Office for Nuclear Regulation

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Redgrave Court Merton Road Bootle Merseyside L20 7HS
Tel: 0151 951 4000 www.hse.gov.uk/nuclear

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

DESIGN REFERENCE POINT AND ADEQUACY OF DESIGN BASIS ANALYSIS

GI-AP1000-FS-02 REVISION 0

Technical Area	**FAULT STUDIES**		
Related Technical Areas	None		
GDA Issue Reference	**GI-AP1000-FS-02**	**GDA Issue Action Reference**	**GI-AP1000-FS-02.A1**
GDA Issue	Westinghouse to demonstrate for all design basis faults that the submitted design basis analysis is appropriate for the agreed GDA Design Reference Point and that all safety claims are supported by the analysis. If this cannot be done with pre-existing analysis, new analysis could be required. The final PCSR produced for GDA is to summarise this analysis for all design basis faults. A complete and consistent set of core design limits reflecting the design basis fault analysis is required.		
GDA Issue Action	Westinghouse to demonstrate that the transient analysis presented and/or referenced in the PCSR is appropriate for the agreed GDA Design Reference Point. Westinghouse to review the safety case and transient analysis presented in the PCSR for all design basis faults (including shutdown faults not part of the AFCAP programme) and for each: • identify to ONR what computer models, assumptions and reference design the EDCD analysis was assessed with and demonstrate why this is appropriate for the GDA Design Reference Point, or • replace the EDCD analysis with AFCAP analysis, identify what computer models, assumptions and reference design have been used for AFCAP, demonstrate the differences between the AFCAP work and the EDCD analysis ONR has assessed in Step 4, and demonstrate why this is appropriate for the GDA Design Reference Point, or • provide new analysis appropriate for the GDA Reference Point. The final GDA PCSR will need to clearly demonstrate why the analysis it references is appropriate for the Design Reference Point. With agreement from the Regulator this action may be completed by alternative means.		

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Technical Area	**FAULT STUDIES**		
Related Technical Areas	None		
GDA Issue Reference	**GI-AP1000-FS-02**	**GDA Issue Action Reference**	**GI-AP1000-FS-02.A2**
GDA Issue Action	Provide a complete set of core design limits reflecting the final design basis analysis in the PCSR and the Design Reference Point to determine the compliance of candidate core designs. Design basis analysis of reactor faults is generally carried out on a generic basis, with the intention that it will not need to be repeated for particular core loading patterns. The analysis assumes certain bounding core performance parameters (safety analysis bounding limits) that the core design is expected to respect. The core design assumed for in the EDCD design basis analysis is different from that assumed in the AFCAP work (in addition to all the other design changes to "fixed" systems). A part complete list has been provided to ONR in Step 4 of GDA in the form of a Safety Analysis Check List. However this does not reflect all the analysis presented in the PCSR (a mixture of EDCD and AFCAP work), Regulatory Observations and the Design Reference Point. For example, the Anticipated Transient Without Trip and Large Break Loss of Coolant Accident analyses are inconsistent with the check list. This set of data needs to be complete and comprehensive to determine a suitable set of constraints for core design. Should a future core design not respect these constraints, this could of course be justified by specific analysis or a new core design. However, without a clear link back to the analysis assessed in GDA, the goal of not repeating analysis for individual core loading patterns will be difficult to achieve. With agreement from the Regulator this action may be completed by alternative means.		