

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

STRUCTURAL INTEGRITY – AVOIDANCE OF FRACTURE

GI-AP1000-SI-01 REVISION 0

Technical Area		STRUCTURAL INTEGRITY	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-SI-01	GDA Issue Action Reference	GI-AP1000-SI-01.A1
GDA Issue	<p>Avoidance of Fracture - Margins Based on Size of Crack-Like Defects</p> <p>Demonstration of defect tolerance and the absence of planar defects in the components for which the likelihood of gross failure is claimed to be so low it can be discounted.</p> <p>This requires integration of qualified non-destructive examinations during manufacture and analyses for limiting sizes of crack-like defects using conservative material fracture toughness properties.</p>		
GDA Issue Action	<p>Support assessment of the fracture analysis approach by providing adequate responses to any questions arising from assessment by ONR of documents submitted during GDA Step 4 but not reviewed in detail at that time.</p> <p>A number of important fracture assessment reports arrived much later in the Step 4 assessment timeframe than had been originally planned. ONR undertook a high level review of the reports to gain confidence in the approach but was unable to undertake a full assessment within the timescales allowed for GDA Step 4. This GDA Issue Action has been created to support the full assessment of these reports.</p> <p>Activities by Westinghouse should comprise:</p> <ul style="list-style-type: none"> • Provide adequate responses to questions arising from ONR assessment of documents submitted during GDA Step 4 or in response to this Action. <p>With agreement from the Regulator this action may be completed by alternative means.</p>		

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Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-SI-01	GDA Issue Action Reference	GI-AP1000-SI-01.A2
GDA Issue Action	<p>Demonstrate that there are qualifiable inspection techniques capable of detecting the limiting defects with adequate margin in a representative range components for which the likelihood of gross failure is claimed to be so low it can be discounted.</p> <p>A number of the important reports on inspection qualification arrived much later in the Step 4 assessment timeframe than had been originally planned. As a result ONR has been unable to undertake a full assessment of all inspection qualification reports within the timescales allowed for GDA Step 4, but has undertaken a high level review of the reports where a full assessment was not possible in order to gain confidence in the approach, This GDA Issue Action has been created to support the full assessment of the reports not yet fully assessed..</p> <p>Activities by Westinghouse should comprise:</p> <ul style="list-style-type: none"> • Provide adequate responses to questions arising from ONR assessment of documents submitted during GDA Step 4 or as a result of this action. <p>With agreement from the Regulator this action may be completed by alternative means.</p>		

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Technical Area		STRUCTURAL INTEGRITY	
Related Technical Areas		None	
GDA Issue Reference	GI-AP1000-SI-01	GDA Issue Action Reference	GI-AP1000-SI-01.A3
GDA Issue Action	<p>Provide formalised proposals for additional materials testing to underpin the fracture toughness values used in the fracture analyses.</p> <p>Westinghouse have acknowledged that testing over and above the standard testing required by ASME will be required to underpin the fracture toughness values used in the fracture analyses, however formalised proposals for additional materials testing have not yet been provided.</p> <p>Activities by Westinghouse should comprise:</p> <ul style="list-style-type: none"> • Provide formalised proposals for additional materials testing to underpin the fracture toughness values used in the fracture analyses. • Provide adequate responses to questions arising from ONR assessment of documents submitted during GDA Step 4 or as a result of this Action. <p>With agreement from the Regulator this action may be completed by alternative means.</p>		