3.11 Environmental Qualification of Mechanical and Electrical Equipment

This section presents information to demonstrate that the mechanical and electrical portions of the engineered safety features, the reactor protection systems, and selected portions of the post-accident monitoring system are capable of performing their designated functions while exposed to applicable normal, abnormal, test, accident, and post-accident environmental conditions. The information presented includes identification of the equipment required to be environmentally qualified and, for each item of equipment, the designated functional requirements, definition of the applicable environmental parameters, and documentation of the qualification process employed to demonstrate the required environmental capability. The seismic qualification of mechanical and electrical equipment is presented in Section 3.10. The portions of post-accident monitoring equipment required to be environmentally qualified are identified in Table 7.5-1.

3.11.1 Equipment Identification and Environmental Conditions

3.11.1.1 Equipment Identification

A complete list of environmentally qualified electrical and mechanical equipment that is essential to emergency reactor shutdown, containment isolation, reactor core cooling, or containment and reactor heat removal, or that is otherwise essential in preventing significant release of radioactive material to the environment, is provided in Table 3.11-1. A list of environmentally qualified electrical and mechanical equipment and a summary of electrical and mechanical equipment qualification results are maintained as part of the equipment qualification file. The Combined License applicant is responsible for verification that the equipment qualification file is maintained during the equipment selection and procurement phase.

3.11.1.2 Definition of Environmental Conditions

Appendix 3D identifies applicable normal, abnormal, and design basis accident environmental conditions conforming to General Design Criterion 4. These environmental conditions are associated with various plant areas by an environmental zone, as noted in Table 3D.5-1 and Table 3.11-1.

For mild environments, the area conditions do not change as the result of an accident. There are no degrading environmental effects that lead to common mode failure of the equipment. The qualification of mechanical and electrical equipment located in a mild environment is demonstrated by conducting the plant surveillance activities carried out during the operational phase of the plant.

The environmental conditions identified in Appendix 3D are defined as follows.

Normal operating environmental conditions are defined as those conditions existing during routine plant operations for which the equipment is expected to be available on a continuous basis to perform required functions.

Abnormal environmental conditions are those plant conditions for which the equipment is designed to operate for a period of time without accelerating normal periodic tests, inspections, and maintenance schedules for that equipment. The maximum and minimum conditions identified as the abnormal condition are based on the design limits for the affected areas.

Design basis accident (DBA) and post-design basis accident conditions are those plant conditions resulting from various postulated equipment and piping failures during which the equipment identified in Table 3.11 must operate without impairment of the function. The design basis accident and post-design basis accident conditions are discussed in Appendix 3D.

Compatibility of equipment with the specified environmental conditions is achieved by the following.

Systems and components required to mitigate the consequences of a design basis accident or to perform safe shutdown operation are qualified to remain functional after exposure to the environmental conditions in Table 3D.5-5.

Environmentally qualified equipment exposed to a harsh environment has a qualified life goal of 60 years. Demonstration of qualified life by test or test and analysis is provided by the Combined License applicant, to address applicable aging effects. For critical components susceptible to aging, a qualified life is established that includes the effects of the total integrated radiation dose experienced at their respective locations within the plant. When a 60-year qualified life is not achievable, a shorter qualified life is established, and a replacement program is implemented.

For equipment located in a mild environment, a design life goal is established by using known significant aging mechanisms and reliability data.

Equipment qualification takes into account the most severe environmental conditions resulting from the design basis high-energy line break. Included in these conditions are the short-term peak transient temperature following a main steamline break (MSLB) and a radiation exposure and temperature due to a loss of coolant accident (LOCA) within the reactor containment.

Postulated high-energy line failures as defined in subsection 3.6.2.1.2 are assumed in areas where high-energy lines greater than 1 inch are routed. Essential equipment is protected against the effects of jet impingement (subsection 3.6.2.4.1) and evaluated for spray effects if required (subsection 3.6.2.7).

Active mechanical equipment is qualified for operability as discussed in subsection 3.9.3 and Section 3.10. This operability program, combined with the qualification of the electrical appurtenances (valve operators, solenoids, limit switches), demonstrates qualification under required environmental conditions. Active mechanical equipment is defined as equipment that performs a mechanical motion as part of its safety-related function.

Nonactive mechanical equipment whose only safety function is structural integrity is designed according to ASME Code guidelines. The accident and post-accident environmental effects are considered in the design of such structural components as pump casings and valve bodies.

The environmental qualification program is restricted to evaluating the design of critical nonmetallic subcomponents of active devices in a harsh environment, where failure results in loss of the active component.

In the event of potential flooding/wetting, one of the following criteria is applied for protection of equipment for service in such an environment:

- Equipment will be qualified for submergence due to flooding/wetting.
- Equipment will be protected from wetting due to spray.
- Equipment will be evaluated to show that failure of the equipment due to flooding/wetting is acceptable since its safety-related function is not required or has otherwise been accomplished.

3.11.1.3 Equipment Operability Times

For the AP600 Class 1E electrical and active mechanical equipment, post-accident operability times are shown in Table 3D.4-2 in Appendix 3D.

Specific information for each device qualified as part of the IEEE 323-1974 qualification program is contained in the appropriate equipment qualification data package.

The active mechanical component is qualified for operability as discussed in Section 3.10, using test, analysis, or a combination of tests and analyses. This operability program, combined with the qualification of the electrical appurtenances (for example, valve operators) discussed in the appropriate equipment qualification data packages, demonstrates qualification.

3.11.1.4 Standard Review Plan Evaluation

A discussion of the Standard Review Plan requirements in regard to environmental qualification of mechanical equipment is provided in subsection 1.9.2.

3.11.2 Qualification Tests and Analysis

3.11.2.1 Environmental Qualification of Electrical Equipment

The AP600 approach for environmental qualification of Class 1E equipment is outlined in Appendix 3D. This methodology is developed based on the guidelines provided in IEEE 323-1974 (Reference 1), and 344-1987 (Reference 2).

Qualification for equipment in a harsh environment is based on type testing or testing and analysis. Analysis may be used to determine significant aging mechanisms in mild environment applications. Type testing includes thermal and mechanical aging, radiation, and

exposure to extremes of environmental, seismic, and vibration effects. Type testing is done with representative samples of the production line equipment according to the sequence indicated in IEEE 323-1974 to the specified service conditions, including margin. The testing takes into account normal and abnormal plant operation and design basis accident and post-design basis accident operations, as required.

When reliable data and proven analytical methods are available, environmental qualification may be based on analysis supported by partial type test data. This method includes justification of the methods, theories, and assumptions used (that is, mathematical or logical proof based on actual test data) that the equipment meets or exceeds its specified performance requirements when subjected to normal, abnormal, and design basis accident environmental conditions.

Regulatory guides providing guidance for meeting the requirements of 10CFR50, Appendix A, General Design Criteria 1, 4, 23, and 50; Appendix B, Criteria III, XI, and XVII to 10CFR50 and 10CFR50.49, include Regulatory Guide 1.89, Regulatory Guide 1.30, Regulatory Guide 1.63, Regulatory Guide 1.73, Regulatory Guide 1.100, and Regulatory Guide 1.131. The maintenance surveillance program follows the guidance of Regulatory Guide 1.33.

Additional information regarding conformance with each of these regulatory guides is given in Section 1.9.

3.11.2.2 Environmental Qualification of Mechanical Equipment

AP600 mechanical components identified in Table 3.11-1 are qualified by design to perform their required functions under the appropriate environmental effects of normal, abnormal, accident, and post-accident conditions as required by General Design Criterion 4 and discussed in Appendix 3D. For mild environments, the area conditions do not change as a result of an accident. There are no degrading environmental effects that lead to common mode failure of equipment in mild environments. Mechanical equipment located in harsh environmental zones is designed to perform under the appropriate environmental conditions.

For mechanical equipment, there are two categories of components:

- Active equipment - equipment that performs a mechanical motion as part of its safety-related function.

The program for environmental qualification of active mechanical components is based on a combination of design, test, and analysis of critical sub-components, which is supported by maintenance and surveillance programs.

- Nonactive equipment - equipment whose only safety-related function is structural integrity. Nonactive components are designed for structural integrity according to ASME Code, Section III, as discussed in Section 3.9.

3.11.3 Loss of Ventilation

The abnormal environmental conditions shown on Tables 3D.5-3 and 3D.5-4 reflect anticipated maximum conditions based on loss of normal ventilation systems.

Normal containment heat removal is provided by the nonsafety-related containment air recirculation cooling system. If this system is out of service for an extended period of time, the passive containment cooling system may be initiated to maintain the temperature and pressure below the limits noted. Environmentally qualified equipment located in containment performs its functions under these conditions until the normal containment cooling system is restored.

Equipment areas outside containment and outside the main control room are maintained at normal environmental conditions by nonsafety-related HVAC systems. If these systems are disabled, the heat generated by this equipment is absorbed by the surrounding concrete with an ambient temperature rise that does not exceed the abnormal condition. Normal HVAC is restored within 72 hours or ventilation is provided as discussed in Section 6.4.

If the normal nonsafety-related main control room HVAC is lost, the heat generated by equipment and people is absorbed by the surrounding concrete. Normal heating, ventilation, and air-conditioning is restored within 72 hours or ventilation is provided as discussed in Section 6.4.

3.11.4 Estimated Radiation and Chemical Environment

The plant-specific estimates of the radiation dose incurred by equipment during normal operation is shown in Table 3D.5-2 and the estimated doses following a loss-of-coolant accident are defined in Table 3D.5-5.

The identified equipment is qualified to perform functions in the radiation environments present during normal and design basis accident conditions. The normal operational exposure is based upon design source terms presented in Chapter 11 and subsection 12.2.1. The equipment and shielding configurations are presented in Section 12.3. Post-accident monitoring, reactor trip and engineered safety features system and component radiation exposures are dependent on the location of the equipment in the plant. Source terms and other accident parameters are presented in subsection 12.2.1 and Chapter 15.

The maximum combined integrated radiation dose inside containment is based on the effects of the normally expected radiation environment (gamma) over the equipment's installed life plus that associated with the most severe design basis event (gamma and beta) during or following which the equipment is required to remain functional.

The chemical environment following a loss of coolant accident is primarily based on the chemistry of the reactor coolant system fluid since there is no caustic containment spray. Sump pH adjustments are considered for certain qualification tests. This is discussed further in Appendix 3D.

3.11.5 Combined License Information Item for Equipment Qualification File

The Combined License applicant is responsible for the maintenance of the equipment qualification file during the equipment selection and procurement phase.

3.11.6 References

1. IEEE 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations."

2. IEEE 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations."

Table 3.11-1 (Sheet 1 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
BATTERIES					
IDSA 125V 60 Cell Battery 1A	IDSA DB 1A	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSA 125V 60 Cell Battery 1B	IDSA DB 1B	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB 125V 60 Cell Battery 1A	IDSB DB 1A	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB 125V 60 Cell Battery 1B	IDSB DB 1B	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB 125V 60 Cell Battery 2A	IDSB DB 2A	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSB 125V 60 Cell Battery 2B	IDSB DB 2B	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSC 125V 60 Cell Battery 1A	IDSC DB 1A	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSC 125V 60 Cell Battery 1B	IDSC DB 1B	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSC 125V 60 Cell Battery 2A	IDSC DB 2A	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSC 125V 60 Cell Battery 2B	IDSC DB 2B	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSD 125V 60 Cell Battery 1A	IDSD DB 1A	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSD 125V 60 Cell Battery 1B	IDSD DB 1B	2	RT ESF PAMS	5 min 24 hr 24 hr	E
Spare 125V 60 Cell Battery 1A	IDSS DB 1A	2	RT ESF PAMS	5 min 24 hr 24 hr	E
Spare 125V 60 Cell Battery 1B	IDSS DB 1B	2	RT ESF PAMS	5 min 24 hr 24 hr	E

Table 3.11-1 (Sheet 2 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
BATTERY CHARGERS					
IDSA Battery Charger	IDSA DC 1	2	ISOL	24 hr	E
IDSB Battery Charger	IDSB DC 1	2	ISOL	24 hr	E
IDSB Battery Charger 2	IDSB DC 2	2	ISOL	72 hr	E
IDSC Battery Charger 1	IDSC DC 1	2	ISOL	24 hr	E
IDSC Battery Charger 2	IDSC DC 2	2	ISOL	72 hr	E
IDSD Battery Charger	IDSD DC 1	2	ISOL	24 hr	E
Spare Battery Charger	IDSS DC 1	2	ISOL	24 hr	E
DISTRIBUTION PANELS					
IDSA 125 Vdc Dist Panel	IDSA DD 1	2	ESF	24 hr	E
IDSB 125 Vdc Dist Panel	IDSB DD 1	2	ESF	24 hr	E
IDSC 125 Vdc Dist Panel	IDSC DD 1	2	ESF	24 hr	E
IDSD 125 Vdc Dist Panel	IDSD DD 1	2	ESF	24 hr	E
IDSA 120 Vac Dist Panel 1	IDSA EA 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSA 120 Vac Dist Panel 2	IDSA EA 2	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB 120 Vac Dist Panel 1	IDSB EA 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB 120 Vac Dist Panel 2	IDSB EA 2	2	RT ESF PAMS	5 min 24 hr 1 yr	E
IDSB 120 Vac Dist Panel 3	IDSB EA 3	2	PAMS	1 yr	E

Table 3.11-1 (Sheet 3 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
IDSC 120 Vac Dist Panel 1	IDSC EA 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSC 120 Vac Dist Panel 2	IDSC EA 2	2	RT ESF PAMS	5 min 24 hr 1 yr	E
IDSC 120 Vac Dist Panel 3	IDSC EA 3	2	PAMS	1 yr	E
IDSD 120 Vac Dist Panel 1	IDSD EA 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSD 120 Vac Dist Panel 2	IDSD EA 2	2	RT ESF PAMS	5 min 24 hr 24 hr	E
FUSE PANELS					
IDSA Fuse Panel	IDSA EA 4	2	ISOL	24 hr	E
IDSB Fuse Panel	IDSB EA 4	2	ISOL	24 hr	E
IDSB Fuse Panel	IDSB EA 5	2	ISOL	1 yr	E
IDSB Fuse Panel	IDSB EA 6	2	ISOL	1 yr	E
IDSC Fuse Panel	IDSC EA 4	2	ISOL	24 hr	E
IDSC Fuse Panel	IDSC EA 5	2	ISOL	1 yr	E
IDSC Fuse Panel	IDSC EA 6	2	ISOL	1 yr	E
IDSD Fuse Panel	IDSD EA 4	2	ISOL	24 hr	E
TRANSFER SWITCHES					
IDSA Fused Transfer Switch Box 1	IDSA DF 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB Fused Transfer Switch Box 1	IDSB DF 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSB Fused Transfer Switch Box 2	IDSB DF 2	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSC Fused Transfer Switch Box 1	IDSC DF 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSC Fused Transfer Switch Box 2	IDSC DF 2	2	RT ESF PAMS	5 min 24 hr 72 hr	E
IDSD Fused Transfer Switch Box 1	IDSD DF 1	2	RT ESF PAMS	5 min 24 hr 24 hr	E
IDSS Fused Transfer Switch Box 1 (Spare)	IDSS DF 1	2	RT ESF	5 min 24 hr	E

Table 3.11-1 (Sheet 4 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
			PAMS	72 hr	
IDSS Spare Termination Box	IDSS DF 2	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSS Spare Termination Box	IDSS DF 3	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSS Spare Termination Box	IDSS DF 4	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSS Spare Termination Box	IDSS DF 5	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSS Spare Termination Box	IDSS DF 6	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
MOTOR CONTROL CENTERS					
IDSA 125 Vdc MCC	IDSA DK 1	2	ESF	24 hr	E
IDSB 125 Vdc MCC	IDSB DK 1	2	ESF	24 hr	E
IDSC 125 Vdc MCC	IDSC DK 1	2	ESF	24 hr	E
IDSD 125 Vdc MCC	IDSD DK 1	2	ESF	24 hr	E
SWITCHBOARDS					
IDSA 125 Vdc Switchboard 1	IDSA DS 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSB 125 Vdc Switchboard 1	IDSB DS 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSB 125 Vdc Switchboard 2	IDSB DS 2	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSC 125 Vdc Switchboard 1	IDSC DS 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSC 125 Vdc Switchboard 2	IDSC DS 2	2	RT	5 min	E
			ESF	24 hr	
			PAMS	72 hr	
IDSD 125 Vdc Switchboard 1	IDSD DS 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	

Table 3.11-1 (Sheet 5 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
TRANSFORMERS					
IDSA Regulating Transformer 1	IDSA DT 1	2	ISOL	24 hr	E
IDSB Regulating Transformer 1	IDSB DT 1	2	ISOL	72 hr	E
			PAMS	1 yr	
IDSC Regulating Transformer 1	IDSC DT 1	2	ISOL	72 hr	E
			PAMS	1 yr	
IDSD Regulating Transformer 1	IDSD DT 1	2	ISOL	24 hr	E
INVERTERS					
IDSA Inverter	IDSA DU 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSB Inverter 1	IDSB DU 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSB Inverter 2	IDSB DU 2	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	
IDSC Inverter 1	IDSC DU 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
IDSC Inverter 2	IDSC DU 2	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	
IDSD Inverter	IDSD DU 1	2	RT	5 min	E
			ESF	24 hr	
			PAMS	24 hr	
SWITCHGEAR					
RCP 1A 4160V Switchgear 51	ECS ES 51	2	ESF	5 min	E
			PAMS	2 wks	
RCP 1A 4160V Switchgear 52	ECS ES 52	2	ESF	5 min	E
			PAMS	2 wks	
RCP 2A 4160V Switchgear 53	ECS ES 53	2	ESF	5 min	E
			PAMS	2 wks	
RCP 2A 4160V Switchgear 54	ECS ES 54	2	ESF	5 min	E
			PAMS	2 wks	
RCP 1B 4160V Switchgear 61	ECS ES 61	2	ESF	5 min	E
			PAMS	2 wks	
RCP 1B 4160V Switchgear 62	ECS ES 62	2	ESF	5 min	E
			PAMS	2 wks	
RCP 2B 4160V Switchgear 63	ECS ES 63	2	ESF	5 min	E
			PAMS	2 wks	
RCP 2B 4160V Switchgear 64	ECS ES 64	2	ESF	5 min	E
			PAMS	2 wks	

Table 3.11-1 (Sheet 6 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Reactor Trip Switchgear	PMS JD RTSA01	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSA02	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSB01	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSB02	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSC01	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSC02	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSD01	4	RT PAMS	5 min 2 wks	E
Reactor Trip Switchgear	PMS JD RTSD02	4	RT PAMS	5 min 2 wks	E
HYDROGEN MONITORS					
Containment H_2 Concentration	VLS JE AE 001 (Note 4)	1	PAMS	4 mos	E *
Containment H_2 Concentration	VLS JE AE 003 (Note 4)	1	PAMS	4 mos	E *
Containment H_2 Concentration	VLS JE AE 009 (Note 4)	1	PAMS	4 mos	E *
LEVEL SWITCHES					
Core Makeup Tank A Narrow Range Upper Level	PXS JE LS 011A	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Upper Level	PXS JE LS 011B	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Upper Level	PXS JE LS 011C	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Upper Level	PXS JE LS 011D	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Upper Level	PXS JE LS 012A	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Upper Level	PXS JE LS 012B	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Upper Level	PXS JE LS 012C	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Upper Level	PXS JE LS 012D	1	ESF PAMS	24 hr 4 mos	E *

Table 3.11-1 (Sheet 7 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Core Makeup Tank A Narrow Range Lower Level	PXS JE LS 013A	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Lower Level	PXS JE LS 013B	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Lower Level	PXS JE LS 013C	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank A Narrow Range Lower Level	PXS JE LS 013D	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Lower Level	PXS JE LS 014A	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Lower Level	PXS JE LS 014B	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Lower Level	PXS JE LS 014C	1	ESF PAMS	24 hr 4 mos	E *
Core Makeup Tank B Narrow Range Lower Level	PXS JE LS 014D	1	ESF PAMS	24 hr 4 mos	E *
Accumulator Tank A Level	PXS JE LS 021	1	PAMS	4 mos	E * +
Accumulator Tank B Level	PXS JE LS 022	1	PAMS	4 mos	E * +
Accumulator Tank A Level	PXS JE LS 023	1	PAMS	4 mos	E * +
Accumulator Tank B Level	PXS JE LS 024	1	PAMS	4 mos	E * +

Table 3.11-1 (Sheet 8 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Containment Floodup Level	PXS JE LS 050	1	PAMS	4 mos	E *
Containment Floodup Level	PXS JE LS 051	1	PAMS	4 mos	E *
Containment Floodup Level	PXS JE LS 052	1	PAMS	4 mos	E *
NEUTRON DETECTORS					
Source Range Neutron Detector	RXS JE NE 001A	1	RT	Note 3	E *
			ESF	Note 3	
			PAMS	4 mos	
Source Range Neutron Detector	RXS JE NE 001B	1	RT	Note 3	E *
			ESF	Note 3	
			PAMS	4 mos	
Source Range Neutron Detector	RXS JE NE 001C	1	RT	Note 3	E *
			ESF	Note 3	
			PAMS	4 mos	
Source Range Neutron Detector	RXS JE NE 001D	1	RT	Note 3	E *
			ESF	Note 3	
			PAMS	4 mos	
Intermediate Range Neutron Detector	RXS JE NE 002A	1	RT	Note 3	E *
			PAMS	4 mos	
Intermediate Range Neutron Detector	RXS JE NE 002B	1	RT	Note 3	E *
			PAMS	4 mos	
Intermediate Range Neutron Detector	RXS JE NE 002C	1	RT	Note 3	E *
			PAMS	4 mos	
Intermediate Range Neutron Detector	RXS JE NE 002D	1	RT	Note 3	E *
			PAMS	4 mos	
Power Range Neutron Detector (Lower)	RXS JE NE 003A	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Lower)	RXS JE NE 003B	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Lower)	RXS JE NE 003C	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Lower)	RXS JE NE 003D	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Upper)	RXS JE NE 004A	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Upper)	RXS JE NE 004B	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Upper)	RXS JE NE 004C	1	RT	5 min	E *
			PAMS	4 mos	
Power Range Neutron Detector (Upper)	RXS JE NE 004D	1	RT	5 min	E *
			PAMS	4 mos	

Table 3.11-1 (Sheet 9 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RADIATION MONITORS					
Blowdown Discharge Radiation	BDS JE RE 010	8	PAMS	2 wks	E +
Blowdown Brine Radiation	BDS JE RE 011	8	PAMS	2 wks	E +
Containment High Range Area Monitor	PXS JE RE 160	1	ESF	24 hr	E *
			PAMS	4 mos	
Containment High Range Area Monitor	PXS JE RE 161	1	ESF	24 hr	E *
			PAMS	4 mos	
Containment High Range Area Monitor	PXS JE RE 162	1	ESF	24 hr	E *
			PAMS	4 mos	
Containment High Range Area Monitor	PXS JE RE 163	1	ESF	24 hr	E *
			PAMS	4 mos	
Main Steamline Radiation	SGS JE RE 026	5	PAMS	2 wks	E * +
Main Steamline Radiation	SGS JE RE 027	5	PAMS	2 wks	E * +
Turbine Island Vent Radiation	TDS JE RE 001	8	PAMS	2 wks	E +
Control Room Supply Air Radiation Monitor	VBS JE RE 001A	3	ESF	24 hr	E
			PAMS	2 wks	
Control Room Supply Air Radiation Monitor	VBS JE RE 001B	3	ESF	24 hr	E
			PAMS	2 wks	
Plant Vent Radiation Mid Range	VFS JE RE 104A	7	PAMS	2 wks	E +
Plant Vent Radiation High Range	VFS JE RE 104B	7	PAMS	2 wks	E +
RESISTANCE TEMPERATURE DETECTORS					
PRHR HX Outlet Temperature	RCS JE TE 161	1	PAMS	4 mos	E *
RCS Cold Leg 1A Narrow Range Temperature	RCS JE TE 121A	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 1A Narrow Range Temperature	RCS JE TE 121D	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 1B Narrow Range Temperature	RCS JE TE 121B	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 1B Narrow Range Temperature	RCS JE TE 121C	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 2A Narrow Range Temperature	RCS JE TE 122B	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 2A Narrow Range Temperature	RCS JE TE 122C	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 2B Narrow Range Temperature	RCS JE TE 122A	1	RT	5 min	E *
			ESF	5 min	
RCS Cold Leg 2B Narrow Range Temperature	RCS JE TE 122D	1	RT	5 min	E *
			ESF	5 min	
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 131A	1	RT	5 min	E *
			ESF	5 min	
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 131C	1	RT	5 min	E *
			ESF	5 min	

Table 3.11-1 (Sheet 10 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 132A	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 132C	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 133C	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 1 Narrow Range Temperature	RCS JE TE 133A	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 131B	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 131D	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 132B	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 132D	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 133B	1	RT ESF	5 min 5 min	E *
RCS Hot Leg 2 Narrow Range Temperature	RCS JE TE 133D	1	RT ESF	5 min 5 min	E *
RCS Cold Leg 1A Wide Range Temperature	RCS JE TE 125A	1	PAMS	4 mos	E *
RCS Cold Leg 1B Wide Range Temperature	RCS JE TE 125C	1	PAMS	4 mos	E *
RCS Cold Leg 2A Wide Range Temperature	RCS JE TE 125B	1	PAMS	4 mos	E *
RCS Cold Leg 2B Wide Range Temperature	RCS JE TE 125D	1	PAMS	4 mos	E *
RCS Hot Leg 1 Wide Range Temperature	RCS JE TE 135A	1	PAMS	4 mos	E *
RCS Hot Leg 2 Wide Range Temperature	RCS JE TE 135B	1	PAMS	4 mos	E *
PZR Reference Leg Level Temperature	RCS JE TE 193A	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Reference Leg Level Temperature	RCS JE TE 193B	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Reference Leg Level Temperature	RCS JE TE 193C	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Reference Leg Level Temperature	RCS JE TE 193D	1	RT ESF PAMS	5 min 5 min 4 mos	E *

Table 3.11-1 (Sheet 11 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Spent Fuel Pool Temperature	SFS JE TE 018	11	PAMS	2 wks	E * +
Containment Temperature	VCS JE TE 053A	1	PAMS	4 mos	E * +
Containment Temperature	VCS JE TE 053B	1	PAMS	4 mos	E * +
SPEED SENSORS					
RCP 1A Pump Speed	RCS JE ST 281	1	RT	Note 3	E
RCP 1B Pump Speed	RCS JE ST 282	1	RT	Note 3	E
RCP 2A Pump Speed	RCS JE ST 283	1	RT	Note 3	E
RCP 2B Pump Speed	RCS JE ST 284	1	RT	Note 3	E
THERMOCOUPLES					
Incore Thermocouples	IIS JE TE 001 through IIS JE TE 038	1	PAMS	1 yr	E *
IRWST Surface Temperature	PXS JE TE 041	1	PAMS	4 mos	E * +
IRWST Surface Temperature	PXS JE TE 042		PAMS	4 mos	E * +
IRWST Bottom Temperature	PXS JE TE 043	1	PAMS	4 mos	E * +
IRWST Bottom Temperature	PXS JE TE 044		PAMS	4 mos	E * +
RCP 1A Bearing Water Temperature	RCS JE TE 211A	1	RT	Note 3	E
RCP 1A Bearing Water Temperature	RCS JE TE 211B	1	RT	Note 3	E
RCP 1A Bearing Water Temperature	RCS JE TE 211C	1	RT	Note 3	E
RCP 1A Bearing Water Temperature	RCS JE TE 211D	1	RT	Note 3	E
RCP 1B Bearing Water Temperature	RCS JE TE 212A	1	RT	Note 3	E
RCP 1B Bearing Water Temperature	RCS JE TE 212B	1	RT	Note 3	E
RCP 1B Bearing Water Temperature	RCS JE TE 212C	1	RT	Note 3	E
RCP 1B Bearing Water Temperature	RCS JE TE 212D	1	RT	Note 3	E
RCP 2A Bearing Water Temperature	RCS JE TE 213A	1	RT	Note 3	E
RCP 2A Bearing Water Temperature	RCS JE TE 213B	1	RT	Note 3	E
RCP 2A Bearing Water Temperature	RCS JE TE 213C	1	RT	Note 3	E
RCP 2A Bearing Water Temperature	RCS JE TE 213D	1	RT	Note 3	E
RCP 2B Bearing Water Temperature	RCS JE TE 214A	1	RT	Note 3	E
RCP 2B Bearing Water Temperature	RCS JE TE 214B	1	RT	Note 3	E
RCP 2B Bearing Water Temperature	RCS JE TE 214C	1	RT	Note 3	E
RCP 2B Bearing Water Temperature	RCS JE TE 214D	1	RT	Note 3	E

Table 3.11-1 (Sheet 12 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
TRANSMITTERS					
PCS Water Delivery Flow	PCS JE FT 001	9	PAMS	2 wks	E
PCS Water Delivery Flow	PCS JE FT 002	9	PAMS	2 wks	E
PCS Water Delivery Flow	PCS JE FT 003	9	PAMS	2 wks	E
PCS Storage Tank Water Level	PCS JE LT 010	9	PAMS	2 wks	E
PCS Storage Tank Water Level	PCS JE LT 011	9	PAMS	2 wks	E
PRHR HX Flow	PXS JE FT 049A	1	PAMS	4 mos	E *
PRHR HX Flow	PXS JE FT 049B	1	PAMS	4 mos	E *
RCS Cold Leg 1A Flow	RCS JE FT 101A	1	RT	Note 3	E
RCS Cold Leg 1A Flow	RCS JE FT 101B	1	RT	Note 3	E
RCS Cold Leg 1A Flow	RCS JE FT 101C	1	RT	Note 3	E
RCS Cold Leg 1A Flow	RCS JE FT 101D	1	RT	Note 3	E
RCS Cold Leg 1B Flow	RCS JE FT 102A	1	RT	Note 3	E
RCS Cold Leg 1B Flow	RCS JE FT 102B	1	RT	Note 3	E
RCS Cold Leg 1B Flow	RCS JE FT 102C	1	RT	Note 3	E
RCS Cold Leg 1B Flow	RCS JE FT 102D	1	RT	Note 3	E
RCS Cold Leg 2A Flow	RCS JE FT 103A	1	RT	Note 3	E
RCS Cold Leg 2A Flow	RCS JE FT 103B	1	RT	Note 3	E
RCS Cold Leg 2A Flow	RCS JE FT 103C	1	RT	Note 3	E
RCS Cold Leg 2A Flow	RCS JE FT 103D	1	RT	Note 3	E
RCS Cold Leg 2B Flow	RCS JE FT 104A	1	RT	Note 3	E
RCS Cold Leg 2B Flow	RCS JE FT 104B	1	RT	Note 3	E
RCS Cold Leg 2B Flow	RCS JE FT 104C	1	RT	Note 3	E
RCS Cold Leg 2B Flow	RCS JE FT 104D	1	RT	Note 3	E
SG1 Startup Feedwater Flow	SGS JE FT 055A	2	ESF PAMS	5 min 2 wks	E
SG1 Startup Feedwater Flow	SGS JE FT 055B	2	ESF PAMS	5 min 2 wks	E
SG2 Startup Feedwater Flow	SGS JE FT 056A	2	ESF PAMS	5 min 2 wks	E
SG2 Startup Feedwater Flow	SGS JE FT 056B	2	ESF PAMS	5 min 2 wks	E
Plant Vent Flow	VFS JE FT 101	7	PAMS	2 wks	E +

Table 3.11-1 (Sheet 13 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
IRWST Level	PXS JE LT 045	1	PAMS ESF	4 mos 24 hr	E *
IRWST Level	PXS JE LT 046	1	PAMS ESF	4 mos 24 hr	E *
IRWST Level	PXS JE LT 047	1	PAMS ESF	4 mos 24 hr	E *
IRWST Level	PXS JE LT 048	1	PAMS ESF	4 mos 24 hr	E *
RCS Hot Leg Water Level	RCS JE LT 160A	1	PAMS	4 mos	E *
RCS Hot Leg Water Level	RCS JE LT 160B	1	PAMS	4 mos	E *
PZR Level	RCS JE LT 195A	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Level	RCS JE LT 195B	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Level	RCS JE LT 195C	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Level	RCS JE LT 195D	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG1 Narrow Range Level	SGS JE LT 001	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG1 Narrow Range Level	SGS JE LT 002	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG1 Narrow Range Level	SGS JE LT 003	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG1 Narrow Range Level	SGS JE LT 004	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG2 Narrow Range Level	SGS JE LT 005	1	RT ESF PAMS	5 min 5 min 4 mos	E *
SG2 Narrow Range Level	SGS JE LT 006	1	RT ESF PAMS	5 min 5 min 4 mos	E *

Table 3.11-1 (Sheet 14 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
SG2 Narrow Range Level	SGS JE LT 007	1	RT	5 min	E *
			ESF	5 min	
			PAMS	4 mos	
SG2 Narrow Range Level	SGS JE LT 008	1	RT	5 min	E *
			ESF	5 min	
			PAMS	4 mos	
SG1 Wide Range Level	SGS JE LT 011	1	ESF	5 min	E *
			PAMS	4 mos	
SG1 Wide Range Level	SGS JE LT 012	1	ESF	5 min	E *
			PAMS	4 mos	
SG1 Wide Range Level	SGS JE LT 015	1	ESF	5 min	E *
			PAMS	4 mos	E *
SG1 Wide Range Level	SGS JE LT 016	1	ESF	5 min	E *
			PAMS	4 mos	E *
SG2 Wide Range Level	SGS JE LT 013	1	ESF	5 min	E *
			PAMS	4 mos	
SG2 Wide Range Level	SGS JE LT 014	1	ESF	5 min	E *
			PAMS	4 mos	
SG2 Wide Range Level	SGS JE LT 017	1	ESF	5 min	E *
			PAMS	4 mos	
SG2 Wide Range Level	SGS JE LT 018	1	ESF	5 min	E *
			PAMS	4 mos	
Spent Fuel Pool Level	SFS JE LT 019A	11	PAMS	2 wks	E *
Spent Fuel Pool Level	SFS JE LT 019B	11	PAMS	2 wks	E *
Air Storage Tank Pressure - A	VES JE PT 001A	7	PAMS	2 wks	E+
Air Storage Tank Pressure - B	VES JE PT 001B	7	PAMS	2 wks	E+
Containment Pressure Normal Range	PCS JE PT 005	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Pressure Normal Range	PCS JE PT 006	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Pressure Normal Range	PCS JE PT 007	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Pressure Normal Range	PCS JE PT 008	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Pressure Extended Range	PCS JE PT 012	1	PAMS	4 mos	E *
Containment Pressure Extended Range	PCS JE PT 013	1	PAMS	4 mos	E *
Containment Pressure Extended Range	PCS JE PT 014	1	PAMS	4 mos	E *

Table 3.11-1 (Sheet 15 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RCS Wide Range Pressure	RCS JE PT 140A	1	PAMS ESF	4 mos 5 min	E *
RCS Wide Range Pressure	RCS JE PT 140B	1	PAMS ESF	4 mos 5 min	E *
RCS Wide Range Pressure	RCS JE PT 140C	1	PAMS ESF	4 mos 5 min	E *
RCS Wide Range Pressure	RCS JE PT 140D	1	PAMS ESF	4 mos 5 min	E *
PZR Pressure	RCS JE PT 191A	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Pressure	RCS JE PT 191B	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Pressure	RCS JE PT 191C	1	RT ESF PAMS	5 min 5 min 4 mos	E *
PZR Pressure	RCS JE PT 191D	1	RT ESF PAMS	5 min 5 min 4 mos	E *
Main Steamline SG1 Pressure	SGS JE PT 030	1	ESF PAMS	5 min 2 wks	E *
Main Steamline SG1 Pressure	SGS JE PT 031	2	ESF PAMS	5 min 2 wks	E
Main Steamline SG1 Pressure	SGS JE PT 032	1	ESF PAMS	5 min 2 wks	E *
Main Steamline SG1 Pressure	SGS JE PT 033	2	ESF PAMS	5 min 2 wks	E
Main Steamline SG2 Pressure	SGS JE PT 034	1	ESF PAMS	5 min 2 wks	E *
Main Steamline SG2 Pressure	SGS JE PT 035	2	ESF PAMS	5 min 2 wks	E
Main Steamline SG2 Pressure	SGS JE PT 036	1	ESF PAMS	5 min 2 wks	E *
Main Steamline SG2 Pressure	SGS JE PT 037	2	ESF PAMS	5 min 2 wks	E
Main Control Room Differential Pressure	VES JE PT 004A	3	ESF	2 wks	E
Main Control Room Differential Pressure	VES JE PT 004B	3	ESF	2 wks	E

Table 3.11-1 (Sheet 16 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
PROTECTION AND SAFETY MONITORING SYSTEMS					
ESFAC Cabinet	PMS JD ESFA01	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFA02	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFB01	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFB02	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFC01	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFC02	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFD01	2	ESF	24 hr	E
ESFAC Cabinet	PMS JD ESFD02	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCA01	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCA02	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCA03	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCB01	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCB02	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCB03	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCC01	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCC02	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCC03	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCD01	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCD02	2	ESF	24 hr	E
Protection Logic Cabinet	PMS JD PLCD03	2	ESF	24 hr	E
Squib Valve Controller Cabinet	PMS JD SVCA01	2	ESF	24 hr	E
Squib Valve Controller Cabinet	PMS JD SVCB01	2	ESF	24 hr	E
Squib Valve Controller Cabinet	PMS JD SVCC01	2	ESF	24 hr	E
Squib Valve Controller Cabinet	PMS JD SVCD01	2	ESF	24 hr	E
Integrated Protection Cabinet	PMS JD IPCA01	2	RT	5 min	E
			ESF	24 hr	
Integrated Protection Cabinet	PMS JD IPCA02	2	RT	5 min	E
			ESF	24 hr	
Integrated Protection Cabinet	PMS JD IPCA03	2	RT	5 min	E
			ESF	24 hr	
Integrated Protection Cabinet	PMS JD IPCA04	2	RT	5 min	E
			ESF	24 hr	
Integrated Protection Cabinet	PMS JD IPCB01	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	
Integrated Protection Cabinet	PMS JD IPCB02	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	
Integrated Protection Cabinet	PMS JD IPCB03	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	
Integrated Protection Cabinet	PMS JD IPCB04	2	RT	5 min	E
			ESF	24 hr	
			PAMS	1 yr	

Table 3.11-1 (Sheet 17 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Integrated Protection Cabinet	PMS JD IPCC01	2	RT ESF PAMS	5 min 24 hr 1 yr	E
Integrated Protection Cabinet	PMS JD IPCC02	2	RT ESF PAMS	5 min 24 hr 1 yr	E
Integrated Protection Cabinet	PMS JD IPCC03	2	RT ESF PAMS	5 min 24 hr 1 yr	E
Integrated Protection Cabinet	PMS JD IPCC04	2	RT ESF PAMS	5 min 24 hr 1 yr	E
Integrated Protection Cabinet	PMS JD IPCD01	2	RT ESF	5 min 24 hr	E
Integrated Protection Cabinet	PMS JD IPCD02	2	RT ESF	5 min 24 hr	E
Integrated Protection Cabinet	PMS JD IPCD03	2	RT ESF	5 min 24 hr	E
Integrated Protection Cabinet	PMS JD IPCD04	2	RT ESF	5 min 24 hr	E
Multiplexer Cabinet (MCR)	PMS JD MUXA01	2	ESF	24 hr	E
Multiplexer Cabinet (RSW)	PMS JD MUXA02	2	ESF	24 hr	E
Multiplexer Cabinet (MCR)	PMS JD MUXB01	2	ESF	24 hr	E
Multiplexer Cabinet (RSW)	PMS JD MUXB02	2	ESF	24 hr	E
Multiplexer Cabinet (MCR)	PMS JD MUXC01	2	ESF	24 hr	E
Multiplexer Cabinet (RSW)	PMS JD MUXC02	2	ESF	24 hr	E
Multiplexer Cabinet (MCR)	PMS JD MUXD01	2	ESF	24 hr	E
Multiplexer Cabinet (RSW)	PMS JD MUXD02	2	ESF	24 hr	E
QDPS Processing Cabinet 1	PMS JD QDPB01	2	PAMS	1 yr	E
QDPS I/O Cabinet 1	PMS JD QDPB02	2	PAMS	1 yr	E
QDPS Processing Cabinet 2	PMS JD QDPC01	2	PAMS	1 yr	E
QDPS I/O Cabinet 2	PMS JD QDPC02	2	PAMS	1 yr	E
MAIN CONTROL ROOM					
Operator Workstation A	N/A	3	RT ESF PAMS	5 min 24 hr 1 yr	E
Operator Workstation B	N/A	3	RT ESF PAMS	5 min 24 hr 1 yr	E

Table 3.11-1 (Sheet 18 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Supervisor Workstation	N/A	3	RT ESF PAMS	5 min 24 hr 1 yr	E
Switch Station (Including Switches)	N/A	3	RT ESF	5 min 24 hr	E
QDPS Thermocouple Reference Panel 1	PMS-JW-003B	3	PAMS	1 yr	
QDPS Thermocouple Reference Panel 2	PMS-JW-003C	3	PAMS	1 yr	
MCR/RSW Transfer Switch Panel A	PMS-JW-004A	3	RT ESF	5 min 24 hr	
MCR/RSW Transfer Switch Panel B	PMS-JW-004B	3	RT ESF	5 min 24 hr	
MCR/RSW Transfer Switch Panel C	PMS-JW-004C	3	RT ESF	5 min 24 hr	
MCR/RSW Transfer Switch Panel D	PMS-JW-004D	3	RT ESF	5 min 24 hr	
Source Range Neutron Flux Preamplifier Panel A	PMS-JW-005A	3	RT, ESF	Note 3	
Source Range Neutron Flux Preamplifier Panel B	PMS-JW-005B	3	RT, ESF	Note 3	
Source Range Neutron Flux Preamplifier Panel C	PMS-JW-005C	3	RT, ESF	Note 3	
Source Range Neutron Flux Preamplifier Panel D	PMS-JW-005D	3	RT, ESF	Note 3	
Intermediate Range Neutron Flux Preamplifier Panel A	PMS-JW-006A	3	RT PAMS	Note 3 4 mos	
Intermediate Range Neutron Flux Preamplifier Panel B	PMS-JW-006B	3	RT PAMS	Note 3 4 mos	
Intermediate Range Neutron Flux Preamplifier Panel C	PMS-JW-006C	3	RT PAMS	Note 3 4 mos	
Intermediate Range Neutron Flux Preamplifier Panel D	PMS-JW-006D	3	RT PAMS	Note 3 4 mos	
Power Range Neutron Flux High Voltage Distribution Box A	PMS-JW-007A	3	RT	5 min	
Power Range Neutron Flux High Voltage Distribution Box B	PMS-JW-007B	3	RT	5 min	
Power Range Neutron Flux High Voltage Distribution Box C	PMS-JW-007C	3	RT	5 min	
Power Range Neutron Flux High Voltage Distribution Box D	PMS-JW-007D	3	RT	5 min	
QDPS MCR Display Unit	PMS JY 001B	3	PAMS	1 yr	E

Table 3.11-1 (Sheet 19 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
QDPS MCR Display Unit	PMS JY 001C	3	PAMS	1 yr	E
MCR Soft Control Display Unit	PMS JY SCSA01	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSA02	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSB01	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSB02	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSC01	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSC02	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSD01	3	ESF	24 hr	E
MCR Soft Control Display Unit	PMS JY SCSD02	3	ESF	24 hr	E
ACTIVE DAMPER					
MCR Isolation Damper	VBS MD D214	3	ESF	24 hr	E
Limit Switch	VBS MD D214-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D214-L	3	ESF	24 hr	E
MCR Isolation Damper	VBS MD D215	3	ESF	24 hr	E
Limit Switch	VBS MD D215-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D215-L	3	ESF	24 hr	E
MCR Isolation Damper	VBS MD D216	3	ESF	24 hr	E
Limit Switch	VBS MD D216-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D216-L	3	ESF	24 hr	E
MCR Isolation Damper	VBS MD D217	3	ESF	24 hr	E
Limit Switch	VBS MD D217-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D217-L	3	ESF	24 hr	E
MCR Isolation Damper	VBS MD D220	3	ESF	24 hr	E
Limit Switch	VBS MD D220-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D220-L	3	ESF	24 hr	E
MCR Isolation Damper	VBS MD D221	3	ESF	24 hr	E
Limit Switch	VBS MD D221-S	3	PAMS	2 wks	E+
Solenoid	VBS MD D221-L	3	ESF	24 hr	E
PENETRATIONS					
Penetrations (Mechanical)	See Table 6.2.3-1				M *
Penetrations (Electrical)	See Figure 3.8.2-4				E *

Table 3.11-1 (Sheet 20 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
ACTIVE VALVES					
Containment Isolation - Air Out	CAS PL V014	2	ESF	5 min	M S
Solenoid Valve	CAS PL V014-S	2	ESF	5 min	E
Limit Switch	CAS PL V014-L	2	PAMS	1 yr	E
Containment Isolation - Air In	CAS PL V015	1	ESF	5 min	M *
Containment Isolation - Inlet	CCS PL V200	2	ESF	5 min	M S
Limit Switch	CCS PL V200-L	2	PAMS	2 wks	E
Motor Operator	CCS PL V200-M	2	ESF	5 min	E
Containment Isolation - Inlet	CCS PL V201	1	ESF	5 min	M *
Containment Isolation - Outlet	CCS PL V207	1	ESF	5 min	M *
Limit Switch	CCS PL V207-L	1	PAMS	1 yr	E *
Motor Operator	CCS PL V207-M	1	ESF	5 min	E *
Containment Isolation - Outlet	CCS PL V208	2	ESF	5 min	M S
Limit Switch	CCS PL V208-L	2	PAMS	2 wks	E
Motor Operator	CCS PL V208-M	2	ESF	5 min	E
RCS Purification Stop Valve	CVS PL V001	1	ESF	5 min	M *
Limit Switch	CVS PL V001-L	1	PAMS	1 yr	E *
Motor Operator	CVS PL V001-M	1	ESF	5 min	E *
RCS Purification Stop Valve	CVS PL V002	1	ESF	5 min	M *
Limit Switch	CVS PL V002-L	1	PAMS	1 yr	E *
Motor Operator	CVS PL V002-M	1	ESF	5 min	E *
RCS Letdown Stop Valve	CVS PL V003	1	ESF	5 min	M *
Limit Switch	CVS PL V003-L	1	PAMS	1 yr	E *
Motor Operator	CVS PL V003-M	1	ESF	5 min	E *
Demineralizer Flush Line Relief	CVS PL V042	1	ESF	24 hr	M
WLS Letdown IRC Isolation	CVS PL V045	1	ESF	5 min	M *
Limit Switch	CVS PL V045-L	1	PAMS	1 yr	E *
Solenoid Valve	CVS PL V045-S	1	ESF	5 min	E *
Letdown Flow ORC Isolation	CVS PL V047	7	ESF	5 min	M S
Limit Switch	CVS PL V047-L	7	PAMS	2 wks	E
Solenoid Valve	CVS PL V047-S	7	ESF	5 min	E

Table 3.11-1 (Sheet 21 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RCS Purification Check Valve	CVS PL V080	1	ESF	5 min	M *
RCS Purification Stop Valve	CVS PL V081	1	ESF	5 min	
Limit Switch	CVS PL V081-L	1	PAMS	1 yr	E * +
Solenoid Valve	CVS PL V081-S	1	ESF	5 min	E *
RCS Purification Check Valve	CVS PL V082	1	ESF	5 min	M *
Auxiliary PZR Spray Isolation	CVS PL V084	1	ESF	5 min	M *
Limit Switch	CVS PL V084-L	1	PAMS	1 yr	E * +
Solenoid Valve	CVS PL V084-S	1	ESF	5 min	E *
Auxiliary PZR Spray Isolation	CVS PL V085	1	ESF	5 min	M *
Makeup Line Containment Isolation	CVS PL V090	7	ESF	5 min	M S
Limit Switch	CVS PL V090-L	7	PAMS	2 wks	E
Motor Operator	CVS PL V090-M	7	ESF	5 min	E
Makeup Line Containment Isolation	CVS PL V091	1	ESF	5 min	M *
Limit Switch	CVS PL V091-L	1	PAMS	1 yr	E *
Motor Operator	CVS PL V091-M	1	ESF	5 min	E *
Hydrogen Addition Containment Isolation		CVS PL V092	10	ESF	5 minM *
Limit Switch	CVS PL V092-L	10	PAMS	2 wks	E *
Solenoid Valve	CVS PL V092-S	10	ESF	5 min	E *
Hydrogen Addition Containment Isolation		CVS PL V094	1	ESF	5 minM *
Makeup Containment Isolation	CVS PL V100	1	ESF	24 hrs	M *
Demineralizer Water System Isolation	CVS PL V136A	6	ESF	5 min	M
Limit Switch	CVS PL V136A-L	6	PAMS	2 wks	E +
Solenoid Valve	CVS PL V136A-S	6	ESF	5 min	E
Demineralized Water System Isolation	CVS PL V136B	6	ESF	5 min	M
Limit Switch	CVS PL V136B-L	6	PAMS	2 wks	E +
Solenoid Valve	CVS PL V136B-S	6	ESF	5 min	E
Main to Startup Feed Header (Limit Switch)	FWS PL V097	8	PAMS	2 wks	E +

Table 3.11-1 (Sheet 22 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Turbine Bypass Control Valve (Limit Switch)	MSS PL V001L	8	PAMS	2 wks	E +
Turbine Bypass Control Valve (Limit Switch)	MSS PL V002L	8	PAMS	2 wks	E
Turbine Bypass Control Valve (Limit Switch)	MSS PL V003L	8	PAMS	2 wks	E
Turbine Bypass Control Valve (Limit Switch)	MSS PL V004L	8	PAMS	2 wks	E
Turbine Stop Valve (Limit Switch)	MTS PL VXXX	8	PAMS	2 wks	E +
Turbine Stop Valve (Limit Switch)	MTS PL VXXX	8	PAMS	2 wks	E +
Turbine Control Valve (Limit Switch)	MTS PL VXXX	8	PAMS	2 wks	E +
Turbine Control Valve (Limit Switch)	MTS PL VXXX	8	PAMS	2 wks	E +
PCCWST Isolation Valve	PCS PL V001A	9	ESF	5 min	M S
Limit Switch	PCS PL V001A-L	9	PAMS	2 wks	E +
Solenoid Valve	PCS PL V001A-S	9	ESF	5 min	E
PCCWST Isolation Valve	PCS PL V001B	9	ESF	5 min	M S
Limit Switch	PCS PL V001B-L	9	PAMS	2 wks	E +
Solenoid Valve	PCS PL V001B-S	9	ESF	5 min	E
PCCWST Isolation Valve	PCS PL V002A	9	ESF	5 min	M S
Limit Switch	PCS PL V002A-L	9	PAMS	2 wks	E
Motor Operator	PCS PL V002A-M	9	ESF	5 min	E
PCCWST Isolation Valve	PCS PL V002B	9	ESF	5 min	M S
Limit Switch	PCS PL V002B-L	9	PAMS	2 wks	E
Motor Operator	PCS PL V002B-M	9	ESF	5 min	E
PCCWST Fire Protection Isolation	PCS PL V005	10	ESF	72 hrs	M *
PCCWST Emergency Spent Fuel Pool Makeup Isolation	PCS-PL-V009	9	ESF	2 wks	M *
Water Bucket Makeup Line Drain Valve	PCS-PL-V015	10	ESF	2 wks	M *
Water Bucket Makeup Line Isolation Valve	PCS-PL-V020	10	ESF	2 wks	M *
PCS Recirculation Isolation	PCS PL V023	10	ESF	72 hrs	M *

Table 3.11-1 (Sheet 23 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
PCCWST Long-Term Makeup Check Valve	PCS-PL-V039	10	ESF	2 wks	M *
PCCWST Long Term Makeup Isolation Drain Valve	PCS-PL-V042	10	ESF	2 wks	M *
PCCWST Long Term Makeup Isolation Valve	PCS-PL-V044	10	ESF	2 wks	M *
Emergency Makeup to the Spent Fuel Pool Isolation Valve	PCS-PL-V045	6	ESF	2 wks	M *
PCCWST Recirculation Return Isolation Valve	PCS-PL-V046	10	ESF	2 wks	M *
Emergency Makeup to the Spent Fuel Pool Drain Isolation Valve	PCS-PL-V049	6	ESF	2 wks	M *
Spent Fuel Pool Long Term Makeup Isolation Valve	PCS-PL-V050	10	ESF	2 wks	M *
Spent Fuel Pool Emergency Makeup Lower Isolation Valve	PCS-PL-V051	6	ESF	2 wks	M *
Hot Leg Sample Isolation	PSS PL V001A	1	PAMS	4 mos	E *
Hot Leg Sample Isolation	PSS PL V001B	1	PAMS	4 mos	E *
Containment Isolation - Air Sample Line	PSS PL V008	1	ESF	4 mos	M *
Limit Switch	PSS PL V008-L	1	PAMS	1 yr	E *
Solenoid Operator	PSS PL V008-S	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Isolation - Liquid Sample Line	PSS PL V010A	1	ESF	4 mos	M *
Limit Switch	PSS PL V010A-L	1	PAMS	1 yr	E *
Solenoid Operator	PSS PL V010A-S	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Isolation - Liquid Sample Line	PSS PL V010B	1	ESF	4 mos	M *
Limit Switch	PSS PL V010B-L	1	PAMS	1 yr	E *
Solenoid Operator	PSS PL V010B-S	1	ESF	5 min	E *
			PAMS	4 mos	
Containment Isolation - Liquid Sample Line	PSS PL V011	6	ESF	2 wks	M S
Limit Switch	PSS PL V011-L	6	PAMS	2 wks	E
Solenoid Valve	PSS PL V011-S	6	ESF	5 min	E
			PAMS	2 wks	
Containment Isolation - Sample Return Line	PSS PL V023	6	ESF	2 wks	M S
Limit Switch	PSS PL V023-L	6	PAMS	2 wks	E
Solenoid Valve	PSS PL V023-S	6	ESF	5 min	E
			PAMS	2 wks	
Containment Isolation Sample Return	PSS PL V024	1	ESF	4 mos	M *

Table 3.11-1 (Sheet 24 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Containment Isolation - Air Sample Line	PSS PL V046	6	ESF	2 wks	M S
Limit Switch	PSS PL V046-L	6	PAMS	2 wks	E
Solenoid Valve	PSS PL V046-S	6	ESF	2 wks	E
Core Makeup Tank A Cold Leg Inlet Isolation	PXS PL V002A	1	ESF	5 min	M *
Limit Switch	PXS PL V002A-L	1	PAMS	1 yr	E *
Motor Operator	PXS PL V002A-M	1	ESF	5 min	E *
Core Makeup Tank B Cold Leg Inlet Isolation	PXS PL V002B	1	ESF	5 min	M *
Limit Switch	PXS PL V002B-L	1	PAMS	1 yr	E *
Motor Operator	PXS PL V002B-M	1	ESF	5 min	E *
Core Makeup Tank A Discharge Isolation	PXS PL V014A	1	ESF	5 min	M *
Limit Switch	PXS PL V014A-L	1	PAMS	1 yr	E * +
Solenoid Valve	PXS PL V014A-S	1	ESF	5 min	E *
Core Makeup Tank B Discharge Isolation	PXS PL V014B	1	ESF	5 min	M *
Limit Switch	PXS PL V014B-L	1	PAMS	1 yr	E * +
Solenoid Valve	PXS PL V014B-S	1	ESF	5 min	E *
Core Makeup Tank A Discharge Isolation	PXS PL V015A	1	ESF	5 min	M *
Limit Switch	PXS PL V015A-L	1	PAMS	1 yr	E * +
Solenoid Valve	PXS PL V015A-S	1	ESF	5 min	E *
Core Makeup Tank B Discharge Isolation	PXS PL V015B	1	ESF	5 min	M *
Limit Switch	PXS PL V015B-L	1	PAMS	1 yr	E * +
Solenoid Valve	PXS PL V015B-S	1	ESF	5 min	E *
Core Makeup Tank A Discharge	PXS PL V016A	1	ESF	5 min	M *
Core Makeup Tank B Discharge	PXS PL V016B	1	ESF	5 min	M *
Core Makeup Tank A Discharge	PXS PL V017A	1	ESF	5 min	M *
Core Makeup Tank B Discharge	PXS PL V017B	1	ESF	5 min	M *
Accumulator A Discharge	PXS PL V028A	1	ESF	5 min	M *
Accumulator B Discharge	PXS PL V028B	1	ESF	5 min	M *
Accumulator A Discharge	PXS PL V029A	1	ESF	5 min	M *
Accumulator B Discharge	PXS PL V029B	1	ESF	5 min	M *
Nitrogen Supply Outside Containment Isolation	PXS PL V042	2	ESF	5 min	M S
Limit Switch	PXS PL V042-L	2	PAMS	2 wks	E
Solenoid Valve	PXS PL V042-S	2	ESF	5 min	E
IRC Nitrogen Supply Inside Containment Isolation	PXS PL V043	1	ESF	5 min	M *
PRHR HX Inlet Isolation	PXS PL V101	1	ESF	5 min	M *
Limit Switch	PXS PL V101-L	1	PAMS	1 yr	E *
Motor Operator	PXS PL V101-M	1	ESF	5 min	E *
PRHR HX Discharge Isolation	PXS PL V108A	1	ESF	5 min	M *
Limit Switch	PXS PL V108A-L	1	PAMS	1 yr	E * +

Table 3.11-1 (Sheet 25 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Solenoid Valve	PXS PL V108A-S	1	ESF	5 min	E *
PRHR HX Discharge Isolation	PXS PL V108B	1	ESF	5 min	M *
Limit Switch	PXS PL V108B-L	1	PAMS	1 yr	E * +
Solenoid Valve	PXS PL V108B-S	1	ESF	5 min	E *
Recirc Sump A Isolation	PXS PL V117A	1	ESF	24 hr	M *
Limit Switch	PXS PL V117A-L	1	PAMS	1 yr	E *
Motor Operator	PXS PL V117A-M	1	ESF	24 hr	E *
Recirc Sump B Isolation	PXS PL V117B	1	ESF	24 hr	M *
Limit Switch	PXS PL V117B-L	1	PAMS	1 yr	E * +
Motor Operator	PXS PL V117B-M	1	ESF	24 hr	E *
Recirc Sump A Isolation	PXS PL V118A	1	ESF	24 hr	M *
Limit Switch	PXS PL V118A-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V118A-T	1	ESF	24 hr	E *
Recirc Sump B Isolation	PXS PL V118B	1	ESF	24 hr	M *
Limit Switch	PXS PL V118B-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V118B-T	1	ESF	24 hr	E *
Recirc Sump A	PXS PL V119A	1	ESF	24 hr	M *
Recirc Sump B	PXS PL V119B	1	ESF	24 hr	M *
Recirc Sump A	PXS PL V120A	1	ESF	24 hr	M *
Limit Switch	PXS PL V120A-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V120A-T	1	ESF	24 hr	E *
Recirc Sump B	PXS PL V120B	1	ESF	24 hr	M *
Limit Switch	PXS PL V120B-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V120B-T	1	ESF	24 hr	E *
IRWST Injection A	PXS PL V122A	1	ESF	24 hr	M *
IRWST Injection B	PXS PL V122B	1	ESF	24 hr	M *
IRWST Injection A	PXS PL V123A	1	ESF	24 hr	M *
Limit Switch	PXS PL V123A-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V123A-T	1	ESF	24 hr	E *
IRWST Injection B	PXS PL V123B	1	ESF	24 hr	M *
Limit Switch	PXS PL V123B-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V123B-T	1	ESF	24 hr	E *
IRWST Injection A	PXS PL V124A	1	ESF	24 hr	M *
IRWST Injection B	PXS PL V124B	1	ESF	24 hr	M *
IRWST Injection A	PXS PL V125A	1	ESF	24 hr	M *
Limit Switch	PXS PL V125A-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V125A-T	1	ESF	24 hr	E *
IRWST Injection B	PXS PL V125B	1	ESF	24 hr	M *
Limit Switch	PXS PL V125B-L	1	PAMS	1 yr	E * +
Squib Operator	PXS PL V125B-T	1	ESF	24 hr	E *
First Stage ADS	RCS PL V001A	1	ESF	24 hr	M *
Limit Switch	RCS PL V001A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V001A-M	1	ESF	24 hr	E *
First Stage ADS	RCS PL V001B	1	ESF	24 hr	M *
Limit Switch	RCS PL V001B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V001B-M	1	ESF	24 hr	E *

Table 3.11-1 (Sheet 26 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Second Stage ADS	RCS PL V002A	1	ESF	24 hr	M *
Limit Switch	RCS PL V002A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V002A-M	1	ESF	24 hr	E *
Second Stage ADS	RCS PL V002B	1	ESF	24 hr	M *
Limit Switch	RCS PL V002B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V002B-M	1	ESF	24 hr	E *
Third Stage ADS	RCS PL V003A	1	ESF	24 hr	M *
Limit Switch	RCS PL V003A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V003A-M	1	ESF	24 hr	E *
Third Stage ADS	RCS PL V003B	1	ESF	24 hr	M *
Limit Switch	RCS PL V003B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V003B-M	1	ESF	24 hr	E *
Fourth Stage ADS	RCS PL V004A	1	ESF	24 hr	M *
Limit Switch	RCS PL V004A-L	1	PAMS	1 yr	E * +
Squib Operator	RCS PL V004A-T	1	ESF	24 hr	E *
Fourth Stage ADS	RCS PL V004B	1	ESF	24 hr	M *
Limit Switch	RCS PL V004B-L	1	PAMS	1 yr	E * +
Squib Operator	RCS PL V004B-T	1	ESF	24 hr	E *
Fourth Stage ADS	RCS PL V004C	1	ESF	24 hr	M *
Limit Switch	RCS PL V004C-L	1	PAMS	1 yr	E * +
Squib Operator	RCS PL V004C-T	1	ESF	24 hr	E *
Fourth Stage ADS	RCS PL V004D	1	ESF	24 hr	M *
Limit Switch	RCS PL V004D-L	1	PAMS	1 yr	E * +
Squib Operator	RCS PL V004D-T	1	ESF	24 hr	E *
PZR Safety Valve	RCS PL V005A	1	ESF	5 min	M *
Limit Switch	RCS PL V005A-L	1	PAMS	1 yr	E * +
PZR Safety Valve	RCS PL V005B	1	ESF	5 min	M *
Limit Switch	RCS PL V005B-L	1	PAMS	1 yr	E * +
ADS Discharge Header A Relief	RCS PL V010A	1	ESF	24 hr	M
ADS Discharge Header B Relief	RCS PL V010B	1	ESF	24 hr	M
First Stage ADS Isolation	RCS PL V011A	1	ESF	24 hr	M *
Limit Switch	RCS PL V011A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V011A-M	1	ESF	24 hr	E *
First Stage ADS Isolation	RCS PL V011B	1	ESF	24 hr	M *
Limit Switch	RCS PL V011B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V011B-M	1	ESF	24 hr	E *

Table 3.11-1 (Sheet 27 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Second Stage ADS Isolation	RCS PL V012A	1	ESF	24 hr	M *
Limit Switch	RCS PL V012A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V012A-M	1	ESF	24 hr	E *
Second Stage ADS Isolation	RCS PL V012B	1	ESF	24 hr	M *
Limit Switch	RCS PL V012B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V012B-M	1	ESF	24 hr	E *
Third Stage ADS Isolation	RCS PL V013A	1	ESF	24 hr	M *
Limit Switch	RCS PL V013A-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V013A-M	1	ESF	24 hr	E *
Third Stage ADS Isolation	RCS PL V013B	1	ESF	24 hr	M *
Limit Switch	RCS PL V013B-L	1	PAMS	1 yr	E *
Motor Operator	RCS PL V013B-M	1	ESF	24 hr	E *
Fourth Stage ADS Isolation	RCS V014A	1	ESF	24 hr	M *
Limit Switch	RCS V014A-L	1	PAMS	1 yr	E *
Motor Operator	RCS V014A-M	1	ESF	24 hr	E *
Fourth Stage ADS Isolation	RCS V014B	1	ESF	24 hr	M *
Limit Switch	RCS V014B-L	1	PAMS	1 yr	E *
Motor Operator	RCS V014B-M	1	ESF	24 hr	E *
Fourth Stage ADS Isolation	RCS V014C	1	ESF	24 hr	M *
Limit Switch	RCS V014C-L	1	PAMS	1 yr	E *
Motor Operator	RCS V014C-M	1	ESF	24 hr	E *
Fourth Stage ADS Isolation	RCS V014D	1	ESF	24 hr	M *
Limit Switch	RCS V014D-L	1	PAMS	1 yr	E *
Motor Operator	RCS V014D-M	1	ESF	24 hr	E *
Reactor Vessel Head Vent	RCS-PL V150A	1	ESF	5 min	E *
Limit Switch	RCS-PL V150A-L	1	PAMS	1 yr	E * +
Reactor Vessel Head Vent	RCS PL V150B	1	ESF	5 min	E *
Limit Switch	RCS PL V150B-L	1	PAMS	1 yr	E * +
Reactor Vessel Head Vent	RCS PL V150C	1	ESF	5 min	E *
Limit Switch	RCS PL V150C-L	1	PAMS	1 yr	E * +
Reactor Vessel Head Vent	RCS PL V150D	1	ESF	5 min	E *
Limit Switch	RCS PL V150D-L	1	PAMS	1 yr	E * +
RCS Inner Suction Isolation	RNS PL V001A	1	ESF	5 min	M *
Limit Switch	RNS PL V001A-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V001A-M	1	ESF	5 min	E *
RCS Inner Suction Isolation	RNS PL V001B	1	ESF	5 min	M *
Limit Switch	RNS PL V001B-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V001B-M	1	ESF	5 min	E *

Table 3.11-1 (Sheet 28 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RCS Outer Suction Isolation	RNS PL V002A	1	ESF	5 min	M *
Limit Switch	RNS PL V002A-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V002A-M	1	ESF	5 min	E *
RCS Outer Suction Isolation	RNS PL V002B	1	ESF	5 min	M *
Limit Switch	RNS PL V002B-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V002B-M	1	ESF	5 min	E *
RCS Thermal Relief	RNS PL V003A	1	ESF	24 hr	M *
RCS Thermal Relief	RNS PL V003B	1	ESF	24 hr	M *
RHR Control/Isolation Valve	RNS PL V011	6	ESF	5 min	M S
Limit Switch	RNS PL V011-L	6	PAMS	2 wks	E
Motor Operator	RNS PL V011-M	6	ESF	5 min	E
RNS Discharge Containment Isolation	RNS PL V013	1	ESF	5 min	M *
RNS Discharge RCP B Isolation	RNS PL V015A	1	ESF	5 min	M *
RNS Discharge RCP B Isolation	RNS PL V015B	1	ESF	5 min	M *
RNS Discharge RCP B Isolation	RNS PL V017A	1	ESF	5 min	M *
RNS Discharge RCP B Isolation	RNS PL V017B	1	ESF	5 min	M *
RNS Hot Leg Suction Relief	RNS PL V021	1	ESF	24 hr	M *
RHR Pump Suction Header Isolation	RNS PL V022	6	ESF	5 min	M S
Limit Switch	RNS PL V022-L	6	PAMS	2 wks	E
Motor Operator	RNS PL V022-M	6	ESF	5 min	E
IRWST Suction Line Isolation	RNS PL V023	1	ESF	5 min	M *
Limit Switch	RNS PL V023-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V023-M	1	ESF	5 min	E *
RNS HX A Channel Head Drain	RNS PL V046	6	ESF	1 yr	M
RNS - CVS Containment Isolation	RNS PL V061	1	ESF	5 min	M *
Limit Switch	RNS PL V061-L	1	PAMS	1 yr	E *
Motor Operator	RNS PL V061-M	1	ESF	5 min	E *
Containment Isolation	SFS PL V034	1	ESF	5 min	M *
Limit Switch	SFS PL V034-L	1	PAMS	1 yr	E *
Motor Operator	SFS PL V034-M	1	ESF	5 min	E *
Containment Isolation	SFS PL V035	6	ESF	5 min	M S
Limit Switch	SFS PL V035-L	6	PAMS	2 wks	E
Motor Operator	SFS PL V035-M	6	ESF	5 min	E

Table 3.11-1 (Sheet 29 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
SFS Discharge Containment Isolation	SFS PL V037	1	ESF	5 min	M *
Containment Isolation	SFS PL V038	6	ESF	5 min	M S
Limit Switch	SFS PL V038-L	6	PAMS	2 wks	E
Motor Operator	SFS PL V038-M	6	ESF	5 min	E
PORV Block Valve	SGS PL V027A	5	ESF	5 min	M *
Limit Switch	SGS PL V027A-L	5	PAMS	2 wks	E *
Motor Operator	SGS PL V027A-M	5	ESF	5 min	E *
PORV Block Valve	SGS PL V027B	5	ESF	5 min	M *
Limit Switch	SGS PL V027B-L	5	PAMS	2 wks	E *
Motor Operator	SGS PL V027B-M	5	ESF	5 min	E *
Steam Safety Valve SG01	SGS PL V030A	5	ESF	5 min	M *
Limit Switch	SGS PL V030A-L	5	PAMS	2 wks	E *
Steam Safety Valve SG02	SGS PL V030B	5	ESF	5 min	M *
Limit Switch	SGS PL V030B-L	5	PAMS	2 wks	E *
Steam Safety Valve SG01	SGS PL V031A	5	ESF	5 min	M *
Limit Switch	SGS PL V031A-L	5	PAMS	2 wks	E *
Steam Safety Valve SG02	SGS PL V031B	5	ESF	5 min	M *
Limit Switch	SGS PL V031B-L	5	PAMS	2 wks	E *
Steam Safety Valve SG01	SGS PL V032A	5	ESF	5 min	M *
Limit Switch	SGS PL V032A-L	5	PAMS	2 wks	E *
Steam Safety Valve SG02	SGS PL V032B	5	ESF	5 min	M *
Limit Switch	SGS PL V032B-L	5	PAMS	2 wks	E *
Steamline Condensate Drain Isolation	SGS PL V036A	5	ESF	5 min	M *
Limit Switch	SGS PL V036A-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V036A-S	5	ESF	5 min	E *
Steamline Condensate Isolation	SGS PL V036B	5	ESF	5 min	M *
Limit Switch	SGS PL V036B-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V036B-S	5	ESF	5 min	E *
Main Steamline Isolation	SGS PL V040A	5	ESF	5 min	M *
Limit Switch	SGS PL V040A-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL 040A-S	5	ESF	5 min	E *
Main Steamline Isolation	SGS PL V040B	5	ESF	5 min	M *
Limit Switch	SGS PL V040B-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL 040B-S	5	ESF	5 min	E *
Main Feedwater Isolation	SGS PL V057A	5	ESF	5 min	M *
Limit Switch	SGS PL V057A-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V057A-S	5	ESF	5 min	E *
Main Feedwater Isolation	SGS PL V057B	5	ESF	5 min	M *
Limit Switch	SGS PL V057B-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V057B-S	5	ESF	5 min	E *
Startup Feedwater Isolation	SGS PL V067A	5	ESF	5 min	M *
Limit Switch	SGS PL V067A-L	5	PAMS	2 wks	E *
Motor Operator	SGS PL V067A-M	5	ESF	5 min	E *

Table 3.11-1 (Sheet 30 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Startup Feedwater Isolation	SGS PL V067B	5	ESF	5 min	M *
Limit Switch	SGS PL V067B-L	5	PAMS	2 wks	E *
Motor Operator	SGS PL V067B-M	5	ESF	5 min	E *
SG Blowdown Isolation	SGS PL V074A	10	ESF	5 min	M *
Limit Switch	SGS PL V074A-L	10	PAMS	2 wks	E *
Solenoid Valve	SGS PL V074A-S	10	ESF	5 min	E *
SG Blowdown Isolation	SGS PL V074B	10	ESF	5 min	M *
Limit Switch	SGS PL V074B-L	10	PAMS	2 wks	E *
Solenoid Valve	SGS PL V074B-S	10	ESF	5 min	E *
SG Series Blowdown Isolation	SGS PL V075A	10	ESF	5 min	M *
Solenoid Valve	SGS PL V075A-S	10	ESF	5 min	E *
SG Series Blowdown Isolation	SGS PL V075B	10	ESF	5 min	M *
Solenoid Valve	SGS PL V075B-S	10	ESF	5 min	E *
Steamline Condensate Drain	SGS PL V086A	5	ESF	5 min	M *
Isolation Solenoid Valve	SGS PL V086A-S	5	ESF	5 min	E *
Steamline Condensate Drain	SGS PL V086B	5	ESF	5 min	M *
Isolation Solenoid Valve	SGS PL V086B-S	5	ESF	5 min	E *
Power Operated Relief Valve	SGS PL V233A	5	ESF	5 min	M *
Limit Switch	SGS PL V233A-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V233A-S	5	ESF	5 min	E *
Power Operated Relief Valve	SGS PL V233B	5	ESF	5 min	M *
Limit Switch	SGS PL V233B-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V233B-S	5	ESF	5 min	E *
MSIV Bypass Isolation Valve	SGS PL V240A	5	ESF	5 min	M *
Limit Switch	SGS PL V240A-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V240A-S	5	ESF	5 min	E *
MSIV Bypass Isolation Valve	SGS PL V240B	5	ESF	5 min	M *
Limit Switch	SGS PL V240B-L	5	PAMS	2 wks	E *
Solenoid Valve	SGS PL V240B-S	5	ESF	5 min	E *
Main Feedwater Control Valve	SGS PL V250A	5	ESF	5 min	M *
Limit Switch (Closed)	SGS PL V250A-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V250A-S	5	ESF	5 min	E *
Main Feedwater Control Valve	SGS PL V250B	5	ESF	5 min	M *
Limit Switch	SGS PL V250B-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V250B-S	5	ESF	5 min	E *
Startup Feedwater Control Valve	SGS PL V255A	5	ESF	5 min	M *
Limit Switch	SGS PL V255A-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V255A-S	5	ESF	5 min	E *
Startup Feedwater Control Valve	SGS PL V255B	5	ESF	5 min	M *
Limit Switch	SGS PL V255B-L	5	PAMS	2 wks	E * +
Solenoid Valve	SGS PL V255B-S	5	ESF	5 min	E *

Table 3.11-1 (Sheet 31 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Air Delivery Isolation Valve	VES PL V001	3	ESF	2 wks	M
Pressure Regulator Valve A	VES PL V002A	7	ESF	2 wks	M
Pressure Regulator Valve B	VES PL V002B	7	ESF	2 wks	M
Actuation Valve A	VES PL V005A	7	ESF	2 wks	E
Limit Switch	VES PL V005 A-L	7	PAMS	2 wks	E +
Actuation Valve B	VES PL V005B	7	ESF	2 wks	E
Limit Switch	VES PL V005 B-L	7	PAMS	2 wks	E +
Relief Isolation Valve A	VES PL V022A	3	ESF	2 wks	M
Solenoid Valve	VES PL V022A-S	3	ESF	2 wks	E
Relief Isolation Valve B	VES PL V022B	3	ESF	2 wks	M
Solenoid Valve	VES PL V022B-S	3	ESF	2 wks	E
Air Tank Relief A	VES PL V040A	7	ESF	2 wks	M
Air Tank Relief B	VES PL V040B	7	ESF	2 wks	M
Air Tank Relief A	VES PL V041A	7	ESF	2 wks	M
Air Tank Relief B	VES PL V041B	7	ESF	2 wks	M
Main Air Flowpath Isolation Valve	VES PL V044	3	ESF	2 wks	M
Containment Purge Inlet Isolation	VFS PL V003	7	ESF	5 min	M S
Limit Switch	VFS PL V003-L	7	PAMS	2 wks	E
Solenoid Valve	VFS PL V003-S	7	ESF	5 min	E
Containment Purge Inlet Isolation	VFS PL V004	1	ESF	5 min	M *
Limit Switch	VFS PL V004-L	1	PAMS	1 yr	E *
Solenoid Valve	VFS PL V004-S	1	ESF	5 min	E *
Containment Purge Discharge Isolation	VFS PL V009	1	ESF	5 min	M *
Limit Switch	VFS PL V009-L	1	PAMS	1 yr	E *
Solenoid Valve	VFS PL V009-S	1	ESF	5 min	E *
Containment Purge Discharge Isolation	VFS PL V010	6	ESF	5 min	M S
Limit Switch	VFS PL V010-L	6	PAMS	2 wks	E
Solenoid Valve	VFS PL V010-S	6	ESF	5 min	E
Fan Cooler Supply Isolation	VWS PL V058	2	ESF	5 min	M S
Limit Switch	VWS PL V058-L	2	PAMS	2 wks	E
Solenoid Valve	VWS PL V058-S	2	ESF	5 min	E
Fan Cooler Supply Isolation	VWS PL V062	1	ESF	5 min	M *

Table 3.11-1 (Sheet 32 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Fan Cooler Return Isolation	VWS PL V082	1	ESF	5 min	M *
Limit Switch	VWS PL V082-L	1	PAMS	1 yr	E *
Solenoid Valve	VWS PL V082-S	1	ESF	5 min	E *
Fan Cooler Return Isolation	VWS PL V086	2	ESF	5 min	M S
Limit Switch	VWS PL V086-L	2	PAMS	2 wks	E
Solenoid Valve	VWS PL V086-S	2	ESF	5 min	E
Sump Containment Isolation IRC	WLS PL V055	1	ESF	5 min	M *
Limit Switch	WLS PL V055-L	1	PAMS	1 yr	E *
Solenoid Valve	WLS PL V055-S	1	ESF	5 min	E *
Sump Containment Isolation ORC	WLS PL V057	7	ESF	5 min	M S
Limit Switch	WLS PL V057-L	7	PAMS	2 wks	E
Solenoid Valve	WLS PL V057-S	7	ESF	5 min	E
RCDT Gas Containment Isolation	WLS PL V067	1	ESF	5 min	M *
Limit Switch	WLS PL V067-L	1	PAMS	1 yr	E *
Solenoid Valve	WLS PL V067-S	1	ESF	5 min	E *
RCDT Gas Containment Isolation	WLS PL V068	7	ESF	5 min	M S
Limit Switch	WLS PL V068-L	7	PAMS	2 wks	E
Solenoid Valve	WLS PL V068-S	7	ESF	5 min	E

Table 3.11-1 (Sheet 33 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
CVS To Sump	WLS PL V071 A	1	ESF	2 wks	M *
PXS A To Sump	WLS PL V071 B	1	ESF	2 wks	M *
PXS B To Sump	WLS PL V071 C	1	ESF	2 wks	M *
CVS To Sump	WLS PL V072 A	1	ESF	2 wks	M *
PXS A To Sump	WLS PL V072 B	1	ESF	2 wks	M *
PXS B To Sump	WLS PL V072 C	1	ESF	2 wks	M *
MISCELLANEOUS					
Non-Active Valves					
Containment Penetration Test Connection Isolation	CAS-PL-V027	2	PB	1 yr	M
Service Air Supply Outside Containment Isolation	CAS-PL-V204	2	PB	1 yr	M
Service Air Supply Inside Containment Isolation	CAS-PL-V205	1	PB	1 yr	M *
Containment Penetration Test Connection Isolation	CAS-PL-V219	1	PB	1 yr	M *
Containment Isolation Valve Test Connection - Outlet Line	CCS-PL-V209	1	PB	1 yr	M *
Containment Isolation Valve Test Connection - Inlet Line	CCS-PL-V257	2	PB	1 yr	M
Resin Flush IRC Isolation	CVS-PL-V040	1	PB	1 yr	M *
Resin Flush ORC Isolation	CVS-PL-V041	10	PB	1 yr	M *
Letdown PZR Instrument Root	CVS-PL-V046	10	PB	1 yr	M *
Hydrogen Addition Containment Isolation Test Connection	CVS-PL-V096	1	PB	1 yr	M *
Demin Water Supply Containment Isolation - Outside	DWS-PL-V244	2	PB	1 yr	M
Demin Water Supply Containment Isolation - Inside	DWS-PL-V245	1	PB	1 yr	M *
Containment Penetration Test Connection Isolation	DWS-PL-V248	2	PB	1 yr	M
Fire Water Containment Test Connection Isolation	FPS-PL-V049	10	PB	1 yr	M *
Fire Water Containment Supply Isolation	FPS-PL-V050	10	PB	1 yr	M *
Fire Water Containment Test Connection Isolation	FPS-PL-V051	10	PB	1 yr	M *
Fire Water Containment Supply Isolation - Inside	FPS-PL-V052	1	PB	1 yr	M *

Table 3.11-1 (Sheet 34 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Flow Transmitter FT001 Root Valve	PCS-PL-V010A	9	PB	1 yr	M
Flow Transmitter FT001 Root Valve	PCS-PL-V010B	9	PB	1 yr	M
Flow Transmitter FT002 Root Valve	PCS-PL-V011A	9	PB	1 yr	M
Flow Transmitter FT001 Root Valve	PCS-PL-V011B	9	PB	1 yr	M
Flow Transmitter FT003 Root Valve	PCS-PL-V012A	9	PB	1 yr	M
Flow Transmitter FT003 Root Valve	PCS-PL-V012B	9	PB	1 yr	M
Flow Transmitter FT004 Root Valve	PCS-PL-V013A	9	PB	1 yr	M
Flow Transmitter FT004 Root Valve	PCS-PL-V013B	9	PB	1 yr	M
PCCWST Drain Isolation Valve	PCS-PL-V016	9	PB	1 yr	M
PCCWST Isolation Valve Leakage Detection Drain	PCS-PL-V029	9	PB	1 yr	M
PCCWST Isolation Valve Leakage Detection Crossconn	PCS-PL-V030	9	PB	1 yr	M
PCCWST Level Instrument Root Valve	PCS-PL-V031A	9	PB	1 yr	M
PCCWST Level Instrument Root Valve	PCS-PL-V031B	9	PB	1 yr	M
Recirculation Pump Suction from Long Term Makeup Isolation Valve	PCS-PL-V033	10	ESF 2 wks	M *	
PCCWST Discharge Line Cross-Connect Isolation Valve	PCS-PL-V047	9	ESF	2 wks	M *

Table 3.11-1 (Sheet 35 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
PZR Liquid Isolation	PSS-PL-V003A	1	PB	1 yr	M *
PZR Vapor Space Sample Isolation	PSS-PL-V003B	1	PB	1 yr	M *
PXS Accumulator Sample Isolation	PSS-PL-V004A	1	PB	1 yr	M *
PXS Accumulator Sample Isolation	PSS-PL-V004B	1	PB	1 yr	M *
PXS CMT A Sample Isolation	PSS-PL-V005A	1	PB	1 yr	M *
PXS CMT B Sample Isolation	PSS-PL-V005B	1	PB	1 yr	M *
PXC CMT A Sample Isolation	PSS-PL-V005C	1	PB	1 yr	M *
PXS CMT B Sample Isolation	PSS-PL-V005D	1	PB	1 yr	M *
CVS Demineralizer Sample Isolation	PSS-PL-V006	1	PB	1 yr	M *
Liquid Sample Check Valve	PSS-PL-V012A	1	PB	1 yr	M *
Liquid Sample Check Valve	PSS-PL-V012B	1	PB	1 yr	M *
PXS Accumulator A Sample Check Valve	PSS-PL-V020A	1	PB	1 yr	M *
PXS Accumulator B Sample Check Valve	PSS-PL-V020B	1	PB	1 yr	M *
CVS Demineralizer Sample Check Valve	PSS-PL-V035	1	PB	1 yr	M *
WLS Sump Sample Check Valve	PSS-PL-V039	1	PB	1 yr	M *
Containment Testing Boundary Isolation Valve	PSS-PL-V076A	1	PB	1 yr	M *
Containment Testing Boundary Isolation Valve	PSS-PL-V076B	1	PB	1 yr	M *
Containment Isolation Test Connection Isolation Valve	PSS-PL-V082	1	PB	1 yr	M *
Containment Isolation Test Connection Isolation Valve	PSS-PL-V083	1	PB	1 yr	M *
Containment Isolation Test Connection Isolation Valve	PSS-PL-V085	1	PB	1 yr	M *
Containment Isolation Test Connection Isolation Valve	PSS-PL-V086	1	PB	1 yr	M *

Table 3.11-1 (Sheet 36 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Core Makeup Tank A CL Inlet Isolation	PXS-PL-V002A	1	PB	1 yr	M *
Core Makeup Tank B CL Inlet Isolation	PXS-PL-V002B	1	PB	1 yr	M *
Core Makeup Tank A Upper Sample	PXS-PL-V010A	1	PB	1 yr	M *
Core Makeup Tank B Upper Sample	PXS-PL-V010B	1	PB	1 yr	M *
Core Makeup Tank A Lower Sample	PXS-PL-V011A	1	PB	1 yr	M *
Core Makeup Tank B Lower Sample	PXS-PL-V011B	1	PB	1 yr	M *
Core Makeup Tank A Drain	PXS-PL-V012A	1	PB	1 yr	M *
Core Makeup Tank B Drain	PXS-PL-V012B	1	PB	1 yr	M *
Core Makeup Tank Discharge Manual Isolation	PXS-PL-V013A	1	PB	1 yr	M *
Core Makeup Tank B Discharge Manual Isolation	PXS-PL-V013B	1	PB	1 yr	M *
DVI Line A Vent	PXS-PL-V019A	1	PB	1 yr	M *
DVI Line B Vent	PXS-PL-V019B	1	PB	1 yr	M *
Accumulator A N_2 Vent	PXS-PL-V021A	1	PB	1 yr	M *
Accumulator B N_2 Vent	PXS-PL-V021B	1	PB	1 yr	M *
Accumulator A PZR Transmitter Isolation	PXS-PL-V023A	1	PB	1 yr	M *
Accumulator B PZR Transmitter Isolation	PXS-PL-V023B	1	PB	1 yr	M *
Accumulator A PZR Transmitter Isolation	PXS-PL-V024A	1	PB	1 yr	M *
Accumulator B PZR Transmitter Isolation	PXS-PL-V024B	1	PB	1 yr	M *
Accumulator A Sample	PXS-PL-V025A	1	PB	1 yr	M *
Accumulator B Sample	PXS-PL-V025B	1	PB	1 yr	M *
Accumulator A Drain	PXS-PL-V026A	1	PB	1 yr	M *
Accumulator B Drain	PXS-PL-V026B	1	PB	1 yr	M *
Accumulator A Discharge Isolation	PXS-PL-V027A	1	PB	1 yr	M *
Accumulator B Discharge Isolation	PXS-PL-V027B	1	PB	1 yr	M *
Core Makeup Tank A Highpoint Vent	PXS-PL-V030A	1	PB	1 yr	M *
Core Makeup Tank B Highpoint Vent	PXS-PL-V030B	1	PB	1 yr	M *
Core Makeup Tank A Highpoint Vent	PXS-PL-V031A	1	PB	1 yr	M *
Core Makeup Tank B Highpoint Vent	PXS-PL-V031B	1	PB	1 yr	M *
Accumulator A Check Valve Drain	PXS-PL-V033A	1	PB	1 yr	M *
Accumulator B Check Valve Drain	PXS-PL-V033B	1	PB	1 yr	M *
Accumulator N_2 Containment Penetration Test Connection	PXS-PL-V052	1	PB	1 yr	M *
PRHR HX Inlet Isolation	PXS-PL-V101	1	PB	1 yr	M *
PRHR HX Inlet Head Vent	PXS-PL-V102A	1	PB	1 yr	M *
PRHR HX Inlet Head Drain	PXS-PL-V102B	1	PB	1 yr	M *
PRHR HX Outlet Head Vent	PXS-PL-V103A	1	PB	1 yr	M *
PRHR HX Outlet Head Drain	PXS-PL-V103B	1	PB	1 yr	M *

Table 3.11-1 (Sheet 37 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
PRHR HX Flow Transmitter A Isolation	PXS-PL-V104A	1	PB	1 yr	M *
PRHR HX Flow Transmitter B Isolation	PXS-PL-V104B	1	PB	1 yr	M *
PRHR HX Flow Transmitter A Isolation	PXS-PL-V105A	1	PB	1 yr	M *
PRHR HX Flow Transmitter B Isolation	PXS-PL-V105B	1	PB	1 yr	M *
PRHR HX/RCS Return Isolation	PXS-PL-V109	1	PB	1 yr	M *
PRHR HX Highpoint Vent	PXS-PL-V111A	1	PB	1 yr	M *
PRHR HX Highpoint Vent	PXS-PL-V111B	1	PB	1 yr	M *
PRHR HX PZR Transmitter Isolation	PXS-PL-V113	1	PB	1 yr	M *
IRWST Line A Isolation	PXS-PL-V121A	1	PB	1 yr	M *
IRWST Line B Isolation	PXS-PL-V121B	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V126A	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V126B	1	PB	1 yr	M *
IRWST to Containment Sump	PXS-PL-V127	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V128A	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V128B	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V129A	1	PB	1 yr	M *
IRWST Injection Check Test	PXS-PL-V129B	1	PB	1 yr	M *
IRWST Level Transmitter A Isolation	PXS-PL-V150A	1	PB	1 yr	M *
IRWST Level Transmitter B Isolation	PXS-PL-V150B	1	PB	1 yr	M *
IRWST Level Transmitter C Isolation	PXS-PL-V150C	1	PB	1 yr	M *
IRWST Level Transmitter D Isolation	PXS-PL-V150D	1	PB	1 yr	M *
IRWST Level Transmitter A Isolation	PXS-PL-V151A	1	PB	1 yr	M *
IRWST Level Transmitter B Isolation	PXS-PL-V151B	1	PB	1 yr	M *
IRWST Level Transmitter C Isolation	PXS-PL-V151C	1	PB	1 yr	M *
IRWST Level Transmitter D Isolation	PXS-PL-V151D	1	PB	1 yr	M *
Accumulator A Leak Test	PXS-PL-V201A	1	PB	1 yr	M *
Accumulator B Leak Test	PXS-PL-V201B	1	PB	1 yr	M *
Accumulator A Leak Test	PXS-PL-V202A	1	PB	1 yr	M *
Accumulator B Leak Test	PXS-PL-V202B	1	PB	1 yr	M *
RNS Discharge Leak Test	PXS-PL-V205A	1	PB	1 yr	M *
RNS Discharge Leak Test	PXS-PL-V205B	1	PB	1 yr	M *
RNS Discharge Leak Test	PXS-PL-V206	1	PB	1 yr	M *
RNS Suction Leak Test	PXS-PL-V207A	1	PB	1 yr	M *
RNS Suction Leak Test	PXS-PL-V207B	1	PB	1 yr	M *
RNS Suction Leak Test	PXS-PL-V208A	1	PB	1 yr	M *

Table 3.11-1 (Sheet 38 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Core Makeup Tank A Fill Isolation	PXS-PL-V230A	1	PB	1 yr	M *
Core Makeup Tank B Fill Isolation	PXS-PL-V230B	1	PB	1 yr	M *
Core Makeup Tank A Fill Check	PXS-PL-V231A	1	PB	1 yr	M *
Core Makeup Tank B Fill Check	PXS-PL-V231B	1	PB	1 yr	M *
Accumulator A Fill/Drain Isolation	PXS-PL-V232A	1	PB	1 yr	M *
Accumulator B Fill/Drain Isolation	PXS-PL-V232B	1	PB	1 yr	M *
ADS Test Valve	RCS-PL-V007A	1	PB	1 yr	M *
ADS Test Valve	RCS-PL-V007B	1	PB	1 yr	M *
Fourth Stage ADS Isolation	RCS-PL-V014A	1	PB	1 yr	M *
Fourth Stage ADS Isolation	RCS-PL-V014B	1	PB	1 yr	M *
Fourth Stage ADS Isolation	RCS-PL-V014C	1	PB	1 yr	M *
Fourth Stage ADS Isolation	RCS-PL-V014D	1	PB	1 yr	M *
Hot Leg 2 Level Instrument Root	RCS-PL-V095	1	PB	1 yr	M *
Hot Leg 2 Level Instrument Root	RCS-PL-V096	1	PB	1 yr	M *
Hot Leg 1 Level Instrument Root	RCS-PL-V097	1	PB	1 yr	M *
Hot Leg 1 Level Instrument Root	RCS-PL-V098	1	PB	1 yr	M *
Cold Leg 1A Flow Meter Instrument Root	RCS-PL-V101A	1	PB	1 yr	M *
Cold Leg 1A Flow Meter Instrument Root	RCS-PL-V101B	1	PB	1 yr	M *
Cold Leg 1A Flow Meter Instrument Root	RCS-PL-V101C	1	PB	1 yr	M *
Cold Leg 1A Flow Meter Instrument Root	RCS-PL-V101D	1	PB	1 yr	M *
Cold Leg 1B Flow Meter Instrument Root	RCS-PL-V101E	1	PB	1 yr	M *
Cold Leg 1B Flow Meter Instrument Root	RCS-PL-V102A	1	PB	1 yr	M *
Cold Leg 1B Flow Meter Instrument Root	RCS-PL-V102B	1	PB	1 yr	M *
Cold Leg 1B Flow Meter Instrument Root	RCS-PL-V102C	1	PB	1 yr	M *
Cold Leg 1B Flow Meter Instrument Root	RCS-PL-V102D	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V102E	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V103A	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V103B	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V103C	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V103D	1	PB	1 yr	M *
Cold Leg 2A Flow Meter Instrument Root	RCS-PL-V103E	1	PB	1 yr	M *
Cold Leg 2B Flow Meter Instrument Root	RCS-PL-V104A	1	PB	1 yr	M *

Table 3.11-1 (Sheet 39 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Cold Leg 2B Flow Meter Instrument Root	RCS-PL-V104B	1	PB	1 yr	M *
Cold Leg 2B Flow Meter Instrument Root	RCS-PL-V104C	1	PB	1 yr	M *
Cold Leg 2B Flow Meter Instrument Root	RCS-PL-V104D	1	PB	1 yr	M *
Cold Leg 2B Flow Meter Instrument Root	RCS-PL-V104E	1	PB	1 yr	M *
Hot Leg 1 Sample Isolation	RCS-PL-V108A	1	PB	1 yr	M *
Hot Leg 2 Sample Isolation	RCS-PL-V108B	1	PB	1 yr	M *
PZR Spray Valve	RCS-PL-V110A	1	PB	1 yr	M *
PZR Spray Valve	RCS-PL-V110B	1	PB	1 yr	M *
PZR Spray Block Valve	RCS-PL-V111A	1	PB	1 yr	M *
PZR Spray Block Valve	RCS-PL-V111B	1	PB	1 yr	M *
PZR Steam Space Sample Isolation	RCS-PL-V203	1	PB	1 yr	M *
PZR Manual Vent	RCS-PL-V204	1	PB	1 yr	M *
PZR Manual Vent	RCS-PL-V205	1	PB	1 yr	M *
PZR Spray Bypass	RCS-PL-V210A	1	PB	1 yr	M *
PZR Spray Bypass	RCS-PL-V210B	1	PB	1 yr	M *
PZR Level Steam Space Instrument Root	RCS-PL-V225A	1	PB	1 yr	M *
PZR Level Steam Space Instrument Root	RCS-PL-V225B	1	PB	1 yr	M *
PZR Level Steam Space Instrument Root	RCS-PL-V225C	1	PB	1 yr	M *
PZR Level Steam Space Instrument Root	RCS-PL-V225D	1	PB	1 yr	M *
PZR Level Liquid Space Instrument Root	RCS-PL-V226A	1	PB	1 yr	M *
PZR Level Liquid Space Instrument Root	RCS-PL-V226B	1	PB	1 yr	M *
PZR Level Liquid Space Instrument Root	RCS-PL-V226C	1	PB	1 yr	M *
PZR Level Liquid Space Instrument Root	RCS-PL-V226D	1	PB	1 yr	M *
Wide Range PZR Level Steam Space Instrument Root	RCS-PL-V228	1	PB	1 yr	M *
Wide Range PZR Level Liquid Space Instrument Root	RCS-PL-V229	1	PB	1 yr	M *
Manual Head Vent	RCS-PL-V232	1	PB	1 yr	M *
Head Vent Isolation	RCS-PL-V233	1	PB	1 yr	M *
ADS Valve Discharge Header Drain Isolation	RCS-PL-V241	1	PB	1 yr	M *
RCP 1A Flush	RCS-PL-V260A	1	PB	1 yr	M *
RCP 1B Flush	RCS-PL-V260B	1	PB	1 yr	M *
RCP 2A Flush	RCS-PL-V260C	1	PB	1 yr	M *
RCP 2B Flush	RCS-PL-V260D	1	PB	1 yr	M *

Table 3.11-1 (Sheet 40 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RCP 1A Drain	RCS-PL-V261A	1	PB	1 yr	M *
RCP 1B Drain	RCS-PL-V261B	1	PB	1 yr	M *
RCP 2A Drain	RCS-PL-V261C	1	PB	1 yr	M *
RCP 2B Drain	RCS-PL-V261D	1	PB	1 yr	M *
RCS Pressure Boundary Valve Thermal Relief Isolation	RNS-PL-V004A	1	PB	1 yr	M *
RCS Pressure Boundary Valve Thermal Relief Isolation	RNS-PL-V004B	1	PB	1 yr	M *
RNS Pump A Suction Isolation	RNS-PL-V005A	6	PB	1 yr	M
RNS Pump B Suction Isolation	RNS-PL-V005B	6	PB	1 yr	M
RNS Pump A Discharge Isolation	RNS-PL-V007A	6	PB	1 yr	M
RNS Pump B Discharge Isolation	RNS-PL-V007B	6	PB	1 yr	M
RNS Discharge Containment Isolation Valve Test	RNS-PL-V010	6	PB	1 yr	M
RNS Discharge Containment Isolation Valve Test Connection, ORC	RNS-PL-V012	1	PB	1 yr	M *
RNS Discharge Containment Isolation Valve Test Connection	RNS-PL-V014	1	PB	1 yr	M *
RNS Discharge Containment Penetration Isolation Valves Test	RNS-PL-V016	1	PB	1 yr	M *
RNS Containment Isolation Test - Pump Suction, ORC	RNS-PL-V018	6	PB	1 yr	M
RNS Discharge to IRWST Isolation	RNS-PL-V024	1	PB	1 yr	M *
RNS Discharge to CVS	RNS-PL-V029	1	PB	1 yr	M *
RNS Train A Discharge Flow Instrument Isolation	RNS-PL-V031A	6	PB	1 yr	M
RNS Train B Discharge Flow Instrument Isolation	RNS-PL-V031B	6	PB	1 yr	M
RNS Train A Discharge Flow Instrument Isolation	RNS-PL-V032A	6	PB	1 yr	M
RNS Train B Discharge Flow Instrument Isolation	RNS-PL-V032B	6	PB	1 yr	M
RNS Pump A Suction Pressure Instrument Isolation	RNS-PL-V033A	6	PB	1 yr	M
RNS Pump B Suction Pressure Instrument Isolation	RNS-PL-V033B	6	PB	1 yr	M
RNS Pump A Discharge Pressure Instrument Isolation	RNS-PL-V034A	6	PB	1 yr	M
RNS Pump B Discharge Pressure Instrument Isolation	RNS-PL-V034B	6	PB	1 yr	M
RNS Pump A Suction Piping Drain Isolation	RNS-PL-V036A	6	PB	1 yr	M
RNS Pump B Suction Piping Drain Isolation	RNS-PL-V036B	6	PB	1 yr	M

Table 3.11-1 (Sheet 41 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
RNS Pump Discharge Relief	RNS-PL-V045	6	PB	1 yr	M
RNS HX B Channel Head Drain Isolation	RNS-PL-V048	6	PB	1 yr	M
RNS Pump A Casing Drain Isolation	RNS-PL-V050	6	PB	1 yr	M
RNS Pump B Casing Drain Isolation	RNS-PL-V051	6	PB	1 yr	M
RNS Pump Suction Containment Isolation Test Connection	RNS-PL-V059	6	PB	1 yr	M
SFS Refueling Cavity Drain To SGS Compartment Isolation	SFS-PL-V031	1	PB	1 yr	M *
SFS Refueling Cavity Suction Isolation	SFS-PL-V032	1	PB	1 yr	M *
SFS Refueling Cavity Drain to Containment Sump Isolation	SFS-PL-V033	1	PB	1 yr	M *
SFS Suction Line from IRWST Isolation	SFS-PL-V039	1	PB	1 yr	M *
SFS Fuel Transfer Canal Suction Isolation	SFS-PL-V040	6	PB	1 yr	M
SFS Cask Loading Pit Suction Isolation	SFS-PL-V041	6	PB	1 yr	M
SFS CVS Makeup Reverse Flow Prevention	SFS-PL-V043	6	PB	1 yr	M
SFS Demin Water Makeup to SFP Rev Flow Prevent	SFS-PL-V047	6	PB	1 yr	M
SFS Containment Penetration Test Connection	SFS-PL-V048	6	PB	1 yr	M
SFS Cask Loading Pit Drain to WLS Isolation	SFS-PL-V049	6	PB	1 yr	M
SFS Containment Penetration Test Connection Isolation	SFS-PL-V056	1	PB	1 yr	M *
SFS Containment Isolation Valve V034 Test	SFS-PL-V058	1	PB	1 yr	M *
LT001 Root Isolation Valve	SGS-PL-V001A	1	PB	1 yr	M *
LT005 Root Isolation Valve	SGS-PL-V001B	1	PB	1 yr	M *
LT001 Root Isolation Valve	SGS-PL-V002A	1	PB	1 yr	M *
LT005 Root Isolation Valve	SGS-PL-V002B	1	PB	1 yr	M *
LT002 Root Isolation Valve	SGS-PL-V003A	1	PB	1 yr	M *
LT006 Root Isolation Valve	SGS-PL-V003B	1	PB	1 yr	M *
LT002 Root Isolation Valve	SGS-PL-V004A	1	PB	1 yr	M *
LT006 Root Isolation Valve	SGS-PL-V004B	1	PB	1 yr	M *
LT003 Root Isolation Valve	SGS-PL-V005A	1	PB	1 yr	M *
LT007 Root Isolation Valve	SGS-PL-V005B	1	PB	1 yr	M *
LT003 Root Isolation Valve	SGS-PL-V006A	1	PB	1 yr	M *
LT007 Root Isolation Valve	SGS-PL-V006B	1	PB	1 yr	M *
LT004 Root Isolation Valve	SGS-PL-V007A	1	PB	1 yr	M *
LT008 Root Isolation Valve	SGS-PL-V007B	1	PB	1 yr	M *
LT004 Root Isolation Valve	SGS-PL-V008A	1	PB	1 yr	M *
LT008 Root Isolation Valve	SGS-PL-V008B	1	PB	1 yr	M *
LT011 Root Isolation Valve	SGS-PL-V010A	1	PB	1 yr	M*

Table 3.11-1 (Sheet 42 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
LT013 Root Isolation Valve	SGS-PL-V010B	1	PB	1 yr	M *
LT011 Root Isolation Valve	SGS-PL-V011A	1	PB	1 yr	M *
LT013 Root Isolation Valve	SGS-PL-V011B	1	PB	1 yr	M *
LT012 Root Isolation Valve	SGS-PL-V012A	1	PB	1 yr	M *
LT014 Root Isolation Valve	SGS-PL-V012B	1	PB	1 yr	M *
LT012 Root Isolation Valve	SGS-PL-V013A	1	PB	1 yr	M *
LT014 Root Isolation Valve	SGS-PL-V013B	1	PB	1 yr	M *
FT021 Root Isolation Valve	SGS-PL-V015A	1	PB	1 yr	M *
FT023 Root Isolation Valve	SGS-PL-V015B	1	PB	1 yr	M *
FT020 Root Isolation Valve	SGS-PL-V016A	1	PB	1 yr	M *
FT022 Root Isolation Valve	SGS-PL-V016B	1	PB	1 yr	M *
FT021 Root Isolation Valve	SGS-PL-V017A	1	PB	1 yr	M *
FT023 Root Isolation Valve	SGS-PL-V017B	1	PB	1 yr	M *
FT020 Root Isolation Valve	SGS-PL-V018A	1	PB	1 yr	M *
FT022 Root Isolation Valve	SGS-PL-V018B	1	PB	1 yr	M *
Main Steamline Vent Isolation	SGS-PL-V019A	1	PB	1 yr	M *
Main Steamline Vent Isolation	SGS-PL-V019B	1	PB	1 yr	M *
PT030 Root Isolation Valve	SGS-PL-V022A	5	PB	1 yr	M *
PT034 Root Isolation Valve	SGS-PL-V022B	5	PB	1 yr	M *
PT031 Root Isolation Valve	SGS-PL-V023A	5	PB	1 yr	M *
PT035 Root Isolation Valve	SGS-PL-V023B	5	PB	1 yr	M *
PT032 Root Isolation Valve	SGS-PL-V024A	5	PB	1 yr	M *
PT036 Root Isolation Valve	SGS-PL-V024B	5	PB	1 yr	M *
PT033 Root Isolation Valve	SGS-PL-V025A	5	PB	1 yr	M *
PT037 Root Isolation Valve	SGS-PL-V025B	5	PB	1 yr	M *
Steamline 1 Nitrogen Supply Isolation	SGS-PL-V038A	5	PB	1 yr	M *
Steamline 2 Nitrogen Supply Isolation	SGS-PL-V038B	5	PB	1 yr	M *
MSIV Bypass Control Isolation	SGS-PL-V042A	5	PB	1 yr	M *
MSIV Bypass Control Isolation	SGS-PL-V042B	5	PB	1 yr	M *
MSIV Bypass Control Isolation	SGS-PL-V043A	5	PB	1 yr	M *
MSIV Bypass Control Isolation	SGS-PL-V043B	5	PB	1 yr	M *
SG1 Condensate Pipe Drain Valve	SGS-PL-V045A	5	PB	1 yr	M *
SG2 Condensate Pipe Drain Valve	SGS-PL-V045B	5	PB	1 yr	M *
LT015 Root Isolation Valve	SGS-PL-V046A	1	PB	1 yr	M *
LT017 Root Isolation Valve	SGS-PL-V046B	1	PB	1 yr	M *
LT015 Root Isolation Valve	SGS-PL-V047A	1	PB	1 yr	M *
LT017 Root Isolation Valve	SGS-PL-V047B	1	PB	1 yr	M *
LT016 Root Isolation Valve	SGS-PL-V048A	1	PB	1 yr	M *
LT018 Root Isolation Valve	SGS-PL-V048B	1	PB	1 yr	M *
LT016 Root Isolation Valve	SGS-PL-V049A	1	PB	1 yr	M *
LT018 Root Isolation Valve	SGS-PL-V049B	1	PB	1 yr	M *
LT044 Root Isolation Valve	SGS-PL-V050A	1	PB	1 yr	M *
LT046 Root Isolation Valve	SGS-PL-V050B	1	PB	1 yr	M *
LT044 Root Isolation Valve	SGS-PL-V051A	1	PB	1 yr	M *
LT046 Root Isolation Valve	SGS-PL-V051B	1	PB	1 yr	M *

Table 3.11-1 (Sheet 43 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
LT045 Root Isolation Valve	SGS-PL-V052A	1	PB	1 yr	M *
LT047 Root Isolation Valve	SGS-PL-V052B	1	PB	1 yr	M *
LT045 Root Isolation Valve	SGS-PL-V053A	1	PB	1 yr	M *
LT047 Root Isolation Valve	SGS-PL-V053B	1	PB	1 yr	M *
PT062 Root Isolation Valve	SGS-PL-V056A	5	PB	1 yr	M *
PT063 Root Isolation Valve	SGS-PL-V056B	5	PB	1 yr	M *
Main Feedwater Check	SGS-PL-V058A	5	PB	1 yr	M *
Main Feedwater Check	SGS-PL-V058B	5	PB	1 yr	M *
FT055A Root Isolation Valve	SGS-PL-V062A	5	PB	1 yr	M *
FT056A Root Isolation Valve	SGS-PL-V062B	5	PB	1 yr	M *
FT055A Root Isolation Valve	SGS-PL-V063A	5	PB	1 yr	M *
FT056A Root Isolation Valve	SGS-PL-V063B	5	PB	1 yr	M *
FT055A Root Isolation Valve	SGS-PL-V064A	5	PB	1 yr	M *
FT056A Root Isolation Valve	SGS-PL-V064B	5	PB	1 yr	M *
FT055A Root Isolation Valve	SGS-PL-V065A	5	PB	1 yr	M *
FT056A Root Isolation Valve	SGS-PL-V065B	5	PB	1 yr	M *
SG1 Tube Sheet Drain Isolation	SGS-PL-V073A	1	PB	1 yr	M *
SG2 Tube Sheet Drain Isolation	SGS-PL-V073B	1	PB	1 yr	M *
SG1 Nitrogen Sparging Isolation	SGS-PL-V084A	1	PB	1 yr	M *
SG2 Nitrogen Sparging Isolation	SGS-PL-V084B	1	PB	1 yr	M *
Startup Feedwater Check Valve	SGS-PL-V256A	5	PB	1 yr	M *
Startup Feedwater Check Valve	SGS-PL-V256B	5	PB	1 yr	M *
MCR Penetration Test Valve	VBS-PL-V160	3	PB	1 yr	M
MCR Penetration Test Valve	VBS-PL-V161	3	PB	1 yr	M
MCR Penetration Test Valve	VBS-PL-V162	3	PB	1 yr	M
Air Delivery Line Pressure Instrument Isolation Valve A	VES-PL-V006A	7	PB	1 yr	M
Air Delivery Line Pressure Instrument Isolation Valve B	VES-PL-V006B	7	PB	1 yr	M
Temporary Instrument Isolation Valve A	VES-PL-V016	7	PB	1 yr	M
Temporary Instrument Isolation Valve A	VES-PL-V018	7	PB	1 yr	M
Temporary Instrument Isolation Valve B	VES-PL-V019	7	PB	1 yr	M
Temporary Instrument Isolation Valve B	VES-PL-V020	7	PB	1 yr	M
Air Tank Isolation Valve A	VES-PL-V024A	7	PB	1 yr	M
Air Tank Isolation Valve B	VES-PL-V024B	7	PB	1 yr	M
Air Tank Isolation Valve A	VES-PL-V025A	7	PB	1 yr	M
Air Tank Isolation Valve B	VES-PL-V025B	7	PB	1 yr	M
Refill Line Isolation Valve	VES-PL-038	7	PB	1 yr	M
DP Instrument Line Isolation Valve A	VES-PL-V043A	3	PB	1 yr	M
DP Instrument Line Isolation Valve B	VES-PL-V043B	3	PB	1 yr	M

Table 3.11-1 (Sheet 44 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Containment Isolation Test Connection	VFS-PL-V001	7	PB	1 yr	M
Containment Isolation Test Connection	VFS-PL-V002	1	PB	1 yr	M *
Containment Isolation Test Connection	VFS-PL-V006	1	PB	1 yr	M *
Containment Isolation Test Connection	VFS-PL-V007	6	PB	1 yr	M
Containment Isolation Test Connection	VFS-PL-V008	6	PB	1 yr	M
Main Equipment Hatch Test Connection	VUS-PL-V015	7	PB	1 yr	M
Maintenance Equipment Hatch Test Connection	VUS-PL-V016	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V017	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V018	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V019	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V020	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V021	7	PB	1 yr	M
Personnel Hatch Test Connection	VUS-PL-V022	7	PB	1 yr	M
Fuel Transfer Tube Test Connection	VUS-PL-V023	11	PB	1 yr	M *
Electrical Penetration Test Isolation Valve	VUS-PL-V101	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V102	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V103	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V104	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V105	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V106	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V107	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V108	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V109	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V110	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V111	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V112	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V113	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V114	4	PB	1 yr	M

Table 3.11-1 (Sheet 45 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Electrical Penetration Test Isolation Valve	VUS-PL-V115	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V116	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V117	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V118	4	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V119	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V120	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V121	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V122	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V123	2	PB	1 yr	M
Electrical Penetration Test Isolation Valve	VUS-PL-V124	2	PB	1 yr	M
Spare Penetration Test Connection	VUS-PL-V140	7	PB	1 yr	M
Spare Penetration Test Connection	VUS-PL-V141	7	PB	1 yr	M
Spare Penetration Test Connection	VUS-PL-V142	7	PB	1 yr	M
VWS Supply Containment Penetration IRC Test Connection/Vent	VWS-PL-V424	1	PB	1 yr	M *
VWS Return Containment Penetration ORC Test Connection/Vent	VWS-PL-V425	2	PB	1 yr	M
Heat Exchangers					
Normal Residual Heat Removal Heat Exchanger A	RNS-ME-01A	6	PB	1 yr	M
Normal Residual Heat Removal Heat Exchanger B	RNS-ME-01B	6	PB	1 yr	M
Tanks					
Spent Fuel Pool	FHS-MT-01	11	ESF	1 yr	M *
Fuel Transfer Canal	FHS-MT-02	11	ESF	1 yr	M *
Spent Fuel Cask Loading Pit	FHS-MT-05	6	ESF	1 yr	M
Passive Containment Cooling Water Storage Tank	PCS-MT-01	9	ESF	1 yr	M
Water Distribution Bucket	PCS-MT-03	9	ESF	1 yr	M
Water Collection Troughs	PCS-MT-04	9	ESF	1 yr	M
Passive RHR Heat Exchanger	PXS-ME-01	1	ESF	1 yr	M *

Table 3.11-1 (Sheet 46 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Description	AP600 Tag No.	Envir. Zone (Note 2)	Function (Note 1)	Operating Time Required (Note 5)	Qualification Program (Note 6)
Accumulator Tank A	PXS-MT-01A	1	ESF	1 yr	M *
Accumulator Tank B	PXS-MT-01B	1	ESF	1 yr	M *
Core Makeup Tank A	PXS-MT-02A	1	ESF	1 yr	M *
Core Makeup Tank B	PXS-MT-02B	1	ESF	1 yr	M *
In-Containment Refueling Water Storage Tank	PXS-MT-03	1	ESF	1 yr	M *
Emergency Air Storage Tank 01	VES-MT-01	7	ESF	1 yr	M
Emergency Air Storage Tank 02	VES-MT-02	7	ESF	1 yr	M
Emergency Air Storage Tank 03	VES-MT-03	7	ESF	1 yr	M
Emergency Air Storage Tank 04	VES-MT-04	7	ESF	1 yr	M
Emergency Air Storage Tank 05	VES-MT-05	7	ESF	1 yr	M
Emergency Air Storage Tank 06	VES-MT-06	7	ESF	1 yr	M
Emergency Air Storage Tank 07	VES-MT-07	7	ESF	1 yr	M
Emergency Air Storage Tank 08	VES-MT-08	7	ESF	1 yr	M
Emergency Air Storage Tank 09	VES-MT-09	7	ESF	1 yr	M
Emergency Air Storage Tank 10	VES-MT-10	7	ESF	1 yr	M
Emergency Air Storage Tank 11	VES-MT-11	7	ESF	1 yr	M
Emergency Air Storage Tank 12	VES-MT-12	7	ESF	1 yr	M
Emergency Air Storage Tank 13	VES-MT-13	7	ESF	1 yr	M
Emergency Air Storage Tank 14	VES-MT-14	7	ESF	1 yr	M
Emergency Air Storage Tank 15	VES-MT-15	7	ESF	1 yr	M
Emergency Air Storage Tank 16	VES-MT-16	7	ESF	1 yr	M
Emergency Air Storage Tank 17	VES-MT-17	7	ESF	1 yr	M
Emergency Air Storage Tank 18	VES-MT-18	7	ESF	1 yr	M
Emergency Air Storage Tank 19	VES-MT-19	7	ESF	1 yr	M
Emergency Air Storage Tank 20	VES-MT-20	7	ESF	1 yr	M
Emergency Air Storage Tank 21	VES-MT-21	7	ESF	1 yr	M
Emergency Air Storage Tank 22	VES-MT-22	7	ESF	1 yr	M
Emergency Air Storage Tank 23	VES-MT-23	7	ESF	1 yr	M
Emergency Air Storage Tank 24	VES-MT-24	7	ESF	1 yr	M
Emergency Air Storage Tank 25	VES-MT-25	7	ESF	1 yr	M
Emergency Air Storage Tank 26	VES-MT-26	7	ESF	1 yr	M
Emergency Air Storage Tank 27	VES-MT-27	7	ESF	1 yr	M
Emergency Air Storage Tank 28	VES-MT-28	7	ESF	1 yr	M
Emergency Air Storage Tank 29	VES-MT-29	7	ESF	1 yr	M
Emergency Air Storage Tank 30	VES-MT-30	7	ESF	1 yr	M
Emergency Air Storage Tank 31	VES-MT-31	7	ESF	1 yr	M
Emergency Air Storage Tank 32	VES-MT-32	7	ESF	1 yr	M
Passive Autocatalytic Recombiner A	VLS MY E01A	1	ESF	1 yr	M *
Passive Autocatalytic Recombiner B	VLS MY E01B	1	ESF	1 yr	M *
IRWST Passive Autocatalytic Recombiner	VLS MY E02	1	ESF	1 yr	M *
CVS Compartment Passive Autocatalytic Recombiner	VLS MY E03	1	ESF	1 yr	M *
Main Feed Pump A Status	ECS ES 3 XXX	8	PAMS	2 wks	E +
Main Feed Pump B Status	ECS ES 3 XXX	8	PAMS	2 wks	E +
Remote Shutdown Workstation		2		Note 3	E

Table 3.11-1 (Sheet 47 of 47)

ENVIRONMENTALLY QUALIFIED ELECTRICAL AND MECHANICAL EQUIPMENT

Notes:

1. RT (Reactor Trip), ESF (Engineered Safeguards Feature), PAMS (Post-Accident Monitoring), ISOL (Isolation), PB (Pressure Boundary)

2. Zones identified in Table 3D.5-1

3. Not required post-accident

4. Only 3 of 16 used for PAMS

5. Reference Table 3D.4-2

6. E = Electrical Equipment Program
   M = Mechanical Equipment Program
   * = Harsh Environment
   + = Seismic Qualification not required
   S = Qualified for operation with spray from a moderate-energy pipe crack or spray from a cold high energy pipe crack.