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Your ref: Docket No. 52-006  
Our ref: DCP/NRC2352

January 13, 2009

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

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 14. 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-SRP14.3.2-CCIB-04

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".

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

/Enclosure

1. Response to Request for Additional Information on SRP Section 14

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

Response to Request for Additional Information on SRP Section 14

# AP1000 TECHNICAL REPORT REVIEW

## Response to Request For Additional Information (RAI)

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RAI Response Number: RAI-SRP14.3.2-CCIB-04

Revision: 0

### **Question:**

In ITAAC Table 2.2.3-4, for design commitment Item 8.c, ITA item vii states: "Inspections of the as-built components will be conducted for plates located above the containment recirculation screens." The AC item vii states that: "plates located above each containment recirculation screen are no more than 1 foot above the top of the screen and extend out at least 10 feet perpendicular to and at least 7 feet to the side of the screen surface."

The staff asks the applicant to explain the following: a) if there is to be one solid plate or if many individual plates are permitted above each recirculation screen, b) is there a minimum height of the plates above the top of the screens or can the plates be in contact with the screens, c) what is the required thickness of the plate or plates provided, d) the orientation of the plates to the screens since it is not clear as to what is perpendicular to the screens and what are the sides of the screens, and d) is the dimension of at least 7 feet to the side of the screen surface for only one side or two. The staff requests that the details provided in the applicant's explanation be incorporated into AC item vii.

### **Westinghouse Response:**

The details of the containment recirculation screen arrangements are provided in APP-GW-GLN-147, Revision 3 (AP1000 Containment Recirculation and IRWST Screen Design).

In general, the sump screen design details are appropriately addressed in the Acceptance Criteria for the ITAAC to provide assurance that a plant which incorporates the AP1000 design certification is built and should operate in accordance with the AP1000 design certification. Therefore, based on the following discussions, no additional information is proposed for Acceptance Criteria for Item vii.

- a) The configuration is to use many plates is to form a continuous / solid plate arrangement to cover each containment recirculation screen that provides a relatively lengthy path for fluid entry into the screen surface (inlet). A continuous plate configuration prevents having any paths that would allow debris to bypass the entire plate lengths specified and enter the recirculation screens, rather than either settling out on top of the plate or having the plate direct the flow past the ends of the plate (relatively far away from the screen surface inlet), to provide the anticipated settling distance prior to the flow reaching the screen surface.
- b) There is no minimum height of the plates above the top of the recirculation screens, so a minimum distance does not need to be specified in the ITAAC AC. The intent is that the plate be vertically close enough to the screen surface to effectively re-direct flow around the plate before entering the screen, to optimize debris settling. This precludes debris that may

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be settling from anywhere above the screens from entering the screen surface. Placing the plates at any position within one foot above the top of the screens is acceptable for purposes of minimizing debris entry into the screen surface.

- c) The plate thickness is not required to specified in the ITAAC AC since the design information related to plate thickness is appropriately addressed in other portions of the ITAAC. The plate design dimensions (such as plate thickness) related to material strength that do not materially affect the debris flow are addressed in Item 5.a of Table 2.2.3-4.
- d) As discussed in Items a) and b) above, the intent of the screen plates is to re-direct flow to increase the flow path length to the screen surface, or its inlet where the water flow enters the screen pockets, through the "pocket frontal face area" discussed in Item viii).

Therefore, the term "perpendicular" simply refers to the distance that the from the screen surface to the end of the plate, around which the flow must pass to move back toward the screen surface. As discussed in the detailed screen design report, the screen surface forms a vertical surface that water enters so that debris settling continues until screen surface entry.

The "side of the screen surface" is at the left side or right side of the screen surface, just as the top of the screen surface would be below the plate above the screen, and the bottom of the screen surface is above the room floor.

In the prescribed ITAAC AC arrangement, the plate must extend out at least 10 feet perpendicular to the screen face. This then requires that the flow must move back underneath the plate for this 10-foot flow path before entering the screen surface. This specified distance provides a sufficient settling distance for the containment recirculation flow entering the screen surface.

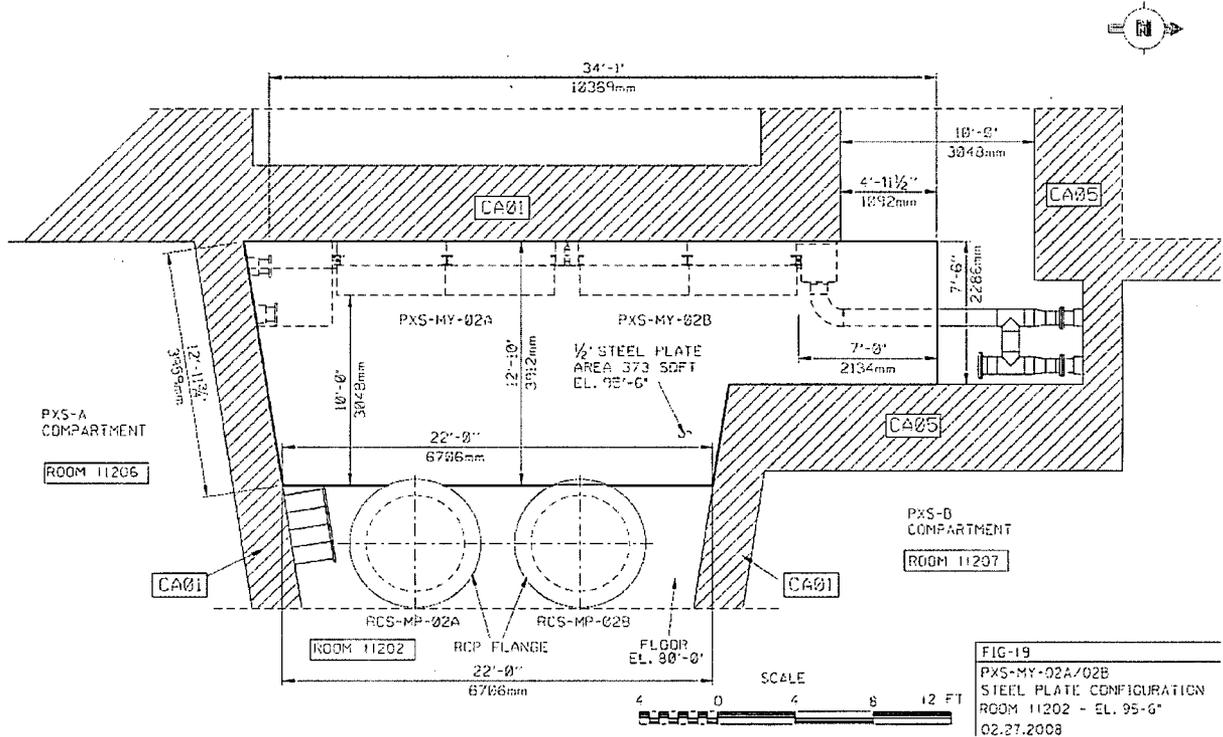
- e) The second question item labeled as "d)" should have been labeled as question "e)."

The plates above each recirculation screen are also required to extend out at least 7 feet to the side of the screen surface to accomplish the same flow path objective to increase the screen surface entry flow path as discussed in Item d), which maximizes debris settling before entry into the screen surface. The requirement for the plates to extend out to the sides applies to both sides of each screen, where practical. For example, the screen which is aligned nearest the south wall of the steam generator compartment (MY-Y02A) has a concrete wall within 7 feet of the side of the screen and, therefore, there is no need to have 7 feet of steel plate to that side of this screen. In this instance, the steel plate extends only to the concrete wall. The AC specifies that "(vii) Plates located above each containment recirculation screen...and extend out at least 10 ft perpendicular to and at least 7 ft to the side of the screen surface." This requirement applies to each side of the screen. The side of a screen is explained in the third paragraph in the discussion for Item d) above.

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The image below is from APP-GW-GLN-147 and shows the plate configuration.



### Design Control Document (DCD) Revision:

None

### PRA Revision:

None

### Technical Report (TR) Revision:

None