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July 1, 1997

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

ATTENTION: T. R. QUAY

SUBJECT: WCAP-14807, REV. 2, "NOTRUMP FINAL VALIDATION REPORT FOR AP600",
DATED 6/97

Dear Mr. Quay:

Enclosed is a copy of WCAP-14807, Rev. 2, "NOTRUMP Final Validation Report for AP600", dated 6/97. The submittal of this report addresses a number of DSER and Meeting Open Items. OITS will be changed to Action N for the following:

DSER 21.6.2.2-1 (OITS# 3140)
DSER 21.6.2.2-2 (OITS# 3141)
MTG-OI (OITS# 5147)
MTG-OI (OITS# 5148)

Attachment 1 to this letter is a "road-map" summarizing changes in Revision 2. Please contact Susan Fanto on (412) 374-4028 if you have any questions concerning this transmittal.

The Westinghouse Electric Corporation copyright notice, proprietary information notice, application for withholding and affidavit are also attached.

This submittal contains Westinghouse proprietary information consisting of trade secrets, commercial information or financial information which we consider privileged or confidential pursuant to 10CFR2.790. Therefore, it is requested that the Westinghouse proprietary information attached hereto be handled on a confidential basis and be withheld from public disclosures. A non-proprietary copy of the enclosed report will be provided within 60 days of this letter.

This material is for your internal use only and may be used for the purpose for which it is submitted. It should not be otherwise used, disclosed, duplicated, or disseminated, in whole or in part, to any

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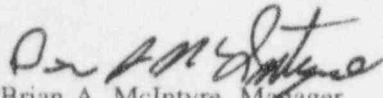
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other person or organization outside the Commission, the Office of Nuclear Reactor Regulation, the Office of Nuclear Regulatory Research and the necessary subcontractors that have signed a proprietary non-disclosure agreement with Westinghouse without the express written approval of Westinghouse.

Correspondence with respect to the application for withholding should reference AW-97-1132, and should be addressed to Brian A. McIntyre, Manager of Advanced Plant Safety and Licensing, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, Pennsylvania, 15230-0355.



Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

/ea

Enclosure

cc: R. L. Landry, NRC
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Dr. Vijay Dhir, ACRS
Dr. Robert L. Seale, ACRS
Prof. Virgil Schrock, ACRS
Cliff Fineman, INEL

ATTACHMENT 1

ROAD-MAP of Changes (Revision 2 compared to Revision 1)

This attachment describes the significant changes between Revision 1 and Revision 2 of WCAP-14807.

The Executive Summary is updated to make it consistent with the Revision 2 version of the report.

Section 1 is significantly expanded. The revision now includes an overview of model changes made in NOTRUMP, and results of the code assessment. The section provides a condensed version of the assessment process, starting from the PIRT and ending with the approach that will be used for AP600 Appendix K analysis. Section 1.6 provides a list of seven key models required for prediction of AP600 phenomena that are based upon the PIRT. Each model is evaluated in Sections 1.7 to 1.12, and a judgment is made on the strengths, weaknesses or deficiencies of the model. Finally, in Sections 1.13 to 1.15, the results of the assessment studies performed in the report are discussed, and a final assessment is made regarding each model's ability to accurately simulate phenomena. For models whose performance is judged as minimal or inadequate, an additional evaluation is performed to determine the impact on results, and whether application of such a model to AP600 will be conservative. Steps described in Section 1.16 ensure that Appendix K application to AP600 will be conservative. In addition, Figure 1.2-1 is updated to make it consistent with the final SSAR model.

Section 2 is modified to include information from RAI responses into the text of Section 2.15; typographical corrections are also made..

Section 3 corrects a number of minor errors. Section 3.2 fixes typographical errors and corrects Figures 3.2-12 through 3.2-15 that had incorrect figures with correct titles (titles stayed the same, but figures were moved around). Section 3.4 fixes typographical errors and includes a summary discussion as a result of RAIs. Section 3.5 is modified to eliminate the mass versus volumetric AP600 plant case as discussed in meetings with NRC. Section 3.7 is modified to correct titles on the figures and to replace the comparison figures with new ones for the runs calculated with the SSAR AP600 plant model.

Section 4 is modified to include reference to the "Core Quench Model," where it is used, and to include figures showing the results with and without the quench model.

Section 5 revises Figure 5.4-18 to remove data where the instrumentation did not give valid values. An insert and new reference explain the revised figure. Typographical errors are also corrected in this section.

Section 6 contains no changes.

Section 7 is modified as follows:

1. During review of the Final Validation Report, changes were made to assure that the plotted information is consistent with test facility tap locations. In addition, errors discovered in some of the original levels were corrected or an improved method of calculating the levels was utilized. As a result, many of the calculated levels are different from the original Rev. 0 transmittal. While most of the changes are insignificant, several that have changed sufficiently to warrant identification are:

- Pressurizer Level
- Cold Leg Balance Line Levels
- Steam Generator Primary Tube Levels
- Steam Generator Secondary Levels. (Initial Rev. 0 plot was referenced from bottom of vessel as opposed to stated tube sheet.)
- Upper Head Levels
- Downcomer Levels (Initial Rev. 0 plot utilized in incorrect absolute elevation for the tubular downcomer.)
- Accumulator Levels
- The test information utilized for level information is now consistent with the Test Analysis Report and Final Data Report Information for SPES-2.

In addition to the level plots, additional plot changes are:

- The PRHR related plots now indicate zero when the PRHR system is removed from the NOTRUMP model. (This affects figures 30-32 of each section.)
 - The labels for the Steam Generator Secondary Pressure plots were mislabeled in the original transmittal.
 - The lower balance line break flow (Figure 7.3.6-29) from Test S00908 was mislabeled in the original transmittal.
 - The methodology utilized to calculate total DVI flow (Figure 7.3.3-41) for Test S00605 (2 inch DVI Line Break) is now consistent with the available test information.
2. The classifications of agreement between the tests and the simulations were revised for a number of items including:
 - Upper Head Levels
 - CMT Thermal Stratification (Some cases)
 - ADS Flow for Test S00605 (2 Inch DVI Line Break)
 - Downcomer & Core Levels for Test S00706 (Double Ended DVI Line Break)
 3. The 2-inch Cold Leg Balance Line transient (Test S01007) section was replaced to correct a NOTRUMP input modeling error uncovered during the final review of the SPES simulation documentation.

Section 8 is modified as follows:

During review of the Final Validation Report, changes were needed to assure that the plotted information is consistent with test facility tap locations. In addition, errors discovered in some of the original levels were corrected or an improved method of calculating the levels was utilized. As a result, many of the calculated levels are different from the original Rev. 0 transmittal. While most of the changes are insignificant, several that have changed sufficiently to warrant identification are:

- Pressurizer Level
- Steam Generator Primary Tube Levels
- Core Level
- Upper Plenum Level
- SG Secondary Levels

In addition to the level plots, additional plot changes are:

- The PRHR related plots now indicate zero when the PRHR system is removed from the NOTRUMP model. This affects figures 30-32 of each section.
 - The methodology utilized to calculate total DVI flow (Figure 8.3.3-40) for Test SB13 (2 inch DVI Line Break) is now consistent with the available test information.
2. The classifications of agreement between the tests and the simulations were revised for a number of items. These include CMT thermal stratification (some cases), ADS flows, and cold leg balance

Section 9 is updated to be consistent with changes made to Revision 2 of the NOTRUMP Validation Report.

Appendix A is new; it provides a road-map to issues raised by the NRC in RAIs, SDSER Open Items, Confirmatory Items, etc. Also, responses to RAIs are included.