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Your ref: Docket No. 52-006
Our ref: DCP_NRC_003147

March 1, 2011

Subject: Response to Requests for Additional Information on PCS Operation

Westinghouse is submitting responses to the NRC requests for additional information (RAI) on the Passive Containment Cooling System (PCS). These RAI responses 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 Combined Operating License (COL) applicants referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Enclosure 1 provides responses for the following RAIs:

RAI-URI-11-01
RAI-URI-11-02
RAI-URI-11-03

Questions or requests for additional information related to the content and preparation of these responses 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 "R. F. Ziesing".

R. F. Ziesing
Director, U.S. Licensing

/Enclosures

1. Response to Requests for Additional Information on PCS Operation

DO63
MLD

cc: D. Jaffe - U.S. NRC 1E
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ENCLOSURE 1

Response to Requests for Additional Information on PCS Operation

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-URI-11-01

Revision: 0

Question:

The error was found in WCAP-15846 Rev 1 and this WCAP is referenced in DCD Section 6.2. The DCD states, "The passive internal containment heat sink data used in the WGOthic analyses is presented in Reference 20, Section 13." Reference 20 reads as follows, "20. WCAP-15846 (Proprietary) and WCAP-15862 (Non-Proprietary) "WGOthic Application to AP600 and AP1000," Revision 1, March 2004." Please explain why the corrective action does not include updating the WCAP or correcting the DCD citation? Where will the newly credited heat structures be described in the licensing basis.

Westinghouse Response:

The corrective action includes revising the generic licensing report APP-GW-GLR-096 (Reference 2) to describe the corrected steady state water coverage time and impact on containment peak pressure, and respective DCD citation. Also, the DCD text regarding the 337 seconds for time to reach steady state PCS film coverage will be changed to the correct time and cite Reference 2 for the value. While the analysis documented in WCAP-15846 (Reference 1) has been updated to correct this item, Reference 1 will not be revised in support of the Rev. 19 submittal of the DCD as the revised analysis will be described in the revision to Reference 2. The transmittal of the revision to Reference 2 will also contain requisite changes that will be provided in Rev. 19 of the DCD.

No additional heat structures have been credited in the containment pressure analysis as a means to mitigate the increase in containment peak pressure resulting from the increase in time to steady state film coverage of the containment vessel shell during PCS operation. No modification to any previously credited heat structures has been made in the analysis.

The increase in peak containment pressure as a result of this change will be included in Rev. 19 of the DCD.

References:

1. WCAP-15846 (Proprietary) and WCAP-15862 (Non-Proprietary) "WGOthic Application to AP600 and AP1000," Revision 1, March 2004.
2. APP-GW-GLR-096, "Evaluation of the Effect of AP1000 Enhanced Shield Building Design on the Containment Response and Safety Analysis," Westinghouse Electric Company LLC, Rev. 1, August 2010.



AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Design Control Document (DCD) Revision:

DCD markups will be provided through transmittal of APP-GW-GLR-096, Rev. 2.

PRA Revision:

None

Technical Report (TR) Revision:

APP-GW-GLR-096 will be updated to Revision 2.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-URI-11-02

Revision: 0

Question:

In WCAP-15846 Rev 1 many of the heat structures at or below the operating deck have special modeling assumptions based on stratification or being located in dead end volumes. For example, for some structures WCAP-15846 Rev 1 states, "Condensation and convection on all conductors is shut off after the initial blowdown of the RCS." In another example, WCAP-15846 Rev 1 states that, "The floor of the CMT room is removed from consideration to conservatively bound the effects of stratification." Based on the white paper, the newly credited heat structures are located near the core make up tanks. Please describe the newly credited heat structures relative to the locations and modeling in WCAP-15846 Rev 1 and justify why it is acceptable to credit the heat sink after initial blowdown. These heat structures, including any special modeling assumptions, should be described in a manner consistent with the descriptions in section 13.2 of WCAP-15846

Westinghouse Response:

No additional heat structures have been credited in the containment pressure analysis as a means to mitigate the increase in containment peak pressure resulting from the increase in time to steady state film coverage of the containment vessel shell during PCS operation. No modification to any previously credited heat structures has been made in the analysis.

The increase in peak containment pressure as a result of this change will be included in Rev. 19 of the DCD.

Design Control Document (DCD) Revision:

DCD markups will be provided through transmittal of APP-GW-GLR-096, Rev. 2.

PRA Revision:

None

Technical Report (TR) Revision:

APP-GW-GLR-096 will be updated to Revision 2.



AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-URI-11-03

Revision: 0

Question:

SRP section 14.3.11 states that, "Tier 1 should be reviewed to verify that key parameters and insights from containment safety analyses, such as loss of coolant accident, main steamline break, main feedline break ... are adequately addressed." The heat structures credited in the peak containment pressure analysis are key parameters that should be addressed in Tier 1. Please propose an ITAAC that address the key parameters from the peak containment pressure analyses.

Westinghouse Response:

No additional heat structures have been credited in the containment pressure analysis as a means to mitigate the increase in containment peak pressure resulting from the increase in time to steady state film coverage of the containment vessel shell during PCS operation. No modification to any previously credited heat structures has been made in the analysis.

The increase in peak containment pressure as a result of this change will be included in Rev. 19 of the DCD.

Design Control Document (DCD) Revision:

DCD markups will be provided through transmittal of APP-GW-GLR-096, Rev. 2.

PRA Revision:

None

Technical Report (TR) Revision:

APP-GW-GLR-096 will be updated to Revision 2.

