

Westinghouse Electric Corporation

**Energy Systems** 

Box 355 Pittsburgh Pennsylvania 15230-0355

> DCP/NRC1242 NSD-NRC-98-5553 Dooket No.: 52-003

> > January 30, 1998

ED04

Document Control Desk U.S. Nuclear Regulatory Commission Washington, DC 20555

ATTENTION: T. R. QUAY

### SUBJECT: RESPONSES TO FOLLOWON QUESTIONS REGARDING THE AP600 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (ITAAC) -RXS FUEL ASSEMBLY AND CRDM

Dhar Mr. Quay:

Enclosed are three copies of the Westinghouse response to RAI 640.174 related to comments on the Fuel Assembly and Control Rod Drive Mechanism from the Reactor Systems Branch regarding Revision 3 of the AP600 Certified Design Material including the ITAAC. RAI 640.174 was requested in a letter from the staff dated January 7, 1998, and is related to our previous response to RAI 640.152, which was briefly discussed with the staff in a meeting held on December 11, 1997.

This submittal closes, from Westinghouse's perspective, open items 6518 and 6052. Open item 6518 supersedes open item 6052. As a result, the Westinghouse status column will be changed to "Confirm W" for open item 6518 and "Closed" for 6052 in the Open Item Tracking System (OITS). The NRC should review this response and inform Westinghouse of the status of these open items to be designated in the "NRC Status" column of the OITS.

Please contact Mr. Eugene J. Piplica at (412) 374-5310 if you have any questions concerning this transmittal.

Brian A. McIntyre, Manager Advanced Plant Safety and Licensing

jm!

Enclosure

cc: J. N. Wilson, NRC (w/Enclosure)
J. D. Peralta, NRC (w/Enclosure)
N. J. Liparulo, Westinghouse (w/o Enclosure)



Enclosure to Westinghouse

Letter DCP/NRC1242

January 30, 1998

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### RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION



#### Question 640.174

Your response to RAI 640.152 is unacceptable. The Nuclear Fuel System and the Control Rod Drive System require Tier 1 design descriptions consistent with the significance of these systems and the approach used on the evolutionary designs. These systems also require an inspection of the functional arrangement, similar to the fuel and control rod systems ITAAC for the System 80+ design.

#### Response:

The AP600 Certified Design Description Section 2.3.1, "Reactor Systems," currently includes Design Commitments (DCs) and corresponding ITAAC for the fuel assemblies (FAs), rod cluster control assemblies (RCCA), and control rod drive mechanisms (CRDMs). By reference to Table 2.3.1-1, DCs 1 through 5 provide for the following design features to be verified by ITAAC for these components:

- 1) Inspection of the as-built components.
- 2) Design and construction in accordance with ASME Code Section III.
- 3) Pressure boundary welds in accordance with ASME Code Section III.
- 4) Pressure boundary integrity at design pressure.
- 5) Seismic Category I identification.

In addition, Table 2.3.1-1 contains the specified number of FAs, RCCAs and CRDMs.

To address the comment that an inspection of the functional arrangement is required, the following changes will be made to CDM Section 2.3.1:

- o The description of the Reactor System will be expanded to include a function to insert negative reactivity into the reactor core.
- Table 2.3.1-1 will be updated to reflect the minimum required RCCAs.
- A figure which captures the reactor control rod drive mechanism arrangement will be added along with a DC and corresponding ITAAC to inspect the arrangement.

SSAR Revision:

None

Westinghouse

640.174-1

## RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION



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ITAAC Revision:

2.1.3 Reactor System

### **Design Description**

The reactor system (RXS) provides a barrier that prevents the release of fission products to the atmosphere and a means to insert negative reactivity into the reactor core.

1. The RXS components are identified in Table 2.1.3-1.

2. The reactor control ride drive mechanism arrangement is as shown in Figure 2.3.1-1.

Note: The remaining DCs will be renumbered appropriately.

Table 2.1.3-1						
Equipment Name	Tag No.	ASME Code Section III Classificati on	tuic 1. I	Class 1E/ Qual. for Harsh Envir.	Safety- Related Display	
Rod Cluster Control Assemblies (RCCAr; (minimum 45 locations)	PXS-FR-XXX ("XXX" is the rod cluster control assembly location)	Yes	Yes	•	-	

Note: Dash (-) indicates not applicable.



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# RESPONSES T VRC REQUEST FOR ADDITIONAL INFORMATION

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Table 2.1.3-2 Inspections, Tests, Analysis, and Acceptance Criteria				
Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria		
1. The RXS components are identified in Table 2.1.3-1.	Inspection of the as-built system will be performed.	The as-built RXS has the components identified in Table 2.1.2-1.		
2. The reactor control rod drive mechanism arrangement is as shown in Figure 2.3.1-1.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the fuel assembly and control rod drive mechanism pattern shown in Figure 2.3.1-1.		

Note: The remaining table entries will be renumbered appropriately.



# RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION





# CONTROL ROD DRIVE MECHANISM LOCATIONS

- FUEL ASSEMBLY PATTERN

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Figure 2.1.3-1

Reactor CRDM Arrangement



640.174-4