

February 12, 2003

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

FROM: Lawrence J. Burkhart, AP1000 Project Manager */RA/*
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

SUBJECT: FEBRUARY 4, 2003, TELEPHONE CONFERENCE CALL SUMMARY

On Tuesday, February 4, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and the Nuclear Regulatory Commission (NRC) staff to discuss issues associated with the review of WCAP-15992, "AP1000 Adverse System Interactions Evaluation Report," which was submitted on December 2, 2002 (ADAMS Accession No. ML023370619). A list of telephone conference call participants may be found in Attachment 1. In preparation for the telephone conference call, I forwarded comments on WCAP-15992 via electronic mail to Mr. Michael Corletti of Westinghouse on January 15, 2003 (Attachment 2). To provide feedback to the NRC staff prior to the call, Mr. Corletti forwarded comments to me via electronic mail on January 28, 2003 (Attachment 3). The discussions during the call focused on areas of the WCAP that may need to be clarified.

In response to the NRC staff comments, the Westinghouse representative stated that WCAP-15992 would be revised as follows:

- provide additional clarifying information regarding how an operator is directed to use backup and/or alternate means in the case of an instrumentation and control (I&C) system failure, and
- provide additional clarifying information regarding adverse interactions between the protection and monitoring and the diverse actuation systems.

The NRC staff also initiated discussions of I&C-related issues contained in WCAP-15847, "AP1000 Quality Assurance Procedures Supporting NRC Review of AP1000 DCD [Design Control Document] Sections 18.2 and 18.8." These comments were first discussed with Westinghouse representatives on February 4, 2003, and comments were sent to Mr. Michael Corletti via electronic mail on February 5, 2003 (Attachment 4). In response to these comments, Westinghouse representatives stated that they would review the comments and inform the NRC staff of any proposed revisions to WCAP-15847.

Docket No. 52-006

Attachment: As stated

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FEBRUARY 4, 2003
TELEPHONE CONFERENCE CALL SUMMARY
LIST OF PARTICIPANTS

Nuclear Regulatory Commission

Larry Burkhart
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Hulbert Li

Westinghouse

Mike Corletti
Bob Fuld
Kathy Dimitri
Tom Hayes

NRC STAFF COMMENTS
SENT TO MR. MICHAEL CORLETTI OF WESTINGHOUSE
VIA ELECTRONIC MAIL ON JANUARY 15, 2003,
IN PREPARATION FOR THE FEBRUARY 4, 2003,
TELEPHONE CONFERENCE CALL

WCAP-15922, Section 3, "Evaluation of Potential Human Commission Errors," does not address the possibility of a plant malfunction (such as failed indication) inhibiting an operator's ability to respond (The Data Display and Processing system (DDS) is a non-safety related computer-based system that can be failed). What is the backup provision to support the analyses described in the WCAP-15992?

WESTINGHOUSE STAFF INPUT
SENT FROM MR. MICHAEL CORLETTI OF WESTINGHOUSE
VIA ELECTRONIC MAIL ON JANUARY 28, 2003,
IN PREPARATION FOR THE FEBRUARY 4, 2003,
TELEPHONE CONFERENCE CALL

WCAP-15992, ["AP1000 Adverse System Interactions Evaluation Report,"] evaluates adverse system interactions. Defense-in-depth [DID] provides redundant and diverse means to monitor and accomplish each safety function, reducing the possibility of unmitigated interactions. Passive systems have reduced the need for operator response. If an I&C [instrumentation and control] system fails, operators are directed to use backup and/or alternate means to respond, as in ATWS [anticipated transient without scram] scenarios or a Common Mode Failure [CMF] analysis. The systems remaining available for use will depend upon the hypothesized failure and its results. However, the reliability of the I&C architecture and the adequacy of its DID are established independent of the issue of adverse system interactions. Bounding single failures of plant equipment are addressed by FMEA [failure modes and effects analysis] and safety analysis. Multiple failures of equipment and operators are addressed by PRA [probabilistic risk assessment] and CMF analysis.

Credible human errors of commission are considered in this report as possible complicating factors for selected adverse system interactions. No credible human errors of commission were found to have significant impact by the present analysis. Therefore, no additional issues were raised about the adequacy of the I&C systems design, including the extent of its backup systems and facilities.

Basically, we do not see the need to update the WCAP for his issue. However, the above discussion could be folded into the WCAP if Hulbert [Li, the NRC staff reviewer] believes it addresses his issue.

NRC STAFF COMMENTS
DISCUSSED WITH WESTINGHOUSE STAFF
DURING THE FEBRUARY 4, 2003, TELEPHONE CONFERENCE CALL AND
SENT TO MR. MICHAEL CORLETTI OF WESTINGHOUSE
VIA ELECTRONIC MAIL ON FEBRUARY 5, 2003.

Reference: WCAP-15847, "AP1000 Quality Assurance Procedures Supporting NRC Review of AP1000 DCD [Design Control Document] Sections 18.2 and 18.8" Section AP-3.14, "Plant Instrumentation and Control [I&C] System."

With regard to the Instrumentation and Control (I&C) design process, WCAP-15847 has not addressed the Life Cycle Design Process for a digital I&C protection system. Westinghouse should revise WCAP-15847 to include the Life Cycle Design Process as discussed in WCAP-15927, "Design Process for AP1000 Common Q Safety Systems," and WCAP-13383, "AP600 Instrumentation and Control Hardware and Software Design, Verification, and Validation Process Report."

AP 1000

cc:

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