



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 – 0001**

November 13, 2009

The Honorable Gregory B. Jaczko  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**SUBJECT: WESTINGHOUSE AP1000 DESIGN CERTIFICATION AMENDMENT: STATUS OF ACRS REVIEW**

During the 567<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards (ACRS), November 5-7, 2009, we met with Nuclear Regulatory Commission staff to review status information that we had requested concerning the ongoing review of the proposed amendment to the Westinghouse advanced passive pressurized water reactor (AP1000) design certification. We also had the benefit during the meeting of input from Westinghouse representatives.

We have held two subcommittee meetings to review draft chapters of the Safety Evaluation Report (SER) with open items, which have been completed by the NRC staff. Additional meetings are scheduled later in November 2009, and in January 2010, as additional chapters are expected to become available.

## **CONCLUSIONS**

1. Our review of the Design Control Document (DCD) amendment is keeping pace with the availability of draft SER chapters.
2. We have not identified any items of potential concern in addition to those which have been previously identified by the NRC staff and remain under staff review.

## **BACKGROUND**

NUREG-1793, Supplement 1, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design, Docket No. 52-006," dated December 2005, is the final SER for the existing AP1000 design certification. The NRC certified Revision 15 of the Westinghouse AP1000 DCD through a *Federal Register* notice dated January 27, 2006 (71 FR 4464). The DCD amendment under review consists of Revision 16, submitted by letter dated May 26, 2007, and Revision 17, submitted by letter dated September 22, 2008. In a presentation to the ACRS on May 7, 2009, Westinghouse representatives stated that the purpose of the DCD amendment was to:

- Replace Combined License (COL) information items with specific design information
- Replace Design Acceptance Criteria (DAC) with specific design information
- Respond to NRC requirements
- Enhance standardization
- Reflect design maturity
- Incorporate design improvements

Westinghouse representatives also suggested in the ACRS presentation that key review issues in the amendment included:

- Response to developing security requirements
- Specific designs to replace DAC for:
  - Digital instrumentation and control
  - Human factors engineering
  - Piping
- Containment sump performance and downstream effects
- Structural design and seismic analyses
- Control room ventilation performance
- Enhanced integrated head package design
- Automated Statistical Treatment of Uncertainty Model (ASTRUM) LOCA methodology
- Non-plant specific Technical Specification changes

In addition to these items identified by Westinghouse representatives, the staff has identified additional significant changes including:

- Change in shape of pressurizer
- Addition of reactor vessel flow skirt and neutron panels
- Change in reactor vessel diameter
- Change in capacity and design of fuel storage racks
- Increase in Class 1E voltage from 125v to 250v
- Addition of second reserve auxiliary transformer with fast transfer feature
- Change in design of turbine generator and its control system
- Expansion of existing liquid radioactive waste storage capacity

The amendment changes the DCD regarding materials used in certain components, including the reactor coolant pump flywheels to increase their rotational inertia. Changes are also made to the fuel and core design, including an increase in the number of gray control rods.

## **DISCUSSION**

Our review of draft SER chapters for the DCD amendment began with subcommittee meetings in July and October 2009. Initially, this also included parallel review of corresponding chapters for the Bellefonte Reference Combined License Application (RCOLA); however, subsequent review has been limited to the DCD amendment. A transition from Bellefonte to Vogtle as the RCOLA is being made, and we will review Vogtle in 2010, following our review of the DCD amendment.

We have examined 13 SER chapters with open items. We have identified no items of potential concern not already identified by the staff. Approximately 30 of 130 open items have been closed. About 50 Requests for Additional Information (RAIs) are outstanding.

Over 100 Technical Reports (TRs) have been submitted in support of the DCD amendment. In addition to the ongoing chapter-by-chapter review of draft SER chapters as they become available, we expect to review selected TRs as well. Also, we are evaluating whether we could enhance the effectiveness of our future reviews.

This is the first DCD amendment of this size and scope. It incorporates changes which might be expected when a certified design is first implemented at a specific site or for particular customers. Many of the changes provide increased design certainty by removing DAC and COL information items, thus increasing regulatory certainty overall. We anticipate that our review schedule will continue to follow closely the resolution of remaining SER chapters and open items.

Sincerely,

*/RA/*

Mario V. Bonaca  
Chairman

References:

1. Letter to W. E. Cummins, Director, AP600 & AP1000 Projects, Westinghouse Electric Company, transmitting, "Documentation Approval for the AP1000 Design," 12/13/2005 [ML053410196]
2. *Federal Register* Notice: "AP1000 Design Certification [Final Rule]," (71 FR 4464–4482), 01/27/2006
3. Letter to U.S. Nuclear Regulatory Commission transmitting, "Westinghouse Application to Amend the AP1000 Design Certification Rule," 05/26/2007 [ML071580630]
4. Letter to U.S. Nuclear Regulatory Commission transmitting, "Update to Westinghouse's Application to Amend the AP1000 Design Certification Rule," 09/22/2008 [ML083220482]

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Sincerely,

**/RA/**

Mario V. Bonaca  
Chairman

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Letter to The Honorable Gregory B. Jaczko, Chairman NRC, from Mario V. Bonaca, Chairman, ACRS, dated November 13, 2009

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