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Your ref: Docket No. 52-006
Our ref: DCP/NRC2448

April 24, 2009

Subject: Submittal of Responses to Action Item 10 from the March 18 and 19, 2009 Meeting Regarding AP1000 Shield Building Design

As a follow on to the meeting regarding AP1000 Shield Building held on March 18 and 19, 2009, Westinghouse is submitting one copy of the response to Action item 10. Action Item 10 Stated "Describe how cracking, and the potential for rebar corrosion, at the bottom of the SC construction is addressed. Include sealing requirements and design of connection interface."

Questions or requests for additional information related to content and preparation of this report 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

/Attachment

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NRO

cc:	B. Gleaves	-	U.S. NRC	1A
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Attachment to DCP/NRC2448

Design Methodology to Address concrete cracking, and the potential for rebar corrosion for Enhanced Shield Building Cylindrical Wall

Shield Building Action Item 10:

Complete the action noted below. It was agreed to during the March 18 and 19, 2009 AP1000 Shield building focus meeting.

Describe how cracking, and the potential for rebar corrosion, at the bottom of the SC construction is addressed. Include sealing requirements and design of connection interface.

Westinghouse Response:

The transition between the steel plated (SC) constructed enhanced shield wall and the reinforced concrete (RC) shield wall is, typically, at the following locations:

- On west side of the shield building at elevation 100'-0".
- At roof level (varies depending on roof elevation).

The NRC staff has a concern about the potential for surface concrete cracking at the location where the SC wall ends and RC begins. The outside surface of the steel plate of the SC wall lines up with the outside face of the RC wall below it. The dowel bars extending up into the SC construction are continuations of the vertical bars in the RC portion and are at the same distance from the surface of the wall. This vertical reinforcement controls the spacing and size of any horizontal cracks. It is possible that cracking may occur and may initiate below the steel plate. However, it may be noted that such concern, for cracking at interface locations in the shield building, would have existed even if the shield building was totally RC construction.

To prevent the migration of water into these postulated cracks, standard architectural details for normal construction will provide coverage at these locations. At elevation 100'-0", the transition will be covered by the waterproofing membrane that will be extended above the construction joint and transition to the SC wall. The top of the membrane will be covered with the appropriate sealant to prevent water intrusion behind the membrane. At the roof elevations, a similar detail will be used, the roof waterproofing membrane will extended up the vertical surface of the wall above the construction joint and transition to the SC wall similarly to what is done at elevation 100'. With the elimination of the possibility of water seepage into cracks at these locations the threat of corrosion on the internal rebar is greatly reduced.

There are no design control Document Changes or technical report changes planned to address this action item.