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3.11 Environmental Qualification of Mechanical and Electrical Equipment

This section presents the APR1400 approach for selecting and identifying equipment required to be environmentally designed and qualified.

Mechanical, electrical, and I&C including digital I&C equipment is qualified to meet its performance requirements under the environmental and operating conditions in which the equipment is required to function and for the length of time for which its function is required,

The APR1400 complies with the requirements of 10 CFR 50, Appendix A, GDCs 1, 2, 4, and 23; 10 CFR 50, Appendix B, Quality Assurance Criteria III, XI, and XVII; and 10CFR 50.49.

The implementation of the APR1400 Equipment Qualification Program (EQP) is described in the KHNP Technical Report titled, the APR1400 Equipment Qualification Program (Reference 1). Seismic qualification of the equipment is described in Section 3.10 and the APR1400 EQP in detail.

3.11.1 Equipment Location and Environmental Conditions

3.11.1.1 Equipment Identification and Location

Mechanical, electrical, and I&C, including digital I&C, equipment for the environmental qualification are as follows:

- a. Equipment associated with systems that are essential for emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or otherwise essential in preventing significant release of radioactive material to the environment
- b. Equipment that initiates the above functions automatically
- c. Equipment that is used by the operators to initiate the above functions manually

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- d. Equipment whose failure can prevent the satisfactory accomplishment of one or more of the above safety functions
- e. Electrical equipment important to safety, as described in 10 CFR 50.49(b)(1) and (2)
- f. Certain post-accident monitoring equipment, as described in 10 CFR 50.49(b)(3) and NRC RG 1.97.

The equipment for the environmental qualification is identified in Table 3.11-3. The COL applicant is to identify and qualify the site-specific mechanical, electrical, I&C, and PAM equipment (COL 3.11(1)).

3.11.1.2 Definition of Environmental Conditions

The environmental conditions under which the equipment performs its design safety functions include all normal, anticipated operational occurrences (AOO), accident, and post-accident conditions due to design base events (DBE), and are defined as follows:

- a. Normal condition

The environmental conditions expected during normal plant operation with systems operating normally.

- b. Anticipated operational occurrence condition

The limiting environmental conditions expected following an event or transient which is not a normal operating condition but is not considered as an accident.

- c. Accident condition

The environmental conditions that would occur during a loss of coolant accident (LOCA), main steam line break (MSLB), and high energy line break (HELB).

- d. Post-accident condition

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The environmental conditions expected following design basis accident.

The environmental parameters such as temperature, pressure, relative humidity, radiation, and chemical spray, applicable to environmental conditions for various locations throughout the plant are provided in Figure 3.11-1, Table 3.11-2, and the APR1400 EQP.

The actual service conditions for the plant equipment are divided into harsh and mild environments.

a. Harsh environment

An environment that experiences a significant increase in pressure, temperature, relative humidity, or chemical environment as a result of a design basis accident, or that is predicted to experience a total integrated dose (TID) of greater than 100 Gy. In electronic components such as semiconductors, the total integrated dose is greater than 10 Gy. Detailed information is included in the APR1400 EQP.

b. Mild environment

An environment that would at no time be significantly more severe than the environment that would occur during normal plant operation including anticipated operational occurrences. Any area that is not a harsh environment is a mild environment.

3.11.1.3 Equipment Operability Times

The length of time that each item of equipment is required to operate in the accident environment is identified in Table 3.11-3, and defined as follows:

a. Continuous

Component is required to operate throughout the design basis accident without interruption (i.e., up to six months).

b. Short-term

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Component is required to operate one time during the design basis accident (i.e., approximately a few seconds up to a few hours depending on the component and the event).

c. Intermittent

Component is capable of operating throughout the design basis accident (i.e., up to six months), starting and stopping on an as-needed basis.

d. Varies

Component is capable of operating throughout the design basis accident (up to six months) depending on the situation, but it is not needed if something else can perform the same task.

3.11.2 Qualification Tests and Analyses

Environmental qualification of Class 1E equipment is in accordance with the requirements of 10 CFR 50.49, NRC RG 1.89 (Reference 2), and IEEE Std. 323 (Reference 3). Equipment qualification standards that are available are also compiled with.

A description of the qualification method is contained in a qualification report for each type of equipment. The qualification method encompasses appropriate combinations of any or all of the type testing, operating experience, and analysis.

The typical approach used for the qualification of equipment potentially exposed to a harsh environment is as follows:

- a. Evaluate the equipment life capability according to the planned design life service exposure to normal and abnormal environmental conditions plus the worst case accident exposure condition.
- b. Use the Arrhenius methodology on weak link materials if test data exist to derive the qualified life indicated above item.

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Environmental qualification of mechanical equipment complies with GDCs 1 and 4, and 10 CFR 50, Appendix B, Criteria III and XVII, and includes the following:

- a. Identification of safety-related mechanical equipment located in harsh environments, including required operating times
- b. Identification of non-metallic subcomponents of this equipment
- c. Identification of the environmental conditions for which this equipment must be qualified Identification of non-metallic material capabilities
- e. Evaluation of environmental effects

3.11.2.1 Environmental Qualification during Normal Operation

Equipment which, due to its location, is not significantly affected environmentally by the DBA is said to exist in a mild (normal plus abnormal service conditions) environment. For the qualification of both electrical and mechanical equipment in a mild environment, a qualified life is not required if no significant aging mechanism in mild conditions is identified in accordance with IEEE Std. 323. If the predicted life based on experience, aging analysis, or tests is less than the design life of the plant, that equipment is subjected to a surveillance program and a preventative maintenance program that restores it to qualified operability. The detailed maintenance or surveillance program for specific plants is to be developed based on the specific equipment for the APR1400 and the results of qualification testing and analysis for that equipment.

The ranges of the design temperatures, pressures, relative humidity, and radiation for typical mild environment areas in which safety-related equipment is located are provided in the Table 3.11-1.

3.11.2.2 Environmental Qualification during and after a Design Basis Accident

Equipment located in harsh environments is designed to remain functional in the environment that exists at the equipment location, for the length of time during and after the DBA for which it is required to be functional, and for the integrated radiation dose during

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normal operation. The temperature, pressure, and humidity environment inside the containment after a LOCA and MSLB is discussed in detail in Subsections 6.2.1.3 and 6.2.1.4. The containment spray characteristics are given in Subsection 6.2.2.1. The worst case integrated post accident radiation dose for those areas at which equipment is located is provided in Table 3.11-1.

10 CFR 50, Appendix A, GDCs 1, 4, 23, and 50 are met as discussed in Subsections 3.1.1, 3.1.4, 3.1.19, and 3.1.43 & 6.2.1, respectively.

The requirements of 10 CFR 50, Appendix B, Quality Assurance Criterion III, are met as discussed in Section 17.5.

The recommendations contained in NRC RGs 1.40, 1.63, 1.73 (References 4, 5, and 6), NRC RG 1.89, and RGs 1.97, 1.156, 1.158, 1.180, 1.183, 1.209, 1.210, 1.211, 1.213 (References 8 through 15) are utilized.

Passive pressure boundary components inside the containment are designed for the appropriate temperature and pressure environment in accordance with the applicable code to which the component is constructed. The environmental qualification testing is not considered necessary for such components.

The materials used in the fabrication of mechanical and structural components inside the containment are selected so as to minimize corrosion and hydrogen generation resulting from contact with spray solutions. The use of aluminum and zinc is minimized in these components.

3.11.2.3 Environmental Qualification Method

a. Qualification by test

Qualification testing is performed on actual equipment to stimulate normal, abnormal, and accident conditions. While testing, the specimen is subjected to accelerated aging. Synergistic effects are considered in the aging program where synergistic effects have been identified on materials that are included in the equipment being qualified. When size or other practical requirements limit or

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preclude the type testing, this part of demonstration is completed by use of operating experience, analysis of partial type test data, or combinations of these qualification.

b. Qualification by analysis

If qualification documentation for other equipment is available, it is reviewed to determine if the qualified equipment is similar to that being procured. If the former is enveloped by the latter, then an analysis to determine qualification life is performed using the existing data.

c. Qualification by operating experience

Qualification of equipment using operating experience is used in combination with supporting documentation as a basis for environmental qualification if certification of compliance by the vendor is not feasible. This type of qualification may be used for equipment for which testing is not feasible due to the equipment physical size. This evaluation is performed using similar equipment with a successful operating history in a service environment equal to or more severe than the environment for the equipment in question. The validity of operating experience as a means of qualification is determined from the type and amount of available supporting documentation, the service conditions, and equipment performance.

d. Combined qualification

Combined qualification is used for any equipment which cannot be qualified through a full type test. Combined qualification usually entails type test, previous operating experience, and analysis. Partial type tests with extrapolation or analysis, operating experience with extrapolation or analysis, and type tests supplemented with tests of components and analysis are examples of combined qualification. The qualification program for the emergency diesel generator utilizes a combined qualification technique.

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Aging for harsh environment equipment

Equipment which is located in zones susceptible to a harsh environment is also exposed to a mild environment before DBA. Such equipment undergoes an aging analysis that focuses on the identification of aging mechanisms that significantly increase the equipment's susceptibility to DBA. If no known significant aging mechanisms are found, a surveillance or preventive maintenance program is developed to monitor for degradation. If an aging mechanism is found that is known to significantly degrade the equipment, that mechanism is analyzed to determine whether an accelerated aging program or a periodic part replacement program is appropriate.

Radiation for harsh and non-harsh environment equipment

Equipment is designed for the types and levels of radiation associated with its location. The design includes the normal operation contribution plus the radiation associated with the limiting DBA for which the equipment is required to be functional and for the duration of time both during and after the accident for which it is required to be operational. The levels which are defined in Table 3.11-2 are the worst case values and are intended to represent an upper bound dose value for that region.

Equipment which is exposed to radiation more than 100 Gy, exceeding 10 Gy for electronic equipment, is irradiated to its anticipated TID before type testing unless determined by analysis that radiation does not affect its ability to perform its required function. Where the application of the accident dose is planned during DBA testing, it need not be included during the aging process.

A TID of 100 Gy or less, not exceeding 10 Gy for electronic equipment, does not affect the strength or properties of material used. Therefore, further qualification analysis and tests for components that are exposed to lesser radiation are not necessary.

Mechanical and electrical equipment are qualified to appropriate radiation environments as discussed previously. If more than one type of radiation is significant, the radiation types such as gamma, beta, or neutron may be applied separately.

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Gamma

Safety-related equipment is tested to gamma radiation levels developed. Upper bound dose values for various plant regions are provided in Table 3.11-2.

Beta

Equipment exposed to beta radiation is identified, and an analysis is performed to determine whether the operability of the equipment is affected by beta radiation ionization and heating effects. Qualification is performed by test unless analysis demonstrates that the safety function is not degraded by beta exposure. Equipment is tested or analyzed to the beta radiation levels defined in Table 3.11-2. Where testing is recommended, a gamma equivalent radiation source is used.

Neutron

Equipment exposed to neutron radiation is identified and neutron radiation levels defined. When actual neutron dose qualification testing is not performed, an equivalent gamma radiation dose is used for qualification testing to simulate neutron exposure. The basis for establishing an equivalent gamma radiation dose is provided in Table 3.11-2.

Chemical spray

After a postulated accident, such as a LOCA or MSLB, components located in the reactor containment building are exposed to a chemical spray. Equipment is environmentally tested to these conditions, and performance requirements are demonstrated during and after the test. The most severe spray composition is determined by single failure analysis of the spray system. Corrosion effects due to long term exposure are addressed, as appropriate.

Where qualification for a chemical spray environment is required, the simulated spray is initiated.

Typical values of chemical spray composition, concentration and pH are defined in Table 3.11-2.

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Humidity

Equipment that is adversely affected by a high humidity environment and required to operate in a high humidity environment but not subjected to a steam environment during DBA testing is environmentally qualified by type test. The equipment is performance tested before the application of the high humidity environment to establish a baseline; then retested while exposed to a humid environment that envelopes the required humidity condition; and again re-tested after removal of the high humidity environment for comparison to the original baseline measurement. The comparison of the baseline tests determine if any degradation is present and ensures that operability criteria are met. Equipment that is subjected to steam environments is subjected to the appropriate test profiles.

Submergence

Equipment locations and operability requirements are reviewed to establish whether or not specific equipment could be subject to submergence during its required operating time.

Flood levels both inside and outside containment are reviewed and potential impacts on equipment qualification are appropriately addressed. Equipment which is required to operate under water is qualified by type test.

Power Supply Voltage and Frequency Variation

Power supply voltage and frequency variation is addressed in the equipment design and verification process. During the design process, the range of power supply variation is determined. Equipment specifications incorporate the ranges to ensure acceptable operation. Type testing of the equipment at the extremes of power supply variations is performed if required.

Synergistic effects

Synergistic effects are evaluated to verify that these effects do not adversely affect the qualification of the mechanical, electrical, and I&C equipment, as required in accordance with 10 CFR 50.49(e)(7).

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Electromagnetic interference and radio-frequency interference

Testing for electromagnetic interference and radio-frequency interference (EMI/RFI) and power surges is performed with the guidance of NRC RG 1.180.

3.11.3 Qualification Test Results

The COL applicant is to document the qualification test results and qualification status in an auditable file for each type of equipment in accordance with the requirements 10 CFR 50.49(j) (COL 3.11(2)). Because EQP is an operational program, the COL applicant is to describe the EQP and its implementation milestones based on the APR1400 EQP (COL 3.11(3)).

3.11.3.1 Electrical and I&C Equipment

A list of the instrumentation and electrical equipment required to achieve safe shutdown or mitigate the effect of a DBA is presented in Table 3.11-3. Required equipment that is potentially exposed to harsh environments during an event is environmentally qualified. This includes the equipment that acts to safely shutdown the reactor, provides adequate core cooling, isolates the containment, provides residual heat removal, and precludes uncontrolled release of radioactive effluents. The results of qualification testing and analysis for Class 1E equipment are described in their qualification reports.

3.11.3.2 Mechanical Equipment

Mechanical equipment is relatively insensitive to environmental conditions considering that service conditions usually far exceed environmental conditions. For mechanical equipment the service requirements and the environmental requirements are defined in the design specification. Materials are selected based on extensive testing and long time service which is compatible with the requirements. Quality assurance of design and quality control of processes assure that the component meets the specification requirements. Further, the design and manufacturing organizations certify compliance. In-service surveillance and maintenance programs, followed by refurbishment or replacement of parts if necessary, are further assurance that the safety equipment remains operable.

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The evaluation of environmental adequacy of equipment is initiated by the full definition of environmental requirements in equipment specifications, as stated above. Test reports and analyses which substantiate operability after exposure to the environment, and the quality assurance documentation, are to be filed by an operator.

The results of environmental qualifications are included as a part of the equipment qualification reports. These reports are used to establish the maintenance and repair plan for the equipment and procurement of the parts for the life of the plant. If the components are replaced or qualified by other methods, the reports should be traceable.

3.11.4 Loss of Ventilation

The need for the HVAC systems and the design bases which prevent the loss of safety related ventilation are described in Sections 6.4 and 9.4. The two division concept provides 100 percent redundancy of all safety related equipment and the HVAC system. In event of a failure of one system to deliver the desired conditioned air, the second system is energized automatically in its place. This changeover is also designed to be achieved manually.

All of the areas that are designed with HVAC listed in Table 3.11-1 are cooled with chilled water which provides a reasonable assurance of a temperature level below that for which the equipment is qualified. Therefore, temperature switches are provided in each room.

The vital instrument and equipment in the MCR, Class 1E switchgear room, battery room, and remote shutdown console room are served with 100 percent redundancy of the HVAC unit in one division.

The containment has standby cooling and ventilation equipment for each of the component parts of the ventilation system to maintain normal equipment qualification conditions. The containment ventilation systems are not credited in maintaining post-accident environmental conditions.

The chilled water system is divided into two circuits, non-essential and essential, in each division. A chiller and pump serve the safety related cubicle coolers in each division.

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The chilled water temperature in the essential circuit ranges from 5.5 °C to 11 °C (42 °F to 52 °F) which provides humidity and temperature control.

Class 1E equipment which is located in the MCR or similar areas includes the following:

- a. Plant protection system (PPS)
- b. Main control panels
- c. Auxiliary process cabinet (APC)

Other instrumentation, such as process transmitters and signal converters and the reactor trip switchgear system circuit breakers is located in the auxiliary building or containment building. Equipment in these areas is qualified for the maximum expected temperature, radiation, humidity, and pressure under which and the duration both during and following the accident for which the equipment is expected to be functional.

3.11.5 Estimate Chemical and Radiation Environment

3.11.5.1 Chemical Environment

After a postulated accident, such as the LOCA or MSLB, components located in the reactor containment building are exposed to chemical spray. Equipment is environmentally tested to these conditions, and performance requirements are demonstrated during and after the test. The most severe spray composition is determined by single failure analysis of the spray system. Corrosion effects due to long-term exposure are addressed, as appropriate. The components of engineered safety features (ESF) inside the containment are designed to perform their safety-related functions in a chemical environment resulting from the boric acid recirculated through the safety injection system (SIS) and containment spray system (CSS). The SIS and CSS are designed to perform their functions under the conditions of the maximum and long term boric acid concentration and pH. These chemical environment conditions are provided in Table 3.11-2.

3.11.5.2 Radiation Environment

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Safety-related components are designed to ensure acceptable performance, taking into consideration normal operational radiation exposure in addition to the single most adverse post-accident environment for which they are required to be functional.

The radiation qualifications for individual safety-related components are developed based on:

- a. the radiation environment expected at the component location from equipment installation up to the time the equipment is required to remain functional postaccident, and
- b. the limiting DBA for which the component provides a safety function.

The components in the ESF and the reactor protection systems are designed to ensure acceptable performance under normal operational radiation exposure in addition to the single most adverse post-accident environment. The normal operational exposures are based on the design source terms presented in Section 11.1.

In accordance with NRC RG 1.89, the source terms based on 1 percent fuel defect are used to calculate the TID during normal operation. The TID is calculated at a distance of 30.48 cm (1 ft) away from the equipment surface, and 60 years of continuous operation at full power is assumed.

For the equipment used only during the refueling operation, the TID is calculated assuming that the radiation sources affect the equipment only during the refueling period. A one month duration refueling period is assumed for every 18 months of normal operation. Therefore, the TID is calculated based on 40 months of refueling operation during the plant life of 60 years. An additional safety margin of 20 percent is applied to the normal TID considering the potential contribution of radiation from adjacent cubicles.

Radiation environments for the components for which the most adverse accident conditions are post-LOCA, are based on the source term assumptions consistent with NRC RG 1.183. Radiation environments for the components for which the most adverse accident conditions are other than the LOCA, such as main steam line break, feedwater line break, or CEA

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ejection, are based on conservative estimates of the fuel assembly gap activities and maximum reactor coolant specific activities as discussed in Section 11.1.

Post-accident ESF system and component radiation exposures are dependent on equipment location. In the containment and control room area, exposures are based on a postulated design basis LOCA. Source terms and other accident parameters are presented in Subsection 12.2.2 and Chapter 15 and are consistent with the recommendations of NRC RG 1.183.

In the auxiliary building, exposures are based on the assumption that significant portion of the core fission product inventory are recirculated in the containment sump water plus other post-accident airborne radioactivities as presented in Table 12.2-20. In the fuel handling area, exposures are based on a fuel handling accident. Source terms and other accident parameters are presented in Chapter 15.

Organic materials that are within the containment are identified in Subsection 6.1.2. The design radiation exposures are based on gamma and beta radiation.

Equipment is designed for the types and levels of radiation associated with its location. The design includes the normal operation contribution plus the radiation associated with the limiting DBA for which the equipment is required to be functional and for the duration of time both during and after the accident for which it is required to be operational.

Equipment that is exposed to radiation of more than 100 Gy, exceeding 10 Gy for electronic equipment, is irradiated to its anticipated TID prior to type testing unless determined by analysis that the radiation does not affect its ability to perform its required function. Where the application of the accident dose is planned during DBA testing, it is not included during the aging process. A total integrated dose of 100 Gy or less, not exceeding 10 Gy for electronic equipment, does not affect the strength or properties of material used. Therefore, further qualification analysis and tests for components that are exposed to lesser radiation are not necessary.

Mechanical and electrical equipment are qualified to appropriate radiation environments. If more than one type of radiation is significant, the radiation types such as gamma, beta, or neutron may be applied separately.

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With respect to the thermal conductivity degradation (TCD) effect of fuel pellets on the EQ of safety related equipment in containment, the increased containment pressure and temperature are estimated to be negligible. The detailed description of the TCD effects on the containment integrity is provided in Reference 16.

3.11.6 Qualification of Mechanical Equipment

The qualification of mechanical equipment is included in Subsection 3.11.3.

3.11.7 Combined License Information

COL 3.11(1) The COL applicant is to identify and qualify the site-specific mechanical, electrical, I&C, and PAM equipment.

COL 3.11(2) The COL applicant is to document the qualification test results and qualification status in an auditable file for each type of equipment in accordance with the requirements 10 CFR 50.49(j).

COL 3.11(3) The COL applicant is to describe the EQP implementation milestones based on the APR1400 EQP.

3.11.8 References

1. APR1400-E-E-NR-12001-P, “APR1400 Equipment Qualification Program,” September 2013.
2. NRC RG 1.89, “Environmental Qualification of Certain Electrical Equipment Important to Safety for Nuclear Power Plants,” Revision 1, June 1984.
3. IEEE Std. 323, “IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations,” 2003.
4. NRC RG 1.40, “Qualification of Continuous Duty Safety-Related Motors for Nuclear Power Plants,” Revision 1, February 2010.
5. NRC RG 1.63, “Electric Penetration Assemblies in Containment Structures for Nuclear Power Plants,” Revision 3, February 1987.

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6. NRC RG 1.73, “Qualification Tests of Electric Valve Operators Installed Inside the Containment of Nuclear Power Plants,” January 1974.
7. NRC RG 1.97, “Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants,” U.S. Nuclear Regulatory Commission, Revision 4, June 2006.
8. NRC RG 1.156, “Qualification of Connection Assemblies for Nuclear Power Plants,” Revision 1, July 2011.
9. NRC RG 1.158, “Qualification of Safety-Related Lead Storage Batteries for Nuclear Power Plants,” February 1989.
10. NRC RG 1.180, “Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems,” Revision 1, October 2003.
11. NRC RG 1.183, “Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors,” July 2000.
12. NRC RG 1.209, “Guidelines for Environmental Qualification of Safety-Related Computer-Based Instrumentation and Control Systems in Nuclear Power Plants,” March 2007.
13. NRC RG 1.210, “Qualification of Safety-Related Battery Chargers and Inverters for Nuclear Power Plants,” June 2008.
14. NRC RG 1.211, “Qualification of Safety-Related Cables and Field Splices for Nuclear Power Plants,” April 2009.
15. NRC RG 1.213, “Qualification of Safety-Related Motor Control Centers for Nuclear Power Plants,” May 2009.
16. APR1400-F-A-NR-13003-P, “Evaluation of Fuel Pellet Thermal Conductivity Degradation (TCD) for APR1400,” September 2013.
17. ASME QME-1, “Qualification of Active Mechanical Equipment Used in Nuclear Power Plants,” 2007.

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18. NRC RG 1.100, "Seismic Qualification of Electrical and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants," Revision 3, September 2009.
19. NRC RG 1.151, "Instrument Sensing Lines," Revision 1, July 2010.
20. NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," U.S. Nuclear Regulatory Commission, November 1979.
21. NUREG-1465, "Accident Source Terms for Light-Water Nuclear Power Plants," February 1995.
22. EPRI-TR-102323, "Guidelines for Electromagnetic Interference Testing for Power Plants," Electric Power research Institute, Revision 3, 2004.
23. IEEE Std. C37.82, "IEEE Standard for the Qualification of Switchgear Assemblies for Class 1E Applications in Nuclear Power Generating Stations," 1987(R2004).
24. IEEE Std. C37.105, "IEEE Standard for Qualifying Class 1E Protective Relays and Auxiliaries for Nuclear Power Generating Stations," 1987(R1999).
25. IEEE Std. 7-4.3.2, "IEEE Standard Criteria for Digital Computers in Safety Systems of Nuclear Power Generating Stations," 2003.
26. IEEE Std. 317, "IEEE Standard for Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations," 1983(R2003).
27. IEEE Std. 334, "IEEE Standard for Qualifying Continuous-Duty Class 1E Motors for Nuclear Power Generating Stations," 2006.
28. IEEE Std. 344, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," 2004.
29. IEEE Std. 382, "IEEE Standard for Qualification of Safety Related Actuators for Nuclear Power Generating Stations," 2006.
30. IEEE Std. 383, "IEEE Standard for Type Test of Class 1E Electric Cables and Field Splices for Nuclear Power Generating Stations," 2003.

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31. IEEE Std. 387, “IEEE Standard Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations,” 1995(R2007).
32. IEEE Std. 497, “IEEE Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations,” 2002.
33. IEEE Std. 535, “IEEE Standard for Qualification of Class 1E Lead Storage batteries for Nuclear Power Generating Stations,” 1986(R1994).
34. IEEE Std. 572, “IEEE Standard for Qualification of Class 1E Connection Assemblies for Nuclear Power Generating Stations,” 2006.
35. IEEE Std. 627, “IEEE Standard for Design Qualification of Safety Systems Equipment Used in Nuclear Power Generating Stations,” 1980(R1991).
36. IEEE Std. 628, “IEEE Standard Criteria for Design, Installation and Qualification of Raceway Systems,” 2001.
37. IEEE Std. 638, “IEEE Standard for Qualification of Class 1E Transformers for Nuclear Power Generating Stations,” 2006.
38. IEEE Std. 649, “IEEE Standard for Qualifying Class 1E Motor Control Centers for Nuclear Power Generating Stations,” 2006.
39. IEEE Std. 650, “IEEE Standard for Qualification of Class 1E Static battery Chargers and Inverters for Nuclear Power Generating Stations,” 2006.
40. IEEE Std. 1202, “IEEE Standard for Flame Propagation Testing of Wire and Cable,” 1991(R1996).
41. IEEE Std. 1205, “IEEE Guide for Assessing, Monitoring, and Mitigating Aging Effects on Class 1E Equipment Used in Nuclear Generating Stations,” 2000.
42. IEEE Std. 1290, “IEEE Guide for Motor Operated valve (MOV) Motor Application, Protection, Control, and Testing in Nuclear Power Generation Station,” 1996(R2005).

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Table 3.11-1

Ventilation Areas

Area	Safety-Related		Area Temp. Alarm in Control Room	Remark
	Yes	No		
Control Room Area				
1. Control Room and Adjacent Offices	O		O	
2. Computer Room		O	O	
Auxiliary Building Clean Area				
1. Turbine Driven AFP Room		O	O	
2. Motor Driven AFP Room	O		O	
3. Essential Chiller and Pump	O		O	
Auxiliary Building Controlled Area				
1. SC Heat Exchanger Room	O		O	
2. SI Pump Room	O		O	
3. CS Pump Room	O		O	
4. CS Heat Exchanger Room	O		O	
5. Penetration Room	O		O	
6. CCW Pump Room	O		O	
Electrical Equipment Room				
1. Vital Instrument & Equipment	O		O	
2. Class 1E Switchgear Room	O		O	
3. Class 1E Battery Room	O		O	
4. Remote Shutdown Console Room	O		O	
Fuel Handling Area				
1. Spent Fuel Pool Heat Exchanger Room and Pump Room	O		O	
2. Emergency ACU Room	O		O	
Emergency Diesel Generator Area	O		O	
Containment Building		O	O	

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Environmental Data

Environmental Parameters ⁽²⁾	Range and Duration
Containment Building – Category A-1 (LOCA)	
Temperature, °C (°F)	Figure 3.11-1
Pressure, psig	Figure 3.11-1
Relative humidity, %	100, saturated/superheated steam/air mixture
Radiation, 60-yr TID Gy plus LOCA ^{(1), (3), (4)}	< 3.2×10^5 gamma < 1×10^6 beta
Chemical spray	4,400 ppm Boron as H ₃ BO ₃ pH of 7.0 to 8.5 after 4 hours using trisodium phosphate
Containment Building – Category A-2 (MSLB)	
Temperature, °C (°F)	Figure 3.11-1
Pressure, psig	Figure 3.11-1
Relative humidity, %	100 saturated/superheated steam/air mixture
Radiation, 60-yr TID Gy plus Non-LOCA(1), (3)	Bounded by Category A-1
Chemical spray	4,400 ppm boron as H ₃ BO ₃ pH of 7.0 to 8.5 after 4 hours using trisodium phosphate
Containment Building – Category B (Normal)	
Temperature, °C (°F)	10 – 49 (50 – 120)
Pressure, psig	atmospheric, continuous
Relative humidity, %	5 – 90
Radiation, 60-yr TID Gy (3)	< 6.3×10^3 gamma
Chemical spray	N/A
Auxiliary Building – Category C (Normal)	
Temperature, °C (°F)	10 – 40 (50 – 104)
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90

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Table 3.11-2 (2 of 5)

Environmental Parameters ⁽²⁾	Range and Duration
Radiation, 60-yr TID Gy	$< 1.6 \times 10^1$ gamma (accessible areas and I&C equipment) $< 6.3 \times 10^{-1}$ gamma (RTSG, CEDMCS) $< 1.9 \times 10^4$ gamma (VCT) $< 2.5 \times 10^8$ gamma (purification ion exchanger)
Chemical spray	N/A
Auxiliary Building – Category D (LOCA/MSLB)	
Temperature, °C (°F)	10 – 40 (50 – 104)
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90, limited to 8 hours Outside normal range of Category C
Radiation, 60-yr TID Gy plus LOCA/MSLB(1), (4)	$< 1.0 \times 10^2$ gamma (accessible areas and I&C equipment) $< 6.3 \times 10^{-1}$ gamma (RTSG, CEDMCS) $< 1.9 \times 10^4$ gamma (VCT) $< 2.5 \times 10^8$ gamma (purification ion exchanger)
Chemical spray	N/A
Auxiliary Building – Category E (HELB)	
Temperature, °C (°F)	65 – 171 (150 – 340), 0 – 2 hours 10 – 40 (50 – 104), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	100, 0 ~ 3 minutes; 7 – 90, after 3 minutes (limited to 8 hours outside the normal range of Category C unless otherwise specified)
Radiation, 60-yr TID Gy	same as Category C
Chemical spray	N/A
Fuel Handling Area – Category F (Normal)	
Temperature, °C (°F)	10 – 40 (50 – 104), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90, continuous
Radiation, 60-yr TID Gy	$< 1.6 \times 10^1$ gamma
Chemical spray	N/A

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Table 3.11-2 (3 of 5)

Environmental Parameters ⁽²⁾	Range and Duration
Fuel Handling Area – Category G (LOCA/MSLB)	
Temperature, °C (°F)	10 – 40 (50 – 104) continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	20 – 90, continuous
Radiation, 60-yr TID Gy (1)	$< 1.0 \times 10^3$ gamma
Chemical spray	N/A
Emergency Diesel Generator Area – Category H (Normal)	
Temperature, °C (°F)	10 – 50 (50 – 122), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90, continuous
Radiation, 60-yr TID Gy	$< 6.3 \times 10^{-1}$ gamma
Chemical spray	N/A
Emergency Diesel Generator Area – Category I (LOCA/MSLB)	
Temperature, °C (°F)	10 – 50 (50 – 122), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90, continuous
Radiation, 60-yr TID Gy	$< 6.3 \times 10^{-1}$ gamma
Chemical spray	N/A
Control Room Area – Category J (Normal/DBA)	
Temperature, °C (°F)	21 – 25 (70 – 77), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	40 – 60, continuous
Radiation, 60-yr TID Gy	$< 6.3 \times 10^{-1}$ gamma (control room and electrical equipment room)
Chemical spray	N/A
Outside Areas – Category K (Normal/DBA)	
Temperature, °C (°F)	-40 – 46 (-40 – 115), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	3 – 100, continuous
Radiation, 60-yr TID Gy	$< 6.3 \times 10^{-1}$ gamma
Chemical spray	N/A

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Table 3.11-2 (4 of 5)

Environmental Parameters ⁽²⁾	Range and Duration
Main Steam Valve House – Category L (Normal)	
Temperature, °C (°F)	10 – 49 (50 – 120), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	20 – 90, continuous
Radiation, 60-yr TID Gy	$< 6.3 \times 10^{-1}$ gamma
Chemical spray	N/A
Main Steam Valve House – Category M (MSLB)	
Temperature, °C (°F)	49 – 206 (120 – 403), 0 – 15 minutes 10 – 48 (50 – 120), continuous
Pressure, psig	3, continuous
Relative humidity, %	20 – 100, continuous
Radiation, 60-yr TID Gy	$< 9.0 \times 10^3$ gamma
Chemical spray	N/A
Turbine Building – Category N (Normal)	
Temperature, °C (°F)	16 – 40 (60 – 104), continuous
Pressure, psig	atmospheric, continuous
Relative humidity, %	7 – 90, continuous
Radiation, 60-yr TID Gy	N/A
Chemical spray	N/A
Turbine Building – Category O (LOCA/MSLB)	
Temperature, °C (°F)	166 (330), 0 – 3 minutes; 49 (120), 3 minutes to 4 hours; 16 – 40 (60~104), continuous after 4 hours
Pressure, psig	atmospheric, continuous after 3 minutes
Relative humidity, %	Relative humidity for the temperature range 60 °F – 80 °F is 95 % Relative humidity for temperatures above 80 °F is a fixed moisture content equivalent to 95 % relative humidity at 80 °F
Radiation, 60-yr TID Gy ⁽¹⁾	N/A
Chemical spray	N/A

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Table 3.11-2 (5 of 5)

- (1) Accident condition gamma radiation dose includes the normal external gamma dose plus that external dose due to the limiting DBA since these are total integrated dose values. The component design dose is the sum of internal (if applicable) plus external radiation doses.
- (2) Environment as used in this Table is defined as those conditions surrounding equipment. Equipment specifications take into consideration both the environment and those process conditions internal to the equipment.
- (3) Outside the biological shield.
- (4) The post-LOCA radiation environment in this region will vary depending on whether or not emergency core cooling operates within its design basis. If emergency core cooling operates as designed, there will be little core damage and a conservative estimate of the radiological release would be 100 percentage of the core gap activity. If emergency core cooling is assumed to fail in the short-term but is restored to operation resulting in an “arrested core damage” scenario (to be consistent with the “substantial” core melt accident postulated to satisfy 10 CFR 50.34), the radiological release is assumed to be 100 percent of the core gap activity as well as the early in-vessel core release as discussed in NRC RG 1.183. Table 3.11-1 assumes an arrested core melt scenario integrated over six months and is intended to provide an upper bound radiation environment for the region.

Table 3.11-3 (1 of 53)

Environmental Qualification Equipment List

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Auxiliary Feedwater System									
AFW-PP01A	Turbine Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AFW-PP01B	Turbine Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AFW-PP02A	Motor Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AFW-PP02B	Motor Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AFW-V0035	Globe Valve and Actuator, AFW Modulating	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0036	Globe Valve and Actuator, AFW Modulating	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0037	Globe Valve and Actuator, AFW Modulating	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0038	Globe Valve and Actuator, AFW Modulating	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0043	Gate Valve and Actuator, AFW Isolation, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0044	Gate Valve and Actuator, AFW Isolation, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0045	Gate Valve and Actuator, AFW Isolation, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
AFW-V0046	Gate Valve and Actuator, AFW Isolation, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
Aux Feedwater Pump Turbine System									
AT-V0007	Globe Valve and Actuator, AFW Pump Turbine Steam Line Drain	AB	D	Varies	Mild	Harsh	No	(b)	
AT-V0008	Globe Valve and Actuator, AFW Pump Turbine Steam Line Drain	AB	D	Varies	Mild	Harsh	No	(b)	
AT-V0009	Globe Valve and Actuator, AFW Pump Turbine Steam Line Drain	AB	D	Varies	Mild	Harsh	No	(b)	
AT-V0010	Globe Valve and Actuator, AFW Pump Turbine Steam Line Drain	AB	D	Varies	Mild	Harsh	No	(b)	
AT-TA01A	Turbine Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AT-TA01B	Turbine Driven Aux. Feedwater Pumps	AB	D	Continuous	Mild	N/A	No	(b)	
AT-LP01C	AF Pump Turbine Control Panel	AB	D	Continuous	Mild	N/A	No	(a)	
AT-LP01D	AF Pump Turbine Control Panel	AB	D	Continuous	Mild	N/A	No	(a)	

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Table 3.11-3 (2 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Auxiliary Feedwater Storage and Transfer									
AX-LI003A	Field Indicator Device, AFWST 1	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI004B	Field Indicator Device, AFWST 2	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI005A	Field Indicator Device, AFWST 2	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI005C	Field Indicator Device, AFWST 2	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI005D	Field Indicator Device, AFWST 2	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI006B	Field Indicator Device, AFWST 1	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI006C	Field Indicator Device, AFWST 1	AB	D	Continuous	N/A	N/A	No	(a)	
AX-LI006D	Field Indicator Device, AFWST 1	AB	D	Continuous	N/A	N/A	No	(a)	
Component Cooling Water System									
CC-PP03A	Component Cooling Water Make-up Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-PP03B	Component Cooling Water Make-up Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-PP01A	Component Cooling Water Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-PP01B	Component Cooling Water Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-PP02A	Component Cooling Water Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-PP02B	Component Cooling Water Pumps	AB	D	Continuous	Mild	Mild	No	(b)	
CC-HE01A	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-HE01B	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-HE02A	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-HE02B	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-HE03A	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-HE03B	Component Cooling Water Heat Exchanger	CCWHX	K	Continuous	Mild	Mild	No	(b)	
CC-TK01A	Component Cooling Water Surge Tank	AB	D	Continuous	Mild	Mild	No	(b)	
CC-TK01B	Component Cooling Water Surge Tank	AB	D	Continuous	Mild	Mild	No	(b)	
CC-V0097	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0098	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0143	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
CC-V0144	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
CC-V0145	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
CC-V0146	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
CC-V0149	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (3 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Component Cooling Water System (Con't)									
CC-V0150	Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
CC-V0231	Butterfly Valve and Actuator, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0249	Butterfly Valve and Actuator, CIV	RCB	A-1, A-2	Varies	Harsh	Harsh	No	(b)	
CC-V0250	Butterfly Valve and Actuator, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0296	Butterfly Valve and Actuator, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0297	Butterfly Valve and Actuator, CIV	RCB	A-1, A-2	Varies	Harsh	Harsh	No	(b)	
CC-V0301	Butterfly Valve and Actuator, CIV	RCB	A-1, A-2	Varies	Harsh	Harsh	No	(b)	
CC-V0302	Butterfly Valve and Actuator, CIV	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0351	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0352	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0389	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
CC-V0390	Butterfly Valve and Actuator	AB	D	Varies	Mild	Harsh	No	(b)	
Containment Spray System									
CS-PP01A	Containment Spray Pump & Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
CS-PP01B	Containment Spray Pump & Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
CS-HE01A	Containment Spray Heat Exchanger	AB	D	Continuous	Mild	Harsh	No	(b)	
CS-HE01B	Containment Spray Heat Exchanger	AB	D	Continuous	Mild	Harsh	No	(b)	
CS-HE02A	Containment Spray Miniflow Heat Exchanger	AB	D	Continuous	Mild	Harsh	No	(b)	
CS-HE02B	Containment Spray Miniflow Heat Exchanger	AB	D	Continuous	Mild	Harsh	No	(b)	
CS- V0003	Gate Valve and Actuator, Containment Spray Header Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CS- V0004	Gate Valve and Actuator, Containment Spray Header Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CS-V0671	Gate Valve and Actuator, Containment Spray Header Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CS-V0672	Gate Valve and Actuator, Containment Spray Header Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (4 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Chemical and Volume Control System									
CV-V0505	Globe Valve and Actuator, RCP Bleed-off, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0506	Globe Valve and Actuator, RCP Bleed-off, CIV	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
CV-V0509	Gate Valve and Actuator, IRWST Makeup Line, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0515	Globe Valve and Actuator, Letdown Isolation	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
CV-V0516	Globe Valve and Actuator, Letdown Isolation	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
CV-V0522	Globe Valve and Actuator, Letdown Isolation, CIV	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
CV-V0523	Globe Valve and Actuator, Letdown Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0524	Globe Valve and Actuator, Charging Line Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0255	Globe Valve and Actuator, Seal Injection CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0560	Globe Valve and Actuator, RDT Suction Isolation, CIV	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
CV-V0561	Globe Valve and Actuator, RDT Suction Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
CV-V0580	Gate Valve and Actuator, RMW Supply to RDT Isolation, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
Emergency Diesel Generator System									
DG-DG01A	Class 1E Diesel Generator including Engine	DGB	I	Continuous	Mild	Mild	No	(a)	
DG-DG01B	Class 1E Diesel Generator including Engine	DGB	I	Continuous	Mild	Mild	No	(a)	
DG-DG01C	Class 1E Diesel Generator including Engine	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DG01D	Class 1E Diesel Generator including Engine	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP01A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP02A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP03A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP04A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP05A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP06A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP07A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP08A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP09A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP10A	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (5 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Generator System (con't)									
DG-DP01B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP02B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP03B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP04B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP05B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP06B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP07B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP08B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP09B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-DP10B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LP01A	Control Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LP02A	Control Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LP01B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LP02B	Control Panels & Cubicles	AB	I	Continuous	Mild	Mild	No	(a)	
Emergency Diesel Engine Cooling Water System									
DG-TK01A	HT Water Expansion Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK01B	HT Water Expansion Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK01C	HT Water Expansion Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK01D	HT Water Expansion Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK10A	LT Water Expansion Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK10B	LT Water Expansion Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK10C	LT Water Expansion Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK10D	LT Water Expansion Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DG-HE02A	LT/CC Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE02B	LT/CC Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE02C	LT/CC Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	
DG-HE02D	LT/CC Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	
DG-HE03A	HT/CC Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE03B	HT/CC Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE03C	HT/CC Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	
DG-HE03D	HT/CC Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (6 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Cooling Water System									
DG-V4217A	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4217B	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4217C	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
DG-V4217D	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
DG-V4250A	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4250B	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4250C	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
DG-V4250D	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
Emergency Diesel Engine Starting Air System									
DG-TK40A	Starting Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK40B	Starting Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK40C	Starting Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK40D	Starting Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK41A	Starting Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK41B	Starting Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK41C	Starting Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK41D	Starting Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK42A	Over Speed Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK42B	Over Speed Air Receiver	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-TK42C	Over Speed Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-TK42D	Over Speed Air Receiver	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4022A	Starting Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4022B	Starting Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4022C	Starting Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4022D	Starting Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4030A	Starting Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4030B	Starting Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4030C	Starting Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4030D	Starting Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (7 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Starting Air System (Con't)									
DG-V4048A	Starting Air Receiver Outlet Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4048B	Starting Air Receiver Outlet Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4048C	Starting Air Receiver Outlet Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4048D	Starting Air Receiver Outlet Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4049A	Starting Air Receiver Outlet Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4049B	Starting Air Receiver Outlet Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4049C	Starting Air Receiver Outlet Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4049D	Starting Air Receiver Outlet Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4308A	Starting Air Common Header Check Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4308B	Starting Air Common Header Check Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4308C	Starting Air Common Header Check Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4308D	Starting Air Common Header Check Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4309A	Starting Air Common Header Check Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4309B	Starting Air Common Header Check Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4309C	Starting Air Common Header Check Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4309D	Starting Air Common Header Check Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4042A	Starting Air Common Header Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4042B	Starting Air Common Header Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4042C	Starting Air Common Header Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4042D	Starting Air Common Header Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4314A	Starting Air Common Header Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4314B	Starting Air Common Header Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4314C	Starting Air Common Header Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4314D	Starting Air Common Header Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4312A	Starting Air Common Header Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4312B	Starting Air Common Header Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4312C	Starting Air Common Header Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4312D	Starting Air Common Header Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (8 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Starting Air System (Con't)									
DG-V4043A	Starting Air Common Header Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043B	Starting Air Common Header Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043C	Starting Air Common Header Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043D	Starting Air Common Header Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4039A	Starting Air Outlet Regulating Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4039B	Starting Air Outlet Regulating Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4039C	Starting Air Outlet Regulating Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4039D	Starting Air Outlet Regulating Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4040A	Starting Air Outlet Regulating Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4040B	Starting Air Outlet Regulating Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4040C	Starting Air Outlet Regulating Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4040D	Starting Air Outlet Regulating Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5023A	Starting Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5023B	Starting Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5023C	Starting Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5023D	Starting Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5031A	Starting Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5031B	Starting Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5031C	Starting Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V5031D	Starting Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4041A	Over Speed Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4041B	Over Speed Air Receiver Relief Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4041C	Over Speed Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4041D	Over Speed Air Receiver Relief Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4315A	Over Speed Air Receiver Inlet Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4315B	Over Speed Air Receiver Inlet Isolation Globe Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4315C	Over Speed Air Receiver Inlet Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4315D	Over Speed Air Receiver Inlet Isolation Globe Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4043A	Over Speed Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043B	Over Speed Air Receiver Inlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043C	Over Speed Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4043D	Over Speed Air Receiver Inlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (9 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Lube Oil System									
DG-HE30A	Lube Oil/LT Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE30B	Lube Oil/LT Water Heat Exchanger	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-HE30C	Lube Oil/LT Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	
DG-HE30D	Lube Oil/LT Water Heat Exchanger	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4114A	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4114B	3-Way Thermostatic Control Valve	EDGB	I	Varies	Mild	Mild	No	(b)	
DG-V4114C	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
DG-V4114D	3-Way Thermostatic Control Valve	AB	I	Varies	Mild	Mild	No	(b)	
DG-V4111A	Lube Oil/Preheating Water Heat Exchanger Outlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4111B	Lube Oil/Preheating Water Heat Exchanger Outlet Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4111C	Lube Oil/Preheating Water Heat Exchanger Outlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4111D	Lube Oil/Preheating Water Heat Exchanger Outlet Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4112A	Lube Oil/Preheating Water Heat Exchanger Outlet Isolation Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4112B	Lube Oil/Preheating Water Heat Exchanger Outlet Isolation Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4112C	Lube Oil/Preheating Water Heat Exchanger Outlet Isolation Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4112D	Lube Oil/Preheating Water Heat Exchanger Outlet Isolation Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4059A	Lube Oil Regulating Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4059B	Lube Oil Regulating Gate Valve	EDGB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4059C	Lube Oil Regulating Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4059D	Lube Oil Regulating Gate Valve	AB	I	Short-Term	Mild	Mild	No	(b)	
DG-V4140A	Lube Oil Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4140B	Lube Oil Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-V4140C	Lube Oil Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DG-V4140D	Lube Oil Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (10 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Combustion Air Intake & Exhaust System									
DG-SL01A	Air Intake Silencer	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-SL01B	Air Intake Silencer	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-SL01C	Air Intake Silencer	AB	I	Continuous	Mild	Mild	No	(b)	
DG-SL01D	Air Intake Silencer	AB	I	Continuous	Mild	Mild	No	(b)	
DG-SL03A	Exhaust Gas Silencer	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-SL03B	Exhaust Gas Silencer	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-SL03C	Exhaust Gas Silencer	AB	I	Continuous	Mild	Mild	No	(b)	
DG-SL03D	Exhaust Gas Silencer	AB	I	Continuous	Mild	Mild	No	(b)	
DG-FT50A	Air Intake Filter	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-FT50B	Air Intake Filter	EDGB	I	Continuous	Mild	Mild	No	(b)	
DG-FT50C	Air Intake Filter	AB	I	Continuous	Mild	Mild	No	(b)	
DG-FT50D	Air Intake Filter	AB	I	Continuous	Mild	Mild	No	(b)	
Emergency Diesel Engine Fuel Oil System									
DO-PP01A	Emergency Diesel Fuel Oil Transfer Pumps	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-PP01B	Emergency Diesel Fuel Oil Transfer Pumps	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-PP01C	Emergency Diesel Fuel Oil Transfer Pumps	AB	I	Continuous	Mild	Mild	No	(b)	
DO-PP01D	Emergency Diesel Fuel Oil Transfer Pumps	AB	I	Continuous	Mild	Mild	No	(b)	
DO-PP02A	Emergency Diesel Fuel Oil Transfer Pumps	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-PP02B	Emergency Diesel Fuel Oil Transfer Pumps	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-PP02C	Emergency Diesel Fuel Oil Transfer Pumps	AB	I	Continuous	Mild	Mild	No	(b)	
DO-PP02D	Emergency Diesel Fuel Oil Transfer Pumps	AB	I	Continuous	Mild	Mild	No	(b)	
DO-TK01A	Diesel Fuel Oil Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-TK01B	Diesel Fuel Oil Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-TK01C	Diesel Fuel Oil Storage Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-TK01D	Diesel Fuel Oil Storage Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-TK02A	Diesel Fuel Oil Day Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-TK02B	Diesel Fuel Oil Day Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-TK02C	Diesel Fuel Oil Day Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-TK02D	Diesel Fuel Oil Day Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-ST02A	Strainers	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-ST02B	Strainers	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-ST02B	Strainers	AB	I	Continuous	Mild	Mild	No	(b)	
DO-ST02B	Strainers	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (11 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Fuel Oil System (Con't)									
DO-V1001A	Diesel Fuel Oil Storage Tank Filling Inlet Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1001B	Diesel Fuel Oil Storage Tank Filling Inlet Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1001C	Diesel Fuel Oil Storage Tank Filling Inlet Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1001D	Diesel Fuel Oil Storage Tank Filling Inlet Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2027A	Diesel Fuel Return Valves from Day Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2027B	Diesel Fuel Return Valves from Day Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2027C	Diesel Fuel Return Valves from Day Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2027D	Diesel Fuel Return Valves from Day Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1002A	Diesel Fuel Oil Storage Tank Outlet Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1002B	Diesel Fuel Oil Storage Tank Outlet Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1002C	Diesel Fuel Oil Storage Tank Outlet Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1002D	Diesel Fuel Oil Storage Tank Outlet Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1009A	Strainer Maintenance Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1009B	Strainer Maintenance Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1009C	Strainer Maintenance Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1009D	Strainer Maintenance Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1010A	Strainer Maintenance Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1010B	Strainer Maintenance Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1010C	Strainer Maintenance Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1010D	Strainer Maintenance Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2013A	Pressure Differential Gage Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2013B	Pressure Differential Gage Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2013C	Pressure Differential Gage Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2013D	Pressure Differential Gage Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2014A	Pressure Differential Gage Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2014B	Pressure Differential Gage Valves	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2014C	Pressure Differential Gage Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2014D	Pressure Differential Gage Valves	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1003A	Diesel Fuel Transfer Pump Suction Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1003B	Diesel Fuel Transfer Pump Suction Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1003C	Diesel Fuel Transfer Pump Suction Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1003D	Diesel Fuel Transfer Pump Suction Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (12 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Fuel Oil System (Con't)									
DO-V1004A	Diesel Fuel Transfer Pump Suction Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1004B	Diesel Fuel Transfer Pump Suction Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1004C	Diesel Fuel Transfer Pump Suction Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1004D	Diesel Fuel Transfer Pump Suction Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1005A	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1005B	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1005C	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1005D	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1006A	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1006B	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1006C	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1006D	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1007A	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1007B	Diesel Fuel Transfer Pump Discharge Check Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1007C	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1007D	Diesel Fuel Transfer Pump Discharge Check Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1008A	Diesel Fuel Transfer Pump Discharge Gate Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1008B	Diesel Fuel Transfer Pump Discharge Gate Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V1008C	Diesel Fuel Transfer Pump Discharge Gate Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V1008D	Diesel Fuel Transfer Pump Discharge Gate Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2009A	Pressure Indicator Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2009B	Pressure Indicator Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2009C	Pressure Indicator Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2009D	Pressure Indicator Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2010A	Emergency Fuel Fill Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2010B	Emergency Fuel Fill Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2010C	Emergency Fuel Fill Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2010D	Emergency Fuel Fill Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2011A	Pressure Switch Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2011B	Pressure Switch Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V2011C	Pressure Switch Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V2011D	Pressure Switch Valve	AB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (13 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Emergency Diesel Engine Fuel Oil System (Con't)									
DO-V4011A	Diesel Fuel Oil Day Tank Inlet Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4011B	Diesel Fuel Oil Day Tank Inlet Valve	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4011C	Diesel Fuel Oil Day Tank Inlet Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4011D	Diesel Fuel Oil Day Tank Inlet Valve	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4019A	Return Valve (LC) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4019B	Return Valve (LC) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4019C	Return Valve (LC) from Day Tank to Storage Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4019D	Return Valve (LC) from Day Tank to Storage Tank	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4101A	Supply Valve (LO) from Day Tank to EDG Engine	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4101B	Supply Valve (LO) from Day Tank to EDG Engine	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4101C	Supply Valve (LO) from Day Tank to EDG Engine	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4101D	Supply Valve (LO) from Day Tank to EDG Engine	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4102A	Supply Valve (LO) from Day Tank to EDG Engine Aux. Skid	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4102B	Supply Valve (LO) from Day Tank to EDG Engine Aux. Skid	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4102C	Supply Valve (LO) from Day Tank to EDG Engine Aux. Skid	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4102D	Supply Valve (LO) from Day Tank to EDG Engine Aux. Skid	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4034A	Supply Glove Valve (LO) from Day Tank to EDG Engine	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4034B	Supply Glove Valve (LO) from Day Tank to EDG Engine	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4034C	Supply Glove Valve (LO) from Day Tank to EDG Engine	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4034D	Supply Glove Valve (LO) from Day Tank to EDG Engine	AB	I	Continuous	Mild	Mild	No	(b)	
DO-V4103A	Return Valve (LO) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4103B	Return Valve (LO) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4103C	Return Valve (LO) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	
DO-V4103D	Return Valve (LO) from Day Tank to Storage Tank	EDGB	I	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (14 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Spent Fuel Pool Cooling System									
	Pump and Motor	AB	D	Continuous	Mild	Mild	No	(b)	
FC-PP01A	Spent Fuel Pool Cooling Pump	AB	D	Continuous	Mild	Mild	No	(b)	
FC-PP01B	Spent Fuel Pool Cooling Pump	AB	D	Continuous	Mild	Mild	No	(b)	
FC-HE02A	Spent Fuel Pool Cooling Heat Exchanger	AB	D	Continuous	N/A	Mild	No	(b)	
FC-HE02B	Spent Fuel Pool Cooling Heat Exchanger	AB	D	Continuous	N/A	Mild	No	(b)	
Main Feedwater System									
FW-V0121	Economizer Main Feedwater Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0122	Economizer Main Feedwater Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0123	Economizer Main Feedwater Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0124	Economizer Main Feedwater Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0131	Downcomer Main Feedwater Isolation Valves	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0132	Downcomer Main Feedwater Isolation Valves	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0133	Downcomer Main Feedwater Isolation Valves	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0134	Downcomer Main Feedwater Isolation Valves	AB	M	Short Time	Harsh	Harsh	No	(b)	
FW-V0138	Feedwater Chemical Injection Isolation Valve	AB	M		Harsh	Harsh	No	(b)	
FW-V0139	Feedwater Chemical Injection Isolation Valve	AB	M		Harsh	Harsh	No	(b)	
Containment Hydrogen Control System									
	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HI01	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI02	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI03	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI04	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI05	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI06	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI07	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HI08	Hydrogen Igniter	RCB	A-1, A-2	Short Time	Harsh	Harsh	No	(b)	
HG-HR01A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR01B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR02A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR02B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR03A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR03B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	

Table 3.11-3 (15 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Containment Hydrogen Control System (Con't)									
HG-HR04A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR04B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR05A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR05B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR06A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR06B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR07A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR07B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR08A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR08B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR09A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR09B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR10A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR10B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR11A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR11B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR12A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR12B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR13A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR13B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR14A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR14B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR15A	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
HG-HR15B	Passive Autocatalytic Recombiner	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
Instrument Air System									
IA-V0020	Cylinder Valve and Actuator, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
In-Containment Water Storage System									
IW-ST01A	IRWST Sump Strainer	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
IW-ST01B	IRWST Sump Strainer	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
IW-ST01C	IRWST Sump Strainer	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
IW-ST01D	IRWST Sump Strainer	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	

Table 3.11-3 (16 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Main Steam System									
MS-V0011	Main Steam Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0012	Main Steam Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0013	Main Steam Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0014	Main Steam Isolation Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0015	Main Steam Isolation Bypass Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0016	Main Steam Isolation Bypass Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0017	Main Steam Isolation Bypass Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0018	Main Steam Isolation Bypass Valve	AB	M	Short Time	Harsh	Harsh	No	(b)	
MS-V0090	Main Steam Drip Leg Isolation Valve	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0091	Main Steam Drip Leg Isolation Valve	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0092	Main Steam Drip Leg Isolation Valve	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0093	Main Steam Drip Leg Isolation Valve	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0101	MSADV and Actuator	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0102	MSADV and Actuator	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0103	MSADV and Actuator	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0104	MSADV and Actuator	AB	M	Intermittent	Harsh	Harsh	No	(b)	
MS-V0105	MSADV Isolation Valve and Actuator	AB	M	Varies	Harsh	Harsh	No	(b)	
MS-V0106	MSADV Isolation Valve and Actuator	AB	M	Varies	Harsh	Harsh	No	(b)	
MS-V0107	MSADV Isolation Valve and Actuator	AB	M	Varies	Harsh	Harsh	No	(b)	
MS-V0108	MSADV Isolation Valve and Actuator	AB	M	Varies	Harsh	Harsh	No	(b)	
MS-V1301	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1302	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1303	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1304	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1305	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1306	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	

Table 3.11-3 (17 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Main Steam System									
MS-V1307	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1308	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1309	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1310	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1311	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1312	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1313	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1314	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1315	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1316	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1317	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1318	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1319	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
MS-V1320	Main Steam Safety Valve	AB	M	N/A(LOCA) Cont(MSLB)	Harsh	Harsh	No	(b)	
Compressed Gas System									
NT-V0004	Nitrogen Supply to SITs and RDT CIV, Globe Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (18 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Radiation Monitoring System									
PR-431	Containment Radiation Monitor (Inside) CIV, Gate Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
PR-432	Containment Radiation Monitor (Outside) CIV, Gate Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
PR-434	Cont. Radiation Monitor (Outside) CIV, Gate Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
PR-RE/RT-037	Containment Purge Effluent Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-039A	Containment Air Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-040B	Containment Air Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-071A	Control Room Air Intake Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-072B	Control Room Air Intake Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-073A	Control Room Air Intake Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-074B	Control Room Air Intake Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-217	Main Steam Line /16 N Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-218	Main Steam Line /16 N Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-219	Main Steam Line /16 N Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-220	Main Steam Line /16 N Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-231A	Containment Operating Area Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-232B	Containment Operating Area Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-233A	Containment Upper Operating Area Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-234B	Containment Upper Operating Area Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
PR-RE/RT-241	Spent Fuel Pool Area Monitor	AB	D	Continuous	Mild	Mild	No	(a)	
PR-RE/RT-242	Spent Fuel Pool Area Monitor	AB	D	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (19 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Process Sampling System									
PS-V0031	Steam Generator 1 Sample Line from Blowdown Hot Leg CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0032	Steam Generator 2 Sample Line from Blowdown Hot Leg CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0033	Steam Generator 1 Sample Line from Downcomer CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0034	Steam Generator 2 Sample Line from Downcomer CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0035	Steam Generator 1 Sample Line from Blowdown Cold Leg CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0036	Steam Generator 2 Sample Line from Blowdown Cold Leg CIV, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0257	Steam Generator 1 Primary Sample and Cooler Rack ISO Valve, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
PS-V0258	Steam Generator 2 Primary Sample and Cooler Rack ISO Valve, Gate Valve and Actuator	AB	D	Continuous	Harsh	Harsh	No	(b)	
Primary Sampling System									
PX-V0005	Pressurizer Steam Space Sampling Line CIV, Globe Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
PX-V0006	Pressurizer Steam Space Sampling Line CIV, Globe Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
PX-V0001	Hot Leg 1 Sample Line CIV, Globe and Actuator	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
PX-V0002	Hot Leg 1 Sample Line CIV, Globe and Actuator	AB	D	Continuous	Mild	Harsh	No	(b)	
	Holdup Volume Line 1 Sample Line CIV, Globe Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
PX-V1005	Holdup Volume Line 2 Sample Line CIV, Check Valve	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
PX-V0003	Pressurizer Surge Line Sample Line CIV, Globe Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
PX-V0004	Pressurizer Surge Line Sample Line CIV, Globe Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
PX-V0053	Holdup Volume Combined Sample Line CIV, Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (20 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Reactor Coolant System									
RC-V0200	POSRV and Actuator	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
RC-V0201	POSRV and Actuator	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
RC-V0202	POSRV and Actuator	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
RC-V0203	POSRV and Actuator	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
	RCP Oil Fill Line CIV, Gate Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
	RCP Oil Fill Line CIV, Gate Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
Service Air System									
SA-V0001	Cylinder Valve and Actuator, CIV	AB	D	Short-Term	Mild	Harsh	No	(b)	
S/G Blowdown System									
SD-V0005	S/G Blowdown Line CIV, Gate and Actuator	AB	D	Intermittent	Mild	Harsh	No	(b)	
SD-V0006	S/G Blowdown Line CIV, Gate and Actuator	AB	D	Intermittent	Mild	Harsh	No	(b)	
Safety Injection System									
SI-PP02A	Safety Injection Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-PP02B	Safety Injection Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-PP02C	Safety Injection Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-PP02D	Safety Injection Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0302	Gate Valve and Actuator, SI Miniflow Return to IRWST, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0303	Gate Valve and Actuator, SI Miniflow Return to IRWST, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0304	Gate Valve and Actuator, IRWST Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0305	Gate Valve and Actuator, IRWST Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0308	Gate Valve and Actuator, IRWST Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0309	Gate Valve and Actuator, IRWST Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0321	Globe Valve and Actuator, Hot Leg Injection Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0322	Globe Valve and Actuator, Hot Leg Check Valve Leakage Isolation	RCB	A-1,A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0331	Globe Valve and Actuator, Hot Leg Injection Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0332	Globe Valve and Actuator, Hot Leg Check Valve Leakage Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	

Table 3.11-3 (21 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Safety Injection System (Con't)									
SI-V0602	Globe Valve and Actuator, Throttle, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0603	Globe Valve and Actuator, Throttle, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0604	Gate Valve and Actuator, Hot Leg Injection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0605	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0606	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0607	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0608	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0609	Gate Valve and Actuator, Hot Leg Injection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0611	Globe Valve and Actuator, SIT Fill/Drain	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0613	Gate Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0614	Gate Valve and Actuator, SIT Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0616	Globe Valve and Actuator, SI Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0618	Globe and Actuator, Check Valve Leakage Line Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0621	Globe Valve and Actuator, SIT Fill/Drain	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0623	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0624	Gate Valve and Actuator, SIT Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0626	Globe Valve and Actuator, SI Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0628	Globe Valve and Actuator, Check Valve Leakage Line Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0631	Globe Valve and Actuator, SIT Fill/Drain	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0633	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0634	Gate Valve and Actuator, SIT Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0636	Globe Valve and Actuator, SI Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0638	Globe Valve and Actuator, Check Valve Leakage Line Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0641	Globe Valve and Actuator, SIT Fill/Drain	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0643	Globe Valve and Actuator, SIT Vent	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0644	Gate Valve and Actuator, SIT Isolation.	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0646	Globe Valve and Actuator, SI Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0648	Globe Valve and Actuator, Check Valve Leakage Line Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0682	Glove Valve and Actuator, SIT Fill, CIV	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	

Table 3.11-3 (22 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Shutdown Cooling System									
SI-PP01A	Shutdown Cooling Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-PP01B	Shutdown Cooling Pump and Motor	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0300	Gate Valve and Actuator, CS/SCS IRWST Recirculation Line Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0301	Gate Valve and Actuator, CS/SCS IRWST Recirculation Line Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0310	Globe Valve and Actuator, SDCHX Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0311	Globe Valve and Actuator, SDCHX Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0312	Globe Valve and Actuator, SDCHX Bypass Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0313	Globe Valve and Actuator, SDCHX Bypass Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0314	SCS IRWST Recirculation Line Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0315	SCS IRWST Recirculation Line Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0340	SC/CS Pump Suction Cross Connection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0342	SC/CS Pump Suction Cross Connection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0341	SC/CS Pump Discharge Cross Connection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0343	SC/CS Pump Discharge Cross Connection	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0344	SCP Suction Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0346	SCP Suction Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0347	CSP Suction Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0348	CSP Suction Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0391	Gate Valve and Actuator, Reactor Cavity Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0393	Gate Valve and Actuator, Reactor Cavity Isolation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0600	Globe Valve and Actuator, SCS Train 2 Discharge Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0601	Globe Valve and Actuator, SCS Train 1 Discharge Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0651	Gate Valve and Actuator, SCS Suction Isolation, CIV	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0652	Gate Valve and Actuator, SCS Suction Isolation, CIV	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0653	Gate Valve and Actuator, SCS Suction Isolation, CIV	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0654	Gate Valve and Actuator, SCS Suction Isolation, CIV	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(b)	
SI-V0655	Gate Valve and Actuator, SCS Suction Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0656	Gate Valve and Actuator, SCS Suction Isolation, CIV	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0688	SCS IRWST Recirculation Line Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	

Table 3.11-3 (23 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Shutdown Cooling System (Con't)									
SI-V0691	Globe Valve and Actuator, SCS Warm-Up Line Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0693	SCS IRWST Recirculation Line Flow Control	AB	D	Continuous	Mild	Harsh	No	(b)	
SI-V0690	Globe Valve and Actuator, SCS Warm-Up Line Isolation	AB	D	Continuous	Mild	Harsh	No	(b)	
Essential Service Water System									
SX-PP01A	Essential Service Water Pump	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PP01B	Essential Service Water Pump	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PP02A	Essential Service Water Pump	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PP02B	Essential Service Water Pump	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PM01A	Essential Service Water Pump Motors	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PM01B	Essential Service Water Pump Motors	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PM02A	Essential Service Water Pump Motors	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-PM02B	Essential Service Water Pump Motors	ESWPS	K	Continuous	Mild	N/A	No	(b)	
SX-FT01A	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-FT01B	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-FT02A	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-FT02B	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-FT03A	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-FT03B	Essential Service Water Debris Filter	ESWPS	K	Intermittent	Mild	N/A	No	(b)	
SX-V0067	Butterfly Valve and Actuator	ESWPS	K	Varies	Mild	N/A	No	(b)	
SX-V0068	Butterfly Valve and Actuator	ESWPS	K	Varies	Mild	N/A	No	(b)	
Equipment and Floor Drainage System									
PP-A	Auxiliary Building Radioactive Floor Drain Sump Pumps	AB	D	Varies	Mild	Harsh	No	(b)	
PP-B	Auxiliary Building Radioactive Floor Drain Sump Pumps	AB	D	Varies	Mild	Harsh	No	(b)	
PP-C	Auxiliary Building Radioactive Floor Drain Sump Pumps	AB	D	Varies	Mild	Harsh	No	(b)	
PP-D	Auxiliary Building Radioactive Floor Drain Sump Pumps	AB	D	Varies	Mild	Harsh	No	(b)	
	Containment Drain Sump Pump Discharge Line, CIV, Globe Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
	Containment Sump Pump Discharge Line CIV, Globe Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
	Reactor Drain Tank Gas Space To GWMS CIV, Globe Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
	Reactor Drain Tank Gas Space to GWMS CIV, Globe Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (24 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Control Room Area HVAC System									
VC-HV01A	Supply AHU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-HV01B	Supply AHU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-HV01C	Supply AHU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-HV01D	Supply AHU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-AU01A	Emergency Makeup ACU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-AU01B	Emergency Makeup ACU	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0011A	Air Intake Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0011B	Air Intake Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0012A	Air Intake Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0012B	Air Intake Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0013A	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0013C	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0014B	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0014D	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0015A	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0015C	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0016B	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0016D	AHU Inlet Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0017A	ACU Inlet Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0017C	ACU Inlet Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0018B	ACU Inlet Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0018D	ACU Inlet Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0019A	ACU Return Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0019C	ACU Return Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0019C	ACU Return Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0020B	ACU Return Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0020D	ACU Return Isolation Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0021A	AHU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0021C	AHU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0022B	AHU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0022D	AHU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (25 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Control Room Area HVAC System (Con't)									
VC-Y0023A	ACU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0023C	ACU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0024B	ACU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0024D	ACU Discharge Flow Control Damper (ESR)	AB	J	Continuous	Mild	Mild	No	(b)	
VC-Y0027	Kitchen & Toilet Flow Control Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0028	Kitchen & Toilet Flow Control Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0029	Smoke Removal Duct Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
VC-Y0030	Smoke Removal Duct Isolation Damper (PSR)	AB	J	Short-Term	Mild	Mild	No	(b)	
Emergency Diesel Generator Area HVAC System									
VD-HV10A	EDG Control Room Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV10B	EDG Control Room Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV10C	EDG Control Room Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV10D	EDG Control Room Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV11A	EDG Room Normal Supply AHU	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV11B	EDG Room Normal Supply AHU	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV11C	EDG Room Normal Supply AHU	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV11D	EDG Room Normal Supply AHU	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV12A	EDG Room Emergency Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV13A	EDG Room Emergency Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV12B	EDG Room Emergency Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV13B	EDG Room Emergency Cubicle Cooler	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HV12C	EDG Room Emergency Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV13C	EDG Room Emergency Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV12D	EDG Room Emergency Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HV13D	EDG Room Emergency Cubicle Cooler	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH02A	EDG Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH02B	EDG Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH02C	EDG Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH02D	EDG Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (26 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis	Remark
		Building	Category					(a) IEEE 323 (b) IEEE 344	
Emergency Diesel Generator Area HVAC System (Con't)									
VD-AH05A	Diesel Fuel Oil Storage Tank Room Supply Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH05B	Diesel Fuel Oil Storage Tank Room Supply Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH05C	Diesel Fuel Oil Storage Tank Room Supply Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH05D	Diesel Fuel Oil Storage Tank Room Supply Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH06A	Diesel Fuel Oil Storage Tank Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH06B	Diesel Fuel Oil Storage Tank Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH06C	Diesel Fuel Oil Storage Tank Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH06D	Diesel Fuel Oil Storage Tank Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH07A	Diesel Fuel Oil Day Tank & L.O. Makeup Tank Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH07B	Diesel Fuel Oil Day Tank & L.O. Makeup Tank Room Exhaust Fan	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-AH07C	Diesel Fuel Oil Day Tank & L.O. Makeup Tank Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-AH07D	Diesel Fuel Oil Day Tank & L.O. Makeup Tank Room Exhaust Fan	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01A	EDG Room Electric Duct Heater	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01B	EDG Room Electric Duct Heater	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01A	Diesel Fuel Oil Storage Tank Room Electric Duct Heater	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01B	Diesel Fuel Oil Storage Tank Room Electric Duct Heater	EDGB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01C	Diesel Fuel Oil Storage Tank Room Electric Duct Heater	AB	H	Continuous	Mild	Mild	No	(b)	
VD-HC01D	Diesel Fuel Oil Storage Tank Room Electric Duct Heater	AB	H	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (27 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electrical and I&C Equipment Areas HVAC System									
VE-HV01A	Class 1E Switchgear 01C Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV01B	Class 1E Switchgear 1D Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV02A	Class 1E Load Center 01C Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV02B	Class 1E Load Center 1D Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV03A	Channel A DC&IP Equip. Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV03B	Channel B DC&1P Equip. Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV04A	Channel C DC&IP Equip. Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV04B	Channel D DC&IP Equip. Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV06A	Class 1E MCC 01A Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV06B	Class 1E MCC 01B Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV07A	Class 1E Switchgear 01A Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV07B	Class 1E Switchgear 01B Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV08B	Swing Load Center Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV09A	Electrical Penetration Room C Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV09B	Electrical Penetration Room D Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV10A	Class 1E MCC 03C Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV10B	Class 1E MCC 03D Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV11A	Electrical Penetration Room C Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV11B	Electrical Penetration Room D Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV12A	Penetration. Mux Room A Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV12B	Penetration Mux Room B Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV01A	Class 1E Switchgear 01C Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV01B	Class 1E Switchgear 1D Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV13A	Electrical Penetration Room A Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV13B	Electrical Penetration Room B Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV14A	Class 1E MCC 03A Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV14B	Class 1E MCC 03B Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV15A	Class 1E MCC 04A Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV15B	Class 1E MCC 04B Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV16A	I&C Equipment Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV16B	I&C Equipment Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (28 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electrical and I&C Equipment Areas HVAC System (Con't)									
VE-HV17A	I&C Equipment Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV17B	I&C Equipment Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV18A	RSR Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HV18B	RSR Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH20A	Class 1E Battery A Room Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH20B	Class 1E Battery B Room Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH20C	Class 1E Battery C Room Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH20D	Class 1E Battery D Room Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH21A	Class 1E Battery A Room Exhaust Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH21B	Class 1E Battery B Room Exhaust Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH21C	Class 1E Battery C Room Exhaust Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH21D	Class 1E Battery D Room Exhaust Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH22C	RSR Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH22D	RSR Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH22C	RSR Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH22D	RSR Supply Fan	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC01A	Class 1E Battery A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC01B	Class 1E Battery B Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC01C	Class 1E Battery C Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC01D	Class 1E Battery D Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC02A	Class 1E Switchgear 01A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC02B	Class 1E Switchgear 01B Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC03C	RSR Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC03D	RSR Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC04C	I&C Equipment Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC04D	I&C Equipment Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC05C	I&C Equipment Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC05D	I&C Equipment Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC06A	Elect Penetration A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC06B	Elect Penetration B Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	

Table 3.11-3 (29 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electrical and I&C Equipment Areas HVAC System (Con't)									
VE-HC07A	Class 1E MCC 03A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC07B	Class 1E MCC 03B Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-HC08A	Class 1E 04A MCC 04A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH09A	Penetration Mux A Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH09B	Penetration Mux B Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
VE-AH10B	Swing Load Center Room Electrical Duct Heater	AB	C	Continuous	Mild	Mild	No	(b)	
Fuel Handling Area HVAC System									
VF-AU02A	Emergency Exhaust ACU	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-AU02B	Emergency Exhaust ACU	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-HV02A	SFP HX Room Cubicle Cooler	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-HV02B	SFP HX Room Cubicle Cooler	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-Y0001A	Air Intake Isolation Damper (PSR)	FHA	G	Short-Term	Mild	Harsh	No	(b)	
VF-Y0002B	Air Intake Isolation Damper (PSR)	FHA	G	Short-Term	Mild	Harsh	No	(b)	
VF-Y0003A	Normal Exhaust ACU Isolation Damper (PSR)	FHA	G	Short-Term	Mild	Harsh	No	(b)	
VF-Y0004B	Normal Exhaust ACU Isolation Damper (PSR)	FHA	G	Short-Term	Mild	Harsh	No	(b)	
VF-Y0005A	Emergency Exhaust ACU Isolation Damper (ESR)	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-Y0006B	Emergency Exhaust ACU Isolation Damper (ESR)	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-Y0007A	Emergency Exhaust Flow Control Damper (ESR)	FHA	G	Continuous	Mild	Harsh	No	(b)	
VF-Y0008B	Emergency Exhaust Flow Control Damper (ESR)	FHA	G	Continuous	Mild	Harsh	No	(b)	
Auxiliary Building Controlled Area HVAC System									
VK-AU01A	Aux. Bldg Controlled Area I Emergency Exhaust ACU	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-AU01C	Aux. Bldg Controlled Area I Emergency Exhaust ACU	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-AU01B	Aux. Bldg Controlled Area II Emergency Exhaust ACU	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-AU01D	Aux. Bldg Controlled Area II Emergency Exhaust ACU	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV10A	CS Pump & Miniflow Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV10B	CS Pump & Miniflow Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV11A	SI Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV11B	SI Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	

Table 3.11-3 (30 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Auxiliary Building Controlled Area HVAC System (Con't)									
VK-HV12A	SI Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV12B	SI Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV13A	CCW Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV13B	CCW Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV14A	CCW Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV14B	CCW Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV15A	CS Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV15B	CS Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV16A	SC Pump & Miniflow Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV16B	SC Pump & Miniflow Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV17A	SC Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV17B	SC Heat Exchanger Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV18A	Charging Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV18B	Charging Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV19A	Mechanical Penetration Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV19B	Mechanical Penetration Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV20A	Mechanical Penetration Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV20B	Mechanical Penetration Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV21B	Aux. Charging Pump Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV22A	Aux. Bldg Controlled Area Emergency Exhaust ACU Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV22B	Aux. Bldg Controlled Area Emergency Exhaust ACU Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV23A	Aux. Bldg Controlled Area Emergency Exhaust ACU Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-HV23B	Aux. Bldg Controlled Area Emergency Exhaust ACU Room Cubicle Cooler	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0001A	Aux. Bldg Controlled Area Emergency Exhaust ACU Flow Control Damper (ESR)	AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0001B	Aux. Bldg Controlled Area Emergency Exhaust ACU Flow Control Damper (ESR)	AB	D	Continuous	Mild	Harsh	No	(b)	

Table 3.11-3 (31 of 53)

Equipment Identification				Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
				Building	Category						
Auxiliary Building Controlled Area HVAC System (Con't)											
VK-Y0001C	Aux. Bldg Controlled Area Emergency Exhaust ACU Flow Control Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0001D	Aux. Bldg Controlled Area Emergency Exhaust ACU Flow Control Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0002A	Aux. Bldg Controlled Area Emergency Exhaust ACU Isolation Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0002B	Aux. Bldg Controlled Area Emergency Exhaust ACU Isolation Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0002C	Aux. Bldg Controlled Area Emergency Exhaust ACU Isolation Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0002D	Aux. Bldg Controlled Area Emergency Exhaust ACU Isolation Damper (ESR)			AB	D	Continuous	Mild	Harsh	No	(b)	
VK-Y0017A	Aux. Bldg Controlled Area Supply AHU Outlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0018A	Aux. Bldg Controlled Area Supply AHU Outlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0019B	Aux. Bldg Controlled Area Supply AHU Outlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0020B	Aux. Bldg Controlled Area Supply AHU Outlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0021A	Aux. Bldg Controlled Area Normal Exhaust ACU Inlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0022A	Aux. Bldg Controlled Area Normal Exhaust ACU Inlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0023B	Aux. Bldg Controlled Area Normal Exhaust ACU Inlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0024B	Aux. Bldg Controlled Area Normal Exhaust ACU Inlet Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0050A	Post Accident Sample Room Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0050B	Post Accident Sample Room Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0050C	Post Accident Sample Room Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	
VK-Y0050D	Post Accident Sample Room Isolation Damper (PSR)			AB	D	Short-Term	Mild	Mild	No	(b)	

Table 3.11-3 (32 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Auxiliary Building Clean Area HVAC System									
VO-HV31A	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV31B	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV32A	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV32B	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV33A	Motor- Driven AFW Pump Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV33B	Motor- Driven AFW Pump Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
Reactor Containment Purge System									
VQ-V0012	High Volume Containment Purge System Supply CIV, Butterfly Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
VQ-V0011	High Volume Containment Purge System Supply CIV, Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
VQ-V0013	High Volume Containment Purge System Exhaust CIV, Butterfly Valve Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
VQ-V0014	High Volume Containment Purge System Exhaust CIV, Butterfly Valve Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
VQ-V0031	Low Volume Containment Purge System Supply CIV, Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
VQ-V0032	Low Volume Containment Purge System Supply CIV, Butterfly Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
VQ-V0033	Low Volume Cont. Purge System Exhaust CIV, Butterfly Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
VQ-V0034	Low Volume Cont. Purge System Exhaust CIV, Butterfly Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
Hydrogen Monitoring System									
Various	Hydrogen Analyzers	AB	D	Continuous	Mild	Harsh	No	(b)	
Plant Chilled Water System									
WI-V013	PCW Supply to Containment Ventilation Units CIV, Gate Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	
WI-V1043	PCW Supply to Containment Ventilation Units CIV, Check Valve	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
WI-V015	PCW Return from Containment Ventilation Units CIV, Gate Valve and Actuator	RCB	A-1, A-2	Short-Term	Harsh	Harsh	No	(b)	
WI-V012	PCW Return from Containment Ventilation Units CIV, Gate Valve and Actuator	AB	D	Short-Term	Mild	Harsh	No	(b)	

Table 3.11-3 (33 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Essential Chilled Water System									
WO-CH01A	Essential Water Chillers	AB	C	Continuous	Mild	Mild	No	(b)	
WO-CH01B	Essential Water Chillers	AB	C	Continuous	Mild	Mild	No	(b)	
WO-CH02A	Essential Water Chillers	AB	C	Continuous	Mild	Mild	No	(b)	
WO-CH02B	Essential Water Chillers	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP01A	Essential Chilled Water Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP01B	Essential Chilled Water Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP02A	Essential Chilled Water Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP02B	Essential Chilled Water Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP03A	Essential Chilled Water Make-up Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-PP03B	Essential Chilled Water Make-up Pumps	AB	C	Continuous	Mild	Mild	No	(b)	
WO-TK01A	Essential Chilled Water Compression Tank	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK01B	Essential Chilled Water Compression Tank	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK02A	Essential Chilled Water Air Separator	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK02B	Essential Chilled Water Air Separator	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-V1001A	ECW Compression Tank Relief valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V1001B	ECW Compression Tank Relief valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906A	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906B	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906C	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906D	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0917A	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0917B	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0918A	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0918B	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-LP01A	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01B	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01C	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01D	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	

Table 3.11-3 (34 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Auxiliary Building Clean Area HVAC System									
VO-HV31A	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV31B	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV32A	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV32B	Essential Chiller Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV33A	Motor- Driven AFW Pump Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
VO-HV33B	Motor- Driven AFW Pump Room Cubicle Cooler	AB	C	Continuous	Mild	Mild	No	(b)	
WO-TK01A	Essential Chilled Water Compression Tank	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK01B	Essential Chilled Water Compression Tank	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK02A	Essential Chilled Water Air Separator	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-TK02B	Essential Chilled Water Air Separator	AB	C	Continuous	N/A	Harsh	No	(b)	
WO-V1001A	ECW Compression Tank Relief valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V1001B	ECW Compression Tank Relief valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906A	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906B	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906C	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0906D	Control Room Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0917A	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0917B	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0918A	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-V0918B	EDG Room Normal Supply AHU Chilled Water 3-Way Valve	AB	C	Continuous	Mild	Mild	No	(b)	
WO-LP01A	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01B	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01C	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LP01D	Essential Chilled Water System Control Panel	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LI003C	Field Indicator Device	AB	C	Continuous	Mild	N/A	No	(a)	
WO-LI003D	Field Indicator Device	AB	C	Continuous	Mild	N/A	No	(a)	

Table 3.11-3 (35 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electric System									
PF-SW01A	4.16kV Metal Clad Switchgear	AB	C	Continuous	Mild	Mild	No	(a)	
PF-SW01B	4.16kV Metal Clad Switchgear	AB	C	Continuous	Mild	Mild	No	(a)	
PF-SW01C	4.16kV Metal Clad Switchgear	AB	C	Continuous	Mild	Mild	No	(a)	
PF-SW01D	4.16kV Metal Clad Switchgear	AB	C	Continuous	Mild	Mild	No	(a)	
PG-LC01A	480V Load Center	AB	C	Continuous	Mild	Mild	No	(a)	
PG-LC01B	480V Load Center	AB	C	Continuous	Mild	Mild	No	(a)	
PG -LC01C	480V Load Center	AB	C	Continuous	Mild	Mild	No	(a)	
PG -LC01D	480V Load Center	AB	C	Continuous	Mild	Mild	No	(a)	
PG -LC02	480V Load Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH-MC01A	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC02A	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC03A	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC04A	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC05A	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC01B	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC02B	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC03B	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC04B	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC05B	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC01C	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC02C	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC03C	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC04C	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC01D	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC02D	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC03D	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
PH -MC04D	480V Motor Control Center	AB	C	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (36 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electric System (Con't)									
RC-SQ01A	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ01B	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ01C	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ01D	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ02A	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ02B	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ02C	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
RC-SQ02D	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
SI-SQ01C	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
SI-SQ01D	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
IW-SQ01C	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
IW-SQ01D	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
IW-SQ02C	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
IW-SQ02D	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
CV-SQ01	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
VK-SQ01	Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
Various	Local Control Station	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BT01A	125Vdc Battery with Rack	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BT01B	125Vdc Battery with Rack	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BT01C	125Vdc Battery with Rack	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BT01D	125Vdc Battery with Rack	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC01A	480Vac/125Vdc Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC01B	480Vac/125Vdc Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC01C	480Vac/125Vdc Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC01D	480Vac/125Vdc Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC02A	480Vac/125Vdc Standby Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC02B	480Vac/125Vdc Standby Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC02C	480Vac/125Vdc Standby Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	
DC-BC02D	480Vac/125Vdc Standby Battery Charger	AB	C	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (37 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electric System (Con't)									
DC-MC01A	125Vdc Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
DC-MC01B	125Vdc Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
DC-MC01C	125Vdc Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
DC-MC01D	125Vdc Control Center	AB	C	Continuous	Mild	Mild	No	(a)	
IP-TR01A	480Vac/120Vac Regulating Transformer	AB	C	Continuous	Mild	Mild	No	(a)	
IP-TR01B	480Vac/120Vac Regulating Transformer	AB	C	Continuous	Mild	Mild	No	(a)	
IP-TR01C	480Vac/120Vac Regulating Transformer	AB	C	Continuous	Mild	Mild	No	(a)	
IP-TR01D	480Vac/120Vac Regulating Transformer	AB	C	Continuous	Mild	Mild	No	(a)	
IP-IN01A	125Vdc/120Vac Inverter	AB	C	Continuous	Mild	Mild	No	(a)	
IP-IN01B	125Vdc/120Vac Inverter	AB	C	Continuous	Mild	Mild	No	(a)	
IP-IN01C	125Vdc/120Vac Inverter	AB	C	Continuous	Mild	Mild	No	(a)	
IP-IN01D	125Vdc/120Vac Inverter	AB	C	Continuous	Mild	Mild	No	(a)	
SI-SQ02C	125Vdc Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
SI-SQ02D	125Vdc Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
AF-SQ01C	125Vdc Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
AF-SQ01D	125Vdc Local Starter	AB	C	Continuous	Mild	Mild	No	(a)	
DC-DP01A	125Vdc Distribution Panel	AB	C	Continuous	Mild	Mild	No	(a)	
DC-DP01B	125Vdc Distribution Panel	AB	C	Continuous	Mild	Mild	No	(a)	
Various	Electrical Penetration Assemblies - Medium Voltage Power	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
Various	Electrical Penetration Assemblies - Low Voltage Power & Control	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
Various	Electrical Penetration Assemblies – Low Voltage Instrumentation	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
Various	Electrical Conductor Sealing Assemblies	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	5kV Power Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	600V Power Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	600V Control Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	600V Instrumentation Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	Thermocouple Extension Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	

Table 3.11-3 (38 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Electric System (Con't)									
N/A	Coaxial Cables	Various	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
N/A	RSPT Type I & II Cable Assemblies	Various	A-1	Continuous	Harsh	Harsh	No	(a)	
N/A	ICI Cable Assemblies	Various	A-1	Continuous	Harsh	Harsh	No	(a)	
N/A	HJTC Cable Assemblies	Various	A-1	Continuous	Harsh	Harsh	No	(a)	
Instrumentation and Control System									
AFW-FT-0035A	AFW Flow Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-FT-0036B	AFW Flow Transmitter, Channel B	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-FT-0037C	AFW Flow Transmitter, Channel C	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-FT-0038D	AFW Flow Transmitter, Channel D	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-TI-0053A	AFW Line Back Leakage Temperature Element, Channel A	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-TI-0054B	AFW Line Back Leakage Temperature Element, Channel B	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-TI-0053C	AFW Line Back Leakage Temperature Element, Channel C	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-TI-0054D	AFW Line Back Leakage Temperature Element, Channel D	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-PT-0005A	AFW Pump Suction Pressure Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0006B	AFW Pump Suction Pressure Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0007C	AFW Pump Suction Pressure Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0008D	AFW Pump Suction Pressure Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0023A	AFW Pump Discharge Pressure Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0024B	AFW Pump Discharge Pressure Transmitter, Channel B	AB	D	Continuous	Mild	Harsh	No	(a)	

Table 3.11-3 (39 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
AFW-PT-0025C	AFW Pump Discharge Pressure Transmitter, Channel C	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-PT-0026D	AFW Pump Discharge Pressure Transmitter, Channel D	AB	D	Continuous	Mild	Harsh	No	(a)	
AFW-Z-0035A	AFW Flow Modulating Valve Position Transmitter, Channel A	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-Z-0036B	AFW Flow Modulating Valve Position Transmitter, Channel B	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-Z-0037C	AFW Flow Modulating Valve Position Transmitter, Channel C	AB	E	Continuous	Harsh	Harsh	No	(a)	
AFW-Z-0038D	AFW Flow Modulating Valve Position Transmitter, Channel D	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-LT-0003C	AFW Turbine Steam Drip Leg Level Transmitter, Channel C	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-LT-0004D	AFW Turbine Steam Drip Leg Level, Channel D	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-PT-0013C	AFW Turbine Inlet Steam Pressure Transmitter, Channel C	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-PT-0014D	AFW Turbine Inlet Steam Pressure Transmitter, Channel D	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-S-3035C	AFW Pump Turbine Speed Transmitter, Channel C	AB	E	Continuous	Harsh	Harsh	No	(a)	
AT-S-3036D	AFW Pump Turbine Speed Transmitter, Channel D	AB	E	Continuous	Harsh	Harsh	No	(a)	
AX-LT-0003A	AFWST 1 Level Transmitter Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0004B	AFWST 2 Level Transmitter, Channel B	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0005A	AFWST 2 Level Transmitter, Channel A	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0005C	AFWST 2 Level Transmitter, Channel C	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0005D	AFWST 2 Level Transmitter, Channel D	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0006B	AFWST 1 Level Transmitter Channel B	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0006C	AFWST 1 Level Transmitter, Channel C	AB	D	Continuous	Mild	Harsh	No	(a)	
AX-LT-0006D	AFWST 1 Level Transmitter, Channel D	AB	D	Continuous	Mild	Harsh	No	(a)	
CC-FT-0071A	CCW Flow Transmitter, Channel A	CCW Hx	K	Continuous	Mild	Mild	No	(a)	
CC-FT-0071B	CCW Flow Transmitter, Channel B	CCW Hx	K	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (40 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
CC-TE-069A	CCW Temperature Element, Channel A	CCW Hx	K	Continuous	Mild	Mild	No	(a)	
CC-TE-070B	CCW Temperature Element, Channel B	CCW Hx	K	Continuous	Mild	Mild	No	(a)	
CE-CEDM 1-101	CEDM Position Indication Reed Switch and Cable	RCB/MS	(Note 8)	Continuous	Mild	Harsh	No	(a)	
CE-SW-01A	RTSS Cabinet, Channel A	AB	C	Continuous	Mild	Harsh	No	(a)	
CE-SW-01B	RTSS Cabinet, Channel B	AB	C	Continuous	Mild	Harsh	No	(a)	
CE-SW-01C	RTSS Cabinet, Channel C	AB	C	Continuous	Mild	Harsh	No	(a)	
CE-SW-01D	RTSS Cabinet, Channel D	AB	C	Continuous	Mild	Harsh	No	(a)	
CM-LP01A	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-LP01B	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-LP02A	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-LP02B	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-LP03A	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-LP03B	Hydrogen Monitoring System Panel	AB	C	Continuous	Mild	Mild	No	(a)	
CM-PR-351	Containment Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
CM-PR-352	Containment Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
CM-PT-351A	Containment Pressure Protective (NR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-351B	Containment Pressure Protective (NR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-351C	Containment Pressure Protective (NR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-351D	Containment Pressure Protective (NR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-352A	Containment Pressure Protective (WR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-352B	Containment Pressure Protective (WR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-352C	Containment Pressure Protective (WR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-PT-352D	Containment Pressure Protective (WR) Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CM-TE-031A	Containment Temperature Element	RCB	A-1,A-2	Continuous	Harsh	Harsh	No	(a)	
CS-FT-338C	Containment Spray Pump Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CS-FT-348D	Containment Spray Pump Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CS-PT-71	CS Pressure Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CS-PT-81	CS Pressure Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
CS-TE-071C	Containment Spray Temperature Element, HX	AB	D	Continuous	Mild	Harsh	No	(a)	
CS-TE-072D	Containment Spray Temperature Element, HX	AB	D	Continuous	Mild	Harsh	No	(a)	

Table 3.11-3 (41 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
DG-LI-3001A	HT Water Expansion Tank Level Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3001B	HT Water Expansion Tank Level Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3001C	HT Water Expansion Tank Level Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3001D	HT Water Expansion Tank Level Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3010A	LT Water Expansion Tank Level Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3010B	LT Water Expansion Tank Level Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3010C	LT Water Expansion Tank Level Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LI-3010D	LT Water Expansion Tank Level Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001A01	HT Water Expansion Tank Level Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001B01	HT Water Expansion Tank Level Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001C01	HT Water Expansion Tank Level Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001D01	HT Water Expansion Tank Level Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001A02	HT Water Expansion Tank Level Switch High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001B02	HT Water Expansion Tank Level Switch High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001C02	HT Water Expansion Tank Level Switch High	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3001D02	HT Water Expansion Tank Level Switch High	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010A01	LT Water Expansion Tank Level Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010B01	LT Water Expansion Tank Level Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010C01	LT Water Expansion Tank Level Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010D01	LT Water Expansion Tank Level Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (42 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
DG-LS-3010A02	LT Water Expansion Tank Level Switch High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010B02	LT Water Expansion Tank Level Switch High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010C02	LT Water Expansion Tank Level Switch High	AB	I	Continuous	Mild	Mild	No	(a)	
DG-LS-3010D02	LT Water Expansion Tank Level Switch High	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3086A	Over Speed Air Receiver Pressure Indicator Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3086B	Over Speed Air Receiver Pressure Indicator Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3086C	Over Speed Air Receiver Pressure Indicator Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3086D	Over Speed Air Receiver Pressure Indicator Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3142A	Lube Oil/Preheating Water Heat Exchanger Inlet Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3142B	Lube Oil/Preheating Water Heat Exchanger Inlet Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3142C	Lube Oil/Preheating Water Heat Exchanger Inlet Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3142D	Lube Oil/Preheating Water Heat Exchanger Inlet Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3176A	Starting Air Receiver Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3176B	Starting Air Receiver Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3176C	Starting Air Receiver Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3176D	Starting Air Receiver Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3177A	Starting Air Receiver Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3177B	Starting Air Receiver Pressure Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3177C	Starting Air Receiver Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PI-3177D	Starting Air Receiver Pressure Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3041A	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3041B	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3041C	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3041D	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (43 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
DG-PS-3042A	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3042B	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3042C	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3042D	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3046A	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3046B	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3046C	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3046D	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3047A	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3047B	Engine Inlet Lube Oil Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3047C	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3047D	Engine Inlet Lube Oil Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3060A	Crankcase Gas Pressure Measurement Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3060B	Crankcase Gas Pressure Measurement Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3060C	Crankcase Gas Pressure Measurement Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3060D	Crankcase Gas Pressure Measurement Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3182A	Starting Air Receiver Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3182B	Starting Air Receiver Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3182C	Starting Air Receiver Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3182D	Starting Air Receiver Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3183A	Starting Air Receiver Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3183B	Starting Air Receiver Pressure Switch Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3183C	Starting Air Receiver Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PS-3183D	Starting Air Receiver Pressure Switch Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PT-3110A	LT Water Pump Discharge Pressure Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PT-3110B	LT Water Pump Discharge Pressure Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-PT-3110C	LT Water Pump Discharge Pressure Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-PT-3110D	LT Water Pump Discharge Pressure Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (44 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
DG-TI-3005A	HT Water Outlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3005B	HT Water Outlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3005C	HT Water Outlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3005D	HT Water Outlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3010A	LT Water Pump Discharge Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3010B	LT Water Pump Discharge Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3010C	LT Water Pump Discharge Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3010D	LT Water Pump Discharge Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3011A	HT/CC Water Heat Exchanger Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3011B	HT/CC Water Heat Exchanger Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3011C	HT/CC Water Heat Exchanger Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3011D	HT/CC Water Heat Exchanger Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3016A	Air Cooler LT Water Inlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3016B	Air Cooler LT Water Inlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3016C	Air Cooler LT Water Inlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3016D	Air Cooler LT Water Inlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3112A	CC/LT Water Heat Exchanger Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3112B	CC/LT Water Heat Exchanger Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3112C	CC/LT Water Heat Exchanger Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3112D	CC/LT Water Heat Exchanger Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3113A	Air Cooler LT Water Outlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3113B	Air Cooler LT Water Outlet Temperature Indicator	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3113C	Air Cooler LT Water Outlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TI-3113D	Air Cooler LT Water Outlet Temperature Indicator	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3004A	HT Water Pump Suction Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3004B	HT Water Pump Suction Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3004C	HT Water Pump Suction Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3004D	HT Water Pump Suction Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (45 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
DG-TT-3007A	HT Water Outlet Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3007B	HT Water Outlet Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3007C	HT Water Outlet Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3007D	HT Water Outlet Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3008A	HT Water Outlet Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3008B	HT Water Outlet Temperature Transmitter	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3008C	HT Water Outlet Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3008D	HT Water Outlet Temperature Transmitter	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3044A	Lube Oil Engine Inlet Temperature Transmitter Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3044B	Lube Oil Engine Inlet Temperature Transmitter Low	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3044C	Lube Oil Engine Inlet Temperature Transmitter Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3044D	Lube Oil Engine Inlet Temperature Transmitter Low	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3045A	Lube Oil Engine Inlet Temperature Transmitter High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3045B	Lube Oil Engine Inlet Temperature Transmitter High	EDGB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3045C	Lube Oil Engine Inlet Temperature Transmitter High	AB	I	Continuous	Mild	Mild	No	(a)	
DG-TT-3045D	Lube Oil Engine Inlet Temperature Transmitter High	AB	I	Continuous	Mild	Mild	No	(a)	
EM-VT-0001	Seismic Sensor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
EM -VT-0002	Seismic Sensor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
EM -VT-0003	Seismic Sensor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
EM -VT-0004	Seismic Sensor	AB	D	Continuous	Harsh	Harsh	No	(a)	
EM -VT-0005	Seismic Sensor	CCW HX	K	Continuous	Mild	N/A	No	(a)	
EM -VT-0006	Seismic Sensor	Yard	K	Continuous	Mild	N/A	No	(a)	
EM -VT-0007	Seismic Sensor	Yard	K	Continuous	Mild	N/A	No	(a)	
IW-TE-350	IRWST Temperature Element	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
IW-TE- 351	IRWST Temperature Element	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PR-1013A	Steam Generator Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
MS-PR-1023A	Steam Generator Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
MS-PT-1013A	SG 1 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1013B	SG 1 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1013C	SG 1 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1013D	SG 1 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	

Table 3.11-3 (46 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
MS-PT-1023A	SG 2 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1023B	SG 2 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1023C	SG 2 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
MS-PT-1023D	SG 2 Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
NR-RW-001A	ENFMS Safety Channel Detector, Channel A	RCB/MS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
NR-RW-001B	ENFMS Safety Channel Detector, Channel B	RCB/MS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
NR-RW-001C	ENFMS Safety Channel Detector, Channel C	RCB/MS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
NR-RW-001D	ENFMS Safety Channel Detector, Channel D	RCB/MS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
PA-PA03A	ESF-CCS GC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA03B	ESF-CCS GC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA03C	ESF-CCS GC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA03D	ESF-CCS GC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA04A	MTP/ITP Cabinet, Channel A	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA04B	MTP/ITP Cabinet, Channel B	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA04C	MTP/ITP Cabinet, Channel C	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA04D	MTP/ITP Cabinet, Channel D	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA05M	DPS Cabinet, Channel N1	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA05N	DPS Cabinet, Channel N2	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA05O	DPS Cabinet, Channel N3	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA05P	DPS Cabinet, Channel N4	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA06C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA06D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA14A	PPS Cabinet, Channel A	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA14B	PPS Cabinet, Channel B	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA14C	PPS Cabinet, Channel C	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA14D	PPS Cabinet, Channel D	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA15A	CPCS Cabinet, Channel A	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA15B	CPCS Cabinet, Channel B	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA15C	CPCS Cabinet, Channel C	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA15D	CPCS Cabinet, Channel D	AB	C	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (47 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
PA-PA18A	APC Cabinet, Channel A	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA18B	APC Cabinet, Channel B	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA18C	APC Cabinet, Channel C	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA18D	APC Cabinet, Channel D	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA29C	DRCS Remote I/O Cabinets (Associated Circuit)	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA29D	DRCS Remote I/O Cabinets (Associated Circuit)	CR	J	Continuous	Mild	Mild	No	(a)	
PA-PA38M	Seismic Monitoring System Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA47A	BOP Radiation Monitoring Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA47B	BOP Radiation Monitoring Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PA-PA48A	ENFMS Cabinet, Channel A	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA48B	ENFMS Cabinet, Channel B	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA48C	ENFMS Cabinet, Channel C	AB	C	Continuous	Mild	Mild	No	(a)	
PA-PA48D	ENFMS Cabinet, Channel D	AB	C	Continuous	Mild	Mild	No	(a)	
PE-LX01A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX01B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX01C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX01D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX02A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX02B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX02C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX02D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX03A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX03B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX03C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX03D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX04A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX04B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX04C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE-LX04D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (48 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
PE -LX05A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX05B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX05C	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX05D	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX06A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX06B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX07A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX07B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX08A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX08B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX09A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX09B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX10A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX10B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX11A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX11B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX12A	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX12B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PE -LX13B	ESF-CCS LC Cabinet	AB	J	Continuous	Mild	Mild	No	(a)	
PM-PM01	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
PM -PM02	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
PM -PM03	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
PM -PM04	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
PM -PM05	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
PM-UC-19	PPS/CPCS/ESF-CCS Operator Module, Channel A	AB	C	Continuous	Mild	Mild	No	(a)	
PM-UC-20	PPS/CPCS/ESF-CCS Operator Module, Channel B	AB	C	Continuous	Mild	Mild	No	(a)	
PM-UC-21	PPS/CPCS/ESF-CCS Operator Module, Channel C	AB	C	Continuous	Mild	Mild	No	(a)	
PM-UC-22	PPS/CPCS/ESF-CCS Operator Module, Channel D	AB	C	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (49 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
PR-RE-217	Main Steam Line Radiation Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE-218	Main Steam Line Radiation Monitor	AB	M	Continuous	Harsh	Harsh	No	(a)	
PR-RE-219	Unit Vent Radiation Monitor	AB	D	Continuous	Mild	Harsh	No	(a)	
PR-RE-220	Unit Vent Post-Accident Radiation Monitor	AB	D	Continuous	Mild	Harsh	No	(a)	
PR-RE-233A	High Range Containment Area Radiation Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
PR-RE-234B	High Range Containment Area Radiation Monitor	RCB	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PDT-115A	SG 1 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-115B	SG 1 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-115C	SG 1 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-115D	SG 1 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-125A	SG 2 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-125B	SG 2 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-125C	SG 2 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PDT-125D	SG 2 Differential Pressure Differential Transmitter	RCB/SS	A-1, A-2	Short-Term	Harsh	Harsh	No	(a)	
RC-PR-190A	RCS Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
RC-PR-190B	RCS Pressure Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
RC-PT-102A	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-102B	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-102C	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-102D	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-103A	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-104B	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-105C	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-106D	Pressurizer Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-190A	RCS Pressure (Cold Leg-Pump Discharge)Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-PT-190B	RCS Pressure (Cold Leg-Pump Discharge)Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-SE-113A	RCP 1A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-113B	RCP 1A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-113C	RCP 1A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-113D	RCP 1A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	

Table 3.11-3 (50 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
RC-SE-123A	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123B	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123C	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123D	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133A	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133B	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133C	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133D	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123A	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123B	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123C	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-123D	RCP 1B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133A	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133B	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133C	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-133D	RCP 2A Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-143A	RCP 2B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-143B	RCP 2B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-143C	RCP 2B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-SE-143D	RCP 2B Speed Sensor and Cable	RCB/PS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-113A	RCP 1A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-113B	RCP 1A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-113C	RCP 1A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-113D	RCP 1A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-123A	RCP 1B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-123B	RCP 1B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-123C	RCP 1B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-123D	RCP 1B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	

Table 3.11-3 (51 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
RC-ST-133A	RCP 2A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-133B	RCP 2A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-133C	RCP 2A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-133D	RCP 2A Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-143A	RCP 2B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-143B	RCP 2B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-143C	RCP 2B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-ST-143D	RCP 2B Speed Transmitter	RCB/SS	B ⁽⁸⁾	Short-Term	Mild	Harsh	No	(a)	
RC-TE-112A	RCS, T/H Temperature (NR) Element ⁽¹⁰⁾	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-112B	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-112C	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-112D	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-113A	RCS, T/H Temperature (NR) Element ⁽¹⁰⁾	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-113B	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-113C	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-113D	RCS, T/H Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-122A	RCS, T/C Temperature (NR) Element ⁽¹⁰⁾	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-122B	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-122C	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-122D	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-123A	RCS, T/C Temperature (NR) Element ⁽¹⁰⁾	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-123B	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-123C	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-123D	RCS, T/C Temperature (NR) Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-132A	RCS, T/H Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-132B	RCS, T/H Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-133A	RCS, T/H Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-133B	RCS, T/H Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-142A	RCS, T/C Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-142B	RCS, T/C Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	

Table 3.11-3 (52 of 53)

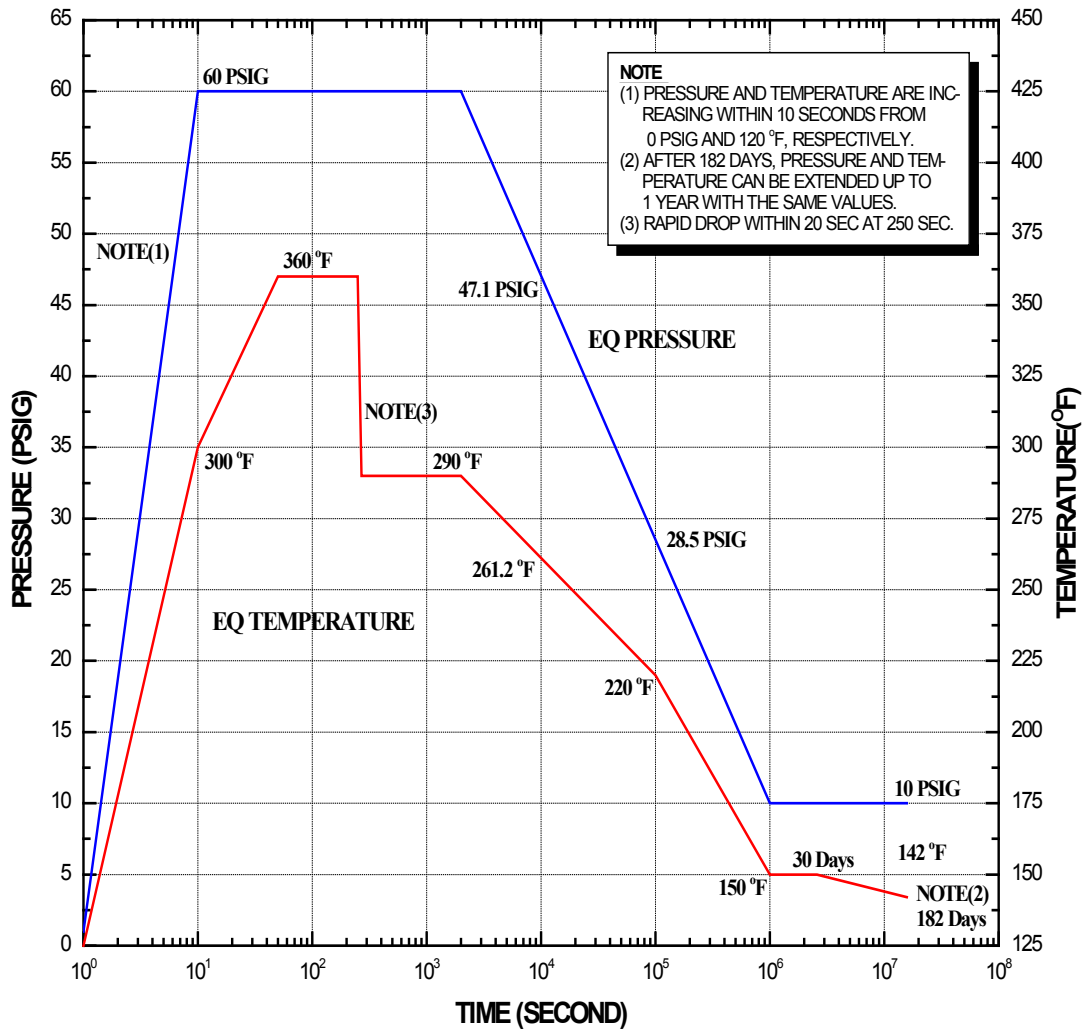
Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis (a) IEEE 323 (b) IEEE 344	Remark
		Building	Category						
Instrumentation and Control System (Con't)									
RC-TE-143A	RCS, T/C Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TE-143B	RCS, T/C Temperature Element	RCB/PS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
RC-TR-132A	RCS, T/H Temperature Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
RC-TR-133A	RCS, T/H Temperature Display	CR/MCB	J	Continuous	Mild	Mild	No	(a)	
RS-RU01	MMIS-BOP MCR (RO, TO/EO, SS, STA, Safety, RSC) Console	AB	J	Continuous	Mild	Mild	No	(a)	
SI-FT-302A	SCS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-305B	SCS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-311D	SIS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-31B	SIS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT- 331C	SIS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-341A	SIS Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-390D	Hot Leg Injection Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-FT-391C	Hot Leg Injection Flow Transmitter	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-PT-302	SC Pump Discharge Pressure Transmitter	AB	C	Continuous	Mild	Harsh	No	(a)	
SI-PT-305	SC Pump Discharge Pressure Transmitter	AB	C	Continuous	Mild	Harsh	No	(a)	
SI-PT-311D	SI Tank Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
SI-PT- 321B	SI Tank Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
SI-PT-331C	SI Tank Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
SI-PT-341A	SI Tank Pressure Transmitter	RCB/SS	A-1, A-2	Continuous	Harsh	Harsh	No	(a)	
SI-TE-300A	SDCHX 1 Inlet and Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-TE-301A	SDCHX 1 Inlet and Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-TE-302A	SDCHX Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-TE-303B	SDCHX 2 Inlet and Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-TE-304B	SDCHX 2 Inlet and Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SI-TE-305B	SDCHX Outlet Temperature Element	AB	D	Continuous	Mild	Harsh	No	(a)	
SX-TE-065	ESW Pump, Discharge Common Header Temperature Element	ESWPS	K	Continuous	Mild	Mild	No	(a)	
SX-TE-066	ESW Pump, Discharge Common Header Temperature Element	ESWPS	K	Continuous	Mild	Mild	No	(a)	

Table 3.11-3 (53 of 53)

Equipment Identification		Location		Required Durational Operation ⁽¹⁾	Environmental Condition ⁽²⁾	Radiation Condition ⁽¹¹⁾	Influence of Immersion (Yes/No)	Qualification Basis	Remark
		Building	Category					(a) IEEE 323 (b) IEEE 344	
Instrumentation and Control System (Con't)									
Various	Containment Hydrogen Concentration Monitor		AB	D	Continuous	Mild	Harsh	No	(a)

- (1) See Table 3.11-2 for definition of environmental categories.
- (2) Equipment located within a cabinet will be qualified allowing for temperature increase inside cabinet.
- (3) Not used.
- (4) Not used.
- (5) Ex-vessel portion of the instrument.
- (6) Instrument design life of 6 years.
- (7) Instrument design life of 10 years.
- (8) Not qualified for accident environment.
- (9) There is one core exit thermocouple for each ICI assembly.
- (10) Only Channels A and B are qualified for accident environment.
- (11) Radiation environmental qualification requirements for individual components are developed as discussed in Subsection 3.11.5.
Table 3.11-2 provides the worst case upper bound radiation environment in the region where the component is located.

APR1400 DCD TIER 2



- (1) Pressure and temperature are increasing within 10 seconds from 0 psig and 49°C (120 °F) respectively.
- (2) Rapid drop within 20 seconds at 250 seconds
- (3) After 182 days, pressure and temperature can be extended up to 1 year with the same values.

Figure 3.11-1 Design Basis Containment Atmosphere Temperature and Pressure EQ Profile for Accident