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Your ref: Docket No. 52-006
Our ref: DCP/NRC2301

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Subject: AP1000 Response to Request for Additional Information (SRP2)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 2. 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.

Enclosure 1 provides the response for RAI-SRP2.3.1-RSAC-03 Rev. 1.

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
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/Enclosure

1. Response to Request for Additional Information on SRP Section 2

DW3
NRO

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ENCLOSURE 1

Response to Request for Additional Information on SRP Section 2

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP2.3.1-RSAC-03
Revision: 1

Question:

This RAI refers to Revision 2 to TR 108. SRP Section 2.3.1 states that a DC applicant should provide a basis for each of the site parameters postulated for the design. Consequently, please provide a basis for the values chosen as revised maximum safety wet bulb (noncoincident), maximum normal dry bulb with coincident wet bulb, and maximum normal wet bulb (noncoincident) site parameters.

Supplemental RAI:

The staff finds the response to RAI – SRP 2.3.1 – RSAC – 03 incomplete.

Describe the analysis used to derive the Levy site maximum safety and maximum normal coincident and noncoincident wet bulb temperature site characteristics. Include a discussion as to whether likely increases in atmospheric water vapor resulting from greenhouse gas increases as discussed in the U.S. Climate Change Science Program recent report on Weather and Climate Extremes in a Changing Climate were taken into consideration in establishing the revised AP1000 air temperature site parameters.

APP-GW-GLE-036 states that the maximum safety coincident and noncoincident wet bulb temperatures are being revised to support the Progress Energy Levy COLA submittal and avoid taking any departures from the AP1000 DCD. The Levy site performed studies that indicated that the AP1000 DCD Revision 16 maximum safety wet bulb coincident and noncoincident temperatures of 80 °F and 85.5 °F did not bound the corresponding Levy site characteristics. In order to avoid departures from the AP1000 DCD for the Levy COLA submittal, the staff needs to review the analysis used to derive the Levy site maximum safety and maximum normal coincident and noncoincident wet bulb temperature site characteristics to ensure they are bounded by the corresponding revised AP1000 air temperature site parameters.

SRP 2.3.1 states that the applicability of data on severe weather phenomena used to represent site conditions during the expected period of reactor operation should be substantiated. SPR 2.3.1 also states that current literature on possible changes in the weather in the site region should also be reviewed to be confident that the methods used to predict weather extremes are reasonable. Therefore, the analysis used to derive the revised AP1000 ambient temperature site parameters from the Levy site maximum safety and maximum normal coincident and noncoincident wet bulb

temperature site characteristics should consider possible changes in the weather in the site region and any potential impact on the proposed site characteristics.

Westinghouse Response:

The design numbers were chosen based on the URD requirements, and the most limiting case of our existing customer base, whichever was more extreme.

Additionally, a DCD Impact Document is being generated to revise the maximum safety wet bulb temperature (noncoincident) from 85.5°F to 86.1°F and the wet bulb temperature (coincident) from 80°F to 86.1°F. Additionally, the maximum dry bulb temperature was revised to 101°F but was inadvertently omitted in Revision 16 of the DCD.

The following DCD markups are provided as a preview of the types of changes that can be expected from the aforementioned DCD Impact Document. The document is scheduled to be submitted to the NRC by June 30, 2008.

Revise the Air Temperature portion of Tier 1 Table 5.0-1, Site Parameters as follows:

TABLE 5.0-1
SITE PARAMETERS

Air Temperature	Limits based on historical data excluding peaks of less than 2 hours duration Maximum temperature of 115° dry bulb/86.1°F coincident wet bulb Maximum wet bulb 86.1°F (noncoincident) Minimum temperature of -40°F

Revise the Air Temperature portion of Tier 2 Table 2-1, Site Parameters as follows:

Table 2-1 (Sheet 1 of 3)

SITE PARAMETERS

Air Temperature	
Maximum Safety [a]	115°F dry bulb/86.1°F coincident wet bulb 86.1°F wet bulb (noncoincident)
Minimum Safety [a]	-40°F
Maximum Normal [b]	101°F dry bulb/80.1°F coincident wet bulb 80.1°F wet bulb (noncoincident) [d]
Minimum Normal [b]	-10°F

5.4.7.1.2.3 In-Containment Refueling Water Storage Tank Cooling

The normal residual heat removal system provides cooling for the in-containment refueling water storage tank during operation of the passive residual heat removal heat exchanger or during normal plant operations when required. The system is manually initiated by the operator. The normal residual heat removal system limits the in-containment refueling water storage tank water temperature to less than boiling temperature during extended operation of the passive residual heat removal system and to not greater than 120°F during normal operation. The system performs this function based on the following:

- Operation of the system with both subsystems of normal residual heat removal system pumps and heat exchangers available.
- The component cooling water system supply temperature to the normal residual heat removal system heat exchangers is based on an ambient design wet bulb temperature of no greater than 86.1°F (0 percent exceedance). The 86.1°F value is assumed for normal conditions and transients that start at normal conditions.

Since the normal residual heat removal system is not a safety-related system, its operation is not credited in Chapter 15 Accident Analyses.

9.2.2.1.2.1 Normal Operation

The component cooling water system transfers heat from various plant components needed to support normal power operation with a single active component failure. The component cooling water system is designed for normal operation in accordance with the following criteria:

- The component cooling water supply temperature to plant components is not more than 100°F assuming a 0 percent exceedance ambient design wet bulb temperature of 86.1°F for service water cooling at normal operations (maximum normal temperature per Table 2-1 for normal shutdown).
- The minimum component cooling water supply temperature to plant components is 60°F.
- The component cooling water system provides sufficient surge capacity to accept 50 gallons per minute leakage into or out of the system for 30 minutes before any operator action is required.

Supplemental Response:

The changes made in DCD Revision 17 to the Air Temperature Site Parameters listed in Tier 2 Table 2-1 are completely independent of any analysis done specifically for any COLA submittal. There is no mention of any specific site or COLA submittal in the DCD. At the request of a customer, Westinghouse independently evaluated the possibility of raising the ambient design wet bulb temperature for the AP1000. It was determined that adequate margin did exist to raise the temperatures to 86.1°F. Raising this temperature broadens the range of potential sites that can meet the defined site parameters for AP1000. It remains the responsibility of the COL applicant to show that their site is bounded by the parameters listed Table 2-1 of the AP1000 DCD. APP-GW-GLE-036 is being revised to remove all references to the Levy COL submittal.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None