Westinghouse

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Your ref: Docket No. 52-006
Our ref: DCP/NRC2305

December 2, 2008

Subject: AP1000 Responses to Requests for Additional Information (SRP15)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 15. This RAI response is submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in the response is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

A response is provided for RAI-SRP15.4.6-SRSB-02.

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Enclosure

1. Response to Request for Additional Information on SRP Section 15

D063
NRO

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ENCLOSURE 1

Response to Request for Additional Information on SRP Section 15

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP15.4.6-SRSB-02
Revision: 0

Question:

The staff previously issued two RAIs (RAI-SRP-15.4.6-SRSB-01 and RAI-SRP-15.0-SRSB-01) regarding the "Limiting Setpoint Assumed in Analyses" for "boron dilution block on source range flux doubling" to Westinghouse. In responses to both RAI-SRP-15.4.6-SRSB-01 and RAI-SRP-15.0-SRSB-01, and as indicated in DCD Revision 17, the applicant proposes to increase the setpoint again from 2.2 (in DCD Rev. 16) to 3.0 (in DCD Rev. 17). Given this new proposed change in setpoint value, the staff needs additional information to complete its review. As a follow-up to RAI-SRP-15.4.6-SRSB-01, the staff requests the applicant to provide the following information:

a) Confirm that the boron dilution analysis in DCD 15.4.6 has been performed with the newly proposed safety analysis setpoint of 3.0 over 50 minutes, which demonstrates acceptable results.

b) Provide a detailed justification as to why the 36% allowance between the safety analysis and TS nominal setpoints of 3.0 and 2.2 over 50 minutes is sufficient to bound instrumentation uncertainties for the final equipment installation, or propose details on how to confirm the 3.0 over 50 minutes setpoint value is bounding for the final equipment installation.

Westinghouse Response:

a) The Boron Dilution analyses performed for Modes 3, 4 and 5 documented in Revision 17 of the DCD assumed a safety analysis setpoint for the Boron Dilution Protection System of 3.0 over 50 minutes. In all cases acceptable results were obtained as documented in DCD Section 15.4.6, Revision 17.

b) Estimates have been made of the major factors that contribute to the measurement uncertainty of the boron dilution algorithm, especially the statistical uncertainty of the neutron counting process itself. In order to ensure that the neutron count integrals are as large as possible, two specific design features have been used. The first is to locate the source range neutron detectors outside the reactor vessel along the cardinal axes of the reactor core, the vessel azimuthal location with the highest neutron leakage. The second is to increase the counting interval to 120 seconds from the 60 seconds used in a previous generation of the algorithm. Westinghouse believes the 36% difference between the value assumed in the accident analysis and the setpoint selected will bound the value determined when final plant design inputs are available.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None