

Table 7.1-2—I&C System Requirements Matrix
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Applicable Regulations and Guidance	10 CFR 50										
	50.55a(a)(1)	50.55a(h)(3)	50.34(f)(2)(v)	50.34(f)(2)(xi)	50.34(f)(2)(xii)	50.34(f)(2)(xiv)	50.34(f)(2)(xvii)	50.34(f)(2)(xviii)	50.34(f)(2)(xix)	50.34(f)(2)(xx)	50.62
Industry Standard		IEEE Std 603-1991 (1)(2)									
Safety Information and Control System (S)	x	x		x	x		x	x	x	x	
Process Information and Control System (NS-AQ)			x	x	x		x	x	x		
Protection System (S)	x	x	x		x	x		x		x	
Safety Automation System (S)	x	x	x								
Priority and Actuator Control System (S)	x	x	x	x	x	x				x	x
Reactor Control, Surveillance & Limitation System (NS)											
Process Automation System (NS)			x	x	x		x	x	x		
Turbine Generator I&C (NS)											
Control Rod Drive Control System (NS)	x	x	x								
Incore Instrumentation System (S)	x	x	x					x	x		
Excore Instrumentation System (S)	x	x	x						x		
Boron Concentration Measurement System (S)	x	x	x						x		
Radiation Monitoring System (S)	x	x	x			x	x		x		
Hydrogen Monitoring System (NS-AQ)	x	x	x				x		x		
Reactor Pressure Vessel Level Measurement System (NS-AQ)	x	x	x					x	x		
Seismic Monitoring System (NS)											
Loose Parts Monitoring System (NS)											
Vibration Monitoring System (NS)											
Fatigue Monitoring System (NS)											
Leak Detection System (NS)											
Signal Conditioning and Distribution System (S)	x	x	x		x	x	x	x	x	x	x
Diverse Actuation System (NS-AQ)											x
Rod Position Measurement System (S)	x	x									

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Notes on Table 7.1-2; Sheet 1 of 7:

1. With correction sheet dated January 30, 1995.
2. The U.S. EPR uses IEEE Std 603-1998, which meets or exceeds the requirements of IEEE Std 603-1991.

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Applicable Regulations and Guidance	General Design Criteria											
	GDC 1	GDC 2	GDC 4	GDC 10	GDC 13	GDC 15	GDC 16	GDC 19	GDC 20	GDC 21	GDC 22	GDC 23
Industry Standard												
Safety Information and Control System (S)	x	x	x		x			x				
Process Information and Control System (NS-AQ)					x			x				
Protection System (S)	x	x	x	x	x	x	x	x	x	x	x	x
Safety Automation System (S)	x	x	x	x	x							
Priority and Actuator Control System (S)	x	x	x	x	x	x	x	x	x	x	x	x
Reactor Control, Surveillance & Limitation System (NS)				x	x	x						
Process Automation System (NS)				x	x	x		x				
Turbine Generator I&C (NS)					x			x				
Control Rod Drive Control System (NS)	x	x	x	x	x			x				
Incore Instrumentation System (S)	x	x	x	x	x			x	x	x	x	x
Excore Instrumentation System (S)	x	x	x	x	x			x	x	x	x	x
Boron Concentration Measurement System (S)	x	x	x	x	x			x	x	x	x	x
Radiation Monitoring System (S)	x	x	x		x			x	x	x	x	x
Hydrogen Monitoring System (NS-AQ)	x	x	x		x			x				
Reactor Pressure Vessel Level Measurement System (NS-AQ)	x	x	x		x			x				
Seismic Monitoring System (NS)		x			x			x				
Loose Parts Monitoring System (NS)					x			x				
Vibration Monitoring System (NS)					x			x				
Fatigue Monitoring System (NS)					x			x				
Leak Detection System (NS)		x			x			x				
Signal Conditioning and Distribution System (S)	x	x	x	x	x	x	x	x	x	x	x	x
Diverse Actuation System (NS-AQ)					x							
Rod Position Measurement System (S)	x	x	x	x	x			x	x	x	x	x
Notes:												

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Applicable Regulations and Guidance	General Design Criteria										SRM to SECY 93-087 (1, 2, 3)	
	GDC 24	GDC 25	GDC 28	GDC 29	GDC 33	GDC 34	GDC 35	GDC 38	GDC 41	GDC 44	II.Q	II.T
Industry Standard												
Safety Information and Control System (S)											x	x
Process Information and Control System (NS-AQ)												x
Protection System (S)	x	x	x	x	x	x	x	x	x	x		
Safety Automation System (S)					x	x	x	x		x		
Priority and Actuator Control System (S)	x	x			x	x	x	x	x	x	x	
Reactor Control, Surveillance & Limitation System (NS)			x	x								
Process Automation System (NS)			x									
Turbine Generator I&C (NS)												
Control Rod Drive Control System (NS)			x	x								
Incore Instrumentation System (S)	x	x		x								
Excore Instrumentation System (S)	x	x		x								
Boron Concentration Measurement System (S)	x	x		x								
Radiation Monitoring System (S)	x	x		x								
Hydrogen Monitoring System (NS-AQ)												
Reactor Pressure Vessel Level Measurement System (NS-AQ)												
Seismic Monitoring System (NS)												
Loose Parts Monitoring System (NS)												
Vibration Monitoring System (NS)												
Fatigue Monitoring System (NS)												
Leak Detection System (NS)												
Signal Conditioning and Distribution System (S)	x	x	x	x	x	x	x	x	x		x	
Diverse Actuation System (NS-AQ)											x	
Rod Position Measurement System (S)	x	x		x								
<p>Notes: on Table 7.1-2; Sheet 4 of 7</p> <ol style="list-style-type: none"> DAS provides full diverse scram capabilities as described in SECY 90-016 II.A. Interim Staff Guidance DI&C-ISG-02. Generic Letter 85-06. 												

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Applicable Regulations and Guidance	Regulatory Guides											
	1.22	1.47	1.53	1.62	1.75	1.89	1.97	1.100	1.105	1.118		1.152
Industry Standard			IEEE Std 379-2000		IEEE Std 384-1992	IEEE Std 323-1974 (2)	IEEE Std 497-2002	IEEE Std 344-2004	ISA-67.04-1994(1)	IEEE Std 338-1987		IEEE Std 7-4.3.2-2003
Safety Information and Control System (S)	x		x	x	x		x	x		x		x
Process Information and Control System (NS-AQ)		x					x					
Protection System (S)	x	x	x	x	x		x		x	x		x
Safety Automation System (S)		x	x		x	x		x				x
Priority and Actuator Control System (S)	x	x	x	x	x	x	x	x		x		
Reactor Control, Surveillance & Limitation System (NS)												
Process Automation System (NS)		x					x					
Turbine Generator I&C (NS)												
Control Rod Drive Control System (NS)	x	x	x	x	x							
Incore Instrumentation System (S)	x	x	x		x		x					
Excore Instrumentation System (S)	x	x	x		x		x					
Boron Concentration Measurement System (S)	x	x	x		x							
Radiation Monitoring System (S)	x	x	x		x							
Hydrogen Monitoring System (NS-AQ)		x	x		x							
Reactor Pressure Vessel Level Measurement System (NS-AQ)		x	x		x		x					
Seismic Monitoring System (NS)												
Loose Parts Monitoring System (NS)												
Vibration Monitoring System (NS)												
Fatigue Monitoring System (NS)												
Leak Detection System (NS)												
Signal Conditioning and Distribution System (S)	x	x	x		x	x	x	x		x		
Diverse Actuation System (NS-AQ)												
Rod Position Measurement System (S)	x	x	x		x							x

Notes: on Table 7.1-2; Sheet 5 of 7

- U.S. EPR follows ISA-67.04.01-2006.
- The U.S. EPR uses IEEE Std 323-2003, which meets or exceeds the requirements of IEEE Std 323-1974.

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Applicable Regulations and Guidance	Regulatory Guides									
	1.168	1.169	1.170	1.171	1.172	1.173	1.180	1.189	1.204	1.209
Industry Standard	IEEE Std 1012-1998 IEEE Std 1028-1997	IEEE Std 828-1990 IEEE Std 1042-1987	IEEE Std 829- 1983	IEEE Std 1008-1987	IEEE Std 830- 1993	IEEE Std 1074-1995	Various Standards		IEEE Std 1050-1996	IEEE Std 323-2003
Safety Information and Control System (S)	x	x	x	x	x	x	x	x	x	x
Process Information and Control System (NS-AQ)								x		
Protection System (S)	x	x	x	x	x	x	x	x	x	x
Safety Automation System (S)	x	x	x	x	x	x	x		x	x
Priority and Actuator Control System (S)							x	x	x	
Reactor Control, Surveillance & Limitation System (NS)										
Process Automation System (NS)								x		
Turbine Generator I&C (NS)										
Control Rod Drive Control System (NS)							x		x	
Incore Instrumentation System (S)							x		x	
Excore Instrumentation System (S)							x	x	x	
Boron Concentration Measurement System (S)							x		x	
Radiation Monitoring System (S)							x		x	
Hydrogen Monitoring System (NS-AQ)							x		x	
Reactor Pressure Vessel Level Measurement System (NS-AQ)							x		x	
Seismic Monitoring System (NS)										
Loose Parts Monitoring System (NS)										
Vibration Monitoring System (NS)										
Fatigue Monitoring System (NS)										
Leak Detection System (NS)										
Signal Conditioning and Distribution System (S)							x	x	x	
Diverse Actuation System (NS-AQ)										
Rod Position Measurement System (S)	x	x	x	x	x	x	x		x	x
Notes:										

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Applicable Regulations and Guidance	Branch Technical Positions															
	7-1	7-2	7-3	7-4	7-5	7-8	7-9	7-10	7-11	7-12	7-13	7-14	7-17	7-18	7-19	7-21
Industry Standard																
Safety Information and Control System (S)		x				x		x	x			x		x	x	x
Process Information and Control System (NS-AQ)		x						x								
Protection System (S)	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x
Safety Automation System (S)									x			x	x	x		x
Priority and Actuator Control System (S)	x	x		x		x		x	x				x		x	
Reactor Control, Surveillance & Limitation System (NS)					x											
Process Automation System (NS)								x							x	
Turbine Generator I&C (NS)															x	
Control Rod Drive Control System (NS)					x				x							
Incore Instrumentation System (S)						x		x	x							
Excore Instrumentation System (S)						x		x	x							
Boron Concentration Measurement System (S)						x			x							
Radiation Monitoring System (S)						x		x	x							
Hydrogen Monitoring System (NS-AQ)									x							
Reactor Pressure Vessel Level Measurement System (NS-AQ)									x							
Seismic Monitoring System (NS)																
Loose Parts Monitoring System (NS)																
Vibration Monitoring System (NS)																
Fatigue Monitoring System (NS)																
Leak Detection System (NS)																
Signal Conditioning and Distribution System (S)	x	x		x	x	x	x	x	x		x				x	
Diverse Actuation System (NS-AQ)															x	
Rod Position Measurement System (S)					x				x			x	x	x		x
Notes:																