

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

SMART DEVICE JUSTIFICATION FOR USE

GI-AP1000-CI-05 REVISION 0

| | | | |
|--------------------------------|--|------------------------------------|---------------------------|
| Technical Area | | CONTROL AND INSTRUMENTATION | |
| Related Technical Areas | | None | |
| GDA Issue Reference | GI-AP1000-CI-05 | GDA Issue Action Reference | GI-AP1000-CI-05.A1 |
| GDA Issue | <p>ONR raised the issue that Westinghouse's approach to SMART devices (i.e. ones containing programmable elements) was not developed; WEC made the proposal for the development of an integrated approach across all technical areas. The response is in principle acceptable but requires implementation and a supporting demonstration of its adequacy. ONR will need to see evidence of the approach actually being implemented through, for example, its application to sample devices at different classes.</p> <p>For further guidance, see T15.TO2.29 in Annex 5 of ONR C&I Assessment Report No. 11/006 (draft).</p> | | |
| GDA Issue Action | <p>Westinghouse to address the ONR comments, provided in the GDA Step 4 report, on the Westinghouse smart device submissions and to provide copies of the procedures (UKP-GW-J0Y- 002, 004 & 005) supporting the justification process (UKP-GW-GLR-017 rev 0) for review.</p> <p>Westinghouse has identified that it is unlikely smart devices will be used in safety equipment within the containment such as the class 1 PMS, they are not expected to tolerate the harsh environmental conditions) but that SMARTs would be used by preference in class 2 and 3 C&I systems and also in other systems including class 1 electrical power systems.</p> <p>ONR drew Westinghouse's attention to chapter 1.15 of the 2010 version of the document 'Licensing of safety critical software for nuclear reactors - Common position of seven European nuclear regulators and authorised technical support organisations' on smarts. Sections 1 and 2 give information on the background, section 3 identifies the common position taken by the organisations, while section 4 identifies recommended practices adopted by the UK Regulator among others. Westinghouse is required to describe its approach to justification of smarts and to demonstrate that it aligns with the identified common positions and recommended practices with justification of any variances. Westinghouse is also aware of the approach developed in the UK as part of the CINIF research programme including the use of the EMPHASIS tool.</p> <p>Westinghouse's proposal is, in principle, acceptable and the detailed review findings on the information presented will be recorded in the GDA Step 4 report. However, to complete the assessment the detailed evidence will need to be reviewed including: the three procedures (UKP-GW-J0Y- 002, 004 & 005) identified in the head document (UKP-GW-GLR-017 rev 0) supplied via letter 000435, and the evidence arising from application</p> | | |

Office for Nuclear Regulation

An agency of HSE

Redgrave Court Merton Road Bootle Merseyside L20 7HS

Tel: 0151 951 4000 www.hse.gov.uk/nuclear

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

SMART DEVICE JUSTIFICATION FOR USE

GI-AP1000-CI-05 REVISION 0

| | | | |
|--------------------------------|---|-----------------------------------|---------------------------|
| Technical Area | CONTROL AND INSTRUMENTATION | | |
| Related Technical Areas | None | | |
| GDA Issue Reference | GI-AP1000-CI-05 | GDA Issue Action Reference | GI-AP1000-CI-05.A1 |
| | of the process to sample devices from the three different classes. The latter are to be agreed with ONR in advance. With agreement from the Regulator this action may be completed by alternative means. | | |

Office for Nuclear Regulation

An agency of HSE

Redgrave Court Merton Road Bootle Merseyside L20 7HS

Tel: 0151 951 4000 www.hse.gov.uk/nuclear

WESTINGHOUSE AP1000® GENERIC DESIGN ASSESSMENT

GDA ISSUE

SMART DEVICE JUSTIFICATION FOR USE

GI-AP1000-CI-05 REVISION 0

| | | | |
|--------------------------------|--|------------------------------------|---------------------------|
| Technical Area | | CONTROL AND INSTRUMENTATION | |
| Related Technical Areas | | None | |
| GDA Issue Reference | GI-AP1000-CI-05 | GDA Issue Action Reference | GI-AP1000-CI-05.A2 |
| GDA Issue Action | Westinghouse to provide the evidence from implementation of their smart device justification process as applied to sample devices agreed with ONR from the three Safety Classes. This is to include the output from implementation of the Westinghouse qualification procedures and completed "NII GDA Technical review – C&I Smart Sensor and Actuators Checklist". With agreement from the Regulator this action may be completed by alternative means. | | |