TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.1 Isolation Devices

TR 3.8.1 All circuit breakers actuated by fault currents that are used as isolation devices protecting 1E busses from non-qualified loads shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required circuit breakers inoperable.	A.1 Restore the inoperable circuit breaker(s) to OPERABLE status.	8 hours
	OR	
	A.2.1 Trip or remove the inoperable circuit breaker(s).	8 hours
	AND	
	A.2.2 Verify that inoperable circuit breaker(s) are tripped or removed.	Once per 7 days thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

TECHNICAL SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.1.1	----------NOTES---------- 1. Molded case circuit breakers selected for functional testing shall be selected on a rotating basis. 2. The functional test shall be conducted by simulating a fault current with an approved test set and verifying that the molded case circuit breaker functions as designed. 3. For each molded-case circuit breaker found inoperable during functional tests, an additional representative sample of 10% of the defective type shall be functionally tested until no more failures are found or all of that type have been functionally tested. ---------- Perform functional test on representative sample of ≥ 10% of each type of molded-case circuit breaker.	18 months
TSR 3.8.1.2	----------NOTES---------- 1. Electrically-operated circuit breakers selected for functional testing shall be selected on a rotating basis. 2. The functional test shall be conducted by simulating a fault current with an approved test set and verifying that each electrically-operated circuit breaker functions as designed. 3. For each electrically-operated circuit breaker found inoperable during functional tests, an additional representative sample of 10% of the defective type shall be functionally tested until no more failures are found or all of that type have been functionally tested. ---------- Perform functional test on representative sample of ≥ 10% of each type of electrically-operated circuit breaker.	18 months

(continued)

TECHNICAL SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.8.1.3	Perform a CHANNEL CALIBRATION of associated protective relays for medium voltage circuits (6.9 kV).	18 months
TSR 3.8.1.4	----------NOTE---------- For each circuit breaker found inoperable during functional tests, an additional representative sample of 10% of the defective type shall be functionally tested until no more failures are found or all of that type have been functionally tested. ---------- Perform an integrated system functional test on each medium voltage (6.9 kV) breaker which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.	18 months
TSR 3.8.1.5	Inspect each circuit breaker and perform preventive maintenance in accordance with procedures prepared in conjunction with the manufacturer's and EPRI NP-7410-V3, Rev. 1 recommendations for electrically operated breakers and Class 1E MCCB.	72 months

TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.2. Containment Penetration Conductor Overcurrent Protection Devices

TR 3.8.2. All containment penetration conductor overcurrent protection devices shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetration conductor overcurrent protection devices inoperable.	A.1 Restore the protective device(s) to OPERABLE status.	72 hours
	OR	
	A.2.1 De-energize the circuit(s) by tripping the associated backup circuit breaker or removing the inoperable circuit breaker.	72 hours
	AND	
	A.2.2 Declare the affected system or component inoperable.	72 hours
	AND	
	A.2.3 Verify the backup circuit breaker to be tripped or the inoperable circuit breaker removed.	Once per 7 days thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

TECHNICAL SURVEILLANCE REQUIREMENTS

----------NOTES----------

1. All containment penetration conductor overcurrent protection devices listed in Drawing Series 45A710 (excluding fuses) shall be demonstrated OPERABLE by performance of the following Technical Surveillance Requirements.

2. Technical Surveillance Requirements 3.8.2.1 and 3.8.2.2 apply to at least one 6900-volt reactor coolant pump circuit such that all reactor coolant pump circuits are demonstrated OPERABLE at least once per 72 months.

SURVEILLANCE		FREQUENCY
TSR 3.8.2.1	Perform a CHANNEL CALIBRATION of associated protective relays for medium voltage circuits (6.9 kV).	18 months

(continued)

TECHNICAL SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.8.2.2	----------NOTE---------- For each circuit breaker found inoperable during functional tests, an additional representative sample of 10% of the defective type shall be functionally tested until no more failures are found, or all of that type have been functionally tested. ---------- Perform an integrated system functional test on each medium voltage (6.9 kV) breaker which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.	18 months
TSR 3.8.2.3	----------NOTES---------- 1. Molded case circuit breakers selected for functional testing shall be selected on a rotating basis. 2. The functional test shall be conducted by simulating a fault current with an approved test set and verifying that each circuit breaker functions as designed. 3. For each molded case circuit breaker found inoperable during functional tests, an additional representative sample of 10% of all the defective type shall be functionally tested until no more failures are found or all of that type have been functionally tested. ---------- Select and functionally test a representative sample of ≥10% of each type of molded case circuit breaker.	18 months

(continued)

TECHNICAL SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.8.2.4	----------NOTES---------- 1. Electrically-operated circuit breakers selected for functional testing shall be selected on a rotating basis. 2. The functional test shall be conducted by simulating a fault current with an approved test set and verifying that each electrically-operated circuit breaker functions as designed. 3. For each electrically-operated circuit breaker found inoperable during functional tests, an additional representative sample of 10% of the defective type shall be functionally tested until no more failures are found or all of that type have been functionally tested. ---------- Perform functional test on representative sample of ≥ 10% of each type of electrically-operated circuit breaker.	18 months
TSR 3.8.2.5	Inspect each circuit breaker and perform preventive maintenance in accordance with procedures prepared in conjunction with the manufacturer's and EPRI NP-7410-V3, Rev. 1 recommendations:	
	1. For electrically operated breakers and Class 1E MCCB	72 months
	2. For non-Class 1E MCCB.	96 months

TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.3 Motor-Operated Valves Thermal Overload Bypass Devices

TR 3.8.3 The thermal overload bypass devices integral with the motor starter of each valve listed in Table 3.8.3-1 shall be OPERABLE.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Thermal overload protection not bypassed when required for one or more of the valves listed in Table 3.8.3-1.	A.1 Restore inoperable device to OPERABLE status. OR A.2 Provide a means to bypass the thermal overload.	8 hours 8 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Declare the affected valve(s) inoperable. AND B.2 Apply the appropriate ACTION statement(s) of the affected system(s).	Immediately Immediately

TECHNICAL SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.3.1	Perform TADOT of the bypass circuitry.	18 months

Table 3.8.3-1 (Page 1 of 5)

Motor-Operated Valves Thermal Overload Devices
Which Are Bypassed Under Accident Conditions

VALVE NO.	FUNCTION
2-FCV-62-63	Isolation for Seal Water Filter
2-FCV-62-90	ECCS Operation
2-FCV-62-91	ECCS Operation
2-FCV-62-61	Containment Isolation
2-LCV-62-132	ECCS Operation
2-LCV-62-133	ECCS Operation
2-LCV-62-135	ECCS Operation
2-LCV-62-136	ECCS Operation
2-FCV-74-1	Open for Normal Plant Cooldown
2-FCV-74-2	Open for Normal Plant Cooldown
2-FCV-74-3	ECCS Operation
2-FCV-74-21	ECCS Operation
2-FCV-74-12	RHR Pump, Minimum flow -- Protects Pump
2-FCV-74-24	RHR Pump, Minimum flow -- Protects Pump
2-FCV-74-33	ECCS Operation
2-FCV-74-35	ECCS Operation
2-FCV-63-7	ECCS Operation
2-FCV-63-6	ECCS Operation
2-FCV-63-156	ECCS Flow Path
2-FCV-63-157	ECCS Flow Path
2-FCV-63-25	BIT Injection
2-FCV-63-26	BIT Injection
2-FCV-63-1	ECCS Operation
2-FCV-63-72	ECCS Flow Path from Containment Sump
2-FCV-63-73	ECCS Flow Path from Containment Sump

(continued)

Table 3.8.3-1 (Page 2 of 5)

Motor-Operated Valves Thermal Overload Devices
Which Are Bypassed Under Accident Conditions

VALVE NO.	FUNCTION
2-FCV-63-8	ECCS Flow Path
2-FCV-63-11	ECCS Flow Path
2-FCV-63-93	ECCS Cooldown Flow Path
2-FCV-63-94	ECCS Cooldown Flow Path
2-FCV-63-172	ECCS Flow Path
2-FCV-63-5	ECCS Flow Path
2-FCV-63-47	Train Isolation
2-FCV-63-48	Train Isolation
2-FCV-63-4	SI Pump Minimum Flow
2-FCV-63-175	SI Pump Minimum Flow
2-FCV-63-3	SI Pump Minimum Flow
2-FCV-63-152	ECCS Recirculation
2-FCV-63-153	ECCS Recirculation
2-FCV-3-33	Quick Closing Isolation
2-FCV-3-47	Quick Closing Isolation
2-FCV-3-87	Quick Closing Isolation
2-FCV-3-100	Quick Closing Isolation
2-FCV-1-15	Steam Supply to Auxiliary FWP Turbine
2-FCV-1-16	Steam Supply to Auxiliary FWP Turbine
2-FCV-3-179A	ERCW System Supply to Pump
2-FCV-3-179B	ERCW System Supply to Pump
2-FCV-3-136A	ERCW System Supply to Pump
2-FCV-3-136B	ERCW System Supply to Pump
2-FCV-3-116A	ERCW System Supply to Pump
2-FCV-3-116B	ERCW System Supply to Pump
2-FCV-3-126A	ERCW System Supply to Pump
2-FCV-3-126B	ERCW System Supply to Pump

(continued)

Table 3.8.3-1 (Page 3 of 5)

Motor-Operated Valves Thermal Overload Devices
Which Are Bypassed Under Accident Conditions

VALVE NO.	FUNCTION
2-FCV-70-133	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-143	Isolation for Excess Letdown Heat Exchanger
2-FCV-70-92	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-90	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-87	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-89	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-140	Isolation for RCP Oil Coolers & Therm B
2-FCV-70-134	Isolation for RCP Oil Coolers & Therm B
2-FCV-67-123	CS Heat Exchanger Supply
2-FCV-67-125	CS Heat Exchanger Supply
2-FCV-67-124	CS Heat Exchanger Discharge
2-FCV-67-126	CS Heat Exchanger Discharge
2-FCV-67-146	CCWS Heat Exchanger Throttling
2-FCV-67-83	Containment Isolation Lower
2-FCV-67-88	Containment Isolation Lower
2-FCV-67-87	Containment Isolation Lower
2-FCV-1-51	AFPT Trip and Throttle Valve
2-FCV-67-95	Containment Isolation Lower
2-FCV-67-96	Containment Isolation Lower
2-FCV-67-91	Containment Isolation Lower
2-FCV-67-103	Containment Isolation Lower
2-FCV-67-104	Containment Isolation Lower
2-FCV-67-99	Containment Isolation Lower
2-FCV-67-111	Containment Isolation Lower
2-FCV-67-112	Containment Isolation Lower
2-FCV-67-107	Containment Isolation Lower

(continued)

Table 3.8.3-1 (Page 4 of 5)

Motor-Operated Valves Thermal Overload Devices
Which Are Bypassed Under Accident Conditions

VALVE NO.	FUNCTION
2-FCV-67-130	Containment Isolation Lower
2-FCV-67-131	Containment Isolation Lower
2-FCV-67-295	Containment Isolation Lower
2-FCV-67-134	Containment Isolation Lower
2-FCV-67-296	Containment Isolation Lower
2-FCV-67-133	Containment Isolation Lower
2-FCV-67-139	Containment Isolation Lower
2-FCV-67-297	Containment Isolation Lower
2-FCV-67-138	Containment Isolation Lower
2-FCV-67-142	Containment Isolation Lower
2-FCV-67-298	Containment Isolation Lower
2-FCV-67-141	Containment Isolation Upper
2-FCV-72-21	Containment Spray Pump Suction
2-FCV-72-22	Containment Spray Pump Suction
2-FCV-72-2	Containment Spray Isolation
2-FCV-72-39	Containment Spray Isolation
2-FCV-72-40	RHR Containment Spray Isolation
2-FCV-72-41	RHR Containment Spray Isolation
2-FCV-72-44	Containment Sump to Header A - Containment Spray
2-FCV-72-45	Containment Sump to Header B - Containment Spray
2-FCV-26-240	Containment Isolation
2-FCV-26-243	RCP Containment Spray Isolation
2-FCV-68-332	RCS PRZR Relief
2-FCV-68-333	RCS PRZR Relief
2-FCV-70-153	RHR Heat Exchanger B-B Outlet
2-FCV-70-156	RHR Heat Exchanger A-A Outlet

(continued)

Table 3.8.3-1 (Page 5 of 5)

Motor-Operated Valves Thermal Overload Devices
Which Are Bypassed Under Accident Conditions

VALVE NO.	FUNCTION
1-FCV-67-9A	ERCW Strainer Backwash
2-FCV-67-9A	ERCW Strainer Backwash
1-FCV-67-9B	ERCW Strainer Flush
2-FCV-67-9B	ERCW Strainer Flush
1-FCV-67-10A	ERCW Strainer Backwash
2-FCV-67-10A	ERCW Strainer Backwash
1-FCV-67-10B	ERCW Strainer Flush
2-FCV-67-10B	ERCW Strainer Flush
2-FCV-67-89	Containment Isolation
2-FCV-67-97	Containment Isolation
2-FCV-67-105	Lower Containment Isolation
2-FCV-67-113	Lower Containment Isolation
2-FCV-67-143	CCS Heat Exchanger Discharge
0-FCV-67-144	CCS Heat Exchanger Bypass
0-FCV-67-152	CCS Heat Exchanger Discharge
0-FCV-67-205	Nonessential Equipment Isolation
0-FCV-67-208	Station Service/Control Air Supply
2-FCV-70-183	Sample Heat Exchanger Header Outlet
2-FCV-70-100	RCP Oil Cooler Supply Containment Isolation
0-FCV-70-197	SFPCS Heat Exchanger Supply Header
2-FCV-70-215	Sample Heat Exchanger Header Inlet
2-FCV-74-8	RHR Isolation Bypass
2-FCV-74-9	RHR Isolation Bypass

TR 3.8 ELECTRICAL POWER SYSTEMS

TR 3.8.4 Submerged Component Circuit Protection

TR 3.8.4 The submerged component circuits associated with valves 2-FCV-74-1, 2-FCV-74-2, 2-FCV-74-8 and 2-FCV-74-9 shall be de-energized and the submerged components circuits associated with each component as shown in Table 3.8.4-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more submerged components circuits associated with valves 2-FCV-74-1, 2-FCV-74-2, 2-FCV-74-8, and 2-FCV-74-9 energized with RCS pressure ≥ 425 psig or one or more submerged components circuits inoperable for components listed in Table 3.8.4-1.	A.1 Restore the inoperable circuit to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

TECHNICAL SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.4.1	Verify that valves 2-FCV-74-1, 2-FCV-74-2, 2-FCV-74-8, and 2-FCV-74-9 are de-energized.	31 days
TSR 3.8.4.2	Verify that the components as shown in Table 3.8.4-1 are automatically de-energized on a simulated accident signal and that the components remain de-energized when the accident signal is reset.	18 months

Table 3.8.4-1 (Page 1 of 4)

Submerged Components With Automatic De-energization Under Accident Conditions

BOARD	COMPT	LOAD	FCTN
6.9kV SHUTDOWN BOARD 2A-A	20	2-DPL-68-341A-A	SI
	21	2-DPL-68-341F	SI
6.9kV SHUTDOWN BOARD 2B-B	20	2-DPL-68-341D-B	SI
	21	2-DPL-68-341H*	SI
480V SHUTDOWN BOARD 2A1-A	7B	2-MTR-30-83/1-A	CIB
	7D	2-MTR-30-83/2-A	CIB
	7C	2-MTR-30-74-A	CIB
480V SHUTDOWN BOARD 2B1-B	7C	2-MTR-30-92/1-B	CIB
	10D	2-MTR-30-92/2-B	CIB
	7D	2-MTR-30-75-B	CIB
480V SHUTDOWN BOARD 2A2-A	7A	2-MTR-30-88/1-A	CIB
	8A	2-MTR-30-88/2-A	CIB
	7D	2-MTR-30-77-A	CIB
480V SHUTDOWN BOARD 2B2-B	7B	2-MTR-30-80/1-B	CIB
	10C	2-MTR-30-80/2-B	CIB
	7D	2-MTR-30-78-B	CIB
480V REACTOR MOV BOARD 2A1-A	16A	2-MTR-31-265	CIA
	17E	2-PO-213-A1/(1-5)	SI
	18F2	2-PO-213-A1/(6-10)	SI
480V REACTOR MOV BOARD 2B1-B	16A	2-MTR-31-266	CIA
	16E	2-PO-213-B1/(1-5)	SI
	17E	2-PO-213-B1/(6-10)	SI

(continued)

Table 3.8.4-1 (Page 2 of 4)

Submerged Components With Automatic De-energization Under Accident Conditions

BOARD	COMPT	LOAD	FCTN
480V REACTOR VENT BOARD 2A-A	2A	2-MTR-77-125A	SI
	9B	2-MTR-30-95	CIB
	10B	2-MTR-30-99	CIB
	11D	2-MTR-77-4	CIA
480V REACTOR VENT BOARD 2B-B	2A	2-MTR-77-125B	SI
	9B	2-MTR-30-97	CIB
	10B	2-MTR-30-100	CIB
	11D	2-MTR-77-6	CIA
125VDC VITAL BATTERY BOARD III	A6	2-FCV-62-72-A	CIA
	A7	2-FCV-62-73-A	CIA
	A8	2-FCV-62-74-A	CIA
	A17	2-FCV-62-76-A	CIA
	A31	2-FCV-63-71-A	CIA
	B30	2-FSV-30-56-A	CVI
	B32	2-FSV-30-20-A	CVI
	B36	2-FSV-30-40-A	CVI
	C3	2-FCV-31-306-A	CIA
	C4	2-FCV-31-308-A	CIA
	C22	2-FCV-1-181-A	CIA
	C38	2-FCV-1-183-A	CIA
	C46	2-FCV-30-17-A	CVI

(continued)

Table 3.8.4-1 (Page 3 of 4)

Submerged Components With Automatic De-energization Under Accident Conditions

BOARD	COMPT	LOAD	FCTN
125VDC VITAL BATTERY BOARD IV	A20	2-FCV-43-2-B	CIA
	A21	2-FCV-43-11-B	CIA
	A22	2-FCV-43-22-B	CIA
	A23	2-FCV-43-34-B	CIA
	A24	2-FCV-77-16-B	CIA
	A43	2-FCV-77-127-B	CIA
	A44	2-FCV-77-9-B	CIA
	A45	2-FCV-77-18-B	CIA
	B26	2-FCV-30-8/50-B	CVI
	B27	2-FCV-90-108-B	CVI
	B28	2-FCV-90-110-B	CVI
	B32	2-FCV-30-15/57-B	CVI
	B33	2-FCV-90-114-B	CVI
	B34	2-FCV-30-58-B	CVI
	B36	2-FCV-90-116-B	CVI
	C5	2-FCV-31-327-B	CIA
	C6	2-FCV-30-329-B	CIA
	C21	2-FCV-43-75-B	CIA
	C26	2-FCV-61-122-B	CIA
	C34	2-FCV-90-109-B	CVI
	C35	2-FCV-90-115-B	CVI
	C41	2-FCV-43-54D-B	CIA
	C42	2-FCV-43-56D-B	CIA
	C43	2-FCV-43-59D-B	CIA
	C44	2-FCV-43-63D-B	CIA

Table 3.8.4-1 (Page 4 of 4)

Submerged Components With Automatic De-energization Under Accident Conditions

CIA: CONTAINMENT ISOLATION PHASE A

CIB: CONTAINMENT ISOLATION PHASE B

CVI: CONTAINMENT VENT ISOLATION

SI: SAFETY INJECTION

*: No adverse impact on power supplies if energized after accident signal reset.