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U.S. Nuclear Regulatory Commission
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Your ref: Docket No. 52-006
Our ref: DCP/NRC2095

March 4, 2008

Subject: AP1000 COL Responses to Requests for Additional Information (TR 143)

Westinghouse is submitting responses to the NRC requests for additional information (RAIs) on AP1000 Standard Combined License Technical Report 143, APP-GW-GLN-143, "Evaluation of the Effect of Shield Building Changes on Containment Response and Safety Analyses". These RAI responses are submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in the responses is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Responses are provided for RAI-TR143-SPCV-01 through -04 as sent in an email from Dave Jaffe to Sam Adams dated January 8, 2008. These responses complete all requests received to date for Technical Report 143.

Pursuant to 10 CFR 50.30(b), the response to the request for additional information on Technical Report 143, is submitted as Enclosure 1 under the attached Oath of Affirmation.

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,


D. Lindgren, Licensing Lead
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated March 4, 2008

/Enclosure

1. Responses to Requests for Additional Information on Technical Report No. 143

cc:	B. Gleaves	- U.S. NRC	1E	1A
	E. McKenna	- U.S. NRC	1E	1A
	P. Ray	- TVA	1E	1A
	P. Hastings	- Duke Power	1E	1A
	R. Kitchen	- Progress Energy	1E	1A
	A. Monroe	- SCANA	1E	1A
	J. Wilkinson	- Florida Power & Light	1E	1A
	C. Pierce	- Southern Company	1E	1A
	E. Schmiech	- Westinghouse	1E	1A
	G. Zinke	- NuStart/Entergy	1E	1A
	R. Grumbir	- NuStart	1E	1A
	R. Wright	- Westinghouse	1E	1A

ATTACHMENT 1

“Oath of Affirmation”

ATTACHMENT 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:)
AP1000 Design Certification Amendment Application)
NRC Docket Number 52-006)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL INFORMATION"
FOR DESIGN CERTIFICATION AMENDMENT APPLICATION REVIEW

W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs and Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.



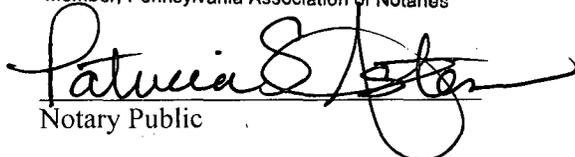
W. E. Cummins
Vice President
Regulatory Affairs and Standardization

Subscribed and sworn to
before me this 4th day
of March 2008.

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal
Patricia S. Aston, Notary Public
Murrysville Boro, Westmoreland County
My Commission Expires July 11, 2011

Member, Pennsylvania Association of Notaries



Notary Public

ENCLOSURE 1

Responses to Requests for Additional Information on Technical Report No. 143

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR143-SPCV-01

Revision: 0

Question:

Page 5 describes changes to the shield building from the original DCD design which the staff reviewed and approved. Specifically, the changes to the air inlet structure and a reduction in the height of the shield building. Appendix A provides a detailed description of the changes to the air inlet structure. Please provide a similar description showing how the 5-foot reduction in shield building height was accomplished including the location on the section where the height reduction was implemented.

Westinghouse Response:

The 5-foot reduction refers to a change in overall height at the maximum elevation of the shield building. The overall height reduction, as well as other modifications, imposes various elevation changes. Figure 1 and Figure 2 show key elevations for revision 0 and revision 1 of the shield building roof. Elevation 230' is provided as reference location to show how the reduction was accomplished. The Shield Building design changes are described in detail with justification in APP-GW-GLN-105 (Technical Report 105). Please refer to page 16 of 259 in Technical Report 105.

Reference:

1. APP-GW-GLN-105 (Technical Report 105), "Building and Structure Configuration, Layout and General Arrangement Design Updates," Revision 2, November 2007

Design Control Document (DCD) Revision:

None

PRA Revision:

None

Technical Report (TR) Revision:

None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

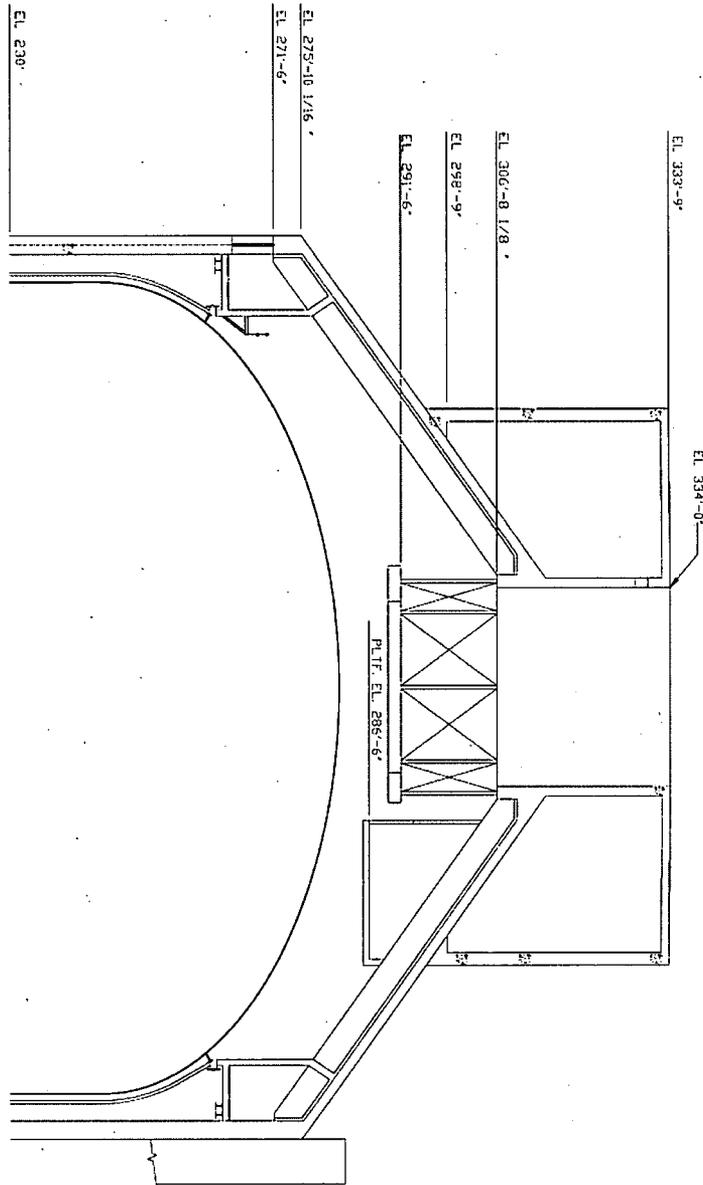


Figure 1: Revision 0 Shield Building Roof Elevations

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

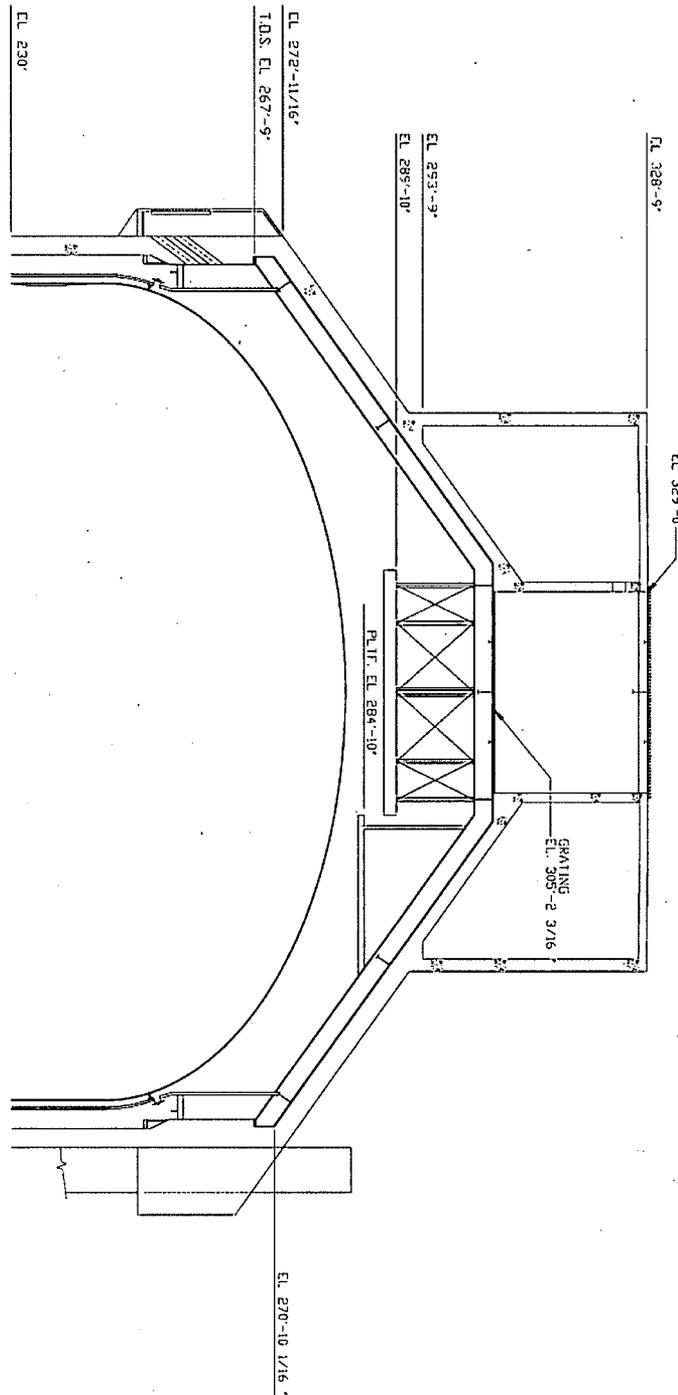


Figure 2: Revision 1 Shield Building Roof Elevations

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information

RAI Number: RAI-TR143-SPCV-02
Revision: 0

Question:

Changes to the shield building air intake include the addition of louvers and screens.

- a. Provide the mesh spacing of the inlet screens and discuss the likelihood that the screens might be clogged during operation or during an accident by airborne debris.
- b. Discuss the surveillance program including inspection frequency which will be implemented to ensure that the inlet screens do not become clogged.

Westinghouse Response:

The previous shield building design also included louvers and screens. The mesh spacing is 10 mesh per inch with a diameter of 0.025. The spacing is small to keep out wildlife. There is a possibility that these screens could become clogged with airborne debris. For this reason, there is access to the louvers and screens by an enclosed walkway between the wall containing the louvers and the shield building wall. Regular inspections of the louvers will be made and the screens will be kept free of debris. The frequency of inspections is expected to be once per month, and may change depending on the degree of blockage observed.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR143-SPCV-03
Revision: 0

Question:

Heavy grating has been added in the chimney area at the top and bottom of the opening. Please provide an evaluation of the potential for ice blockage of the chimney area during an accident as water vapor flowing up the chimney comes in contact with cold grating.

Westinghouse Response:

Protection from ice blockage will be provided for the air inlet structures and the gratings in the chimney. Non-safety electrical heaters will be used to keep these structures free of ice and snow buildup. For a design basis accident, these heaters are assumed to not be operational.

Heat transferred from the reactor containment during normal operation and during accident scenarios will help keep the gratings in the chimney free from ice buildup since the flow of heated air or air/water vapor is always upward through the gratings.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information

RAI Number: RAI-TR143-SPCV-04
Revision: 0

Question:

On page 17 of APP-GW-GLN-105 it is stated that: previous analyses were performed to show that blockage of a significant fraction of the air inlets (in the old design) could occur without significantly affecting the PCS performance provided water application is assured. Please provide a reference obtainable to the staff for these analyses.

Westinghouse Response:

The blockage analysis was performed on the previous shield building design. The containment pressure response to a design basis LOCA event was predicted using WGOTHIC. The inlet area was varied to determine the sensitivity of the peak pressure to the percent blockage. The results showed that for any design basis event, the PCS water is assumed to be available and the peak pressure is insensitive to the flow blockage until the inlets are nearly totally blocked. The peak pressure as a function of inlet blockage is shown in Figure 1, and the Passive Containment Cooling System air flow as a function of inlet blockage is shown in Figure 2.

The reference for this analysis is APP-SSAR-GSC-680 which has been made available for NRC review at the Westinghouse Rockville office.

Reference:

1. APP-SSAR-GSC-680, "Inlet Blockage for the AP1000 Containment Pressure Response from a LOCA," Revision 0

Design Control Document (DCD) Revision:

None

PRA Revision:

None

Technical Report (TR) Revision:

None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information

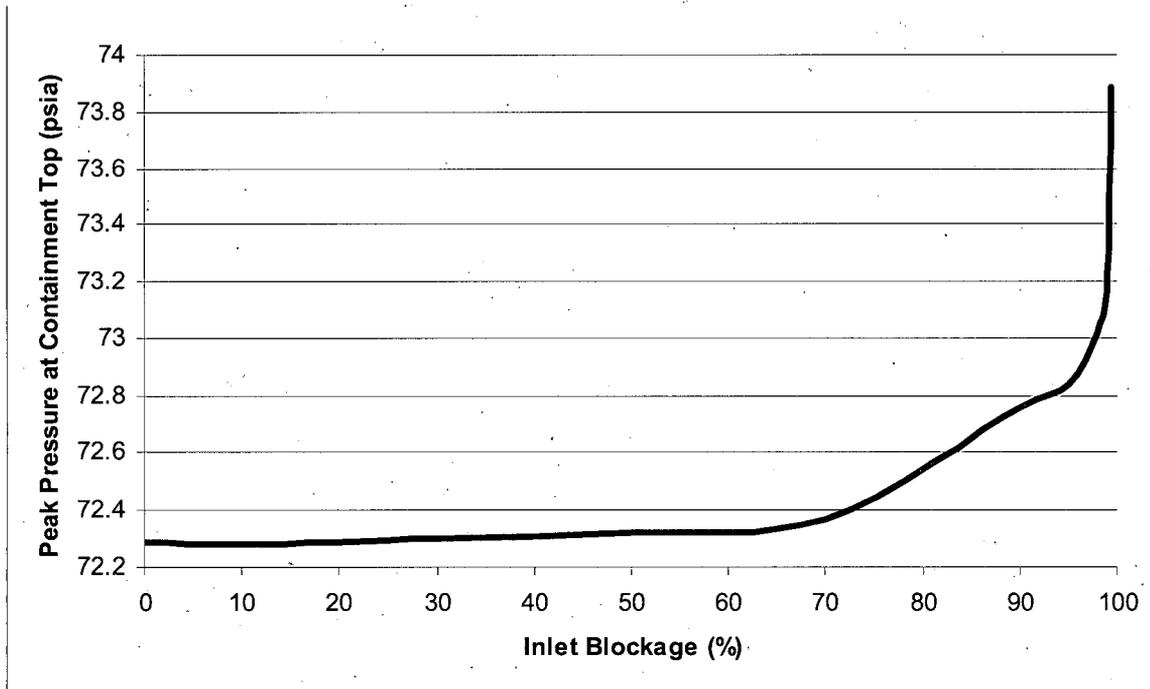


Figure 1: Peak Containment Pressure for LOCA vs. Inlet Blockage

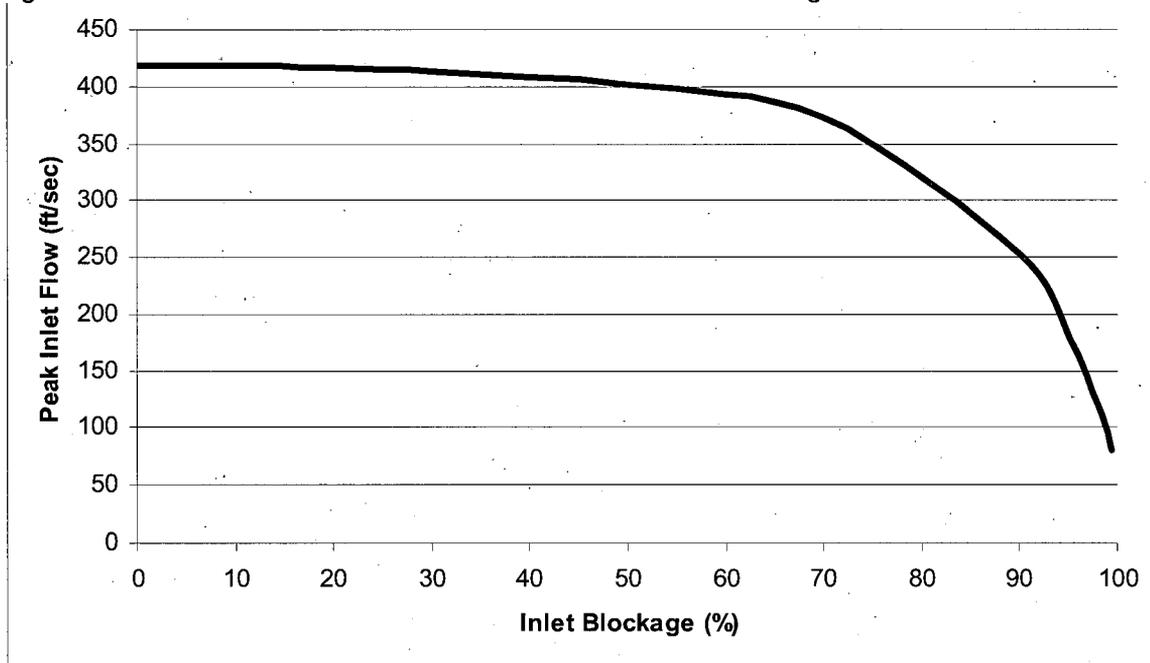


Figure 2: Passive Containment Cooling System Air Flow for LOCA vs. Inlet Blockage