



Westinghouse
Electric Corporation

Energy Systems

Box 355
Pittsburgh Pennsylvania 15230-0355

NSD-NRC-97-5006
DCP/NRC0757
Docket No.: STN-52-003

February 28, 1997

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

TO: T. R. QUAY

SUBJECT: WCAP-14845, "SCALING ANALYSIS FOR AP600 CONTAINMENT PRESSURE DURING DESIGN BASIS ACCIDENTS" AND ROAD MAP FOR CONTAINMENT PRESSURE SCALING OPEN ITEMS

Reference: Westinghouse Letter NSD-NRC-97-5003, "Westinghouse Responses to NRC Requests for Additional Information on the AP600", February 27, 1997.

Dear Mr. Quay:

Enclosed is one copy of WCAP-14845, "Scaling Analysis for AP600 Containment Pressure During Design Basis Accidents". In addition, the following attachments are provided to support your review of WCAP-14845.

- A.) 49 discussion items and 3 additional items raised by the NRC on the August 1996 scaling analysis.
- B.) Responses to 49 discussion items and 3 additional items raised by the NRC on the August 1996 scaling analysis, with references to where the information or revision is contained in WCAP-14845.
- C.) Discussion of Items 425 and 3202 from the "AP600 Open Item Tracking System Database"

The NRC reviewed the August Scaling Analysis document (NSD-NRC-96-4790, August 8, 1996) transmitted by Westinghouse, and subsequently sent three telefaxes with a total of 49 discussion questions and 3 additional items (Attachment A). Westinghouse's proposed responses have been informally transmitted to the NRC and discussed in conference calls. The responses to the 49 discussion and 3 additional items, and where the answers are contained in WCAP-14845, are presented in Attachment B.

Review of the Westinghouse responses to the NRC questions on the August 1996 Scaling Analysis can be clarified by recognizing WCAP-14845 contains 1) new information that was not included in the

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August document and has not been previously presented for NRC review, 2) some reorganization of material contained in the August document, and 3) some changes to old information. These changes are a result of responding to the NRC questions. A summary of the major differences follows.

New material includes:

- Energy scaling was added for all energy interactions between heat sinks and the containment gas. Energy scaling is developed for containment gas in Section 6.2, and in a subsection of each heat sink scaled in Section 7.
- The rate of change equations were validated by comparison to both transient and steady-state LST operation in Section 10.2.1 and 10.2.2.
- The LST was scaled and compared to both AP600 and test measurements in Section 10.2.2.

Reorganization includes:

- The equation development presented in Appendix A of the August 1996 scaling analysis was included as Section 5 of WCAP-14845, so Appendix A no longer exists.
- Appendix B and the purpose it served in the August scaling analysis was eliminated by a complete definition in WCAP-14845 of all pi groups, equations and calculations.

Changes include:

- Two of the four LOCA time phases were redefined. Blowdown (0 to 27 sec) remains unchanged, Reflood was renamed Refill (27 to 85 sec), Post Reflood was renamed Peak Pressure (85 to 1500 sec), and Peak Pressure was renamed Long Term (1500 sec and beyond). These new labels are considered more descriptive and are consistent with the PIRT (WCAP-14811) time phases.

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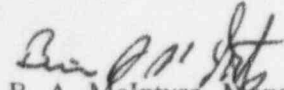
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non-disclosure agreement with Westinghouse without the express written approval of Westinghouse.

Correspondence with respect to the application for withholding should reference AW-97-1083, and should be addressed to B. A. McIntyre, Manager of Advanced Plant Safety and Licensing, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, Pennsylvania, 15230-0355.


B. A. McIntyre, Manager
Advanced Plant Safety and Licensing

jml

Enclosure, Attachment

cc: D. Jackson, NRC (5E)
P. Boehnert, ACRS (5E)
N. J. Liparulo, Westinghouse (w/o Enclosures/Attachments)

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