April 8, 2003

MEMORANDUM TO: Marsha Gamberoni, Deputy Director
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

FROM: Joseph Colaccino, Senior Project Manager ***/RA/***
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

SUBJECT: FEBRUARY 25, 2003, TELEPHONE CONFERENCE CALL SUMMARY

On Tuesday, February 25, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and Nuclear Regulatory Commission (NRC) staff to discuss NRC Request for Additional Information (RAI) Number 251.021. Westinghouse submitted a response to this RAI on November 26, 2002 (ADAMS Accession No. ML023360097). A list of call participants is included in Attachment 1. Attachment 2 contains NRC staff comments regarding the subject RAI that was sent to Mr. Michael Corletti of Westinghouse via electronic mail on February 14, 2003. These comments were used to facilitate discussions during the telephone conference call.

Following is a brief summary of the discussions regarding the identified RAIs (see comments in Attachment 2):

RAI 251.021

Westinghouse will review the reactor coolant pump (RCP) flywheel critical flaw size calculations to ensure that the comparison with the AP600 applies. The RAI response in this area will be revised and the design control document (DCD) will also be revised if necessary.

Westinghouse will clarify the RAI response to indicate that the increased energy from the RCP flywheel postulated fragments will not penetrate the pump casing, i.e., the reactor coolant pressure boundary.

Westinghouse will revise the RAI response to state that the RCP flywheel enclosure is not a pressure boundary structure, the Code is being used as guidance in this phase of the design, and that the plan is to perform a weld analysis when the design of the pump is completed. Westinghouse will provide an expanded explanation of why “it is expected that the AP1000 flywheel enclosure weld stresses will also meet the ASME Code limits” during revolutions at normal and design speeds. The DCD and WCAP-15994-P will be revised to reflect this information.

Docket No. 52-006

Attachment: As stated

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Docket No. 52-006

Attachment: As stated

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ACCESSION NUMBER: ML030710713 *See previous concurrence

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DATE	04/7/03	03/28/03	04/8/03

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FEBRUARY 25, 2003
TELEPHONE CONFERENCE CALLS SUMMARY
LIST OF PARTICIPANTS

Nuclear Regulatory Commission	Westinghouse
Joseph Colaccino	Mike Corletti
Ted Sullivan	Dale Wiseman
Jim Medoff	Ed Cummins

Attachment 1

NUCLEAR REGULATORY COMMISSION STAFF
COMMENTS THAT WERE SENT TO WESTINGHOUSE TO FACILITATE
DISCUSSIONS OF REQUESTS FOR ADDITIONAL INFORMATION (RAI) RESPONSES
FOR CALL HELD ON FEBRUARY 25, 2003

Chapter 5.4.1.3.6.3 Reactor Coolant Pump Flywheel Integrity

251.021

In the AP600 review, RAIs 251.2 through 251.23 pertain to reactor coolant pump (RCP) flywheel integrity. In addition, WCAPs-13734 and 13735, "Structural Analysis Summary for the AP600 Reactor Coolant Pump Flywheel," were submitted as supplemental information for the revised response to question 251.11. Confirm that these responses and the WCAPs are applicable to the AP1000 application as it pertains to RCP flywheel integrity. Should aspects of these responses or reports not be applicable, provide updated information to address the AP600 RAIs as applicable to the AP1000 RCP flywheel integrity. (Section 5.4.1)

Note: AP600 RAIs 251.2 through 251.23 were issued by the NRC on October 1, 1992 (NUDOCS Accession No. 9210090123). Westinghouse provided its responses to these RAIs in letters dated January 14 May 24 and May 28, 1993 (NUDOCS Accession Nos. 9301250260, 9306020387, and 9306020220, respectively).

A comparison of the Westinghouse responses to AP600 RAI 251.3, as given for the AP1000 and the AP600 designs, indicates that the limiting critical flaw size for the AP1000 RCP flywheel design is about one-half of the limiting critical flaw size that was previously reported for the AP600 RCP flywheel design. However, Westinghouse Proprietary Class 2 Topical Report WCAP-15994-P, [Joe-provide title of WCAP] Revision 0, indicates that the critical flaw size for the AP1000 and the AP600 designs are virtually the same. This appears as an inconsistency in the design certification. The applicant needs to clarify what the actual critical flaw sizes are for both the AP1000 and the AP600 flywheel designs.

In response to AP600 RAI 251.8, the applicant's response for the AP1000 flywheel design is virtually the same as that for the AP600 flywheel design, with the exception that the response for the AP1000 increases the kinetic energy for flywheel fragments that could potentially impact the RCP structure from 10 percent of the tensile energy-absorbing capability in the AP600 RCP structure to 15 percent of the tensile energy-absorbing capability in the AP1000 RCP structure. However, there is some confusion in the wording of the final paragraph of the applicant's AP1000 response to AP600 RAI 251.8 as to whether potential flywheel fragments will penetrate the flywheel enclosure or not, and whether they could impact the surrounding RCP structure. The staff needs to discuss this with Westinghouse.

In response to AP600 RAIs 251.17 and 251.19, the applicant discusses the relationship of the structural integrity of the RCP flywheel enclosures to the revolution of the flywheels at normal and design operating speeds. In this case, the applicant's responses for the AP1000 are virtually the same as the previous AP600 design

responses to the RAIs. However, in the AP1000 responses to these AP600 RAIs, the applicant has a statement that the flywheel impact on the enclosure was assessed for a postulated rupture of the AP600 flywheel under normal and design revolution speeds and that the impact on the AP600 enclosure welds was within acceptable American Society of Mechanical Engineers (ASME) limits. The applicant then concludes that since the AP1000 flywheel design is similar to that for the AP600 flywheels, "it is expected that the AP1000 flywheel enclosure weld stresses will also meet the ASME Code limits" during revolutions of the AP1000 flywheel at normal speeds (as addressed in the AP1000 response to AP600 RAI 251.17) and design speeds (as addressed in the AP1000 response to AP600 RAI 251.19). The applicant needs to state whether this is based solely on engineering judgement or whether the applicant actually did the corresponding analyses at normal speed and design speed for the AP1000 design. If it is based solely on engineering judgement, the staff will have to determine whether engineering judgement is an acceptable basis for making this determination. These structural integrity assessments are critical to the staff's acceptance that the RCP flywheel enclosures will preclude the flywheels or portions of them from reaching the RCP structures following a postulated rupture of the flywheel under normal and design revolution speeds, as well as for acceptance that ASME Section XI inservice inspections will not be necessary for the AP 1000 flywheels.

AP 1000

cc:

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