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Your ref: Docket No. 52-006  
Our ref: DCP/NRC2344

January 8, 2009

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 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:

RAI-SRP2.3.4-RSAC-01 R1

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 black ink, appearing to read 'Robert Sisk', written over a horizontal line.

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

/Enclosure

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

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

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RAI Response Number: RAI-SRP2.3.4-RSAC-01  
Revision: 1

### **Question:**

This RAI refers to Revision 0 to APP-GW-GLN-122. APP-GW-GLN-122 revised site boundary, low population zone boundary, and control room atmospheric dispersion site parameters. Pursuant to Section III.6.b.4 of SPR 2.3.4, please provide a technical basis for the values chosen for the revised atmospheric dispersion site parameters.

### **Westinghouse Response:**

The atmospheric dispersion factors (X/Q) identified in APP-GW-GLN-122 were increased from the values in DCD Revision 15 safety analysis. As discussed in the Section II Introduction of the technical report, "the changes allow the use of increased atmospheric dispersion factors (X/Q), which are appropriate based on current industry data with more realistic / updated radioactive material transport factors."

The increases in atmospheric dispersion factors are technically supported by the changes in certain accident radiological consequences analyses. For the LOCA this included taking credit for aerosol impaction removal in the containment leakage pathway and for the fuel handling accident the decay period prior to the postulated accident was increased from 24 hours to 48 hours.

### **NRC Additional Comments:**

The staff finds the response to RAI – SRP 2.3.4 – RSAC – 01 incomplete.

Discuss the methodology used to select the site boundary, low population zone boundary, and control room atmospheric dispersion factors presented as site parameters in DCD Tier 1 Table 5.0-1 and Tier 2 Table 2-1. Discuss how it was determined that the selected site parameter values bound a reasonable number of sites that have been or may be considered for a COL application.

Section III.6.b of SPR 2.3.4 states that the postulated site parameters for a DCD should be representative of a reasonable number of sites that have been or may be considered for a COL application and a basis should be provided for each of the site parameter values.

# AP1000 TECHNICAL REPORT REVIEW

## Response to Request For Additional Information (RAI)

### Westinghouse Additional Response:

#### Revision 17 Updates to Atmospheric Dispersion Factors

In Revision 17 of the DCD, the exclusion area boundary and low population zone boundary atmospheric dispersion factors were revised to the certified Revision 15 values provided below:

OFFSITE ATMOSPHERIC DISPERSION FACTORS ( $\chi/Q$ ) FOR ACCIDENT DOSE ANALYSIS	
Site boundary $\chi/Q$ ( $s/m^3$ ) 0 – 2 hours <sup>(1)</sup>	$5.1 \times 10^{-4}$
Low population zone $\chi/Q$ ( $s/m^3$ ) 0 – 8 hours	$2.2 \times 10^{-4}$
8 – 24 hours	$1.6 \times 10^{-4}$
24 – 96 hours	$1.0 \times 10^{-4}$
96 – 720 hours	$8.0 \times 10^{-5}$

1. Nominally defined as the 0- to 2-hour interval but is applied to the 2-hour interval having the highest activity releases in order to address 10 CFR Part 50.34 requirements.

The reason for this change in the offsite atmospheric dispersion factors was the LOCA dose reanalysis to remove the aerosol impaction credit assumed in the LOCA dose presented in APP-GW-GLN-122 was rejected by the NRC in August of 2008. The Revision 17 change permits the doses to be within the defined offsite acceptance criteria. Additionally some changes were made to the control room atmospheric dispersion factors for Revision 17 of the DCD; however these values were not returned to the certified Revision 15 values. The NRC is currently reviewing the revised LOCA dose analysis presented in Section 15.6.5.3 of the DCD.

#### Discussion on Selection of Atmospheric Dispersion Factors

The AP1000 DCD is a generic application and thus does not have a site-specific meteorological data set for the calculation of atmospheric dispersion factors. As discussed in DCD Section 2.3.4, the offsite atmospheric dispersion factors (for the exclusion area boundary and for the low population zone outer boundary) listed in the DCD were selected based on a review of existing plant sites such that the selected atmospheric dispersion factors are bounding for a reasonable number of plant sites. As also stated in DCD Section 2.3.4, the dispersion factors (in Revision 17 of the AP1000 DCD) were selected such that they could be used for the AP1000 design

# AP1000 TECHNICAL REPORT REVIEW

## Response to Request For Additional Information (RAI)

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basis accident radiological consequences analyses to obtain doses that would be within the defined acceptance limits for each accident that is addressed in the DCD (Chapter 15).

Site specific (COL application) values are calculated using the ARCON96 code to confirm whether these values are met. Based on the results of previous specific site analyses, the control room dispersion factors listed in Table 15A-6 were revised previously in Revision 16 of the AP1000 DCD in order to bound all of the sites currently under consideration. Revision 17 of the AP1000 DCD revised the site atmospheric dispersion factors as discussed above.

### Design Control Document (DCD) Revision:

None

### PRA Revision:

None

### Technical Report (TR) Revision:

None