

Table 7.1-2—I&C System Requirements Matrix  
Sheet 1 of 7

| 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  
Sheet 2 of 7**

**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  
Sheet 3 of 7

| 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      |        |        |        |        |
| <b>Notes:</b>  |                         |       |       |        |        |        |        |        |        |        |        |        |

Table 7.1-2—I&C System Requirements Matrix  
Sheet 4 of 7

| 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 |
| <b>Industry Standard</b>                               |                         |        |        |        |        |        |        |        |        |        |                    |      |
| 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)                             |                         |        |        |        |        |        |        |        |        |        |                    |      |
| <b>Notes:</b>  |                         |        |        |        |        |        |        |        |        |        |                    |      |

Table 7.1-2—I&C System Requirements Matrix  
Sheet 5 of 7

| 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  
Sheet 6 of 7

| 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<br>IEEE Std 1028-1997 | IEEE Std 828-1990<br>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)                             |  |   |                   |                    |                   |                        |                   |       |                    |                   |
| <b>Notes on Table 7.1.2: Sheet 6 of 7:</b>             |  |   |                   |                    |                   |                        |                   |       |                    |                   |
| 1. The U.S. EPR follows IEEE Std 1074-1997             |  |   |                   |                    |                   |                        |                   |       |                    |                   |

Table 7.1-2—I&C System Requirements Matrix  
Sheet 7 of 7

| 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 |
| <b>Industry Standard</b>                               |                            |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |
| 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)                             |                            |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |
| <b>Notes:</b>  |                            |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |