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Your ref: Docket No. 52-006  
Our ref: DCP\_NRC\_002624

September 17, 2009

Subject: AP1000 Response to Request for Additional Information (TR 54)

Westinghouse is submitting responses to NRC requests for additional information (RAI) on Technical Report No. 54. 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-TR54-026 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'.

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

/Enclosure

1. Response to Request for Additional Information on Technical Report No. 54

DO63  
NRC

cc:	D. Jaffe	- U.S. NRC	1E
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	T. Spink	- TVA	1E
	P. Hastings	- Duke Power	1E
	R. Kitchen	- Progress Energy	1E
	A. Monroe	- SCANA	1E
	P. Jacobs	- Florida Power & Light	1E
	C. Pierce	- Southern Company	1E
	E. Schmiech	- Westinghouse	1E
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	R. Grumbir	- NuStart	1E
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ENCLOSURE 1

Response to Request for Additional Information on Technical Report No. 54

# AP1000 TECHNICAL REPORT REVIEW

## Response to Request For Additional Information (RAI)

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RAI Response Number: RAI-TR54-026  
Revision: 1

### **Question:**

What are the gaps and tolerances for each of the gaps between the fuel to cell wall, rack to rack, and rack to wall? What are the assumed initial locations of the various components (fuel assemblies and each rack) and what is the technical basis for this assumption. Were any studies done for different initial conditions (considering tolerances); if not, explain why. What requirements are in the DCD to ensure that the assumed gaps (considering tolerances) will always be maintained throughout the licensing period?

### **Westinghouse Response:**

All gaps between fuel assemblies and cell walls, between racks, and between racks and pool walls are set to match the nominal gaps provided on the Westinghouse Drawing APP-FS02-V2-002 Revision 0 "Discrete Zone Two Region Spent Fuel Rack Pool Layout. The following table summarizes the gap information used in the dynamic analyses.

	Fuel-to-Cell Wall	Rack-to-Rack	Rack-to-Wall
Nominal Gap (inch)	$(8.8"-8.1")/2 = 0.35"$	1" or 1.25"	North – 3.2"  East – 2.75"  South – 2.7"  West – 3.2"

Fuel is assumed centrally located in cell. This is conservative since minimizing gap on one or two walls will generally produce a larger hydrodynamic coupling effect.

Numerical studies were done on other Holtec rack projects; the results generally showed a small influence on results. A larger influence occurs if the gaps are assumed to be displacement dependent, rather than always being held constant at their initial value. The neglect of this effect is conservative.

Once racks are installed, the "as-built" gaps are reconciled with the gaps initially used for analysis by evaluation of the numerical results and the predicted motions. Once the "as-builts"

# AP1000 TECHNICAL REPORT REVIEW

## Response to Request For Additional Information (RAI)

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are accepted by evaluation of the current results, the only way the gaps would change over time would be by the action of a seismic event. Combined License applicants will have a procedure in place to address measurement of the post design-basis seismic event gaps, and to evaluate the acceptability of the configuration showing it is acceptable, or to take appropriate corrective actions. A statement will be added to both the Technical Report and DCD addressing the design-basis seismic event potential change in gaps between the spent fuel racks.

### \*\*\*Revision 1 Update\*\*\*

During the August 6-7, 2009 meeting with the NRC it was identified that spent fuel rack A1 is shown to slide into the area of the spent fuel pool designated as the "Tool Storage Area". To eliminate this from happening, the Tool Storage Area has been resized from 34 inches wide with a 3.2 inch gap from the tool storage area to rack A1, to 33 inches wide with a 4.2 inch gap. This increase in gap size precludes rack A1 from entering the tool storage area as the result of a seismic event.

The DCD and TR Revision sections below have been updated accordingly to reflect this change.

### Reference:

1. APP-GW-GLR-033, Revision 0, "Spent Fuel Storage Rack Structural/Seismic Analysis," (Technical Report Number 54)

### **Design Control Document (DCD) Revision: (Revision 0, 1)**

(The Revision 0 response was incorporated into DCD R17.)

The markup of DCD Rev. 17 Figure 9.1-4 below shows the modification in the tool storage area size.

### **PRA Revision:**

None.

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| Technical Report (TR) Revision: (Revision 0, 1)

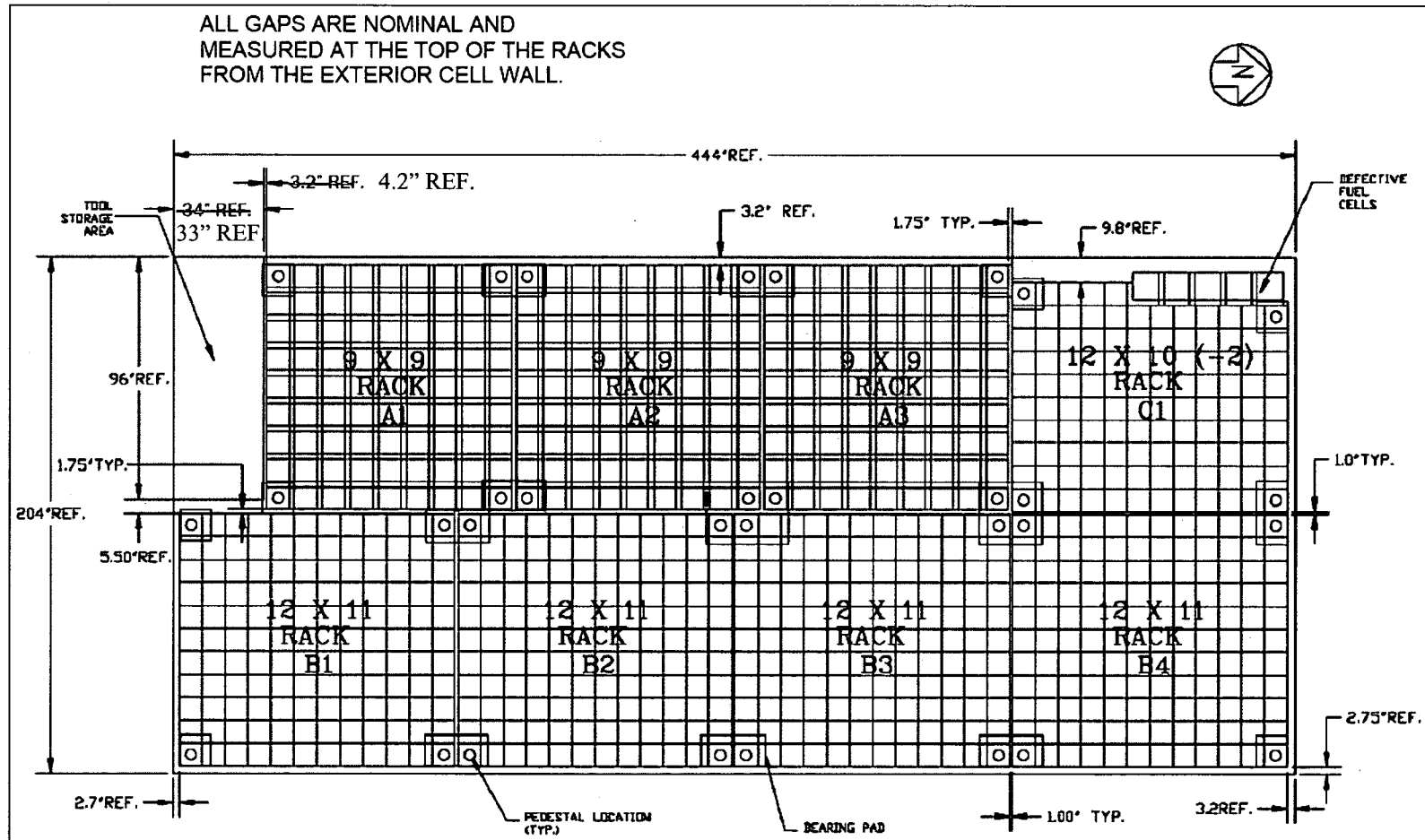
| (The Revision 0 response was incorporated into APP-GW-GLR-033 R1.)

| The markup TR-54 Rev. 2 Figure 2-1 below shows the modification in the tool storage area size.

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## Response to Request For Additional Information (RAI)

Markup of DCD Rev. 17 Figure 9.1-4:



### Response to Request For Additional Information (RAI)

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