

**EDF AND AREVA UK EPR GENERIC DESIGN ASSESSMENT**  
**GDA ISSUE**  
**STEAM GENERATOR TUBE RUPTURE SAFETY CASE**  
**GI-UKEPR-FS-04 REVISION 1**

<b>Technical Area</b>		<b>FAULT STUDIES</b>	
<b>Related Technical Areas</b>		Structural Integrity Human Factors Control and Instrumentation	
<b>GDA Issue Reference</b>	<b>GI-UKEPR-FS-04</b>	<b>GDA Issue Action Reference</b>	<b>GI-UKEPR-FS-04.A1</b>
<b>GDA Issue</b>	The safety case for steam generator tube rupture faults needs revising to incorporate significant design changes identified by EDF and AREVA. The safety case should demonstrate that the proposed detection and management strategy is ALARP and provide justification for the claims on operation actions. If the analysis shows that the proposed strategy is not ALARP, then alternative strategies will need to be developed.		
<b>GDA Issue Action</b>	<p>EDF and AREVA to provide a revised safety case and an ALARP argument to ONR to justify their proposed design to detect and mitigate PCC-3 Steam Generator Tube Ruptures.</p> <p>EDF and AREVA need to provide additional arguments and evidence to justify their design approach for PCC-3 SGTR faults or propose an alternative strategy. Therefore:</p> <ul style="list-style-type: none"> <li>• more information on the safety classification of these manual actions is required and an ALARP argument as to why they cannot be automated is to be provided, or</li> <li>• if an alternative strategy is identified, this similarly needs to be fully justified and substantiated, including new transient analysis.</li> </ul> <p>Any proposed modification arising from the above is to be handled through the agreed process for managing design change in GDA.</p> <p>EDF and AREVA shall update the PCSR and Fault Schedule in accordance with the agreed safety case.</p> <p>With agreement from the Regulator this action may be completed by alternative means.</p>		

## EDF AND AREVA UK EPR GENERIC DESIGN ASSESSMENT

### GDA ISSUE

### STEAM GENERATOR TUBE RUPTURE SAFETY CASE

### GI-UKEPR-FS-04 REVISION 1

<b>Technical Area</b>		<b>FAULT STUDIES</b>	
<b>Related Technical Areas</b>		Structural Integrity Human Factors Control and Instrumentation	
<b>GDA Issue Reference</b>	<b>GI-UKEPR-FS-04</b>	<b>GDA Issue Action Reference</b>	<b>GI-UKEPR-FS-04.A2</b>
<b>GDA Issue Action</b>	<p>EDF and AREVA to provide a detailed human factors justification of the actions claimed in the design basis safety case for the PCC-3 fault.</p> <p>In support of the ALARP case required in Action 1, a detailed human factors justification of any manual actions claimed in the design basis safety case for the PCC-3 fault is to be submitted to ONR-ND.</p> <p>SGTR faults are amongst the most challenging events to ONR's Target 4 for design basis fault sequences because of the potential for radioactive products to be discharged to atmosphere through the main steam relief train. EDF and AREVA have proposed a new mitigation strategy for the PCC-3 fault that departs from the typical UK EPR safety case principle of relying on automatic F1A (Class 1) actions to reach the controlled state. In addition to a manual reactor trip, the current proposals require the operator to perform additional manual actions such as isolation of the affected SG, start of the EFW.</p> <p>With agreement from the Regulator this action may be completed by alternative means.</p>		

**EDF AND AREVA UK EPR GENERIC DESIGN ASSESSMENT  
GDA ISSUE  
STEAM GENERATOR TUBE RUPTURE SAFETY CASE  
GI-UKEPR-FS-04 REVISION 1**

<b>Technical Area</b>		<b>FAULT STUDIES</b>	
<b>Related Technical Areas</b>		Structural Integrity Human Factors Control and Instrumentation	
<b>GDA Issue Reference</b>	<b>GI-UKEPR-FS-04</b>	<b>GDA Issue Action Reference</b>	<b>GI-UKEPR-FS-04.A3</b>
<b>GDA Issue Action</b>	<p>EDF and AREVA to provide transient analysis to show that there is a margin to overfill for the design basis PCC-3 and PCC-4 SGTR faults, with assumptions appropriate for the UK EPR.</p> <p>The UK EPR design has diverged away from the analysis presented in the PCSR to such an extent that new analyses of the PCC-3 2A-SGTR and PCC-4 4A-SGTR events are required to demonstrate there is a margin to overfill and that the long term safe shutdown state can be reached with safety criteria met.</p> <p>EDF and AREVA shall update the PCSR to reflect the revised analysis.</p> <p>With agreement from the Regulator this action may be completed by alternative means.</p>		