

Table 7.1-2—I&C System Requirements Matrix
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| Applicable Regulations and Guidance | 10 CFR Part 50 | | | | | | | | | | | |
|--|----------------|--------------------------|--------------------------|----------------|-----------------|------------------|------------------|-------------------|--------------------|------------------|-----------------|-------|
| | 50.55a(a)(1) | 50.55a(h)(2) | 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) | 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) | | | | x | x | | | x | x | x | | |
| Protection System (S) | x | x | x | x | | x | x | x | | x | x | |
| Safety Automation System (S) | x | | x | x | x | x | | x | x | x | | |
| Priority and Actuator Control System (S) | x | | x | x | | x | x | | | x | x | x |
| Severe Accident I&C (NS) | | | | | | | | | | x | | |
| Reactor Control, Surveillance & Limitation System (NS) | | | | | | | | | | | | |
| Process Automation System (NS) | | | | 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 | x | | |
| Excore Instrumentation System (S) | x | x | x | x | | | | | | x | | |
| Boron Concentration Measurement System (S) | x | x | x | x | | | | | | x | | |
| Radiation Monitoring System (S) | x | x | x | x | | | x | x | | x | | |
| Hydrogen Monitoring System (S) | x | | x | x | | | | x | | x | | |
| Reactor Pressure Vessel Level Measurement System (S) | 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) | | | | | | | | | | | | |

**Table 7.1-2—I&C System Requirements Matrix
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Notes on Tables 7.1-2; Sheet 2 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.

Table 7.1-2—I&C System Requirements Matrix
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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) | | | | | 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 | x | | x | | | | |
| Priority and Actuator Control System (S) | x | x | x | | x | x | x | x | | | | |
| Severe Accident I&C (NS) | | | | | 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 (S) | x | x | x | | x | | | x | | | | |
| Reactor Pressure Vessel Level Measurement System (S) | 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 | | | | |
| Notes: | | | | | | | | | | | | |

Table 7.1-2—I&C System Requirements Matrix
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| Applicable Regulations and Guidance | General Design Criteria | | | | | | | | | | SRM to SECY 93-087 | |
|--|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|------|
| | 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) | | | | | | | | | | | X | X |
| Protection System (S) | X | 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 | |
| Severe Accident I&C (NS) | | | | | | | | | X | | | |
| Reactor Control, Surveillance & Limitation System (NS) | X | | X | X | | | | | | | | |
| Process Automation System (NS) | X | | | | X | | | | | | 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 (S) | | | | | | | | | | | | |
| Reactor Pressure Vessel Level Measurement System (S) | | | | | | | | | | | | |
| Seismic Monitoring System (NS) | | | | | | | | | | | | |
| Loose Parts Monitoring System (NS) | | | | | | | | | | | | |
| Vibration Monitoring System (NS) | | | | | | | | | | | | |
| Fatigue Monitoring System (NS) | | | | | | | | | | | | |
| Leak Detection System (NS) | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | |

Table 7.1-2—I&C System Requirements Matrix
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| Applicable Regulations and Guidance | Regulatory Guides | | | | | | | | | |
|--|-------------------|------|-------------------|------|-------------------|-------------------|--------------------|-------------------|-----------------|-----------------------|
| | 1.22 | 1.47 | 1.53 | 1.62 | 1.75 | 1.97 | 1.105 | 1.118 | 1.151 | 1.152 |
| Industry Standard | | | IEEE Std 379-2000 | | IEEE Std 384-1992 | IEEE Std 497-2002 | ISA-67.04-1994 (1) | IEEE Std 338-1987 | ISA-S67.02-1980 | IEEE Std 7-4.3.2-2003 |
| Safety Information and Control System (S) | | x | x | x | x | x | | | | x |
| Process Information and Control System (NS) | | x | | | | 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 | | |
| Severe Accident I&C (NS) | | | | | | | | | | |
| Reactor Control, Surveillance & Limitation System (NS) | | | | | | | | | x | |
| Process Automation System (NS) | | x | | | | 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 | x | | | | |
| Radiation Monitoring System (S) | x | x | x | | x | x | | | | |
| Hydrogen Monitoring System (S) | | x | x | | x | x | | | x | |
| Reactor Pressure Vessel Level Measurement System (S) | | 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) | | | | | | | | | | |

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

1. U.S. EPR follows ISA-67.04.01-2006.

Table 7.1-2—I&C System Requirements Matrix
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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 (1) | 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) | | | | | | | | 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 | x |
| Priority and Actuator Control System (S) | | | | | | | x | x | x | |
| Severe Accident I&C (NS) | | | | | | | | | | |
| 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 (S) | | | | | | | x | | x | |
| Reactor Pressure Vessel Level Measurement System (S) | | | | | | | x | | x | |
| Seismic Monitoring System (NS) | | | | | | | | | | |
| Loose Parts Monitoring System (NS) | | | | | | | | | | |
| Vibration Monitoring System (NS) | | | | | | | | | | |
| Fatigue Monitoring System (NS) | | | | | | | | | | |
| Leak Detection System (NS) | | | | | | | | | | |
| Notes on Table 7.1.2: Sheet 6 of 7: | | | | | | | | | | |
| 1. The U.S. EPR follows IEEE Std 1074-1997 | | | | | | | | | | |

Table 7.1-2—I&C System Requirements Matrix
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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 |
| Process Information and Control System (NS) | | x | | | | | | x | | | | | | | x | |
| Protection System (S) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Safety Automation System (S) | | | | x | | | | x | x | | | x | | x | x | x |
| Priority and Actuator Control System (S) | x | x | | x | | x | | x | x | | | | x | | x | |
| Severe Accident I&C (NS) | | | | | | | | | | | | | | | | |
| Reactor Control, Surveillance & Limitation System (NS) | | | | | x | | | | | | | | | | | |
| Process Automation System (NS) | | | | | | | | x | | | | | | | 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 (S) | | | | | | | | x | x | | | | | | | |
| Reactor Pressure Vessel Level Measurement System (S) | | | | | | | | x | x | | | | | | | |
| Seismic Monitoring System (NS) | | | | | | | | | | | | | | | | |
| Loose Parts Monitoring System (NS) | | | | | | | | | | | | | | | | |
| Vibration Monitoring System (NS) | | | | | | | | | | | | | | | | |
| Fatigue Monitoring System (NS) | | | | | | | | | | | | | | | | |
| Leak Detection System (NS) | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | | | | | |