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

SMART DEVICE JUSTIFICATION FOR USE GI-AP1000-CI-05 REVISION 0

Technical Area		CONTROL AND INSTRUMENTATION			
Related Technical Areas		None			
GI-AP1000-CI-0	5	GDA Issue Action Reference	GI-AP1000-CI-05.A1		
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. For further guidance, see T15.TO2.29 in Annex 5 of ONR C&I Assessment Report No. 11/006 (draft).					
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. 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					
Licensing of safety or European nuclear regulations 1 and 2 give cosition taken by the adopted by the UK Reapproach to justification common positions and Westinghouse is also research programme in Westinghouse's proposition preserved.	R drew Westinghouse's attention to chapter 1.15 of the 2010 version of the document ensing of safety critical software for nuclear reactors - Common position of seven opean nuclear regulators and authorised technical support organisations' on smarts. Stions 1 and 2 give information on the background, section 3 identifies the common tion taken by the organisations, while section 4 identifies recommended practices betted by the UK Regulator among others. Westinghouse is required to describe its roach to justification of smarts and to demonstrate that it aligns with the identified mon positions and recommended practices with justification of any variances. Stinghouse is also aware of the approach developed in the UK as part of the CINIF arch programme including the use of the EMPHASIS tool. Stinghouse's proposal is, in principle, acceptable and the detailed review findings on information presented will be recorded in the GDA Step 4 report. However, to plete the assessment the detailed evidence will need to be reviewed including: the				
	GI-AP1000-CI-O ONR raised the issue containing programma development of an intorinciple acceptable by adequacy. ONR will reference, in 1/006 (draft). Westinghouse to addrewestinghouse smart of GW-JOY- 002, 004 & GOY-OO2, 004 & GOY-OO2, 004 & GOY-OO3, 004 & GO	GI-AP1000-CI-05 ONR raised the issue that a containing programmable elempted by the principle acceptable but required adequacy. ONR will need to through, for example, its application for further guidance, see T15 11/006 (draft). Westinghouse to address the Ovestinghouse smart device suffer a containing of the programmable and a containing and a containin	GI-AP1000-CI-05 GDA Issue Action Reference DNR raised the issue that Westinghouse's approate containing programmable elements) was not developed development of an integrated approach across all terminiciple acceptable but requires implementation and adequacy. ONR will need to see evidence of the apphrough, for example, its application to sample devices. For further guidance, see T15.TO2.29 in Annex 5 of 11/006 (draft). Westinghouse to address the ONR comments, provide Westinghouse smart device submissions and to provide GW-J0Y- 002, 004 & 005) supporting the justification for review. Westinghouse has identified that it is unlikely smate adult of the containment such as the class colerate the harsh environmental conditions) but the preference in class 2 and 3 C&I systems and also indectrical power systems. DNR drew Westinghouse's attention to chapter 1.15 of European nuclear regulators and authorised technical Sections 1 and 2 give information on the background consition taken by the organisations, while section 4 adopted by the UK Regulator among others. Westing approach to justification of smarts and to demonstrate the common positions and recommended practices with Westinghouse is also aware of the approach development of the EMPHAS westinghouse's proposal is, in principle, acceptable as the information presented will be recorded in the CMPHAS westinghouse's proposal is, in principle, acceptable as the information presented will be recorded in the CMPHAS westinghouse's proposal is, in principle, acceptable as the information presented will be recorded in the CMPHAS westinghouse's proposal is, in principle, acceptable as the information presented will be recorded in the CMPHAS westinghouse's proposal is, in principle, acceptable in the information presented will be recorded in the CMPHAS westinghouse's proposal is, in principle, acceptable as the information presented will be recorded in the CMPHAS westinghouse is also aware of the EMPHAS westinghouse's proposal is, in principle, acceptable as the informa		

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TRIM Ref: 2011/369302 Page 1 of 3

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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 agreed with ONR in advance. With agreement from the Regulator this action may be completed by alternative means.				

TRIM Ref: 2011/369302 Page 2 of 3

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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.				

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TRIM Ref: 2011/369302 Page 3 of 3