

## WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

### GDA ISSUE

### SPENT FUEL POOL – CRITICALITY SAFETY CASE

### GI-AP1000-RP-01 REVISION 0

<b>Technical Area</b>		<b>RADIATION PROTECTION</b>	
<b>Related Technical Areas</b>		Fault Studies Radioactive Waste and Decommissioning	
<b>GDA Issue Reference</b>	<b>GI-AP1000-RP-01</b>	<b>GDA Issue Action Reference</b>	<b>GI-AP1000-RP-01.A1</b>
<b>GDA Issue</b>	Westinghouse has not adequately demonstrated why it is not reasonably practicable to design the AP1000 spent fuel pool such that criticality control is achieved through geometrical control and fixed poisons alone.		
<b>GDA Issue Action</b>	<p>Provide a safety case, with supporting evidence, which demonstrates that criticality control of the spent fuel pool is assured for all foreseeable operating conditions through geometrical control and fixed poisons alone.</p> <p>ONR's expectation is that Westinghouse should adequately apply the hierarchy of safety measures, as described in the HSE's Safety Assessment Principles (SAPs) and international guidance, for criticality control of the AP1000 spent fuel pool. In the context of the design of spent fuel pools at new nuclear power stations, it should be reasonably practicable for Westinghouse to submit an approach that relies on passive safety measures that do not rely on control systems, active safety systems or human intervention.</p> <p>ONR believes that options to improve the arrangements for spent fuel storage are available to Westinghouse. These options may include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• Increasing the size of the spent fuel pool.</li> <li>• Redesigning the racking system so that the geometrical separation of fuel assemblies is increased and/or the effectiveness of fixed poisons contained within the racks is improved.</li> <li>• Designing rack inserts containing fixed poisons which can be positioned around fuel assemblies during storage.</li> <li>• Designing fuel assembly inserts to provide fixed poisons.</li> <li>• Utilising additional fuel storage facilities outside the nuclear island to increase storage capacity.</li> </ul> <p>With agreement from the Regulator this action may be completed by alternative means.</p>		