



Table 2.6.13-1—ESWPBVS Equipment Mechanical Design
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Description	Tag Number ⁽¹⁾	Location	ASME AG-1 Code	Function	Seismic Category
Air Cooling Coils	30SAQ01AC001 30SAQ02AC001 30SAQ03AC001 30SAQ04AC001	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	N/A	I
Moisture Separators	30SAQ01AT001 30SAQ02AT001 30SAQ03AT001 30SAQ04AT001	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	N/A	I
Electrical Heaters	30SAQ01AH001/002 30SAQ02AH001/002 30SAQ03AH001/002 30SAQ04AH001/002	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	On / Off (based on ambient conditions)	I
Recirculation Fans	30SAQ01AN001 30SAQ02AN001 30SAQ03AN001 30SAQ04AN001	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	Run	I
Motor Operated Outside Air Isolation Dampers	30SAQ01AA007 30SAQ02AA007 30SAQ03AA007 30SAQ04AA007	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	N/A	I
Manual Balancing Dampers	30SAQ01AA002 30SAQ02AA002 30SAQ03AA002 30SAQ04AA002	ESW Pump Building 1 ESW Pump Building 2 ESW Pump Building 3 ESW Pump Building 4	Yes	N/A	I



Table 2.6.13-1—ESWPBVS Equipment Mechanical Design
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Description	Tag Number ⁽¹⁾	Location	ASME AG-1 Code	Function	Seismic Category
Prefilters	30SAQ01AT002	ESW Pump Building 1	Yes	N/A	I
	30SAQ02AT002	ESW Pump Building 2			
	30SAQ03AT002	ESW Pump Building 3			
	30SAQ04AT002	ESW Pump Building 4			

1. Equipment tag numbers are provided for information only and are not part of the certified design.



Table 2.6.13-2—ESWPBVS Equipment I&C and Electrical Design

Description	Tag Number ⁽¹⁾	Location	IEEE Class 1E	PACS	MCR / RSS Displays	MCR / RSS Controls
Electrical Heaters	30SAQ01AH001/002	ESW Pump Building 1	Division 1	Yes	On-Off / On-Off	<u>On-Off /</u>
	30SAQ02AH001/002	ESW Pump Building 2	Division 2			<u>On-Off</u>
	30SAQ03AH001/002	ESW Pump Building 3	Division 3			Start-Stop /
	30SAQ04AH001/002	ESW Pump Building 4	Division 4			Start-Stop
Recirculation Fans	30SAQ01AN001	ESW Pump Building 1	Division 1	Yes	On-Off / On-Off	Run-Stop / Run-Stop
	30SAQ02AN001	ESW Pump Building 2	Division 2			
	30SAQ03AN001	ESW Pump Building 3	Division 3			
	30SAQ04AN001	ESW Pump Building 4	Division 4			
Motor Operated Outside Air Isolation Dampers	30SAQ01AA005/007	ESW Pump Building 1	Division 1	Yes	Position/Position	Open-Close/ Open-Close
	30SAQ02AA005/007	ESW Pump Building 2	Division 2			
	30SAQ03AA005/007	ESW Pump Building 3	Division 3			
	30SAQ04AA005/007	ESW Pump Building 4	Division 4			
Temperature Sensors—Elec Heaters	30SAQ01CT002/003	ESW Pump Building 1	Division 1	Yes	Temperature/ Temperature	N/A
	30SAQ02CT002/003	ESW Pump Building 2	Division 2			
	30SAQ03CT002/003	ESW Pump Building 3	Division 3			
	30SAQ04CT002/003	ESW Pump Building 4	Division 4			
Temperature Sensors—M.O. Outside Air Isol Dampers	30SAQ01CT004	ESW Pump Building 1	Division 1	Yes	N/A	N/A
	30SAQ02CT004	ESW Pump Building 2	Division 2			
	30SAQ03CT004	ESW Pump Building 3	Division 3			
	30SAQ04CT004	ESW Pump Building 4	Division 4			

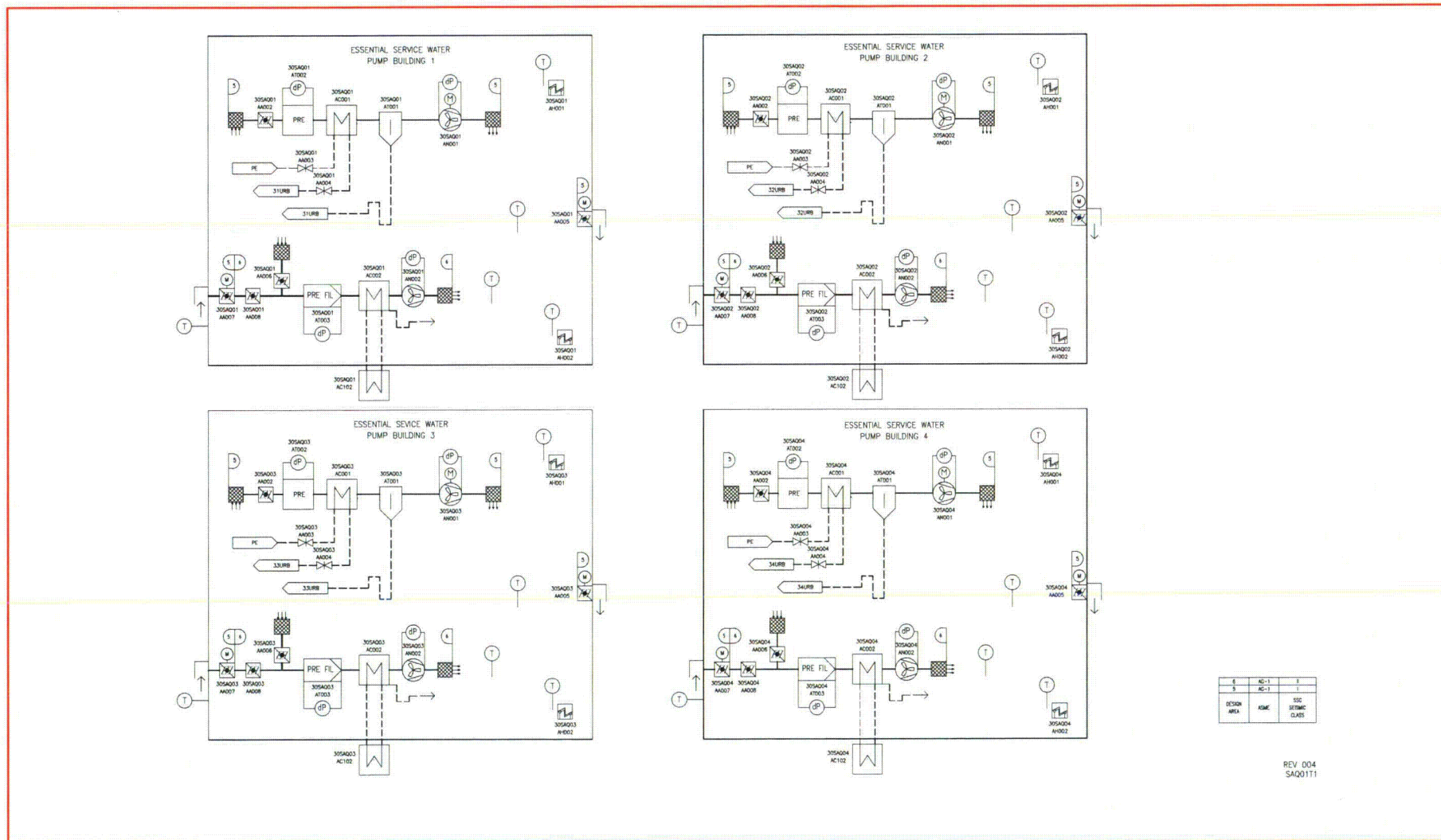
1. Equipment tag numbers are provided for information only and are not part of the certified design.



Table 2.6.13-3—Essential Service Water Pump Building Ventilation System
ITAAC
Sheet 3 of 3

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.2	Controls on the PICS operator workstations in the MCR and the RSS perform the function listed in Table 2.6.13-2.	a. Tests will be performed using controls on the PICS operator workstations in the MCR. b. Tests will be performed using controls on the PICS operator workstations in the RSS.	a. Controls on the PICS operator workstations in the MCR perform the function listed in Table 2.6.13-2. b. Controls on the PICS operator workstations in the RSS perform the function listed in Table 2.6.13-2.
4.3	Equipment listed as being controlled by a PACS module in Table 2.6.13-2 responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test input signals to verify equipment controlled by a PACS module responds to the state requested and provides drive monitoring signals back to the PACS module.	Equipment listed as being controlled by a PACS module in Table 2.6.13-2 responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.
5.1	Equipment designated as Class 1E in Table 2.6.13-2 are powered from the Class 1E division as listed in Table 2.6.13-2 in a normal feed condition.	Testing will be performed by providing a test input signal in each normally aligned division.	The test input signal provided in the normally aligned division is present at the respective Class 1E equipment identified in Table 2.6.13-2.
6.1	The ESWPBVS provides cooling to maintain design temperatures in the ESWPBs, while operating in a design basis accident alignment.	a. Tests and analysis will be performed to verify ESWPBVS provides cooling to maintain design temperatures in the ESWPBs, while operating in a design basis accident alignment. b. A test of the ESWPBVS fans will be performed to verify that the design air flow is greater than the approved design requirement.	a. Each ESWPBVS safety-related cooling coil is capable of providing design cooling requirements, while operating in a design basis accident alignment. b. Each ESWPBVS safety-related fan is capable of meeting the design air flow requirements, while operating in a design basis accident alignment.

Figure 2.6.13-1—Essential Service Water Pump Building Ventilation System Functional Arrangement





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|------|---|
| 4.13 | An interlock for the CCWS train to maintain cooling to the RCP thermal barriers requires opening the CIVs associated with the closed common header, when a CIV on the opened common header is closed. |
|------|---|

5.0 Electrical Power Design Features

- 5.1 Equipment designated as Class 1E in Table 2.7.1-2 are powered from the Class 1E division as listed in Table 2.7.1-2 in a normal or alternate feed condition.
- 5.2 Hydraulic operated valves listed in Table 2.7.1 2 fail as is on loss of power.

6.0 Environmental Qualifications

- 6.1 Equipment designated as harsh environment in Table 2.7.1-2 will perform the function listed in Table 2.7.1-1 under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.

7.0 Equipment and System Performance

- 7.1 Each CCWS heat exchanger listed in Table 2.7.1-1 has the capacity to transfer the design heat load to the ESWS.
- 7.2 The pumps listed in Table 2.7.1-1 have net positive suction head available (NPSHA) that is greater than net positive suction head required (NPSHR) at system run-out flow at the minimum surge tank level.
- 7.3 The CCWS delivers water to the LHSI/RHRS heat exchangers to provide cooling.
- 7.4 The CCWS delivers water to the RCP thermal barrier coolers at the required flow from Common 1.b header and also from Common 2.b header.
- 7.5 The CCWS delivers water to Divisions 2 and 3 of the SCWS chiller heat exchangers.
- 7.6 The CCWS delivers water to the spent fuel pool cooling heat exchangers.
- 7.7 Class 1E valves listed in Table 2.7.1-2 will function to change position as listed in Table 2.7.1-1 under normal operating conditions.
- 7.8 The CCWS has provisions to allow flow testing of each CCWS pump during plant operation.
- 7.9 Deleted.
- 7.10 The CCWS surge tanks provide adequate capacity for normal system operation.
- 7.11 Each CCWS surge tank maintains a reserve volume to accommodate system leakage for seven days of continuous operation with no makeup source available.



Table 2.7.1-2—CCWS Equipment I&C and Electrical Design
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Description	Tag Number ⁽¹⁾	Location	IEEE Class 1E ⁽²⁾	EQ – Harsh Env.	PACS	MCR/RSS Displays	MCR/RSS Controls
Common Header 2.b RCP Thermal Barriers Containment Isolation Valves	30KAB30AA053	Safeguard Building 4	4 ₂ ^N 3 ₁ ^A	Yes	Yes	Position / Position	Open-Close / Open-Close
	30KAB30AA054	Reactor Building	4 ₂ ^N 2 ₄ ^A				
	30KAB30AA055	Reactor Building	4 ₂ ^N 2 ₄ ^A				
	30KAB30AA056	Safeguard Building 4	4 ₂ ^N 3 ₂ ^A				
Surge Tank Demin. Water Makeup Isolation Valves	30KAA10AA027	Safeguard Building 1	1 ^N 2 ^A	N/A	Yes	Position / Position	Open-Close / Open-Close
	30KAA20AA027	Safeguard Building 2	2 ^N 1 ^A				
	30KAA30AA027	Safeguard Building 3	3 ^N 4 ^A				
	30KAA40AA027	Safeguard Building 4	4 ^N 3 ^A				
Common Header 1.a Fuel Pool Cooling Heat Exchanger 1 Downstream Control Valve	30KAB10AA134	Fuel Building	1 ^N 2 ^A	N/A	Yes	NA / NA	NA / NA



Table 2.7.1-3—Component Cooling Water System ITAAC
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	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.12	<p>Upon receipt of an SIS actuation signal, interlocks initiate the following:</p> <ul style="list-style-type: none"> • Start operable CCWS pumps, if not previously running. • Open LHSI HX isolation valves. • Open LHSI pump seal cooler isolation valves. • Close isolation valves for non-safety-related users outside of the Reactor Building. 	<p>Tests will be performed using test input signals to verify that upon receipt of an SIS actuation signal, interlocks initiate the following:</p> <ul style="list-style-type: none"> • Start operable CCWS pumps, if not previously running. • Open LHSI HX isolation valves. • Open LHSI pump seal cooler isolation valves. • Close isolation valves for non-safety-related users outside of the Reactor Building. 	<p>The following interlocks respond as specified below when activated by an SIS actuation signal test input signal:</p> <ul style="list-style-type: none"> • CCWS operable pumps start (if not previously running). • LHSI HX isolation valves open. • LHSI pump seal cooler isolation valves open. • Isolation valves for non-safety-related users outside of Reactor Building close.
4.13	<p>An interlock for the CCWS train to maintain cooling to the RCP thermal barriers requires opening the CIVs associated with the closed common header, when a CIV on the opened common header is closed.</p>	<p>Tests will be performed using test input signals to verify the interlock automatically the operation of the following interlocks:</p> <ul style="list-style-type: none"> • Thermal barrier CIVs associated with the closed common header 1 will open when a CIV on the opened common header 2 closes. • Thermal barrier CIVs associated with the closed common header 2 will open when a CIV on the opened common header 1 closes. 	<p>The following interlock responds as specified below when activated by a test input signal:</p> <ul style="list-style-type: none"> • Thermal barrier CIVs associated with the closed common header 1 will open when a CIV on the opened common header 2 closes. • Thermal barrier CIVs associated with the closed common header 2 will open when a CIV on the opened common header 1 closes.



Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30SAC51/54 AN002	Exhaust Air Fans - Maintenance Train Battery/SCWS Room Exhaust	NS	N/A	NSC	No	1UJK, 4UJK	
30SAC35/38 AN001	Exhaust Fan - Maintenance Train Exhaust Air	NS	N/A	NSC	No	1UJK, 4UJK	
30SAC31/32/33/34 5 AN001	Exhaust Fans - Exhaust Air System	S	N/A	I	Yes	UJK	ASME AG-1 ¹⁴
SAC	Maintenance Supply/Exhaust Ducts	NS	N/A	NSC	No	UJK	
30SAC35/38 AA001/004	Manual Isolation Damper - Maintenance Train Exhaust Air	S	N/A	I	Yes	1UJK, 4UJK	ASME AG-1 ¹⁴
30SAC51/52/53/54 AA001	Manual Isolation Dampers - Battery/SCWS Room Exhaust	S	N/A	I	Yes	UJK	ASME AG-1 ¹⁴
30SAC31/32/33/34 5 AA001/004	Manual Isolation Dampers - Exhaust Air System	S	N/A	I	Yes	UJK	ASME AG-1 ¹⁴
30SAC51/54 AA004	Manual Isolation Dampers - Maintenance Train Battery/SCWS Room Exhaust	S	N/A	I	Yes	1UJK, 4UJK	ASME AG-1 ¹⁴

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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30KLC51/52/53/54 AN001	Recirculation Fans	S	N/A	I	Yes	UJH	ASME AG-1 ¹⁴
30KLC51/52/53/54 AN002	Recirculation Fans	S	N/A	I	Yes	UJH	ASME AG-1 ¹⁴
30KLC51/54 AN003	Recirculation Fans	S	N/A	I	Yes	UJH	ASME AG-1 ¹⁴
30KLC12 AH001	Room Heater	NS	N/A	NSC	No	UJH	
30KLC11/14 AH001/002	Room Heaters	NS	N/A	NSC	No	UJH	
30KLC12/13 AH002-006	Room Heaters	NS	N/A	NSC	No	UJH	
SAD	Emergency Power Generating Building Ventilation System						
30SAD11/21/31/41-AA001/AA002	Backdraft Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD11/21/31/41-AA003	Backdraft Dampers	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD15/25/35/45-AA001/AA002	Backdraft Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD15/25/35/45-AA003	Backdraft Dampers	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AA010	Backdraft Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AA001/AA005	Backdraft Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴



Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30SAD11/21/31/41-AT001/AT002	Pre-filters	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD11/21/31/41-AT003	Pre-filters	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AT001	Pre-filters	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AT003	Pre-filters	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD11/21/31/41-AN001/AN002	Supply Air Fans	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD11/21/31/41-AN003	Supply Air Fans	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AN001	Supply Air Fans	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AN002	Supply Air Fans	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD11/21/31/41-AA004	Motor Operated Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD15/25/35/45-AA004	Motor Operated Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AA007	Motor Operated Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AA007/AA008	Motor Operated Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴



Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30SAD11/21/31/41-AA005	Manual Dampers	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD12/22/32/42-AA001/AA002/AA003/AA004/AA005	Manual Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AA002	Manual Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AA008/AA009	Manual Dampers	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AA003/AA004	Manual Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD15/25/35/45-AN001/AN002	Exhaust Fans	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD15/25/35/45-AN003	Exhaust Fans	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AN001	Exhaust Fans	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AT002	HEPA filters	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AC001	Cooling Coils	S	C	I	Yes	UBP	ASME AG-1 ¹⁴ ASME Class 3
30SAD13/23/33/43-AC002/AC102	Cooling Coils	NS-AQ	D	II	Yes	UBP	ASME AG-1 ¹⁴



Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30SAD13/23/33/43-AT003	Moisture Separators	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AH001	Electric Heaters	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD14/24/34/44-AH001/AH002/AH003/AH004	Fan Heaters	NS-AQ	N/A	II	Yes	UBP	ASME AG-1 ¹⁴
30SAD13/23/33/43-AA004/AA005	Fire Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
30SAD16/26/36/46-AA002	Fire Dampers	S	N/A	I	Yes	UBP	ASME AG-1 ¹⁴
SAQ	Essential Service Water Pump Building Ventilation System						
30SAQ01/02/03/04AA003/004	Cooling Coil Isolation Valves	S	C	I	Yes	URB	ASME Class 3 ³
30SAQ01/02/03/04AC001	Air Cooling Coil	S	C	I	Yes	URB	ASME AG-1 ASME Class 3
30SAQ01/02/03/04AA002	Recirc Chiller Balancing Damper	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AT002	Recirc Chiller Prefilter	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AN001	Recirc Fan	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AT001	Recirc Chiller Moisture Separator	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴



Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30SAQ01/02/03/04AH001/002	Room Electric Air Heaters	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AA007/005	Inlet/Exhaust Air Isolation Dampers	S	N/A	I	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AA008/006	Split Cooler Balancing Dampers	NS-AQ	N/A	II	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AT003	Split Cooler Prefilter	NS-AQ	N/A	II	Yes	URB	ASME AG-1 ¹⁴
30SAQ01/02/03/04AC002	Split Cooler Chiller Unit	NS-AQ	CD	II	Yes	URB	ASME AG-1 ¹⁴ ASME Class 3
30SAQ01/02/03/04AC102	Split Cooler Cooling Unit	NS-AQ	CD	II	Yes	URB	ASME AG-1 ¹⁴ ASME Class 3
30SAQ01/02/03/04AN002	Split Cooler Fan	NS-AQ	N/A	II	Yes	URB	ASME AG-1 ¹⁴
KLA Containment Building Ventilation System							
30KLA50 AT003	Carbon Adsorber (KLA 5)	NS-AQ	N/A	I	Yes	UJA	ASME AG-1 ¹⁴ , ASME N510
30KLA21/22 AT003	Carbon Adsorbers	S	N/A	I	Yes	UFA	ASME AG-1 ¹⁴ , ASME N510, RG 1.52
30KLA40 AA001	Containment Isolation Valve - Full Flow Exhaust Inside	S	B	I	Yes	UJA	ASME Class 2 ²



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Fan Recirc Unit, KLC SG2	30KLC52AN001	32UJH05002	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, Vlv Rm, KLC SG2	30KLC52AN002	32UJH10002	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG2	30KLC52AT001	32UJH05002	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG2	30KLC52AT002	32UJH10002	M	H	SI	S	C/NM Y (3) Y (5)
Chiller Recirc Unit, KLC SG3	30KLC53AC001	33UJH05002	M	H	SI	S	C/NM Y (3) Y (5)
Chiller Recirc Unit, Vlv Rm, KLC SG3	30KLC53AC002	33UJH10002	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, KLC SG3	30KLC53AN001	33UJH05002	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, Vlv Rm, KLC SG3	30KLC53AN002	33UJH10002	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG3	30KLC53AT001	33UJH05002	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG3	30KLC53AT002	33UJH10002	M	H	SI	S	C/NM Y (3) Y (5)
Chiller Recirc Unit, KLC SG4	30KLC54AC001	34UJH05004	M	H	SI	S	C/NM Y (3) Y (5)
Chiller Recirc Unit, KAA vlv rm, SG4	30KLC54AC002	34UJH10004	M	H	SI	S	C/NM Y (3) Y (5)
Chiller Recirc Unit, JMU Rm, SG4	30KLC54AC003	34UJH10010	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, KLC SG4	30KLC54AN001	34UJH05004	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, KAA Vlv Rm, SG4	30KLC54AN002	34UJH10004	M	H	SI	S	C/NM Y (3) Y (5)
Fan Recirc Unit, JMU Rm, SG4	30KLC54AN003	34UJH10010	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, KLC SG4	30KLC54AT001	34UJH05004	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, KAA Vlv Rm, SG4	30KLC54AT002	34UJH10004	M	H	SI	S	C/NM Y (3) Y (5)
Sep Recirc Unit, JMU Rm, SG4	30KLC54AT002	34UJH10010	M	H	SI	S	C/NM Y (3) Y (5)
Nuclear Auxiliary Building Ventilation System (NABVS)							
Exhaust Air Backdraft Damper	30KLE50AA001	30UFA34075	M	M	SI S <u>SI</u> <u>S</u>	C/NM	Y (5)
Electrical Division of Safeguard Building Ventilation System (SBVSE)							
Outside Air Isolation Damper	30SAC01AA002	31UJK22026	M	M	SI	S	C/NM Y (5)
Outside Air Control Damper	30SAC01AA003	31UJK22026	M	M	SI	S	C/NM Y (5)
Recirc Air Control Damper	30SAC01AA004	31UJK22028	M	M	SI	S	C/NM Y (5)
Supply Air Backdraft Damper	30SAC01AA005	31UJK22026	M	M	SI	S	C/NM Y (5)
Supply Air Cooler	30SAC01AC001	31UJK22026	M	M	SI	S	C/NM Y (5)
Supply Air Heater	30SAC01AH002	31UJK22026	M	M	SI	S	C/NM Y (5)
Fan Motor Heater	30SAC01AH501	31UJK22026	M	M	SI	S	C/NM Y (5)
Supply Air Fan	30SAC01AN001	31UJK22026	M	M	SI	S	C/NM Y (5)
Air Inlet Outside Air	30SAC01AT001	31UJK22026	M	M	SI S	C/NM	Y (5)
Insect Screen Supply Air	30SAC01AT003	31UJK22026	M	M	SI	S	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Supply Air Pre Filter	30SAC01AT004	31UJK22026	M	M	SI	S C/NM	Y (5)
Supply Air Roughing Filter	30SAC01AT005	31UJK22026	M	M	SI	S C/NM	Y (5)
Moisture Separator Supply Air Cooler	30SAC01AT006	31UJK22026	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC01BS001	31UJK22026	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC01BS002	31UJK22026	M	M	SI	S	Y (5)
Recirc Air Silencer	30SAC01BS003	31UJK22039	M	M	SI	S	Y (5)
Outside Air Isolation Damper	30SAC02AA002	32UJK34005	M	M	SI	S C/NM	Y (5)
Outside Air Control Damper	30SAC02AA003	32UJK34005	M	M	SI	S C/NM	Y (5)
Recirc Air Control Damper	30SAC02AA004	32UJK31032	M	M	SI	S C/NM	Y (5)
Supply Air Backdraft Damper	30SAC02AA005	32UJK31007	M	M	SI	S C/NM	Y (5)
Supply Air Cooler	30SAC02AC001	32UJK34009	M	M	SI	S	Y (5)
Supply Air Heater	30SAC02AH002	32UJK34008	M	M	SI	S C/NM	Y (5)
Humidifier Heater	30SAC02AH003	32UJK31005	M	M	SI	NS-AQ C/NM	Y (5)
Humidifier Heater	30SAC02AH004	32UJK31005	M	M	SI	NS-AQ C/NM	Y (5)
Fan Motor Heater	30SAC02AH501	32UJK31007	M	M	SI	S C/NM	Y (5)
Supply Air Fan	30SAC02AN001	32UJK31007	M	M	SI	S C/NM	Y (5)
Air Inlet Outside Air	30SAC02AT001	32UJK38006	M	M	SI	S	Y (5)
Insect Screen Supply Air	30SAC02AT003	32UJK38006	M	M	SI	S	Y (5)
Supply Air Pre Filter	30SAC02AT004	32UJK34006	M	M	SI	S C/NM	Y (5)
Supply Air Roughing Filter	30SAC02AT005	32UJK34007	M	M	SI	S C/NM	Y (5)
Moisture Separator Supply Air Cooler	30SAC02AT006	32UJK34009	M	M	SI	S	Y (5)
Air Inlet Outside Air	30SAC02AT010	32UJK38006	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC02BS001	32UJK31007	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC02BS002	32UJK31007	M	M	SI	S	Y (5)
Recirc Air Silencer	30SAC02BS003	32UJK31032	M	M	SI	S	Y (5)
Outside Air Isolation Damper	30SAC03AA002	33UJK34005	M	M	SI	S C/NM	Y (5)
Outside Air Control Damper	30SAC03AA003	33UJK34005	M	M	SI	S C/NM	Y (5)
Recirc Air Control Damper	30SAC03AA004	33UJK31032	M	M	SI	S C/NM	Y (5)
Supply Air Backdraft Damper	30SAC03AA005	33UJK31007	M	M	SI	S C/NM	Y (5)
Supply Air Cooler	30SAC03AC001	33UJK34009	M	M	SI	S	Y (5)
Supply Air Heater	30SAC03AH002	33UJK34008	M	M	SI	S C/NM	Y (5)
Fan Motor Heater	30SAC03AH501	33UJK31007	M	M	SI	S C/NM	Y (5)
Supply Air Fan	30SAC03AN001	33UJK31007	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Air Inlet Outside Air	30SAC03AT001	33UJK38006	M	M	SI	S	Y (5)
Insect Screen Supply Air	30SAC03AT003	33UJK38006	M	M	SI	S	Y (5)
Supply Air Pre Filter	30SAC03AT004	33UJK34006	M	M	SI	S	Y (5)
Supply Air Roughing Filter	30SAC03AT005	33UJK34007	M	M	SI	S	Y (5)
Moisture Separator Supply Air Cooler	30SAC03AT006	33UJK34009	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC03BS001	33UJK31007	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC03BS002	33UJK31007	M	M	SI	S	Y (5)
Recirc Air Silencer	30SAC03BS003	33UJK31032	M	M	SI	S	Y (5)
Outside Air Isolation Damper	30SAC04AA002	34UJK22026	M	M	SI	S	Y (5)
Outside Air Control Damper	30SAC04AA003	34UJK22026	M	M	SI	S	Y (5)
Recirc Air Control Damper	30SAC04AA004	34UJK22028	M	M	SI	S	Y (5)
Supply Air Backdraft Damper	30SAC04AA005	34UJK22026	M	M	SI	S	Y (5)
Supply Air Cooler	30SAC04AC001	34UJK22026	M	M	SI	S	Y (5)
Supply Air Heater	30SAC04AH002	34UJK22026	M	M	SI	S	Y (5)
Fan Motor Heater	30SAC04AH501	34UJK22026	M	M	SI	S	Y (5)
Supply Air Fan	30SAC04AN001	34UJK22026	M	M	SI	S	Y (5)
Air Inlet Outside Air	30SAC04AT001	34UJK22026	M	M	SI	S	Y (5)
Insect Screen Supply Air	30SAC04AT003	34UJK22026	M	M	SI	S	Y (5)
Supply Air Pre Filter	30SAC04AT004	34UJK22026	M	M	SI	S	Y (5)
Supply Air Roughing Filter	30SAC04AT005	34UJK22026	M	M	SI	S	Y (5)
Moisture Separator Supply Air Cooler	30SAC04AT006	34UJK22026	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC04BS001	34UJK22026	M	M	SI	S	Y (5)
Supply Air Silencer	30SAC04BS002	34UJK22026	M	M	SI	S	Y (5)
Recirc Air Silencer	30SAC04BS003	34UJK22039	M	M	SI	S	Y (5)
Isolation Damper	30SAC05AA002	31UJK22026	M	M	SI	S	Y (5)
Isolation Damper	30SAC08AA002	31UJK22026	M	M	SI	S	Y (5)
Supply Air Isolation Damper	30SAC11AA001	31UJK22024	M	M	SI	S	Y (5)
Supply Air Isolation Damper	30SAC11AA003	31UJK22024	M	M	SI	S	Y (5)
Supply Air Adjustable Damper	30SAC11AA004	31UJK22026	M	M	SI	S	Y (5)
Supply Air Adjustable Damper	30SAC11AA005	31UJK22026	M	M	SI	S	Y (5)
Supply Air Adjustable Damper	30SAC11AA006	31UJK22024	M	M	SI	S	Y (5)
Supply Air Adjustable Damper	30SAC11AA007	31UJK22024	M	M	SI	S	Y (5)
Fire Damper	30SAC11AA008	31UJK22024	M	M	SI	S	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
I&CServ/SpecialUse Exhaust Fire Damp	30SAB42AA015	33UJK26044	M	M	SI	S C/NM	Y (5)
Tag/ShiftOffice Exhaust Balancing Damp	30SAB42AA016	32UJK26029	M	M	SI	S C/NM	Y (5)
Tag/ShiftOffice Exhaust Fire Damper	30SAB42AA017	32UJK26029	M	M	SI	S C/NM	Y (5)
MCR Exhaust Air Fire Damper	30SAB42AA021	32UJK26030	M	M	SI	S C/NM	Y (5)
Exhaust Air Fire Damper	30SAB45AA004	32UJK31020	M	M	SI	S C/NM	Y (5)
Exhaust Air Isolation Damper - A	30SAB45AA003	32UJK31020	M	M	SI	S C/NM	Y (5)
Exhaust Air Isolation Damper - B	30SAB45AA004	32UJK31020	M	M	SI	S C/NM	Y (5)
Exhaust Air Balancing Damper	30SAB45AA005	32UJK31020	M	M	SII	NS-AQ C/NM	Y (5)
Exhaust Air Backdraft-flow Damper	30SAB45AA006	32UJK31020	M	M	SII	NS-AQ C/NM	Y (5)
Restrooms Exhaust Air Fire Damper	30SAB45AA008	32UJK26029	M	M	SI	S C/NM	Y (5)
Kitchen Exhaust Fire Damper	30SAB45AA009	32UJK26033	M	M	SI	S C/NM	Y (5)
Exhaust Fan	30SAB45AN001	32UJK31020	M	M	SII	NS-AQ C/NM	Y (5)
Exhaust Fan Silencer	30SAB45BS001	32UJK31020	M	M	SII	NS-AQ C/NM	Y (5)
Essential Service Water Pump Building Ventilation System (ESWPBVS)							
Recirc Chiller Balancing Damper Bldg 1	30SAQ01AA002	31UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Cold Leg Bldg 1	30SAQ01AA003	31UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Hot Leg Bldg 1	30SAQ01AA004	31UQB02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Prefilter Bldg 1	30SAQ01AT002	31UQB02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Bldg 1	30SAQ01AC001	31UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 1	30SAQ01AH001	31UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 1	30SAQ01AH002	31UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Fan Bldg 1	30SAQ01AN001	31UQB02001	M	M	SI	S C/NM	Y (5)
Impact Sep Bldg 1	30SAQ01AT001	31UQB02001	M	M	SI	S C/NM	Y (5)
Inlet Air Isol Damper Bldg 1	30SAQ01AH007	31UBQ02001	M	M	SI	S C/NM	Y (5)
Exhaust Air Isol Damper Bldg 1	30SAQ01AH005	31UBQ02001	M	M	SI	S C/NM	Y (5)
Split Clr Inlet Balancing Damper Bldg 1	30SAQ01AA008	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Recirc Balancing Damper Bldg 1	30SAQ01AA006	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Prefilter Bldg 1	30SAQ01AT003	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Chiller Unit Bldg 1	30SAQ01AC002	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Cooler Unit Bldg 1	30SAQ01AC102	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Cooler Fan Bldg 1	30SAQ01AN002	31UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Chiller Balancing Damper Bldg 2	30SAQ02AA002	32UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Cold Leg Bldg 2	30SAQ02AA003	32UQB02001	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Plug Valve Chiller Hot Leg Bldg 2	30SAQ02AA004	32UQB02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Prefilter Bldg 2	30SAQ02AT002	32UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Bldg 2	30SAQ02AC001	32UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 2	30SAQ02AH001	32UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 2	30SAQ02AH002	32UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Fan Bldg 2	30SAQ02AN001	32UQB02001	M	M	SI	S C/NM	Y (5)
Impact Sep Bldg 2	30SAQ02AT001	32UQB02001	M	M	SI	S C/NM	Y (5)
Inlet Air Isol Damper Bldg 2	30SAQ02AH007	32UBQ02001	M	M	SI	S C/NM	Y (5)
Exhaust Air Isol Damper Bldg 2	30SAQ02AH005	32UBQ02001	M	M	SI	S C/NM	Y (5)
Split Clr Inlet Balancing Damper Bldg 2	30SAQ02AA008	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Recirc Balancing Damper Bldg 2	30SAQ02AA006	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Prefilter Bldg 2	30SAQ02AT003	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Chiller Unit Bldg 2	30SAQ02AC002	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Cooler Unit Bldg 2	30SAQ02AC102	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Cooler Fan Bldg 2	30SAQ02AN002	32UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Chiller Balancing Damper Bldg 3	30SAQ03AA002	33UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Cold Leg Bldg 3	30SAQ03AA003	33UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Hot Leg Bldg 3	30SAQ03AA004	33UQB02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Prefilter Bldg 3	30SAQ03AT002	33UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Bldg 3	30SAQ03AC001	33UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 3	30SAQ03AH001	33UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 3	30SAQ03AH002	33UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Fan Bldg 3	30SAQ03AN001	33UQB02001	M	M	SI	S C/NM	Y (5)
Impact Sep Bldg 3	30SAQ03AT001	33UQB02001	M	M	SI	S C/NM	Y (5)
Inlet Air Isol Damper Bldg 3	30SAQ03AH007	33UBQ02001	M	M	SI	S C/NM	Y (5)
Exhaust Air Isol Damper Bldg 3	30SAQ03AH005	33UBQ02001	M	M	SI	S C/NM	Y (5)
Split Clr Inlet Balancing Damper Bldg 3	30SAQ03AA008	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Recirc Balancing Damper Bldg 3	30SAQ03AA006	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Prefilter Bldg 3	30SAQ03AT003	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Chiller Unit Bldg 3	30SAQ03AC002	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Cooler Unit Bldg 3	30SAQ03AC102	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Cooler Fan Bldg 3	30SAQ03AN002	33UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Chiller Balancing Damper Bldg 4	30SAQ04AA002	34UQB02001	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Plug Valve Chiller Cold Leg Bldg 4	30SAQ04AA003	34UQB02001	M	M	SI	S C/NM	Y (5)
Plug Valve Chiller Hot Leg Bldg 4	30SAQ04AA004	34UQB02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Prefilter Bldg 4	30SAQ04AT002	34UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Chiller Bldg 4	30SAQ04AC001	34UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 4	30SAQ04AH001	34UQB02001	M	M	SI	S C/NM	Y (5)
Elec Room Air Heater Bldg 4	30SAQ04AH002	34UBQ02001	M	M	SI	S C/NM	Y (5)
Recirc Fan Bldg 4	30SAQ04AN001	34UQB02001	M	M	SI	S C/NM	Y (5)
Impact Sep Bldg 4	30SAQ04AT001	34UQB02001	M	M	SI	S C/NM	Y (5)
Inlet Air Isol Damper Bldg 4	30SAQ04AH007	34UBQ02001	M	M	SI	S C/NM	Y (5)
Exhaust Air Isol Damper Bldg 4	30SAQ04AH005	34UBQ02001	M	M	SI	S C/NM	Y (5)
Split Clr Inlet Balancing Damper Bldg 4	30SAQ04AA008	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Recirc Balancing Damper Bldg 4	30SAQ04AA006	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Clr Prefilter Bldg 4	30SAQ04AT003	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Chiller Unit Bldg 4	30SAQ04AC002	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Refrig Air Cooler Unit Bldg 4	30SAQ04AC102	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Split Cooler Fan Bldg 4	30SAQ04AN002	34UBQ02001	M	M	SII	NS-AQ C/NM	Y (5)
Emergency Power Generating Building Ventilation System (EPGBVS)							
Building Supply Backdraft Damper - Div 1	30SAD11AA003	31UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Building Inlet Prefilter - Div 1	30SAD11AT003	31UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Fan - Div 1	30SAD11AN003	31UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Air Motor Damper - Div 1	30SAD11AA004	31UBP02001	M	M	SI	S C/NM	Y (5)
Supply Air Manual Damper - Div 1	30SAD11AA005	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Motor Damper - Div 1	30SAD15AA004	31UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 1	30SAD15AN003	31UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 1	30SAD15AA003	31UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Motor Damper - Div 1	30SAD13AA007	31UBP01002	M	M	SI	S C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 1	30SAD13AA008	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 1	30SAD13AA009	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Prefilter - Div 1	30SAD13AT003	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 1	30SAD13AC002	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 1	30SAD13AC102	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Fan - Div 1	30SAD13AN002	31UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Exhaust Backdraft Damper - Div 1	30SAD13AA010	31UBP01002	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Building Supply Backdraft Damper - Div 2	30SAD21AA003	32UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Building Inlet Prefilter - Div 2	30SAD21AT003	32UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Fan - Div 2	30SAD21AN003	32UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Air Motor Damper - Div 2	30SAD21AA004	32UBP02001	M	M	SI	S C/NM	Y (5)
Supply Air Manual Damper - Div 2	30SAD21AA005	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Motor Damper - Div 2	30SAD25AA004	32UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 2	30SAD25AN003	32UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 2	30SAD25AA003	32UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Motor Damper - Div 2	30SAD23AA007	32UBP01002	M	M	SI	S C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 2	30SAD23AA008	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 2	30SAD23AA009	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Prefilter - Div 2	30SAD23AT003	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 2	30SAD23AC002	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 2	30SAD23AC102	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Fan - Div 2	30SAD23AN002	32UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Exhaust Backdraft Damper - Div 2	30SAD23AA010	32UBP01002	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 3	30SAD31AA003	33UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Building Inlet Prefilter - Div 3	30SAD31AT003	33UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Fan - Div 3	30SAD31AN003	33UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Air Motor Damper - Div 3	30SAD31AA004	33UBP02001	M	M	SI	S C/NM	Y (5)
Supply Air Manual Damper - Div 3	30SAD31AA005	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Motor Damper - Div 3	30SAD35AA004	33UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 3	30SAD35AN003	33UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 3	30SAD35AA003	33UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Damper - Div 3	30SAD33AA007	33UBP01002	M	M	SI	S C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 3	30SAD33AA008	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 3	30SAD33AA009	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Prefilter - Div 3	30SAD33AT003	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 3	30SAD33AC002	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 3	30SAD33AC102	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Fan - Div 3	30SAD33AN002	33UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Exhaust Backdraft Damper - Div 3	30SAD33AA010	33UBP01002	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 4	30SAD41AA003	34UBP02001	M	M	SII	NS-AQ C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Building Inlet Prefilter - Div 4	30SAD41AT003	34UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Fan - Div 4	30SAD41AN003	34UBP02001	M	M	SII	NS-AQ C/NM	Y (5)
Supply Air Motor Damper - Div 4	30SAD41AA004	34UBP02001	M	M	SI	S C/NM	Y (5)
Supply Air Manual Damper - Div 4	30SAD41AA005	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Motor Damper - Div 4	30SAD45AA004	34UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 4	30SAD45AN003	34UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 4	30SAD45AA003	34UBP02002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Damper - Div 4	30SAD43AA007	34UBP01002	M	M	SI	S C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 4	30SAD43AA008	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Manual Damper - Div 4	30SAD43AA009	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Prefilter - Div 4	30SAD43AT003	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 4	30SAD43AC002	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Cooling Coils - Div 4	30SAD43AC102	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Supply Air Fan - Div 4	30SAD43AN002	34UBP01002	M	M	SII	NS-AQ C/NM	Y (5)
Electrical Room Exhaust Backdraft Damper - Div 4	30SAD43AA010	34UBP01002	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 1	30SAD11AA001	31UBP02001	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 1	30SAD11AA002	31UBP02001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 1	30SAD11AN001	31UBP01001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 1	30SAD11AN002	31UBP01001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 1	30SAD11AT001	31UBP02001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 1	30SAD11AT002	31UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper A - Div 1	30SAD12AA001	31UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper B - Div 1	30SAD12AA002	31UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper C - Div 1	30SAD12AA003	31UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper D - Div 1	30SAD12AA004	31UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper E - Div 1	30SAD12AA005	31UBP01001	M	M	SI	S C/NM	Y (5)
Recirc. Balancing Damper - Div 1	30SAD13AA002	31UBP01001	M	M	SI	S C/NM	Y (5)
Fire Damper - Div 1	30SAD13AA004	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Fire Damper - Div 1	30SAD13AA005	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Unit Cooling Coil - Div 1	30SAD13AC001	31UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Supply Fan - Div 1	30SAD13AN001	31UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Prefilter - Div 1	30SAD13AT001	31UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit HEPA Filter - Div 1	30SAD13AT002	31UBP01001	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Recirc Unit Moisture Separator - Div 1	30SAD13AT003	31UBP01001	M	M	SI	S	Y (5)
Diesel Hall Space Heater/Fan 1 - Div 1	30SAD14AH001	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 2 - Div 1	30SAD14AH002	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 3 - Div 1	30SAD14AH003	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 4 - Div 1	30SAD14AH004	31UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 1	30SAD15AA001	31UBP02002	M	M	SI	S C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 1	30SAD15AA002	31UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 1	30SAD15AN001	31UBP01001	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 1	30SAD15AN002	31UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supply Backdraft Damp - Div 1	30SAD16AA001	31UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supply Fire Damper - Div 1	30SAD16AA002	31UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp A - Div 1	30SAD16AA003	31UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp B - Div 1	30SAD16AA004	31UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Backflow Damp - Div 1	30SAD16AA005	31UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper A - Div 1	30SAD16AA007	31UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper B - Div 1	30SAD16AA008	31UBP01001	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Space Heater - Div 1	30SAD16AH001	31UBP01003	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Ventilation Fan - Div 1	30SAD16AN001	31UBP01003	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 2	30SAD21AA001	32UBP02001	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 2	30SAD21AA002	32UBP02001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 2	30SAD21AN001	32UBP01001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 2	30SAD21AN002	32UBP01001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 2	30SAD21AT001	32UBP02001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 2	30SAD21AT002	32UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper A - Div 2	30SAD22AA001	32UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper B - Div 2	30SAD22AA002	32UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper C - Div 2	30SAD22AA003	32UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper D - Div 2	30SAD22AA004	32UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper E - Div 2	30SAD22AA005	32UBP01001	M	M	SI	S C/NM	Y (5)
Recirc. Balancing Damper - Div 2	30SAD23AA002	32UBP01001	M	M	SI	S C/NM	Y (5)
Fire Damper - Div 2	30SAD23AA004	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Fire Damper - Div 2	30SAD23AA005	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Unit Cooling Coil - Div 2	30SAD23AC001	32UBP01001	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Recirc Unit Supply Fan - Div 2	30SAD23AN001	32UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Prefilter - Div 2	30SAD23AT001	32UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit HEPA Filter - Div 2	30SAD23AT002	32UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Moisture Separator - Div 2	30SAD23AT003	32UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Space Heater/Fan 1 - Div 2	30SAD24AH001	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 2 - Div 2	30SAD24AH002	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 3 - Div 2	30SAD24AH003	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 4 - Div 2	30SAD24AH004	32UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 2	30SAD25AA001	32UBP02002	M	M	SI	S C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 2	30SAD25AA002	32UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 2	30SAD25AN001	32UBP01001	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 2	30SAD25AN002	32UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supply Backdraft Damp - Div 2	30SAD26AA001	32UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supply Fire Damper - Div 2	30SAD26AA002	32UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp A - Div 2	30SAD26AA003	32UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp B - Div 2	30SAD26AA004	32UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Backflow Damp - Div 2	30SAD26AA005	32UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper A - Div 2	30SAD26AA007	32UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper B - Div 2	30SAD26AA008	32UBP01001	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Space Heater - Div 2	30SAD26AH001	32UBP01003	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Ventilation Fan - Div 2	30SAD26AN001	32UBP01003	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 3	30SAD31AA001	33UBP02001	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 3	30SAD31AA002	33UBP02001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 3	30SAD31AN001	33UBP01001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 3	30SAD31AN002	33UBP01001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 3	30SAD31AT001	33UBP02001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 3	30SAD31AT002	33UBP02001	M	M	SI	S C/NM	Y (5)
Recirc. Balancing Damper - Div 3	30SAD33AA002	33UBP01001	M	M	SI	S C/NM	Y (5)
Fire Damper - Div 3	30SAD33AA004	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Fire Damper - Div 3	30SAD33AA005	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Recirc Unit Cooling Coil - Div 3	30SAD33AC001	33UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Supply Fan - Div 3	30SAD33AN001	33UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Prefilter - Div 3	30SAD33AT001	33UBP01001	M	M	SI	S C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Recirc Unit HEPA Filter - Div 3	30SAD33AT002	33UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Moisture Separator - Div 3	30SAD33AT003	33UBP01001	M	M	SI	S	Y (5)
Diesel Hall Space Heater/Fan 1 - Div 3	30SAD34AH001	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 2 - Div 3	30SAD34AH002	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 3 - Div 3	30SAD34AH003	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 4 - Div 3	30SAD34AH004	33UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 3	30SAD35AA001	33UBP02002	M	M	SI	S C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 3	30SAD35AA002	33UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 3	30SAD35AN001	33UBP01001	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 3	30SAD35AN002	33UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supply Backdraft Damp - Div 3	30SAD36AA001	33UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supply Fire Damper - Div 3	30SAD36AA002	33UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp A - Div 3	30SAD36AA003	33UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp B - Div 3	30SAD36AA004	33UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Backflow Damp - Div 3	30SAD36AA005	33UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper A - Div 3	30SAD36AA007	33UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper B - Div 3	30SAD36AA008	33UBP01001	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Space Heater - Div 3	30SAD36AH001	33UBP01003	M	M	SI	S	Y (5)
Fuel Tank Room Ventilation Fan - Div 3	30SAD36AN001	33UBP01003	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 4	30SAD41AA001	34UBP02001	M	M	SI	S C/NM	Y (5)
Building Supply Backdraft Damper - Div 4	30SAD41AA002	34UBP02001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 4	30SAD41AN001	34UBP01001	M	M	SI	S C/NM	Y (5)
Supply Fan - Div 4	30SAD41AN002	34UBP01001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 4	30SAD41AT001	34UBP02001	M	M	SI	S C/NM	Y (5)
Building Inlet Prefilter - Div 4	30SAD41AT002	34UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper A - Div 1	30SAD42AA001	34UBP02001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper B - Div 1	30SAD42AA002	34UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper C - Div 1	30SAD42AA003	34UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper D - Div 1	30SAD42AA004	34UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Balancing Damper E - Div 1	30SAD42AA005	34UBP01001	M	M	SI	S C/NM	Y (5)
Recirc. Balancing Damper - Div 4	30SAD43AA002	34UBP01001	M	M	SI	S C/NM	Y (5)
Fire Damper - Div 4	30SAD43AA004	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Fire Damper - Div 4	30SAD43AA005	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)



Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Recirc Unit Cooling Coil - Div 4	30SAD43AC001	34UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Supply Fan - Div 4	30SAD43AN001	34UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Prefilter - Div 4	30SAD43AT001	34UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit HEPA Filter - Div 4	30SAD43AT002	34UBP01001	M	M	SI	S C/NM	Y (5)
Recirc Unit Moisture Separator - Div 4	30SAD43AT003	34UBP01001	M	M	SI	S C/NM	Y (5)
Diesel Hall Space Heater/Fan 1 - Div 4	30SAD44AH001	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 2 - Div 4	30SAD44AH002	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 3 - Div 4	30SAD44AH003	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Diesel Hall Space Heater/Fan 4 - Div 4	30SAD44AH004	34UBP01001	M	M	SII	NS-AQ C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 4	30SAD45AA001	34UBP02002	M	M	SI	S C/NM	Y (5)
Building Exhaust Backdraft Damper - Div 4	30SAD45AA002	34UBP02002	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 4	30SAD45AN001	34UBP01001	M	M	SI	S C/NM	Y (5)
Exhaust Fan - Div 4	30SAD45AN002	34UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supply Backdraft Damp - Div 4	30SAD46AA001	34UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supply Fire Damper - Div 4	30SAD46AA002	34UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp A - Div 4	30SAD46AA003	34UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Balancing Damp B - Div 4	30SAD46AA004	34UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Exhaust Backflow Damp - Div 4	30SAD46AA005	34UBP01003	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper A - Div 4	30SAD46AA007	34UBP01001	M	M	SI	S C/NM	Y (5)
Main Tank Supp Damper B - Div 4	30SAD46AA008	34UBP01001	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Space Heater - Div 4	30SAD46AH001	34UBP01003	M	M	SI	S C/NM	Y (5)
Fuel Tank Room Ventilation Fan - Div 4	30SAD46AN001	34UBP01003	M	M	SI	S C/NM	Y (5)
CONTAINMENT ISOLATION SYSTEMS							
Fuel Pool Cooling and Purification System (FPCPS)							
FPP to RB Pool Inside Containment Isolation Valve	30FAL12AA001	30UJA07016	H	H	ES PAM SI	S C/NM	Y (4) Y (5)
FPP TO rb Pool Outside Containment Isolation Valve	30FAL12AA002	30UFA06045	M	H	ES PAM SI	S C/NM	Y (3) Y (5)
FPP to RB Pool Outside Containment Isolation Valve	30FAL15AA002	30UFA10045	M	H	ES PAM SI	S C/NM	Y (3) Y (5)
FPP to RB Pool Inside Containment Isolation Check Valve	30FAL15AA003	30UJA11013	H	H	ES SI	S C/NM	Y (4) Y (5)
Drain/test Connection	30FAL15AA406	30UJA11013	H	H	ES SI	S C/NM	Y (4) Y (5)
Vent/test Connection	30FAL12AA501	30UFA06045	M	H	ES SI	S C/NM	Y(3) Y (5)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Pressurizer Auxiliary Spray Isolation Va	30KBA35AA001	30UJA11022	H	H	SI	S 1E EMC	Y(1) Y (5)
#1 HP Reducing Station Control Valve Pos	30KBA11CG102	30UJA07028	H	H	SI	S 1E EMC	Y (1) Y (5)
#2 HP Reducing Station Control Valve Pos	30KBA12CG102	30UJA07029	H	H	SI	S 1E EMC	Y (1) Y (5)
Letdown Line Flow Transmitter	30KBA14CF751A	30UFA01084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Letdown Line Flow Transmitter	30KBA14CF751B	30UFA01084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Letdown Line Flow Transmitter	30KBA14CF752	30UFA01084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
LP Reducing Station Control Valve Positi	30KBA14CG106	30UFA06095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
VCT Level Transmitter	30KBA20CL750	30UFA10084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
VCT Level Transmitter	30KBA20CL751	30UFA06084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
VCT Level Transmitter	30KBA20CL752	30UFA10084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Flow Transmitter	30KBA34CF851A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Flow Transmitter	30KBA34CF851B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Flow Transmitter	30KBA34CF852A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Flow Transmitter	30KBA34CF852B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Boron Concentration Measurement Transm	30KBA34CQ857A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Boron Concentration Measurement Transm	30KBA34CQ857B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Boron Concentration Measurement Transm	30KBA34CQ858A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Boron Concentration Measurement Transm	30KBA34CQ858B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Temperature Tran	30KBA34CT857A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Temperature Tran	30KBA34CT857B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Temperature Tran	30KBA34CT858A	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Charging Pump Discharge Temperature Tran	30KBA34CT858B	30UFA01033	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
JEW							
RCP Seal Water Injection Outside Cont. I	30JEW01AA005	30UFA06045	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
RCP Seal Water Leakoff Inside Containmen	30JEW50AA001	30UJA07016	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
RCP Seal Water Leakoff Outside Containme	30JEW50AA002	30UFA06045	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Spent Fuel Pool Wide Range Level Sensor	30FAK31CL003	30UFA29015	Note 6	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Spent Fuel Pool Wide Range Level Sensor	30FAK31CL004	30UFA29015	Note 6	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Spent Fuel Pool Wide Range Level Sensor	30FAK31CL005	30UFA29015	Note 6	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Spent Fuel Pool Wide Range Level Sensor	30FAK31CL006	30UFA29015	Note 6	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
AUXILIARY SYSTEMS							
Nuclear Sampling System (NSS)							



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Pos Meas 2 KLA10AA003	30KLA10CG003B	30UJA18016	H	H	SI	S 1E EMC	Y (1) Y (5)
Press Meas 1 KLA Supply	30KLA10CP001	30UFA24095	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
Press Meas 2 KLA Supply	30KLA10CP002	30UFA24095	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA Purge Vent DP Sens 1	30KLA20CP001	30UJA23013	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA Purge Vent DP Sens 2	30KLA20CP002	30UJA23013	H	H	SII	NS-AQ EMC	Y (1) Y (5)
DP Meas KLA21AT001	30KLA21CP501	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA21AT002	30KLA21CP502	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA21AT003	30KLA21CP503	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA21AT004	30KLA21CP504	30UFA24080	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas 21 Filter Banks	30KLA21CP505	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA21AH005 Downstream	30KLA21CT001	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA21AH005 Upstream	30KLA21CT002	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA21AT003 Downstream	30KLA21CT003	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA Purge Fitr1 Tr 2 Flow Meas	30KLA22CF001	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA22AT001	30KLA22CP501	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA22AT002	30KLA22CP502	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA22AT003	30KLA22CP503	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas KLA22AT004	30KLA22CP504	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP Meas 22 Filter Banks	30KLA22CP505	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA22AH005 Downstream	30KLA22CT001	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA22AH005 Upstream	30KLA22CT002	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA22AT003 Downstream	30KLA22CT003	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Pos Meas KLA30AA001	30KLA30CG001	30UFA21065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
Pos Meas 1 KLA30AA002	30KLA30CG002A	30UFA17095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Pos Meas 2 KLA30AA002	30KLA30CG002B	30UFA17095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Pos Meas 1 KLA30AA003	30KLA30CG003A	30UJA18016	H	H	SI	S 1E EMC	Y (1) Y (5)
Pos Meas 2 KLA30AA003	30KLA30CG003B	30UJA18016	H	H	SI	S 1E EMC	Y (1) Y (5)
Pos Meas 1 KLA40AA002	30KLA40CG002A	30UFA21095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Pos Meas 2 KLA40AA002	30KLA40CG002B	30UFA21095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Pos Meas KLA40AA004	30KLA40CG004	30UJA18016	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Flow Measurement	30KLA50CF001	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)
DP Meas KLA50AT001	30KLA50CP501	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)
DP Meas KLA50AT002	30KLA50CP502	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
DP Meas KLA50AT003	30KLA50CP503	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)
DP Meas KLA50AT004	30KLA50CP504	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)
Temp Meas KLA50AH001 Downstream	30KLA50CT001	30UJA29022	H	H	SI	S 1E EMC	Y (1) Y (5)
Temp Meas KLA50AH001 Upstream	30KLA21CT003	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Meas KLA50AT003 Downstream	30KLA21CT003	30UFA24081	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA DP Sens 1 SG1	30KLA60CP851	30UFA13004	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA DP Sens 1 SG2	30KLA60CP852	32UJH10002	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA DP Sens 1 SG3	30KLA60CP853	33UJH10002	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA DP Sens 1 SG4	30KLA60CP854	30UFA10052	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
KLA 6 Supply Air Temp Meas 1	30KLA61CT001	30UJA23017	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Supply Air Temp Meas 2	30KLA61CT002	30UJA23017	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 RCP1 Air Temp Meas	30KLA61CT003	30UJA23002	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 RCP2 Air Temp Meas	30KLA61CT004	30UJA34005	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 SG1 Air Temp Meas	30KLA61CT005	30UJA34003	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 SG2 Air Temp Meas	30KLA61CT006	30UJA34004	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Eq Comp CRDM Air Temp Meas	30KLA61CT007	30UJA15001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 FAL Valves Air Temp Meas	30KLA61CT008	30UJA23020	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 KTA Pumps Air Temp Meas	30KLA61CT011	30UJA07022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Supply Air Temp Meas 3	30KLA63CT001	30UJA23018	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Supply Air Temp Meas 4	30KLA63CT002	30UJA23018	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 RCP3 Air Temp Meas	30KLA63CT003	30UJA34006	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 RCP4 Air Temp Meas	30KLA63CT004	30UJA23009	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 SG3 Air Temp Meas	30KLA63CT005	30UJA34007	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 SG4 Air Temp Meas	30KLA63CT006	30UJA34008	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Safety Relief Valve rm Air Temp	30KLA63CT008	30UJA34019	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 UJA11024 Air Temp Meas	30KLA63CT009	30UJA11024	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 UJA11022 Air Temp Meas	30KLA63CT010	30UJA11022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 1	30KLA65CT001	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 2	30KLA65CT002	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 3	30KLA65CT003	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 4	30KLA65CT004	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 5	30KLA65CT005	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Temp Sensor Primary Pipe 6	30KLA65CT006	30UJA11001	H	H	SII	NS-AQ EMC	Y (1) Y (5)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)		
Actuator Supply Air Isolation Damper	30KLB34AA002	30UFA21095	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Actuator Supply Air Isolation Damper	30KLB34AA003	30UFA21095	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Actuator Exhaust Air Isolation Damper	30KLB44AA002	30UFA29054	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Actuator Exhaust Air Isolation Damper	30KLB44AA003	30UFA29054	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Accident Filtration Train Flow Sensor	30KLB21CF001A	30UFA21095	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Accident Filtration Train Flow Sensor	30KLB21CF001B	30UFA21095	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Exhaust Fan Pressure Limit Switch Sensor	30KLB21CP002	30UFA17083	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Pre- And HEPA Filter DP Gauge (Train 21)	30KLB21CP501	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
HEPA Filter DP Gauge (Train 21)	30KLB21CP502	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Iodine Adsorber DP Gauge (Train 21)	30KLB21CP503	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Downstream HEPA Post Filter DP Gauge	30KLB21CP504	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Filter Bank DP Gauge (Train 21)	30KLB21CP505	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Sensor Upstream of Heater	30KLB21CT001	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temp <u>Regulation</u> Sensor for Heater	30KLB21CT002	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Regulation Sensor for Heater	30KLB21CT003	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Sensor Downstream of Carbon Adsorber	30KLB21CT004	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Exhaust Fan Pressure Limit Switch Sensor	30KLB24CP002	30UFA17081	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Pre- and HEPA Filter DP Gauge (Train 24)	30KLB24CP501	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
HEPA Filter DP Gauge (Train 24)	30KLB24CP502	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Iodine Adsorber DP Gauge (Train 24)	30KLB24CP503	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Downstream <u>Post</u> HEPA Filter DP Gauge	30KLB24CP504	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Filter Bank DP Gauge (Train 24)	30KLB24CP505	30UFA17084	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Sensor Upstream of Heater	30KLB24CT001	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temp <u>Regulation</u> Sensor for Heater	30KLB24CT002	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Regulation Sensor for Heater	30KLB24CT003	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Temperature Sensor Downstream of Carbon Adsorber	30KLB24CT004	30UFA17082	M	H	ES	SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Safeguard Building Controlled Area Ventilation System (SBVS)												
Vol Cont Dmpr Sup, Div 1	30KLC11AA003	31UJH05025	M	H		SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Iso Dmpr 1 Sup, Div 1	30KLC11AA004	31UJH05025	M	H		SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Iso Dmpr 2 Sup, Div 1	30KLC11AA005	31UJH05025	M	H		SI	S	1E	EMC	Y (2)	Y (5)	Y (6)
Sup Is Dmpr, Div 1, SG1	30KLC11AA007	31UJH05006	M	H		SI	S	1E	EMC	Y (2)	Y (5)	Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
DP 4, SG4	30KLC34CP854	33UJH10001	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP, Acc Ex Tr 1	30KLC41CP001	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC41AT001	30KLC41CP501	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC41AT002	30KLC41CP502	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC41AT003	30KLC41CP503	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC41AT004	30KLC41CP504	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Upstream Temp Sensor Acc Ex Tr 1 Heater	30KLC41CT004	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Downstream Temp Sensors Acc Ex Tr 1 Heater	30KLC41CT001/002	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Downstream Temp Sensor Acc Ex Tr 1 Carbon Adsorber	30KLC41CT003	30UFA21082	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP, Acc Ex Tr 2	30KLC42CP001	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC42AT001	30KLC42CP501	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC42AT002	30KLC42CP502	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC42AT003	30KLC42CP503	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
DP KLC42AT004	30KLC42CP504	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Upstream Temp, Acc Ex Tr 2	30KLC42CT001	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Upstream Temp Sensor Acc Ex Tr 2 Heater	30KLC42CT004	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Downstream Temp Sensors Acc Ex Tr 2 Heater	30KLC42CT001/002	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Downstream Temp Sensor Acc Ex Tr 2 Carbon Adsorber	30KLC42CT003	30UFA21084	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Flow Meas 2 Tot Acc Ex	30KLC45CF002	30UFA21095	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1 JND Pump Rm, SG1	30KLC51CT001	31UJH01002	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 2 JND Pump Rm, SG1	30KLC51CT002	31UJH01002	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1 JNG Pump Rm, SG1	30KLC51CT003	31UJH01006	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 2 JNG Pump Rm, SG1	30KLC51CT004	31UJH01006	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1 KAA Vlv Rm, SG1	30KLC51CT005	31UJH10004	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 2 KAA Vlv Rm, SG1	30KLC51CT006	31UJH10004	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1 JMU Rm, SG1	30KLC51CT007	31UJH10010	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 2 JMU Rm, SG1	30KLC51CT008	31UJH10010	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1, JND Pump Rm, SG2	30KLC52CT001	32UJH01007	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 2, JND Pump Rm, SG2	30KLC52CT002	32UJH01007	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)
Temp Sens 1, JNG Pump Rm, SG2	30KLC52CT003	32UJH01009	M	H	SI	S 1E EMC	Y (2) Y (5) Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Supply Air Flow Div 2	30SAC02CF002	32UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Inlet Control Damper	30SAC02CG003	32UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Recirc Control Damper	30SAC02CG003	32UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Filter Bank Diff Pressure Sensor	30SAC02CP001	32UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Pre Filter Bank Diff Pressure Sensor	30SAC02CP501	32UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Filter Differential Pressure Sensor	30SAC02CP502	32UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Outside Air Temperature Sensor	30SAC02CT001	32UJK38006	M	M	SI	S 1E EMC	Y (5) Y (6)
Outside Air Temperature Sensor	30SAC02CT002	32UJK38006	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT003	32UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT004	32UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT005	32UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT006	32UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT501	32UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC02CT502	32UJK34009	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Flow Div 3	30SAC03CF001	33UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Inlet Control Damper	30SAC03CG003	33UJK34005	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Recirc Control Damper	30SAC03CG004	33UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Filter Bank Diff Pressure Sensor	30SAC03CP001	32UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Pre Filter Diff Pressure Sensor	30SAC03CP501	33UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Filter Differential Pressure Sensor	30SAC03CP502	33UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
Outside Air Temperature Sensor	30SAC03CT001	33UJK38006	M	M	SI	S 1E EMC	Y (5) Y (6)
Outside Air Temperature Sensor	30SAC03CT002	33UJK38006	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT003	33UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT004	33UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT005	33UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT006	33UJK31005	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT501	33UJK34008	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Temperature Sensor	30SAC03CT502	33UJK34009	M	M	SI	S 1E EMC	Y (5) Y (6)
Supply Air Flow Div 4	30SAC03CF001	34UJK22026	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Inlet Control Damper	30SAC04CG003	34UJK22026	M	M	SI	S 1E EMC	Y (5) Y (6)
Position Indicator Recirc Control Damper	30SAC04CG004	34UJK22028	M	M	SI	S 1E EMC	Y (5) Y (6)
Filter Bank Diff Pressure Sensor	30SAC04CP001	34UJK22026	M	M	SI	S 1E EMC	Y (5) Y (6)
Pre Filter Diff Pressure Sensor	30SAC04CP501	34UJK22026	M	M	SI	S 1E EMC	Y (5) Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Recirc. Vol. Cont. Posit. Indic. - Div 1	30SAB01CG012	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Conditioning Train 01 Flow Measurement	30SAB01CF001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP - Div 1	30SAB01CP002	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Prefilter DP - Div 1	30SAB01CP501	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP (Local) - Div 1	30SAB01CP504	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Inlet Temp - Div 1	30SAB01CT001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 1 A	30SAB01CT002	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 1 B	30SAB01CT003	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 1 C	30SAB01CT004	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. CoolCoil Inlet Temp (Local) - Div- Div 1	30SAB01CT501	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. CoolCoil Exit Temp (Local) - Div- Div 1	30SAB01CT502	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Smoke Detector	30SAB01SD001	32UJK31034	M	M	SII	NS-AQ	Y (5) Y (6)
Conditioning Train 02 Flow Measurement	30SAB02CF001	32UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP - Div 2	30SAB02CP002	32UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP (Local) - Div 2	30SAB02CP504	32UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. CoolCoil Inlet Temp (Local) - Div- Div 2	30SAB02CT501	32UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. CCoil Outlet Temp (Local) - Div 2	30SAB02CT502	32UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Conditioning Train 03 Flow Measurement	30SAB03CF001	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP - Div 3	30SAB03CP002	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP (Local) - Div 3	30SAB03CP504	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc CoolCoil Inlet Temp (Local) - Div- Div 3	30SAB03CT501	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. Cool Coil Exit Temp (Local) - Div- Div 3	30SAB03CT502	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc Vol Cont Damp Position Indic - Div 4	30SAB04CG012	33UJK31035	M	M	SI	S 1E EMC	Y (5) Y (6)
Conditioning Train 04 Flow Measurement	30SAB04CF001	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> . DP - Div 4	30SAB04CP002	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Prefilter DP - Div 4	30SAB04CP501	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. <u>Final Filter</u> .HEPA DP (Local) - Div 4	30SAB04CP504	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Inlet Temp - Div 4	30SAB04CT001	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 4 A	30SAB04CT002	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 4 B	30SAB04CT003	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Makeup Air Heater Outlet Temp - Div 4 C	30SAB04CT004	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc CoolCoil Inlet Temp (Local) - Div 4	30SAB04CT501	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc. CoolCoil Exit Temp (Local) - Div 4	30SAB04CT502	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Smoke Detector	30SAB04SD001	32UJK31034	M	M	SII	NS-AQ	Y (5)
Iodine Filtration Train 01 Flow Measurement	30SAB11CF001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtr. Filter DP - Div 1	30SAB11CP001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Prefilter DP - Div 1	30SAB11CP501	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtr. Inlet HEPA DP - Div1	30SAB11CP502	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Charcoal DP - Div 1	30SAB11CP503	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Outlet HEPA <u>Post</u> DP - Div 1	30SAB11CP504	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
SAB11 Filtr Train Temp Sens 1	30SAB11CT001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
SAB11 Filtr Train Temp Sens 2	30SAB11CT002	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Train 01 Carbon Adsorber Outlet Temp Sens	30SAB11CT003	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Train 04 Flow Measurement	30SAB14CF001	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Filter DP - Div 4	30SAB14CP001	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Prefilter DP - Div 4	30SAB14CP501	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Inlet HEPA DP - Div 4	30SAB14CP502	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Charcoal DP - Div 4	30SAB14CP503	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Outlet HEPA <u>Post</u> DP - Div 4	30SAB14CP504	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
SAB14 Filtr Train Temp Sens 1	30SAB14CT001	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
SAB14 Filtr Train Temp Sens 2	30SAB14CT002	33UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
Iodine Filtration Train 04 Carbon Adsorber Outlet Temp Sens	30SAB14CT003	32UJK31034	M	M	SI	S 1E EMC	Y (5) Y (6)
MCR Supply Duct Heater Outlet Air Flow	30SAB32CF001	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
Tag/Shift Off Supply Duct Heat Exit Flow	30SAB32CF002	33UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
WC & Kitchen Supply Duct Heat Exit Flow	30SAB32CF003	32UJK26015	M	M	SI	S 1E EMC	Y (5) Y (6)
Kitchen Supply Duct Heater Exit Flow	30SAB32CF004	33UJK26044	M	M	SI	S 1E EMC	Y (5) Y (6)
I&CService Supply Duct Heat Exit Flow	30SAB32CF005	33UJK26034	M	M	SI	S 1E EMC	Y (5) Y (6)
Special Use Supply Duct Heater Exit Flow	30SAB32CF006	33UJK26032	M	M	SI	S 1E EMC	Y (5) Y (6)
TechSupport Supply Duct Heater Exit Flow	30SAB32CF007	33UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
DP between MCR and Anteroom A	30SAB32CP001	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
DP between MCR and Anteroom B	30SAB32CP002	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
DP between MCR and Anteroom C	30SAB32CP003	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
DP between MCR and Anteroom (Local)	30SAB32CP501	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
MCR Supply Duct Heater Outlet Air Temp	30SAB32CT001	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
MCR Temp A	30SAB32CT002	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
MCR Temp B	30SAB32CT003	32UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
Tagging/Shift Office Heater Exit Temp	30SAB32CT004	33UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
Tagging Rm Temp	30SAB32CT005	33UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
I&C Service Center Rm Temp A	30SAB32CT006	33UJK26034	M	M	SI	S 1E EMC	Y (5) Y (6)
SICS1 / Computer Rm 1 Temp	30SAB32CT007	32UJK26002	M	M	SI	S 1E EMC	Y (5) Y (6)
SICS2 / Computer Rm 2 Temp	30SAB32CT008	33UJK26002	M	M	SI	S 1E EMC	Y (5) Y (6)
WC & Kitchen Supply Duct Heat Exit Temp	30SAB32CT009	32UJK26015	M	M	SI	S 1E EMC	Y (5) Y (6)
Kitchen (MCR Staff) Temp	30SAB32CT010	32UJK26031	M	M	SI	S 1E EMC	Y (5) Y (6)
Kitchen Supply Duct Heater Outlet Temp	30SAB32CT011	33UJK26044	M	M	SI	S 1E EMC	Y (5) Y (6)
Kitchen Temp	30SAB32CT012	33UJK26044	M	M	SI	S 1E EMC	Y (5) Y (6)
I&C Service Supply Duct Heater Exit Temp	30SAB32CT013	33UJK26034	M	M	SI	S 1E EMC	Y (5) Y (6)
I&C Service Center Rm Temp B	30SAB32CT014	33UJK26034	M	M	SI	S 1E EMC	Y (5) Y (6)
Special Use Supply Duct Heat Exit Temp	30SAB32CT015	33UJK26032	M	M	SI	S 1E EMC	Y (5) Y (6)
Special Use Temp	30SAB32CT016	33UJK26032	M	M	SI	S 1E EMC	Y (5) Y (6)
Tech Supp Supply Duct Heat Exit Temp	30SAB32CT017	33UJK26030	M	M	SI	S 1E EMC	Y (5) Y (6)
Tech Support Center Temp	30SAB32CT018	33UJK26006	M	M	SI	S 1E EMC	Y (5) Y (6)
Essential Service Water Pump Building Ventilation System (ESWPBVS)							
Elec Room Air Heater Bldg 1	30SAQ01AH001	31UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 1	30SAQ01AH002	31UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc Fan Bldg 1	30SAQ01AN001	31UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Inlet Air Isol Dmpr Bldg 1	30SAQ01AA007	31UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Exhaust Air Isol Dmpr Bldg 1	30SAQ01AA005	31UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Split Cooler Fan Bldg 1	30SAQ01AN002	31UQB02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Split Cooler Condenser Bldg 1	30SAQ01AC102	31UQB02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 2	30SAQ02AH001	32UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 2	30SAQ02AH002	32UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Recirc Fan Bldg 2	30SAQ02AN001	32UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Inlet Air Isol Dmpr Bldg 2	30SAQ02AA007	32UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Exhaust Air Isol Dmpr Bldg 2	30SAQ02AA005	32UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Split Cooler Fan Bldg 2	30SAQ02AN002	32UQB02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Split Cooler Condenser Bldg 2	30SAQ02AC102	32UQB02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 3	30SAQ03AH001	33UQB02001	M	M	SI	S 1E EMC	Y (5) Y (6)



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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)			EQ Program Designation (Note 5)
Elec Room Air Heater Bldg 3	30SAQ03AH002	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Recirc Fan Bldg 3	30SAQ03AN001	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Inlet Air Isol Dmpr Bldg 3	30SAQ03AA007	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Exhaust Air Isol Dmpr Bldg 3	30SAQ03AA005	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Split Cooler Fan Bldg 3	30SAQ03AN002	33UQB02001	M	M	SII	NS-AQ		EMC	Y (5) Y (6)
Split Cooler Condenser Bldg 3	30SAQ03AC102	33UQB02001	M	M	SII	NS-AQ		EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 4	30SAQ04AH001	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Elec Room Air Heater Bldg 4	30SAQ04AH002	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Recirc Fan Bldg 4	30SAQ04AN001	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Inlet Air Isol Dmpr Bldg 4	30SAQ04AH002	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Exhaust Air Isol Dmpr Bldg 4	30SAQ04AA005	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Split Cooler Fan Bldg 4	30SAQ04AN002	34UQB02001	M	M	SII	NS-AQ		EMC	Y (5) Y (6)
Split Cooler Condenser Bldg 4	30SAQ04AC102	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Outside Air Temp Sensor Bldg 1	30SAQ01CT001	31UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Outside Air Temp Sensor Bldg 2	30SAQ02CT001	32UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Outside Air Temp Sensor Bldg 3	30SAQ03CT001	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Outside Air Temp Sensor Bldg 4	30SAQ04CT001	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 1	30SAQ01CT002	31UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 1	30SAQ01CT003	31UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 2	30SAQ02CT002	32UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 2	30SAQ02CT003	32UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 3	30SAQ03CT002	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 3	30SAQ03CT003	33UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 4	30SAQ04CT002	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electric Heater Temperature Sensor Bldg 4	30SAQ04CT003	34UQB02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Emergency Power Generating Building Ventilation System (EPGBVS)									
Supply Fan - Div 1	30SAD11AN003	31UBP02001	M	M	SII	NS-AQ		EMC	Y (5) Y (6)
Supply Air Motor Damper - Div 1	30SAD11AA004	31UBP02001	M	M	SI	S	1E	EMC	Y (5) Y (6)
Building Exhaust Motor Damper - Div 1	30SAD15AA004	31UBP02002	M	M	SI	S	1E	EMC	Y (5) Y (6)
Exhaust Fan - Div 1	30SAD15AN003	31UBP02002	M	M	SII	NS-AQ		EMC	Y (5) Y (6)
Electrical Room Supply Air Motor Damper - Div 1	30SAD13AA007	31UBP01002	M	M	SI	S	1E	EMC	Y (5) Y (6)
Electrical Room Supply Air Fan - Div 1	30SAD13AN002	31UBP01002	M	M	SII	NS-AQ		EMC	Y (5) Y (6)



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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Diesel Hall Low/Hi Temperature Alarm Sensor - Div 1	30SAD12CT006	31UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Supply/Exhaust Control Temp Sensor - Div 1	30SAD12CT007	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Intake Air Temperature Sensor - Div 1	30SAD13CT005	31UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Temperature Sensor - Div 1	30SAD13CT006	31UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Diesel Hall Supply Filter Pressure - Div 1	30SAD11CP513	31UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Filter Pressure - Div 1	30SAD13CP503	31UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Fan - Div 2	30SAD21AN003	32UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Air Motor Damper - Div 2	30SAD21AA004	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Building Exhaust Motor Damper - Div 2	30SAD25AA004	32UBP02002	M	M	SI	S 1E EMC	Y (5) Y (6)
Exhaust Fan - Div 2	30SAD25AN003	32UBP02002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Air Motor Damper - Div 2	30SAD23AA007	32UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Fan - Div 2	30SAD23AN002	32UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Low/Hi Temperature Alarm Sensor - Div 2	30SAD22CT006	32UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Supply/Exhaust Control Temp Sensor - Div 2	30SAD22CT007	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Intake Air Temperature Sensor - Div 2	30SAD23CT005	32UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Temperature Sensor - Div 2	30SAD23CT006	32UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Diesel Hall Supply Filter Pressure - Div 2	30SAD21CP513	32UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Filter Pressure - Div 2	30SAD23CP503	32UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Fan - Div 3	30SAD31AN003	33UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Air Motor Damper - Div 3	30SAD31AA004	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Building Exhaust Motor Damper - Div 3	30SAD35AA004	33UBP02002	M	M	SI	S 1E EMC	Y (5) Y (6)
Exhaust Fan - Div 3	30SAD35AN003	33UBP02002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Air Motor Damper - Div 3	30SAD33AA007	33UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Electrical Room Supply Air Fan - Div 3	30SAD33AN002	33UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Low/Hi Temperature Alarm Sensor - Div 3	30SAD32CT006	33UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Supply/Exhaust Control Temp Sensor - Div 3	30SAD32CT007	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Intake Air Temperature Sensor - Div 3	30SAD33CT005	33UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Temperature Sensor - Div 3	30SAD33CT006	33UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Diesel Hall Supply Filter Pressure - Div 3	30SAD31CP513	33UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Filter Pressure - Div 3	30SAD33CP503	33UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Fan - Div 4	30SAD41AN003	34UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Air Motor Damper - Div 4	30SAD41AA004	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y (6)
Building Exhaust Motor Damper - Div 4	30SAD45AA004	34UBP02002	M	M	SI	S 1E EMC	Y (5) Y (6)
Exhaust Fan - Div 4	30SAD45AN003	34UBP02002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Air Motor Damper - Div 4	30SAD43AA007	34UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Fan - Div 4	30SAD43AN002	34UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Low/Hi Temperature Alarm Sensor - Div 4	30SAD42CT006	34UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Diesel Hall Supply/Exhaust Control Temp Sensor - Div 4	30SAD42CT007	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Intake Air Temperature Sensor - Div 4	30SAD43CT005	34UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Electrical Room Supply Air Temperature Sensor - Div 4	30SAD43CT006	34UBP01002	M	M	SI	S 1E EMC	Y (5) Y (6)
Diesel Hall Supply Filter Pressure - Div 4	30SAD41CP513	34UBP02001	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Electrical Room Supply Filter Pressure - Div 4	30SAD43CP503	34UBP01002	M	M	SII	NS-AQ EMC	Y (5) Y (6)
Supply Air Fan - Div 1	30SAD11AN001	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 1	30SAD11AN002	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Unit Supply Fan - Div 1	30SAD13AN001	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 1	30SAD15AN001	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 1	30SAD15AN002	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper A - Div 1	30SAD16AA007	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Main Tank Supp Damper B - Div 1	30SAD16AA008	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Space Heater - Div 1	30SAD16AH001	31UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Ventilation Fan - Div 1	30SAD16AN001	31UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 2	30SAD21AN001	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 2	30SAD21AN002	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Unit Supply Fan - Div 2	30SAD23AN001	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 2	30SAD25AN001	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 2	30SAD25AN002	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper A - Div 2	30SAD26AA007	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper B - Div 2	30SAD26AA008	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Space Heater - Div 2	30SAD26AH001	32UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Ventilation Fan - Div 2	30SAD26AN001	32UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 3	30SAD31AN001	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 3	30SAD31AN002	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Unit Supply Fan - Div 3	30SAD33AN001	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 3	30SAD35AN001	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 3	30SAD35AN002	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper A - Div 3	30SAD36AA007	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper B - Div 3	30SAD36AA008	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Space Heater - Div 3	30SAD36AH001	33UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Ventilation Fan - Div 3	30SAD36AN001	33UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 4	30SAD41AN001	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Air Fan - Div 4	30SAD41AN002	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Unit Supply Fan - Div 4	30SAD43AN001	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 4	30SAD45AN001	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Exhaust Fan - Div 4	30SAD45AN002	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper A - Div 4	30SAD46AA007	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Main Tank Supp Damper B - Div 4	30SAD46AA008	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Space Heater - Div 4	30SAD46AH001	34UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Fuel Tank Room Ventilation Fan - Div 4	30SAD46AN001	34UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 1	30SAD11CP501	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 1	30SAD11CP502	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 1	30SAD11CP511	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)

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Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Supply Filter Pressure - Div 1	30SAD11CP512	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Building Supply Air Temperature - Div 1	30SAD11CT001	31UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature A - Div 1	30SAD12CT001	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature B - Div 1	30SAD12CT002	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature C - Div 1	30SAD12CT003	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature D - Div 1	30SAD12CT004	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature E - Div 1	30SAD12CT005	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Prefilter Pressure - Div 1	30SAD13CP501	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Final HEPA Filter Pressure - Div 1	30SAD13CP502	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Supply Temperature - Div 1	30SAD13CT001	31UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature A - Div 1	30SAD13CT002	31UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature B - Div 1	30SAD13CT003	31UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp A - Div 1	30SAD14CT001	31UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp B - Div 1	30SAD14CT002	31UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp C - Div 1	30SAD14CT003	31UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp D - Div 1	30SAD14CT004	31UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Main Tank Temperature - Div 1	30SAD16CT001	31UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 2	30SAD21CP501	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 2	30SAD21CP502	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 2	30SAD21CP511	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 2	30SAD21CP512	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Building Supply Air Temperature - Div 2	30SAD21CT001	32UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature A - Div 2	30SAD22CT001	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature B - Div 2	30SAD22CT002	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature C - Div 2	30SAD22CT003	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature D - Div 2	30SAD22CT004	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature E - Div 2	30SAD22CT005	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Prefilter Pressure - Div 2	30SAD23CP501	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Final HEPA Filter Pressure - Div 2	30SAD23CP502	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Supply Temperature - Div 2	30SAD23CT001	32UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature A - Div 2	30SAD23CT002	32UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature B - Div 2	30SAD23CT003	32UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp A - Div 2	30SAD24CT001	32UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Diesel Hall Heater/Fan Temp B - Div 2	30SAD24CT002	32UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp C - Div 2	30SAD24CT003	32UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp D - Div 2	30SAD24CT004	32UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Main Tank Temperature - Div 2	30SAD26CT001	32UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 3	30SAD31CP501	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 3	30SAD31CP502	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 3	30SAD31CP511	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 3	30SAD31CP512	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Building Supply Air Temperature - Div 3	30SAD31CT001	33UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature A - Div 3	30SAD32CT001	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature B - Div 3	30SAD32CT002	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature C - Div 3	30SAD32CT003	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature D - Div 3	30SAD32CT004	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature E - Div 3	30SAD32CT005	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Prefilter Pressure - Div 3	30SAD33CP501	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Final HEPA Filter Pressure - Div 3	30SAD33CP502	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Supply Temperature - Div 3	30SAD33CT001	33UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature A - Div 3	30SAD33CT002	33UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature B - Div 3	30SAD33CT003	33UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp A - Div 3	30SAD34CT001	33UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp B - Div 3	30SAD34CT002	33UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp C - Div 3	30SAD34CT003	33UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp D - Div 3	30SAD34CT004	33UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Main Tank Temperature - Div 3	30SAD36CT001	33UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 4	30SAD41CP501	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Components Pressure - Div 4	30SAD41CP502	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 4	30SAD41CP511	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Supply Filter Pressure - Div 4	30SAD41CP512	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Building Supply Air Temperature - Div 4	30SAD41CT001	34UBP02001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature A - Div 4	30SAD42CT001	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature B - Div 4	30SAD42CT002	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature C - Div 4	30SAD42CT003	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Area Temperature D - Div 4	30SAD42CT004	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)



Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Diesel Hall Area Temperature E - Div 4	30SAD42CT005	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Prefilter Pressure - Div 4	30SAD43CP501	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc FinalHEPA-Filter Pressure - Div 4	30SAD43CP502	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
Recirc Supply Temperature - Div 4	30SAD43CT001	34UBP01001	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature A - Div 4	30SAD43CT002	34UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
EDG Control Rm Temperature B - Div 4	30SAD43CT003	34UBP01002	M	M	SI	S 1E EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp A - Div 4	30SAD44CT001	34UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp B - Div 4	30SAD44CT002	34UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp C - Div 4	30SAD44CT003	34UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Diesel Hall Heater/Fan Temp D - Div 4	30SAD44CT004	34UBP01001	M	M	SII	NS-AQ EMC	Y (5) Y(6)
Main Tank Temperature - Div 4	30SAD46CT001	34UBP01003	M	M	SI	S 1E EMC	Y (5) Y(6)
CONTAINMENT ISOLATION SYSTEMS							Deleted row
Fuel Pool Cooling and Purification System (FPCPS)							
ILCO Isolation Valve	30FAL10AA003	30UJA11021	H	H	SII	NS-AQ	Y (5)
FPP to RB Pool Inside CI Valve Actuator	30FAL12AA001	30UJA07016	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
FPP to RB Pool Outside CI Valve Actuator	30FAL12AA002	30UFA06045	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
FPP to RB Pool Outside CI Valve Actuator	30FAL15AA002	30UFA10045	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Demineralized Water Distribution System (DWDS)							
Demienalized Water Outer Cotainment Isol	30GHC74AA001	30UFA21045	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Demienalized Water Inner Cotainment Isol	30GHC74AA002	30UJA18013	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
Leak-Off System (LOS)							
CIDS Inside Ci Valve Actuator	30JMM10AA006	30UJA23013	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
CIDS Outside Ci Valve Actuator	30JMM10AA007	30UFA24095	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
CLES CI VAlve Actuator: Located Inside R	30JMM23AA001	30UJA11016	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
CLES CI Valve Actuator: Located Inside A	30JMM23AA002	30UJB05002	M	M	ES PAM SI	S 1E EMC	Y (5) Y (6)
Severe Accident Heat Removal System (SAHRS)							
Suction Line From Irwst Outer CI Valve A	30JMQ40AA001	34UJH01010	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Spraying Line Outer CI Valve Actuator	30JMQ41AA001	34UJH05007	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Active Recirculation Line Outer CI Valve	30JMQ42AA001	34UJH05007	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Backflushing Line Outer CI Valve Actuator	30JMQ43AA001	34UJH05007	M	H	ES PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
Gaseous Waste Processing System (GWPS)							



**Table 3.11-2—List of U.S. EPR Important to Safety Systems Screened for
the EQ Program
Sheet 1 of 5**

Category	Systems
Fluid Systems	Reactor Coolant JE (except JEW), JA, JDA ¹
	Safety Injection & Residual Heat Removal JNA, JND, JNG
	Component Cooling Water KA
	Essential Service Water PE
	Safety Chilled Water QK
	Extra Borating JDH
	Feedwater LA
	Emergency Feedwater LAR, LAS
	In-containment Refueling Water Storage Tank (IRWST) JNK
	Main Steam LB
	Steam Generator Blowdown LCQ
	Chemical & Volume Control System KBA, KBD, JEW
	Spent Fuel Pool Cooling FAK
Auxiliary Systems	Nuclear Sampling KU
	Sampling Activity Monitoring KLK
	Emergency Diesel Generator Set XJA, XKA, XJN, XJV, XJG, XJQ, XJR, XJX, XCN
	Combustible Gas Control JMT
	<u>Fuel Handling System</u> <u>FCI</u>



The motor-operated air-tight dampers—located on the normal operation filtration train supply and exhaust ducts—isolate the secondary containment in case of a postulated accident. The redundant dampers in the supply and exhaust trains are powered by different electrical divisions backed by separate emergency diesel generators. The dampers can be operated automatically or manually from the main control room (MCR). In the event of a station blackout (SBO), these dampers are automatically closed by batteries.

The fire dampers on both supply and exhaust trains are located at the wall penetration between the Fuel Building and the annulus. These dampers are equipped with thermal sensors for automatic closing, ~~and can be closed or re-opened remotely if not released by the thermal sensor.~~

6.2.3.2.2.2 AVS Accident Trains

The AVS accident filtration trains are shown on Figure 6.2.3-2. The filtration trains are engineered safety feature (ESF) filters and are used during postulated accidents to contain leakage from the primary containment by maintaining a subatmospheric pressure in the annulus. The exhaust air from the annulus is filtered before release to the environment via the vent stack.

There are two full capacity ESF trains, each consists of an air-tight motor-controlled damper, moisture separator, two stage electrical heater, pre-filter, ~~an upstream~~ HEPA filter, iodine absorber, ~~a downstream HEPA~~ post filter, air-tight motor controlled damper, fan, and back-draft damper. The filter system components are designed in accordance with Regulatory Guide 1.52, and are described in Section 6.5.1.

During a postulated accident, the ESF filtration trains collect the containment leakage from the annulus, remove airborne radioactivity through the filtration train, and release the filtered air to the vent stack. The AVS accident trains reduce the pressure in the annulus to ~~at least~~ less than or equal -0.25 inches water gauge or less and maintain the lower subatmospheric pressure. The system is capable of maintaining a uniform negative pressure throughout the secondary containment structure following the design basis loss of coolant accident (LOCA).

The exhaust air is monitored and sampled for radiation levels before release to the vent stack, as described in Section 11.5.3.1.10 and Table 11.5-1, Monitors R-27 and R-28.

The two ESF trains are physically separated by being installed in separate rooms of the Fuel Building, which are also in separate fire areas. The two ESF trains are powered by different electrical divisions backed by separate emergency diesel generators.



6.2.3.2.2.3 System Operation

The normal operation filtration train is in service during normal plant operation, including cold shutdown and outages. During normal operation, the isolation dampers are in the open position and the annulus is continuously vented. The subatmospheric pressure inside the annulus is maintained by regulating the control damper located on the supply side of the normal operation filtration train. The supply air from the AVS maintains the annulus temperature between 45°F and 113°F.

A failure of the normal operation filtration train leads to the loss of supply and exhaust air to the annulus. In this case, one of the accident filtration trains is started, and the two isolation dampers on the supply and exhaust side of the normal filtration train are closed to isolate the normal operation filtration train and maintain the leak tightness of the annulus.

In case of a postulated accident, a containment isolation signal causes the normal filtration train to automatically stop. The normal filtration train supply air isolation dampers close immediately and the exhaust isolation dampers close with a delay, to maintain the annulus negative pressure during the switchover to the accident filtration trains. Both accident filtration trains start on receipt of a containment isolation signal and an alarm is issued in the MCR.

At the start of an accident, full power of the two stage electric heater is switched on when the fans start and filter bank isolation dampers open. As the negative pressure is drawn down in the annulus, and when the temperature downstream of the heater increases to 158°F, the first step of heater power is switched off automatically. As the temperature downstream of the heater reaches 176°F, the second step of the heater is also switched off automatically.

6.2.3.2.3 Bypass Leakage

Certain containment penetrations introduce the potential for primary containment leakage to bypass the filtered annulus and escape directly to the environment. Potential bypass leakage paths exist through the double seals of the equipment hatch, personnel airlocks, fuel transfer tube, and containment ventilation system isolation valves.

The leak-off system provides a means to capture bypass leakage and route it to the annulus to be processed. The leak-off system is located in the Reactor Containment Building, Reactor Building Annulus, Fuel Building, and Safegurard Buildings 2 and 3, and consists of valves, sensors and piping. It is composed of three main subsystems: containment leakage exhaust subsystem (CLES), containment inflating/deflating subsystem (CIDS), and containment leak-tightness test subsystem (CLTS). The CLES collects leaks from various systems and components in the Reactor Containment Building, Fuel Building, and Safegurard Buildings, and transports the leakage to the



All indicated changes are in response to RAI 505, Question 07.01-35

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Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
60BQ408	57	CCWS & CVCS Return RCP	water	12.0	no	no	KAB70AA018	inside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	31BRA
60BQ408	57	CCWS & CVCS Return RCP	water	12.0	no	no	KAB70AA019	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	34BNB03
60BQ420	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA054	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	33+34BRA
60BQ420	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA053	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	32+34BNB03
60BQ421	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA055	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	33+34BRA
60BQ421	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA056	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	32+34BNB03
10BQ002	55	CVCS Charging	water	4.0	no	no	KBA34AA003	inside	C	swing check	self	self	open	close	close	n/a	n/a	n/a	n/a	n/a
10BQ002	55	CVCS Charging	water	4.0	no	no	KBA34AA002	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 2	≤ 0.5 sec	≤ 19.5 sec	31BNB03
10BQ003	55	CVCS Letdown	water	6.0	no	no	KBA14AA002	inside	C	globe/MOV	PS ²	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BRA
10BQ003	55	CVCS Letdown	water	6.0	no	no	KBA14AA003	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	34BNB03
30BQ044	56	CVS Supply	air	39.0	no	no	KLA30AA003	inside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a
30BQ044	56	CVS Supply	air	39.0	no	no	KLA30AA002	outside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a
40BQ045	56	CVS Exhaust	air	39.0	no	no	KLA40AA001	inside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a



Communication Module – a device that is used to transmit information from one device to another over one or several data communication links using a predetermined protocol.

Control Unit (CU) - a functional unit in an I&C system that contains a function processor. A Control Unit is a generic functional term and is neither system nor technology specific. Generally, a CU consists of function processors, I/O modules, and communication modules necessary to implement its functions. However, specific details of each system design are unique to the technology chosen to implement its functions.

Channel – an arrangement of components and modules as required to generate a single protective action signal when required by a generating station condition. A channel loses its identity where single protective action signals are combined.

Checkback – a signal that contains information about the completion of an actuation order. This signal can be used in an automatic function or displayed to the operator.

Class 1E – the safety classification of the electrical equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are otherwise essential in preventing significant release of radioactive material to the environment.

Manual Component Control – a single operator action results in a single actuated component being operated.

Credited – designation for a system that can perform a safety function, and is qualified and relied upon to do so.

Data Communication – a method of sharing information between devices that involves a set of rules, formats, encodings, specifications, and conventions for transmitting data over a communication path, known as a protocol.

Discrete – a distinct, quantifiable value from one of two states (e.g., TRUE/FALSE or ON/OFF)

Division – the designation applied to a given system or set of components that enables the establishment and maintenance of physical, electrical, and functional independence from other redundant sets of components.

Design Basis Event (DBE) – postulated events used in the design to establish the acceptable requirements for the structures, systems, and components.

Electrical I&C Technology – I&C technology that is based on electro-mechanical components. Examples include relays, buttons, switches, and contactors.



Protective Action – the initiation of a signal within the sense and command features or the operation of equipment within the execute features for the purpose of accomplishing a safety function.

Protection System – that part of the sense and command features involved in generating those signals used primarily for the reactor trip system and engineered safety features.

Safety-Related Function – one of the processes or conditions (e.g., emergency negative reactivity insertion, post-accident heat removal, emergency core cooling, post-accident radioactivity removal, and containment isolation) essential to maintain plant parameters within acceptable limits established for a DBE.

Safety-Related System – a system that is relied upon to remain functional during and following design events to maintain: (A) the integrity of the reactor coolant pressure boundary (RCPB), (B) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (C) the capability to prevent or mitigate the consequences of accidents that could result in potential off-site exposures comparable to the 10 CFR 100 guidelines.

Sensor – the portion of a channel that responds to changes in a plant variable or condition and converts the measured process variable into an electrical, optical or pneumatic signal.

System Level – actuation or control of a sufficient number of components to achieve a desired function.

System Hardware – hardware associated with a generic I&C platform, including function processors, I/O modules, communication modules, subracks and other hardware devices associated with a generic I&C platform.

System Software – the layers of software that are not configured uniquely for a specific I&C application. System software has a different functional purpose compared to “application software” (defined above) and is the same on all TXS processors. In contrast, application software is configured to reflect a nuclear power plant’s specific safety system functional requirements, different application software functions reside on individual TXS processors within the overall TXS system. For TELEPERM XS, system software is defined as the operating system and platform software layers shown in Figure 3.5 of EMF-2110(NP)(A) (Reference 3).

Vote:

- 1 out of x, where x is the number of inputs to the logic block. If one or more inputs is TRUE, then the output will be TRUE. This logic may implemented with an OR gate.



- x out of x, where x is the number of inputs to the logic block. If x number of inputs are TRUE, then the output will be TRUE. This logic may be implemented using an AND gate.
- y out of x, where x is the number of inputs to the logic block and y is a value between 2 and x minus 1. If the number of inputs equal or greater than y is TRUE, then the output will be TRUE.

7.1.1 U.S. EPR I&C Systems

7.1.1.1 Overview

The U.S. EPR implements a modern I&C design. The U.S. EPR I&C systems implement these design features to optimize overall plant safety:

- Use of state of the art I&C technology:

The I&C design maximizes the use of programmable electronic I&C technology. Many features of this technology provide overall improvements in plant safety. These features include continuous online self-testing and diagnostics that allow early detection of failures and improved human-machine interfaces (HMI) using video display units that provide an integrated view of process systems status to the operators.

- Robust I&C architecture design:

The I&C architecture implements several design principles such as defense-in-depth, diversity, redundancy, independence and priority to optimize plant safety. These principles are applied so that the impact of failures is minimized and the required safety functions are executed when required.

- Automation of plant operation:

A high degree of automation is implemented to improve plant operation, reduce operator burden, and improve situational awareness during normal and accident conditions. For DBEs, safety functions required during the first 30 minutes are automated.

- State of the art design for human factors:

The I&C systems design is integrated with the human factors engineering (HFE) principles addressed in Chapter 18 for improved human reliability and overall plant safety.

The primary I&C systems used for control and monitoring in the plant are collectively referred to as the distributed control system (DCS). The DCS performs the majority of signal input processing, automation, operator interface, annunciation of abnormal process conditions, and actuator output functions in the plant. Section 7.1.1.3 and Section 7.1.1.4 describe the DCS and its constituent subsystems. Section 7.1.1.6



I&C equipment is also contained in mechanical and electrical systems. This equipment includes instrumentation and black boxes for packaged equipment, such as emergency diesel generators (EDGs). I&C equipment contained in mechanical and electrical systems are described in Chapters 5, 6, 8, 9, 10, and 11.

7.1.1.2 Use of TELEPERM XS in the U.S. EPR

TELEPERM XS (TXS) is a programmable electronic I&C platform that has been specifically designed and qualified for use in nuclear safety-related applications.

The U.S. EPR implements the TXS platform as described in TELEPERM XS: A Digital Reactor Protection System Topical Report (EMF-2110(NP)(A) (Reference 3) with the following exceptions:

- Defense-in-depth and diversity is implemented as described in the U.S. EPR Diversity and Defense-in-Depth Assessment Technical Report (ANP-10304) (Reference 8).
- Surveillance testing of protective functions is performed in accordance with the U.S. EPR Protection System Surveillance Testing and Teleperm XS Self-Monitoring Technical Report (ANP-10315P) (Reference 46).

The associated NRC Safety Evaluation Report (SER) for Reference 3 lists seventeen action items to be addressed for implementation of a TXS platform. Those seventeen action items are listed and addressed for the U.S. EPR as follows:

1. "The licensee must demonstrate that the generic qualification bounds the plant specific condition (i.e., temperature, humidity, seismic, and electromagnetic compatibility) for the location(s) in which the TXS equipment is to be installed. The generic qualification data must comply with U.S. EPRI qualification requirements specified in EPRI TR-107330 and TR-102323-R1."
The U.S. EPR design implements requirements contained in EPRI TR-107330 for the TXS I&C systems listed in Table 7.1-2 (SICS, PS, SAS, RPMS) by meeting the requirements of RG 1.209 – Guidelines for Environmental Qualification of Safety-Related Computer-based Instrumentation and Control Systems in Nuclear Power Plants. The applicable I&C systems listed in Table 7.1-2 are designed to meet the guidance of RG 1.209, which endorses IEEE Std 323-2003 (Reference 21) with modifications. The equipment qualification program is described in Section 3.11. The electromagnetic compatibility (EMC) requirements in EPRI TR-102323, Rev 3, are applicable to the TXS I&C systems as shown in Table 3.11-1.
2. "The licensee's plant-specific software development V&V activities and configuration management procedures must be equivalent to industry standards and practices endorsed by the NRC (as referenced in SRP BTP HICB-14, "Guidance on Software Reviews for Digital Computer-Based Instrumentation and Control Systems")."
The U.S. EPR design implements BTP 7-14 requirements for the TXS I&C systems listed in Table 7.1-2 (SICS, PS, SAS, RPMS) by using the software development



and V&V processes described in ANP-10272-A (Reference 5). The full extent of the concerns captured in ANP-10272-A will be addressed by the combined license (COL) applicant, as described in Section 7.1.1.2.2. Section 7.1.3.5.12 provides additional clarification.

3. "If the licensee develops a TXS auxiliary feedwater control system, the licensee must include automatic initiation and flow indication (TMI Action Plan Item II.E.1.2). The licensee needs to confirm that the plant-specific application conforms to the requirements of 10 CFR 50.34 (f)(2)(xii)."
The U.S. EPR design implements the requirements of 10 CFR 50.34 (f)(2)(xii) for the PS, SCDS, PACS and SICS systems associated with the Emergency Feedwater Control as listed in Table 7.1-2 and detailed in Section 7.5.2.1.1.
4. "If the licensee replaces existing accident monitoring instrumentation (TMI Action Plan Item II.F.1) display capabilities with a TXS system, including the bypass and inoperable status information, the licensee needs to confirm that the new system provides equivalent sampling and analyzing features, and meets the requirement of 10 CFR 50.34 (f)(2)(xvii)."
The U.S. EPR design implements the requirements of 10 CFR 50.34 (f)(2)(xvii) for the SCDS and SICS systems associated with the accident monitoring instrumentation as listed in Table 7.1-2 and detailed in Section 7.5.2.1.1.
5. "If the licensee installs a TXS inadequate core cooling detection system, the licensee needs to confirm that the new system conforms to the requirements of 10 CFR 50.34(f)(2)(xviii)."
The U.S. EPR design implements the requirements of 10 CFR 50.34 (f)(2)(xviii) for the SCDS, Incore, SICS, and PS systems associated with the inadequate core cooling detection system as listed in Table 7.1-2 and detailed in Section 7.5.2.1.1.
6. "If the licensee installs a TXS containment isolation system (TMI Action Plan Item II.E.4.2), the licensee must verify that the plant-specific application conforms to the requirement of 10 CFR 50.34 (f)(2)(xiv)."
The U.S. EPR design implements the requirements of 10 CFR 50.34 (f)(2)(xiv) for the PACS, PS, and SCDS systems associated with the containment isolation system as listed in Table 7.1-2 and detailed in Section 7.1.3.1.7.
7. "For monitoring plant conditions following core damage, the licensee must verify that the TXS system meets the processing and display portions of the requirements of 10 CFR 50.34(f)(2)(xix)."
The U.S. EPR design implements the requirements of 10 CFR 50.34 (f)(2)(xix) for the SICS, SCDS, Excore, Incore, and BCMS systems associated with monitoring plant conditions following core damage as listed in Table 7.1-2 and detailed in Section 7.5.2.1.1.
8. "If the licensee installs a TXS system for monitoring reactor vessel water level during post -accident conditions, the licensee must provide plant-specific verification of the ranges, and confirm that human factors issues have been addressed, as required by 10 CFR 50.34(f)(2)(xxiv)."
The U.S. EPR reactor pressure vessel level (RPVL) measurement system is classified as non-safety-related, supplemented grade (NS-AQ), and is not



implemented with the TXS platform, so this requirement is not applicable to the U.S. EPR.

9. "If the licensee installs a TXS reactor protection system, the licensee must provide confirmation that the TXS system is diverse from the system for reducing the risk from anticipated transients without scram (ATWS), as required by 10 CFR 50.62. If the licensee installs a TXS ESFAS, the licensee must provide confirmation that the diversity requirements for plant systems (e.g., feedwater, auxiliary feedwater, turbine controls) are maintained."

The U.S. EPR design implements the requirements of 10 CFR 50.62 for the DAS, SCDS and PACS systems associated with anticipated transients without scram as listed in Table 7.1-2 and detailed in Section 7.8.2.1.3.

10. "Setpoints will be evaluated on a plant-specific basis. The licensee must ensure that, when the TXS system is installed, overly conservative setpoints that may occur due to the elimination of analog system drift are not retained, as this would increase the possibility that the TXS equipment may be performing outside the vendor specifications. The licensee must provide the staff with a revised setpoint analysis that is applicable to the installed TXS system(s)."

The U.S. EPR design implements TXS system setpoints on a plant-specific basis by the applicable Chapter 16 COLA Setpoint Control Program.

11. "The licensee must evaluate plant-specific accident analyses to confirm that a TXS reactor trip system (RTS) includes the provision to detect accident conditions and anticipated operational occurrences in order to initiate reactor shutdown (safety analysis confirmation for accuracy and time response) consistent with the accident analysis presented in Chapter 15 of the plant safety analysis report"

The Chapter 15 U.S. EPR safety analysis confirms that the TXS RTS includes the provisions to detect accident conditions and anticipated operational occurrences in order to initiate reactor shutdown consistent with the accident analysis. The accident analysis accuracy and response time values are described in Table 15.0-7. Table 7.2-3 describes the PS (a TXS system) response times used for reactor trip functions.

12. "The staff requires that each licensee ensure that the plant-specific TXS application complies with the criteria for defense against common-mode failures in digital instrumentation and control systems."

The U.S. EPR design implements the requirements for defense against common-mode failures in digital instrumentation and control systems by incorporation of Reference 8, ANP-10304, Revision 4, "U.S. EPR Diversity and Defense-In-Depth Assessment Technical Report."

13. "The licensee should propose plant-specific Technical Specifications including periodic test intervals."

The U.S. EPR FSAR includes Technical Specifications with periodic test intervals for TXS I&C systems in Chapter 16.

14. "The licensee should demonstrate that the power supply to the TXS system complies with EPRI TR-1 07330 requirements."

The U.S. EPR design implements requirements contained in EPRI TR-107330 for



the TXS I&C systems listed in Table 7.1-2 (SICS, PS, SAS, RPMS) by meeting the requirements of RG 1.209 – Guidelines for Environmental Qualification of Safety-Related Computer-based Instrumentation and Control Systems in Nuclear Power Plants. The applicable I&C systems listed in Table 7.1-2 are designed to meet the guidance of RG 1.209, which endorses IEEE Std 323-2003 (Reference 21) with modifications. The equipment qualification program is described in Section 3.11.

15. “The licensee should demonstrate that the qualification of the isolation devices were performed in accordance with EPRI TR-1 07330 requirements.”
The U.S. EPR isolation devices meet the requirements of BTP 7-11 – Guidance on Application and Qualification of Isolation Devices. The TXS systems listed in Table 7.1-2 (SICS, PS, SAS, Excore, Incore, BCMS, RPMS, PACS, SCDS) are designed to meet the guidance of BTP 7-11 (Reference 30). The equipment and means provided for isolation are described in Section 7.1.1. Additionally, guidelines for environmental qualification per EPRI TR-107330 for the TXS I&C systems listed in Table 7.1-2 (SICS, PS, SAS, RPMS) by meeting the requirements of RG 1.209 – Guidelines for Environmental Qualification of Safety-Related Computer-based Instrumentation and Control Systems in Nuclear Power Plants.
16. “The licensee should demonstrate that Siemens TXP (control systems) or other manufacturer's control systems satisfy the acceptance guidance set forth in Section 4.1 of this safety evaluation.”
The U.S. EPR design implements the requirements set forth in Section 4.1 of the safety evaluation for the TXS Topical Report by incorporation of Reference 8, ANP-10304, Revision 4, “U.S. EPR Diversity and Defense-In-Depth Assessment Technical Report.”
17. “The licensee should address the need for a requirement traceability matrix (RTM) for enumerating and tracking each system requirement throughout its life cycle, particularly as part of making future modifications”.
The U.S. EPR design implements the Requirements Traceability Matrix through Reference 5, ANP-10272-A, Revision 3, “Software Program Manual TELEPERM XS™ Safety Systems Topical Report,” which describes the standard engineering process used to develop TELEPERM XS Application Software for U.S. projects. The Software Program Manual is used to address plant-specific action items 2 and 17 from the NRC Safety Evaluation Report for the TELEPERM XS Topical Report. Action item 17 is addressed by the inclusion of the Application Software Requirements Traceability Matrix as a required development process document.

7.1.1.2.1 TXS Platform Design

The TXS platform is described in Reference 3. Because of advances in technology and rapid obsolescence of components, the various modules described in Reference 3 will be modified and upgraded over time, and new modules will be developed. The design and qualification of new or upgraded TXS hardware and system software used in U.S. EPR plants will be performed in accordance with the methods described in Reference 3.



7.1.1.3.2 Process Information and Control System

*[The PICS is a modern HMI. The operator primarily uses the PICS during normal, abnormal, and accident operation. There are a limited number of controls for PS, SAS, and DAS that are only available on SICS. The PICS is provided in both the MCR and the RSS. Monitoring-only capabilities are provided in the technical support center (TSC) for support of emergency response operations.]**

Classification

*[The PICS is classified as non-safety-related, supplemented grade (NS-AQ).]**

Functions

Table 7.1-3 shows the functions of the PICS.

Interfaces

Table 7.1-4 shows the interfaces of the PICS.

Architecture

Figure 7.1-2 shows the basic architecture of the PICS.

The PICS consists of gateways, servers, operator workstations, plant overview panels (POP), and firewalls.

Redundancy

[The PICS is designed such that a single failure will not prevent the system from performing any of its functions. Overall system redundancy is achieved through the following means:

- *Redundancy in Plant Systems - The plant automation systems, with which the PICS interfaces, are designed to continue to operate automatically upon a loss of a PICS signal.*
- *Divisional Redundancy - The PICS equipment is strategically divided between the Safeguards Building divisions 2 and 3. If a loss of some of the operator terminal screens occurs, the hardware arrangement prevents a total loss of PICS.*
- *Control Redundancy - Multiple PICS workstations are located in the MCR. Each workstation has the capability of controlling every function or component capable of being controlled by the PICS system. In the event of the loss of a PICS workstation, control of the systems, functions, and components can be accomplished from another PICS workstation within the MCR.*



Redundant gateways are provided for unidirectional communication with the PS, safety automation system (SAS), bidirectional communication with process automation system (PAS), reactor control, surveillance and limitation (RCSL), and TG I&C. The PICS receives unidirectional signals from the PS and SAS to receive status information on those systems. The PICS communicates bi-directionally with the RCSL and TG I&C for control of reactivity control systems and the TG, respectively.]*

Independence

[The PICS is designed such that there is independence between the PICS and any safety-related systems or functions. A failure of the PICS shall not prevent any of the safety-related systems from performing their functions.]*

The following principles are utilized to ensure independence:

- One-way communication between safety-related and non-safety-related systems.
- Electrical isolation.
- Geographic (physical) separation.

[Servers are provided for data exchange between the automation bus and the HMI bus. The servers perform functions such as data message validation, short term data storage, and alarm management. Redundant servers are provided so that the PICS remains operational in case of a failure of a single server. Multiple sets of redundant servers may be used to subdivide functionality (e.g., control and indication, alarm, historian, etc).

PICS workstations with control and monitoring capabilities are located in the MCR and RSS. Normally, the operator displays in the RSS are in supervisory mode (view only) to prevent plant control until authorized in accordance with plant procedures. Operator displays are provided in the TSC with monitoring only capabilities to assist in plant emergency response.]*

The number of terminals per workstation, and number and location of the operator workstations is determined as a result of the human factors design process described in Chapter 18.

Plant overview panels are provided in the MCR, and other locations such as the TSC as desired. These are wide screen displays that are capable of providing continuously visible information to the operator.

Redundant firewalls are provided for unidirectional transfer of information from the PICS to plant business networks. Remote access to the PICS is not possible.



The PICS may include other functional units as necessary to carry out its functions. Examples are:

- Long term data storage units.
- Networked printers.
- Service equipment.

Equipment

*[The PICS is implemented with an industrial I&C platform.]**

The servers consist of industrial computers. Operator workstations typically consist of computers, displays, and input devices (i.e., computer mice and keyboards). The operator may use several monitors that share input devices. These monitors display different plant functions, and the display content is interchangeable. The POP is a set of large panels that display an overview of plant and system status. Equipment such as network switches and electrical and fiber optic cable are provided to support data communications. The PICS equipment is capable of trending of information to provide situational awareness by the operator. In addition, the PICS has recording capability so that historical data can be recalled by the operator.

The plant annunciator is integrated into the PICS operating and monitoring system. Special screens display and organize alarms and warnings based on their status and relative level of importance. An alarm hierarchy with a color coding system is used to immediately alert the operator of the importance of the alarm based on the relevance to plant safety.

[The PICS is used to control both safety-related (via the process automation system (PAS) and the priority and actuator control system (PACS)) and non-safety-related process systems. The PICS implements these measures to preclude spurious actuation of plant equipment:

- *Operation of plant equipment is performed using a two-step process. A single mouse click on a component is followed by a verification step requiring a second single mouse click, so a single inadvertent action by the operator does not result in a command signal.*
- *Touch screen displays are not used.]**

Qualification Requirements

[The PICS is intended to be used during normal, accident, and severe accident conditions as long as it is available. The PICS equipment is located in Safeguard Buildings that provide a mild environment during and following design basis events (DBE). Equipment selected for use in the PICS will be rated by the manufacturer to



- System validation phase.
- A criticality analysis is performed for the PICS software in accordance with accepted industrial practice.
- V&V of the PICS software is performed according to a V&V plan that is consistent with accepted industrial practice.
- PICS requirements are documented in a traceable form that is under configuration management.
- The PICS design is validated through acceptance test in the system validation (or equivalent) phase.

Diversity Requirements

There are no diversity requirements for PICS. See ANP-10304 (Reference 8) for further information on defense-in-depth and diversity.

Data Communications

The servers communicate with the automation systems via automation bus and gateways for the PS, SAS, RCSL, and TG I&C. The servers, operator workstations, POP, and firewalls exchange data via the HMI bus. These networks implement periodic communications and message validation for robust data communications.-

[Remote access of the PICS is not possible.

*The redundant servers and redundant segments of the automation busses are physically located in a separate fire areas so that a fire in the MCR does not result in a loss of the PICS at the RSS. The HMI bus hardware is located so that damage from a fire event in the MCR will be limited to network components required for the operation of MCR workstations and have no impact on the overall functionality of the HMI bus. Portions of the HMI bus required for operation from the RSS are located in a separate fire area from the MCR, so damage from a fire event in the MCR will be limited to the workstations in the MCR and will not impact the ability to safely shutdown the plant from the PICS workstations in the RSS.]**

Sound engineering and design practices will be applied to the development of the PICS automation bus, HMI bus, and the DCS systems connected to the bus. *[The PICS automation and HMI busses will be designed to withstand data traffic, and the interfacing DCS systems will be designed with thresholds for network traffic that are consistent with maximum data rates of the busses.]** Specific design details regarding preclusion of data storm events on a non-safety-related network depends on the specific technology chosen for these non-safety-related networks, and they are not included in the U.S. EPR FSAR.



*[The PICS will have adequate bandwidth to reliably operate the process systems in the reactor plant needed for plant operation and to keep the plant reliably online.]**

Power Supply

The PICS cabinets are powered by the divisions in which they reside. These divisional power supplies meet the following requirements:

- The power supplies are uninterruptible to provide continued operation in case of a LOOP.
- The power supplies include a battery backup to provide continuous operation following a station blackout.

The PICS is powered from the 12UPS. The 12UPS provides backup power with 12-hour batteries and the SBODGs during a LOOP.

Refer to Chapter 8 for more information on electrical power systems.

7.1.1.4 DCS Automation Systems

7.1.1.4.1 Protection System

The PS is an integrated reactor protection system (RPS) and ESF actuation system. The PS detects plant conditions that indicate the occurrence of AOOs and PAs, and actuates the safety-related process systems required to mitigate the event.

Classification

The PS is classified as safety-related.

Functions

Table 7.1-3 shows the functions of the PS.

Interfaces

Table 7.1-4 shows the interfaces of the PS.

Architecture

Figure 7.1-6—Protection System Architecture provides a functional representation of the PS.

The PS is organized into four redundant, independent divisions located in separate Safeguard Buildings. Each division contains two functionally independent subsystems (A and B). These subsystems are used to implement functional diversity for reactor trip functions.



Fault Detection

Signal faults in the SAS are detected via diverse means dependent on the signal type.

Hardwired signals, which fail within range, are detected during the periodic testing of the CU. Hardwired signals which fail out of range are automatically disregarded.

Data signals within the SAS carry a value and a status. The signal status can be propagated through the software function block; therefore, if an input signal to a function block has a faulty status, the output of the function block also has a faulty status. When a signal with a faulty status reaches the voting function block, the signal is disregarded through modification of the vote. This results in the output of the voting function block having a non-faulty status. A signal typically obtains a faulty status through the following mechanisms:

- During sensor maintenance, or when a sensor is suspected to be faulty, the sensor can be placed in maintenance bypass. This lockout attaches a faulty status to the sensor's signal. The lockout is a software function performed in the CU layer before any processing is performed using the signal.
- If the SAS detects a faulty sensor through range monitoring, or by monitoring the status of the signal conditioning hardware, the corresponding signal is marked with a faulty status. Range monitoring is the detection of sensor that has provided a value outside of the calibrated range (e.g., 4-20 mA). This monitoring is also performed in the CU layer.
- In case of a communication failure between SAS functional units, the receiving functional unit detects errors such as incorrect message length, format, or age. This detection occurs when the functional unit retrieves the message from the associated communication module before the individual signals are extracted from the message. If a communication failure is detected, a faulty status is attached to the signals in the message before they are used in function block processing.

Single failures upstream of the CU layer that could result in an invalid signal being used in the SAS actuation are accommodated by modifying the vote in the CU layer. Each SAS actuation function is evaluated on a case-by-case basis to determine whether the vote is modified toward actuation or no actuation. In cases where inappropriate actuation of an SAS function could challenge plant safety, the function is modified toward no actuation. Otherwise, the function is modified toward actuation. The steam generator MSRCV regulation during pressure control and CCWS emergency temperature control functions are modified toward actuation. The In-containment Refueling Water Storage Tank (IRWST) system boundary isolation for preserving IRWST water inventory interlock function is modified toward no actuation. The concepts of voting towards actuation and no actuation are described in ANP-10309P (Reference 6).



When an invalid signal is received by "functional AND" logic, the signal is ignored. For example, a "functional AND" logical operation with four inputs requires that all four inputs be TRUE to obtain a TRUE output. When an invalid signal is input to this operation, only the remaining three valid inputs must be TRUE to obtain a TRUE output.

Likewise, when an invalid signal is received by "functional OR" logic, the signal is ignored. For example, if a "functional OR" logical operation with four inputs requires that any one of the four inputs must be TRUE to obtain a TRUE output. When an invalid signal is input to this operation, only one of the remaining three valid inputs must be TRUE to obtain a TRUE output. ~~The concept of modification toward no-actuation based on the number of input signals to the voting function block that carry a faulty status is as follows:~~

- ~~• 0 faulty input signals: Vote is 2/4.~~
- ~~• 1 faulty input signal: Vote is 2/3.~~
- ~~• 2 faulty input signals: Vote is 2/2.~~
- ~~• 3 faulty input signals: No actuation.~~
- ~~• 4 faulty input signals: No actuation.~~

Failure Modes and Effects Analysis

In order to bound the possible failures, both detected and undetected failures of sensors and digital equipment are analyzed and the worse case effect of each failure is identified. Detected failures are defined as those automatically detected by the inherent and engineered monitoring mechanisms of the system. Two types of undetected failures are analyzed. A failure denoted "undetected-spurious" is defined as failure not automatically detected which results in an actuation. A failure denoted "undetected-blocking" is defined as a failure not automatically detected which results in failure to issue an actuation when needed.

Failures in the hardwired output logic are generally not detected automatically by the SAS. Therefore, only undetected single failures of these devices are considered. A failure of the output logic can result in spurious actuation ("undetected-spurious"), or failure to actuate when needed ("undetected-blocking").

Network failures within the SAS allow the receiver of data to be affected in one of three ways. First, the network failure can result in an invalid message being received. By definition, invalid messages are always detected failures, and are analyzed as single failures. Second, a network failure can result in a message received as valid that contains spurious information. This type of failure is bounded by the "undetected-spurious" failure of the sending equipment. Third, a network failure can result in a



message received as valid that fails to request an action when one is needed. This type of failure is bounded by the "undetected-blocking" failure of the sending equipment.

The architecture of the SAS allows CUs to be analyzed for single failure without regard to which specific CU in the division is the failure point. For these single failures, the functions of the system are considered affected, because each function is processed by at least one CU in a division. Considering the effect on each function of the system bounds the cases of specific CU single failures.

When referring to the nature of a single failure, the terms "detected" and "undetected" as used in the context of the SAS FMEA do not correspond to the definition of a detectable failure in IEEE 603-1998. All of the failures denoted "undetected" in the FMEA are detectable through periodic testing. The terms "detected" and "undetected", as used in the FMEA, refer to the ability of SAS to automatically detect a failure through self-monitoring features. As defined by IEEE 603-1998, the SAS has only detectable failures and no identifiable, but non-detectable failures.

The assumptions listed below are taken into account in the SAS system-level FMEA.

- The loss of a checkback signal is considered the same as a sensor failure and is bounded by that analysis.
- Network failures defined as undetected-spurious, and undetected-blocking are bounded by the similar failure of the sending functional unit. Therefore, only detected network failures need to be analyzed.
- No single failure in the electrical supply systems upstream of the SAS cabinets can result in loss of power to an entire cabinet.
- The distribution of power within a single SAS cabinet is such that no single failure in the electrical distribution can cause loss of function of more than one CU functional unit.
- Plant actuators which, if spuriously actuated, can challenge plant safety require actuation signals from more than one division of SAS to actuate (e.g., more than one pilot operator actuated from different divisions are required to change the state of the main valve).
- A spurious blocking of the CU through the master/standby logic is treated as a undetected-blocking failure of the CU. A failure of the CU to block its outputs through the master/standby logic is treated as a undected-spurious failure of the CU.
- If a hardware failure occurs in a CU of Division 1 of SAS, the fault could be propagated to other CUs. Most of these faults would be detected by the TXS continuous self-test features, and ignored by the other divisions. A hardware failure could go undetected if it is sent to a connected division, such as SAS automatic functions that have CUs in redundant train pairs (Divisions 1 & 2 or 3 &



4) communicating with each other. While this would cause a failure of Divisions 1 and 2 for this function, the failure is not propagated to Divisions 3 and 4. For a function in redundant train pairs as previously described, the Division 1 CU and the Division 3 CU do not communicate with each other. If the hardware fault in Division 1 sends a signal to Division 3 (connection is provided for a different function on the same CUs), the CU in Division 3 will detect that this is a faulty signal and ignore it.

- A failure in the application layer of the TXS software responds similarly to a hardware failure. A faulted sensor or an error within the software logic of a function in redundant train pairs in Division 1 could adversely impact Division 2. However, because this function does not communicate with Divisions 3 and 4, any signals received by Divisions 3 and 4 from 1 and 2 will be detected as an error and ignored, and the error is not propagated beyond Division 2.
- An error that occurs on the system software layer and is propagated to all four divisions, is considered a software common cause failure. This can be described as a triggering event that exposes a latent defect in the system software. This type of failure is beyond the scope of the SAS FMEA. In the event of a software common cause failure of SAS, a plant shutdown is executed. See the D3 Technical Report (ANP-10304) for more information about the plant response to a software common cause failure.

Table 7.1-7—SAS FMEA Results demonstrates the SAS failure modes.

Power Supply

The SAS is powered from the Class 1E uninterruptible power supply (EUPS). The EUPS provides backup power with two-hour batteries and the EDGs in the case of a LOOP. In the event of an SBO, the EUPS has the capability of receiving power from the SBODGs.

Refer to Chapter 8 for more information on the electrical power systems.

Safety Analysis

The following three SAS functions are included within the scope of the Safety Analysis in Chapter 15:

- EFW level control
- EFWS pump overflow protection
- Steam generator main steam relief control valve (MSRCV) regulation during pressure control.

The measuring range of the process variables associated with each aforementioned function is shown in Table 7.1-8. Due to the intrinsic properties of a closed loop control function, the system response time is directly proportional to the settling time



- Independence between redundant divisions.
- Independence from the effects of DBEs.
- Independence between the safety-related I&C systems and the non-safety-related I&C systems.

Independence of Redundant Safety Divisions

Figure 7.1-19—Implementation of Independence Between Redundant Divisions illustrates the implementation of inter-divisional independence.

The PS, SAS, SCDS and PACS each consists of four independent divisions. Independence between redundant divisions is maintained using the following:

- Physical separation.
- Electrical isolation.
- Communications independence.

Independent divisions are located in each of the four physically separated Safeguard Buildings.

Electrical isolation is required for hardwired and data connections, and is provided through the use of qualified isolation devices and fiber optic cable.

The PS and SAS implement interdivisional communications to support the system functional requirements. Communications independence is provided by the following features of the TXS platform:

- Communications modules are provided separate from the function processors performing the safety function.
- Communications are implemented with separate send and receive data channels.
- Asynchronous, cyclic operation of the function processors and communications modules.

In addition, only predefined messages are accepted by the receiving function processor, and data integrity checks are performed on the received messages. Faulted messages are flagged and ignored in subsequent logic.

Section 11.2 of ANP-10309P (Reference 6) provides more information about communication independence for TXS systems.

Refer to Section 2.9 of EMF-2110(NP)(A) (Reference 3) for more information on the principles of communications independence.



Communications independence is achieved by physically limiting communication to one way from the MSI to the QDS.

Connection between the MSI and GWs

The connection between the MSI and the GW is limited to one-way data communication from the MSI to the GW. This is accomplished via a segment that is physically restricted to unidirectional communication (transmit only port connected to receive only port). This interface is described in more detail in ANP-10309P.

Communications independence is achieved by physically limiting communication to one way from the MSI to the GW.

Connection between the MSI and the SUs

The SU is a non-safety-related, standard computer that is temporarily connected to a TXS system when needed to perform surveillances or troubleshoot.

The SU connection is located in the I&C service center. *[The communication path between the SU and the divisional MSIs for PS, SAS, and RPMS are isolated by hardwired disconnects while not in use.]** *[This is achieved with key-operated isolation switches located in the main control room.]** This allows the control room operators to monitor the position of the isolation switches, providing them with control over the connection of the SU. *[A local connection point for SU connection is located in the lockable MSI cabinet in each PS, SAS, and RPMS division. Control room annunciation will communicate the access to the local connection using the door open alarm. This local connection is isolated by a key-operated isolation switch. The isolation switches in a system are keyed so that a single key operates the eight switches (four MCR and four local), and they are physically retained in the switch when positioned to allow the SU connection to the system. Only one SU isolation switch key is provided per system.]** *[This switch is hardwired and physically prevents the connection of a SU to more than one single division of the PS, SAS, or RPMS at a time.]**

The SU isolation switches are connected to prevent the SU from being connected to more than a single division of a system at a time. In the unlikely event of a fault caused by the non-safety-related SU, the fault will be confined to a single division, which is bounded by the current plant design basis. *[The application software of the safety-related systems will prevent the operation of plant equipment via the SU.]**

*[Connections of the SU for the PS, SAS, and RPMS are controlled and limited by the operability requirements of the components being connected to the SU. The SUs for the various systems will only connect to one division in Modes 1 through 4 (e.g. PS, RPMS, and SAS SUs are connected only to Division 1). This design requirement will be enforced by the use of an administrative procedure during plant operations.]**



received, with any messages received after filling the buffer being lost, which allows the initiating fault messages to be retained.

The SU will only be connected to a division to:

1. Perform Technical Specification Surveillance Requirements and Actions.
2. Diagnose system faults following indication of a fault.
3. Load new software versions needed to implement approved plant design changes.

*[The SU shall not be continuously connected or used. It is only used as part of approved procedures that implement the functions listed above. When the SU is not in use as described, it is disconnected from the safety-related components by the hardwired SU isolation switch.]**

Before closing the SU isolation switch and establishing communication between the SU and the safety system, it is necessary to perform and pass cyber security checks to verify the condition of the SU in accordance with the Cyber Security Program.

Communications independence between the MSI and the SU is verified by the following measures:

- The SU is normally disconnected.
- The processing principles of the TXS platform while the SU is connected. These principles are addressed in Section 2.9 of Reference 3.

Data connections exist between the PAS and PACS. However, this connection is only between the PAS and non-safety-related PACS communication module. Connections between the communication module and safety-related priority module are hardwired. The communication module is qualified as an associated circuit.

The safety-related I&C systems are implemented in four independent divisions. The safety-related I&C systems retain their ability to perform their function given a single failure of a common element to both the safety-related and non-safety-related systems concurrent with another single failure. The control systems implement signal selection algorithms and redundancy to minimize the possibility of a single failure that results in a DBE that also reduces the redundancy of the safety-related systems. The safety-related systems implement error detection algorithms to detect and accommodate failures.

7.1.1.6.5 **Priority**

The U.S. EPR I&C design allows for multiple I&C systems to send requests to a given actuator. To make certain that each individual actuator executes the proper action for