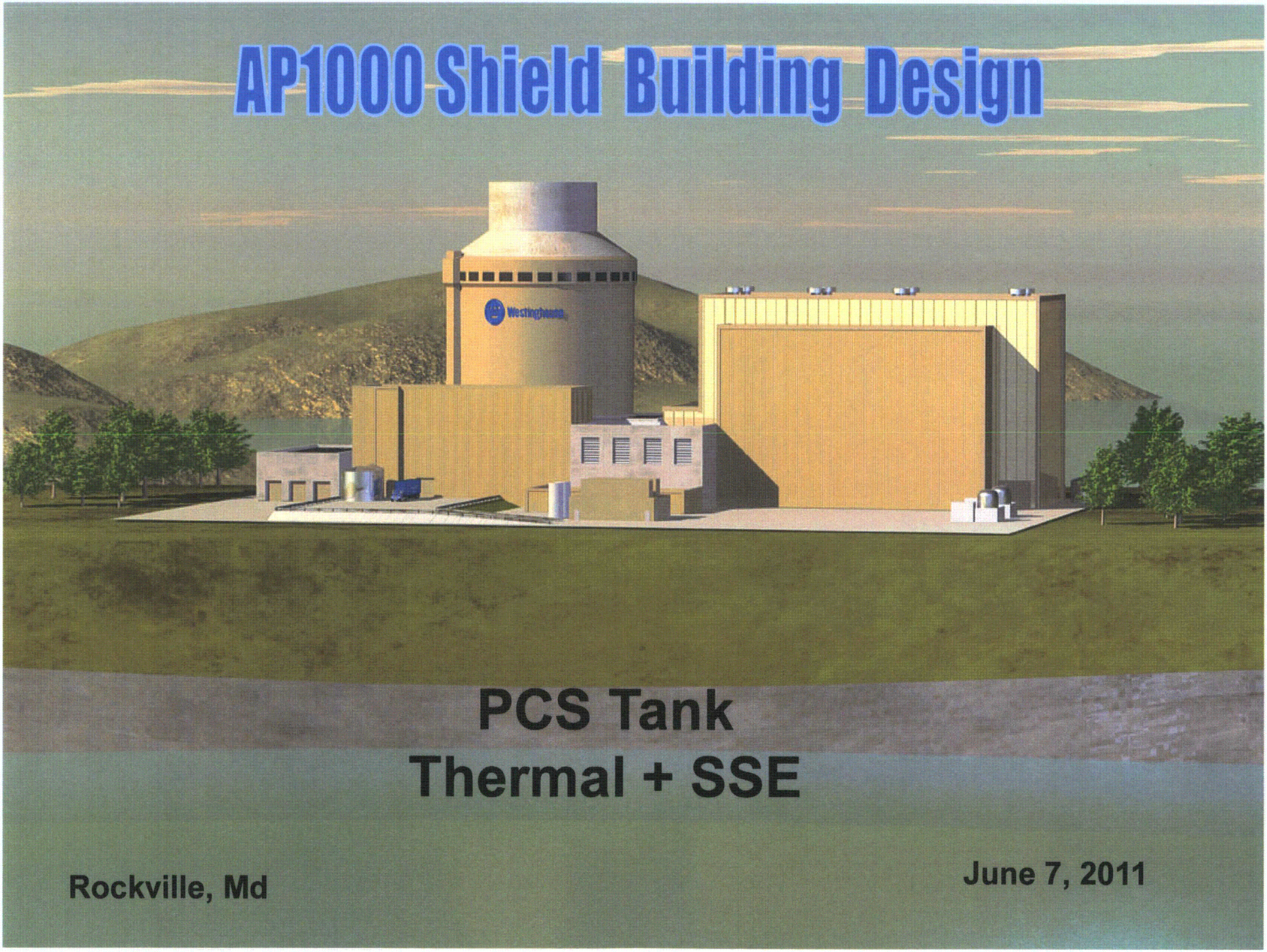
ENCLOSURE 4

Presentation Slides "PCS Tank Thermal and SSE," Meeting with NRC Staff, June 7, 2011

(Non-Proprietary)

AP1000 Shield Building Design



PCS Tank
Thermal + SSE

Rockville, Md

June 7, 2011

PCS Tank Thermal + SSE

AP1000

- Introduction
- PCS Tank configuration
- Heat Transfer Analyses
- Hydrodynamic Mass
  - [ ]^{a,c} to account for sloshing
  - [ ]^{a,c} RSA
  - Lumped masses
  - EQS Pressure Loading
- Summary and Conclusion

Shield Building Design

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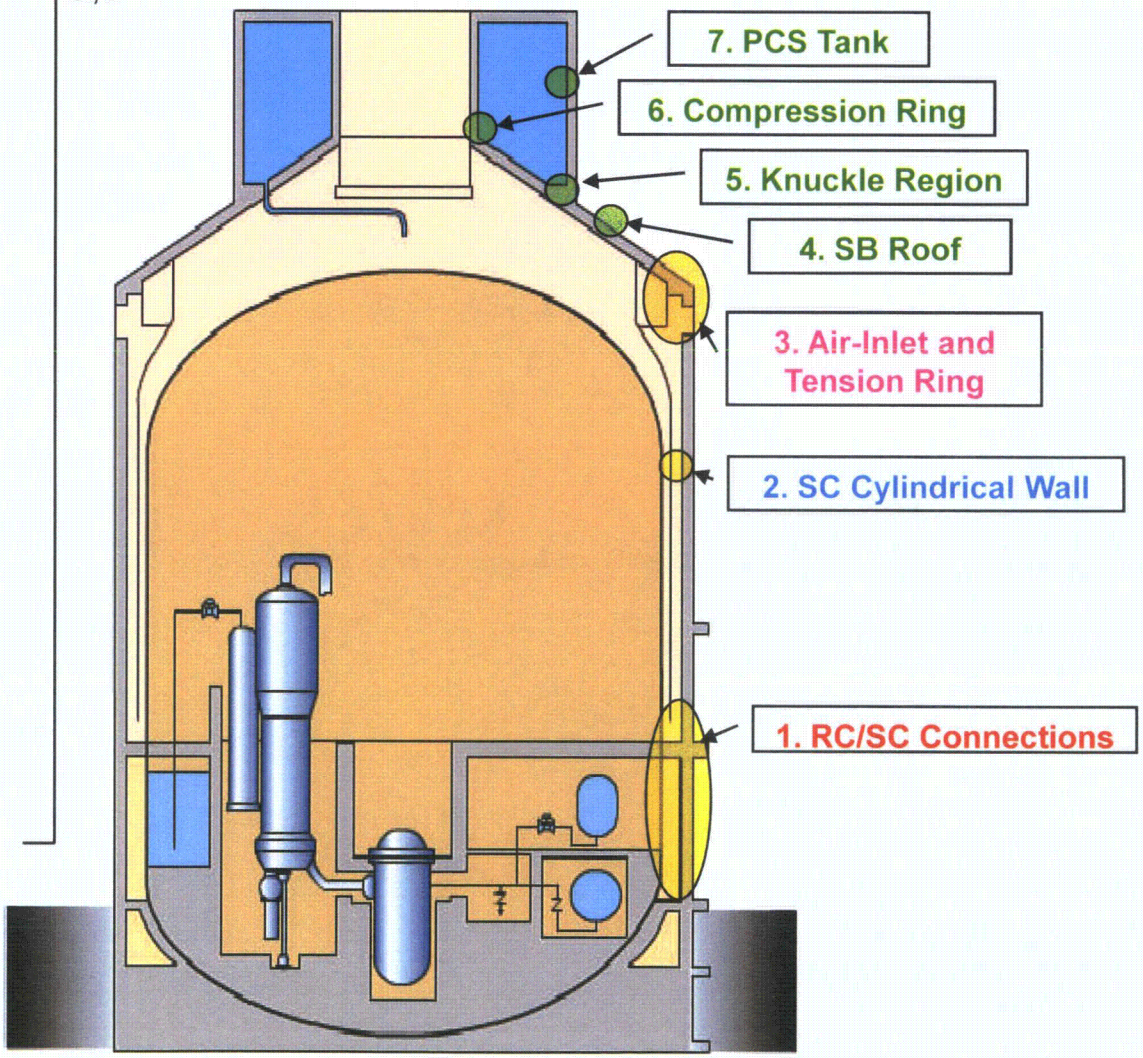

Westinghouse

PCS Tank Thermal Conditions

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Ambient temperature

- inside atmosphere at an average 70°F
- outside atmosphere at -40°F and +115°F (maximum and minimum safety values)
- PCS tank minimum temperature of 40°F
- The two extreme ambient environmental conditions are considered.
  - In the "Winter" condition, air would cool the PCS tank. The analysis was performed with the water at 40°F and the air at -40°F.
  - In the "Summer" condition, air would heat the PCS tank from 70 F normal ambient. The analysis was conservatively performed with the water at 70°F and the air at 115 °F.

Heat Transfer of the PCS tank

AP1000

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Heat Transfer of the PCS tank

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Hydrodynamic analysis of the PCS tank

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Frequency Comparisons

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NI05 Refined Model

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PCS Tank Refinement

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Response Spectra Analysis

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Solid and Shell Quarter Models

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Justification of EQS Accelerations

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Accelerations used in the Analysis

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Force Comparison at Outer Wall Bottom

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Force Comparison at Outer Wall Mid-Section

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Summary

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Shield Building Action 21 has been properly and conservatively applied for the design of the Shield Building