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Your ref: Docket No. 52-006
Our ref: DCP_NRC_003000

August 4, 2010

Subject: AP1000 Response to Request for Additional Information (SRP 23)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 23. This RAI response is submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in this response is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Enclosure 1 provides the response for the following RAI(s):

RAI-DCP-CN58-SRSB-01

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,

A handwritten signature in cursive script that reads "Stanley E. Ritterman for".

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

/Enclosure

1. Response to Request for Additional Information on SRP Section 23

DO63
NR60

cc: D. Jaffe - U.S. NRC 1E
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ENCLOSURE 1

Response to Request for Additional Information on SRP Section 23

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-DCP-CN58-SRSB-01
Revision: 0

Question:

In its May 10, 2010, letter, Westinghouse proposed changes to DCD Tier 2 Table 3.7.1-2 and 10.3.2-2, respectively, by slightly increasing the set pressures and relieving capacities of the main steam safety valves, except for the MSSV number SGS PL V035A/B having a reduced set pressure.

Please verify that the effect of these changes in the MSSV set pressures and relieving capacity on the Chapter 15 safety analyses is minimal, thereby satisfying the acceptance criteria for each affected design basis event.

Westinghouse Response:

Westinghouse acknowledges that the values of the AP1000 MSSV setpoints were the subject of a proposed change for Revision 18 of the AP1000 DCD. The following changes affect the MSSVs as described by Change Number 58 in Westinghouse letter number DCP_NRC_002863, dated 05/10/2010:

<u>MSSV</u>	<u>Previous Setpoint</u>	<u>Proposed Setpoint</u>
V030A/B (MSSV #1)	1185 psig	1185 psig
V031A/B (MSSV #2)	1196 psig	1197 psig
V032A/B (MSSV #3)	1208 psig	1209 psig
V033A/B (MSSV #4)	1219 psig	1221 psig
V034A/B (MSSV #5)	1231 psig	1232 psig
V035A/B (MSSV #6)	1242 psig	1232 psig

The proposed changes are in response to an increased pressure drop calculation for the AP1000 Steam Generator steam outlet nozzle, which impacts the MSSV inlet line losses applicable in accordance with ASME Section III, Subsection NC-7300.

The maximum MSSV setpoint (MSSV #6) was lowered to account for these additional line losses and still maintain the required relieving capacities per the ASME code.

For the purposes of the AP1000 safety analysis, the significant MSSV setpoints are MSSV #1 and MSSV #6. MSSV #1 represents the lowest safety valve and is used to determine if design transients will challenge the MSSVs. The setpoint of MSSV #1 did not change as a result of Change Number 58.

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MSSV #6 is the highest safety valve setpoint and is used to determine the overall steam pressure relief capacity in the safety analysis. This is because the MSSVs are fitted with similar steam flow nozzles, which establish the valve flow capacity as a function of inlet pressure.

With respect to Change Number 58, the maximum MSSV setpoint (MSSV #6) was reduced to account for the impact of the revised steam generator thermal-hydraulic analysis. The change resulted in a marginal increase in valve capacity (i.e., valve mass flow per unit of valve inlet pressure) with respect to the Chapter 15 safety analysis input, which is considered conservative.

The bounding AP1000 safety analysis is a turbine trip event, as described in DCD Subsection 15.2.3. Since the revised MSSV setpoints result in a marginally conservative change to the steam generator pressure relief capacity, the impact on Chapter 15 safety analyses was evaluated to be minimal. Therefore, the conclusions of Chapter 15 of the AP1000 DCD remain valid.

The setpoints of MSSV #2 through MSSV #5 were increased as a function of setpoint spacing. This change is a valve performance consideration and does not affect the results of the AP1000 Chapter 15 safety analysis.

Design Control Document (DCD) Revision:

See attached pages.

PRA Revision:

None

Technical Report (TR) Revision:

None

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MSSVs
3.7.1

Table 3.7.1-2 (page 1 of 1)
Main Steam Safety Valve Lift Settings

VALVE NUMBER		LIFT SETTING (psig \pm 13%)
STEAM GENERATOR		
#1	#2	
V030A	V030B	1185
V031A	V031B	1196 7
V032A	V032B	1208 9
V033A	V033B	1219 21
V034A	V034B	1234 2
V035A	V035B	1243 2

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Table 10.3.2-2		
DESIGN DATA FOR MAIN STEAM SAFETY VALVES		
Number per main steam line		6
Total number of valves required per steam line for full power operation		6
Relieving capacity per valve at 110% of design pressure		1,370,000 lb/hr
Relieving capacity per steam line at 110% of design pressure		8,240,000 lb/hr
Total relieving capacity, 2 lines at 110% of design pressure		16,480,000 lb/hr
Valve size		8 x 10 (Dual Discharge)
Design code		ASME Code, Section III, Class 2, seismic Category I
Valve Number	Set Pressure (psig)	Relieving Capacity ^(a) (lb/hr)
SGS PL V030A(B)	1185	≥ 1,3420,000
SGS PL V031A(B)	11967	≥ 1,3240,000
SGS PL V032A(B)	12082	≥ 1,3450,000
SGS PL V033A(B)	124921	≥ 1,3560,000
SGS PL V034A(B)	12342	≥ 1,3670,000
SGS PL V035A(B)	12432	≥ 1,370,000
Total capacity, at 103% valve setpoint pressures, 2 lines		≥ 16,40220,000

Note:

- a. Based on system accumulation pressure of 3%, per Subsection NC-7512 of ASME Code, Section III, Division 1, 1989 Edition, Subsection NC, Class 2 components.