

ATTACHMENT 3-7B
MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.3 FIRE AREAS/ZONES (NOTE 1)

SHEET 1

(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
Fire in control room or relay room	CB-FA-3d CB-FA-4b		<ul style="list-style-type: none"> TRIP Reactor TRIP Main Turbine TRIP all RC Pumps CLOSE RC-V-2 CLOSE MS-V-8A and MS-V-8B OPEN MU-V-14A and MU-V-14B 	CB-FA-4b (Main Control Room)	150 seconds after detection	ECR 09-00527 TECH EVAL 817422-12	None	Control Room has redundant AC & DC fixed lighting. Exemption letter 5211-86-3333.
Fire affects SSD equipment in ESAS room.	CB-FA-3c		<ul style="list-style-type: none"> TRIP Reactor TRIP Main Turbine CLOSE MS-V-8B OPEN MU-V-14A and MU-V-14B 	CB-FA-4b (Main Control Room)	150 seconds after detection	ECR 08-01051 TECH EVAL 817422-12	None	Control Room has redundant AC & DC fixed lighting. Exemption letter 5211-86-3333.
Fire affects SSD equipment in ESAS room	CB-FA-3c	Relay Room CO2 system	Open CT-5 Switch 32 at 1A ES MCC Unit 8A.	CB-FA-2a (1P SWGR Room)	150 seconds after detection	ECR 08-01051 TECH EVAL 817422-12	EL-L-76	
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b		<ul style="list-style-type: none"> TRIP both Main FW Pumps TRIP CO-P-2A/B/C TRIP CO-P-1A/B/C PRESS MS-V-13A & B OPEN PB CLOSE EF-V-30A & C CLOSED in MANUAL PLACE EF-V-30B & D in MANUAL between 15 and 25% OPEN 	CB-FA-4b (Main Control Room)	75 seconds	ECR 09-00527 86-9101191-001	None	Control Room has redundant AC & DC fixed lighting. Exemption letter 5211-86-3333.
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Heat Removal	"MS" switch placed in emergency [MS-V-4B goes CLOSED]	CB-FA-2b (RSTSP B)	165 seconds	ECR 09-00527 86-9101191-001	EL-L-78	
Fire affects SSD equipment in ESAS room.	CB-FA-3c		RSTSP B switches placed in emergency "MS" "DC" "DR" "MU" "1B ES SH" "1T SWGR" "IC"	CB-FA-2b (RSTSP B)	300 seconds	ECR 08-01051 86-9101191-001	EL-L-78	
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	EFW	ALL RSTSP B switches placed in emergency [EF-V-30B & D go to 25% OPEN]	CB-FA-2b (RSTSP B)	225 seconds	ECR 09-00527 86-9101191-001	EL-L-78	EF-V-30B & D controls on RSD panel are pre-set to 25% open.
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b		ALL RSTSP A switches placed in emergency	CB-FA-3c (RSTSP A)	315 seconds	ECR 09-00527 86-9101191-001	EL-L-74	SCBA required to access ESAS, 1D 4160V or 1E 4160V room.
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Inventory	ENSURE MU-V-3 is CLOSED	CB-FA-2c (RSP-A)	6.5 minutes	ECR 09-00527 86-9101191-001 LOOP & no LOOP cases	EL-L-79C	

ATTACHMENT 3-7B
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SHEET 2

(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Heat Removal	ADJUST EFW Flow (EF-V-30s) and OTSG pressure (MS-V-4A/B) to ensure natural circulation, to stabilize core temperature, and maintain RCS heat removal.	CB-FA-2c (RSP-A & RSP-B)	8.5 minutes	ECR 09-00527 86-9101191-001	EL-L-79C (RSP-A) EL-L-79B (RSP-B)	
MS-V-8B spuriously fails OPEN (hot short) AND MS-V-3D, E, or F have failed to 50% open	CB-FA-3c	RCS heat removal	Isolate Main & Emergency FW to OTSG B. TRIP FW-P-1A and FW-P-1B or CLOSE FW-V-5B and FW-V-92B AND CLOSE EF-V-30B and EF-V-30C	CB-FA-4b (Main Control Room)	3 minutes	ECR 08-01051	None	Control Room has redundant AC & DC fixed lighting. Exemption letter 5211-86-3333.
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	Electrical Distribution	Place the following 1E 4160V RSD Transfer switches in EMERG and ENSURE (BKR position): <ul style="list-style-type: none"> UNIT 1, 1SB-E2 (See NOTE) UNIT 2, T1-E2 (open) UNIT 3, EG-Y-1B Controls (no BKR) UNIT 5, EF-P-2B (closed) UNIT 6, S1-02 (closed) UNIT 7, DH-P-1B (open) UNIT 10, BS-P-1B, BYPASS, (open) UNIT 11, RR-P-1B (open) UNIT 12, T1-02 (closed) UNIT 14, 1SA-E2 (see NOTE) UNIT 3, G11-02 (see NOTE) NOTE: If 1SA-E2 and 1SB-E2 are open, then start EG-Y-1B: If 1E 4160V is energized and 1SA-E2 or 1SB-E2 are closed, then ensure G11-02 is open.	CB-FA-3b (1E SWGR Room)	12 minutes	ECR 09-00527 86-9101191-001	EL-L-25A	For CB-FA-3d, SCBA required to access ESAS, 1D 4160V or 1E 4160V room.
Offsite power was lost and EG-Y-1B did not re-energize 1E 4160V bus automatically.	CB-FA-3d CB-FA-4b	Electrical Distribution	<ul style="list-style-type: none"> START EG-Y-1B at Control Panel CLOSE G11-02 (UNIT 3) 	CB-FA-3b (1E SWGR Room)	12 minutes	ECR 09-00527 86-9101191-001	EL-L-25A	SCBA required to access ESAS, 1D 4160V or 1E 4160V room.
Offsite power was lost and EG-Y-1B did not re-energize 1E 4160V bus automatically.	CB-FA-3d CB-FA-4b	Electrical Distribution	<ul style="list-style-type: none"> ENSURE 1S-02 CLOSED [1S BUS 480V feeder from 1E Bus] ENSURE 1C ESV MCC ATS is lined up to 1S 480V Bus ENSURE 1S-1C CLOSED [1B ES MCC feeder breaker from 1S Bus] 	CB-FA-2b (1S SWGR Room) CB-FA-2c (RSD Area)	14 minutes	ECR 09-00527 86-9101191-001	EL-L-78A EL-L-68	These breakers may have been opened by fire (controls located in Control Room)

ATTACHMENT 3-7B
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SHEET 3

(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
Fire affects SSD equipment in ESAS room AND relay room CO2 system disabled.	CB-FA-3c	Electrical Distribution	Place the following 1E 4160V RSD Transfer switches in EMERG and ENSURE (BKR position): <ul style="list-style-type: none"> UNIT 1, 1SB-E2 (See NOTE) UNIT 2, T1-E2 (open) UNIT 3, EG-Y-1B Controls (no BKR) UNIT 6, S1-02 (closed) UNIT 12, T1-02 (closed) UNIT 14, 1SA-E2 (see NOTE) UNIT 3, G11-02 (see NOTE) NOTE: If 1SA-E2 and 1SB-E2 are open, then start EG-Y-1B: If 1E 4160V is energized and 1SA-E2 or 1SB-E2 are closed, then ensure G11-02 is open.	CB-FA-3b (1E SWGR Room)	16 minutes	ECR 08-01051 86-9101191-001	EL-L-25A	
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Inventory	<ul style="list-style-type: none"> START DC-P-1B OPEN MU-V-36 and 37 <u>or</u> OPEN MU-V-16C <u>or</u> OPEN MU-V-16D VERIFY MU-P-3C is operating START MU-P-1C Throttle OPEN MU-V-16C or MU-V-16D to maintain Pressurizer level CLOSE MU-V-18 	CB-FA-2c (RSP-B)	16 minutes	ECR 09-00527 86-9101191-001	EL-L-79B	
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Heat Removal	CLOSE MS-V-8A and MS-V-8B	CB-FA-2c (RSP-B)	16.5 minutes	ECR 09-00527 86-9101191-001	EL-L-79B	
Offsite power was lost and EG-Y-1B did not re-energize 1E 4160V bus automatically.	CB-FA-3c	Electrical Distribution	<ul style="list-style-type: none"> START EG-Y-1B at Control Panel CLOSE G11-02 (UNIT 3) 	CB-FA-3b (1E SWGR Room)	16 minutes	ECR 08-01051 NOTE 3	EL-L-25A	
Offsite power was lost and EG-Y-1B did not re-energize 1E 4160V bus automatically.	CB-FA-3c	Electrical Distribution	<ul style="list-style-type: none"> ENSURE 1S-02 CLOSED [1S BUS 480V feeder from 1E Bus] ENSURE 1C ESV MCC ATS is lined up to 1S 480V Bus ENSURE 1S-1C CLOSED [1B ES MCC feeder breaker from 1S Bus] 	CB-FA-2b (1S SWGR Room) CB-FA-2c (RSD Area)	20 minutes	ECR 09-00527 86-9101191-001 NOTE 3	EL-L-78A EL-L-68	These breakers may have been opened by fire (controls located in Control Room)
EF-V-30A fails open (hot short)	CB-FA-3c	RCS heat removal	Local CLOSE EF-V-30A	IB-FZ-3	20 minutes	ECR 09-00527 86-9101191-001 NOTE 3	EL-L-8	
MS-V-4A fails open (hot short)	CB-FA-3c	RCS heat removal	Locally close or throttle MS-V-4A to control OTSG pressure	IB-FZ-3	20 minutes	ECR 09-00527 86-9101191-001 NOTE 3	EL-L-84A	

ATTACHMENT 3-7B
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SHEET 4

(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
EF-V-30C fails open (hot short)	CB-FA-3c	RCS heat removal	Locally CLOSE EF-V-30C	IB-FZ-3	20 minutes	ECR 09-00527 86-9101191-001 NOTE 3	EL-L-83	
Fire affects SSD equipment in ESAS room.	CB-FA-3c	RCS Inventory	<ul style="list-style-type: none">START DC-P-1BOPEN MU-V-36 and 37 or OPEN MU-V-16C or OPEN MU-V-16DVERIFY MU-P-3C is operatingSTART MU-P-1CThrottle OPEN MU-V-16C or MU-V-16D to maintain Pressurizer levelCLOSE MU-V-18	CB-FA-2c (RSP-B)	30 minutes	ECR 09-00527 86-9101191-001 NOTE 3	EL-L-79B	
SRO determination that control room evacuation is required.	CB-FA-3d CB-FA-4b	RCS Pressure Control	Terminate Train A HPI Flow <ul style="list-style-type: none">ENSURE MU-P-1A & MU-P-1B are shutdown OR <ul style="list-style-type: none">OPEN Breakers for MU-V-16A & BLOCALLY CLOSE MU-V-16A & B	CB-FA-3a (1D SWGR Room) AB-FZ-6 (1A ESV MCC) AB-FZ-4 (281' AB on mezzanine)	41 minutes	ECR 09-00527 86-9101191-001	EL-L-312 EL-L-95 EL-L-293	MU-V-16A and B must be closed locally if seal injection has been maintained.
Fire affects SSD equipment in ESAS room (Inadvertent HPI Actuation)	CB-FA-3c							
SRO determination that control room evacuation is required. or Fire affects SSD equipment in ESAS room (ES Actuation and Loss of Train A ES Power)	CB-FA-3d CB-FA-4b CB-FA-3c	RCS Inventory Control	Locally OPEN MU-V-36	AB-FZ-3 (MU valve Alley)	1 hour	ECR 09-00527 86-9101191-001	EL-L-89A/B	
SRO determination that control room evacuation is required or Fire affects SSD equipment in ESAS room (MU-V-20 spurious closure due to hot short)	CB-FA-3c CB-FA-3d CB-FA-4b	RCP Seal Injection	OPEN MU-V-20	CB-FA-2c (RSP-B)	1 hour	Tech Eval. 14-00408	EL-L-79B	
SRO determination that control room evacuation is required or Fire affects SSD equipment in ESAS room (MU-P-1B is not operating)	CB-FA-3c CB-FA-3d CB-FA-4b	RCP Seal Injection	OPEN MU-V-76A and MU-V-76B	AB-FZ-3 (MU valve alley)	1 hour	Tech Eval. 14-00408	EL-L-89B	

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(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
SRO determination that control room evacuation is required. (Loss of automatic control of MU-V-32)	CB-FA-3d CB-FA-4b	RCP Seal Injection	CLOSE MU-V-89A and THROTTLE MU-V-90 to establish “adequate SI Flow”	AB-FZ-3 (MU valve alley)	1 hour	Tech Eval. 14-00408	EL-L-89B	
SRO determination that control room evacuation is required. (Spurious opening of CO-V-7 & 8)	CB-FA-3d CB-FA-4b	EFW	LOCALLY CLOSE CO-V-8 and CO-V-108	TB-FA-1 (305’ west of hotwell)	1 hour	ECR 07-00702 NOTE 5	EL-L-328	
EG-Y-1B is operating (EG-Y-1B Ventilation)	CB-FA-3d CB-FA-4b	Electrical Distribution	OPEN the following doors: <ul style="list-style-type: none">• SB157• D101• SB-145• SB-147	DG-FA-2 (EG-Y-1B room)	1 hour	UFSAR Section 9.8.7.5	EL-L-226 EL-L-105D EL-L-85	
Train A Building Spray has actuated.	CB-FA-3d CB-FA-4b	RCS Inventory	PLACE BS-P-1A CONTROL at 1D 4160V SWGR in BYPASS and TRIP breaker.	CB-FA-3a (1D SWGR Room)	1 hour	Tech Eval 352410-33 NOTE 4	EL-L-312	SCBA required to access ESAS & 1D 4160V SWGR room.
SRO determination that control room evacuation is required. or Fire affects SSD equipment in ESAS room	CB-FA-3d CB-FA-4b CB-FA-3c	Component Cooling	<ul style="list-style-type: none">• ENSURE 1T-02 CLOSED• ENSURE 1T-4C CLOSED• START DR-P-1B• OPEN DR-V-1B	CB-FA-2c (RSP-B)	2 Hour	ECR 09-00527	EL-L-79B	
SRO determination that control room evacuation is required. Fire affects SSD equipment in ESAS room. (Loss of control of PZR heaters)	CB-FA-3d CB-FA-4b CB-FA-3c	RCS Pressure Control	1) Establish control of PZR HTR GRP 9 from 1S 480V SWGR 2) ENSURE 1A & 1B PZR HTR MCC are de-energized	TB-FA-1 (PZR HTR MCC) CB-FA-2b (1S 480V SWGR)	2 hours	UFSAR 8.2.3.5	EL-L-82 EL-L-14	
SRO determination that control room evacuation is required. (Instrument Air)	CB-FA-3d CB-FA-4b	Instrument Air	PLACE IA-P-1B RSD switch in EMERG and ENSURE IA-P-1B is operating	CB-FA-2b (1B ES MCC)	2 hours	UFSAR 9.10.3	EL-L-78A	
Loss of 1A, 1C and 1E battery chargers	CB-FA-3d CB-FA-4b CB-FA-3c	Electrical Distribution	CROSS TIE DC train A and B to maintain a power supply to ATB, VBA & VBC	CB-FA-2d (A Inverter Room) CB-FA-2e (B Inverter Room) CB-FA-2f (A Battery Room) CB-FA-2g (B Battery Room)	2 hours	UFSAR 8.2.2.6	EL-L-80A EL-L-80B	

ATTACHMENT 3-7B
MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.3 FIRE AREAS/ZONES (NOTE 1)

(1) Condition which requires action (Equipment Failure)	(2) Applicable Fire Areas / Zones	System / Function	(3) Action Required (Note 2)	(4) Fire Area / Zone of Action Location (Description)	(5) Time Requirement	(6) Time Requirement Basis	(7) Emergency Light(s)	Comments
CO-V-8 and CO-V-108 are closed. (Spurious opening of CO-V-7 & 8)	CB-FA-3d CB-FA-4b	EFW	ENSURE VA-P-1A, B and C are shutdown	TB-FA-1 (Turbine Bldg)	160 minutes	ECR 09-00527 ECR 07-00702	EL-L-72C EL-L-72D	
Loss of ISPH Ventilation & Component Cooling	CB-FA-3d CB-FA-4b CB-FA-3c	ISPH Ventilation	Establish portable ventilation capable of maintaining ISPH temperature below 120°F	ISPH-FZ-1 (1R SWGR Area) ISPH-FZ-2 (1T SWGR Area)	4 hours	UFSAR Section 9.8.8.5	EL-L-20 EL-L-35	
Confirmation of fire in ESAS room	CB-FA-3c	EFW	Place 1E 4160V SWGR Unit 5 in RSD control and ensure breaker is closed (EF-P-2B is operating).	CB-FA-3b (1E SWGR Room)	4 hours	ECR 08-01051	EL-L-25A	

Column Heading Notes:

(1) **Condition which requires action (Equipment Failure):**

This is the condition that requires compensatory action to achieve safe shutdown. Some actions are performed based on an observed equipment failure but some are proactive. Proactive actions are performed based on the condition described. The reason for the action (potential equipment failure) may be identified in parentheses.

(2) **Applicable Fire Areas / Zones:**

List all of the fire zones where this manual action (item 3) is required for a successful safe shutdown strategy.

(3) **Action Required:**

This is a single action or group of actions, which are performed together if the condition exists. For example , cross tie DC buses is a single line item because these steps would be done together for a single common purpose.

(4) **Fire Area/Zone of Action Location (Description):**

List the Fire Areas (or Zones) where the actions are performed. A more detailed description may be identified in parentheses.

(5) **Time Requirement:**

Describes the maximum acceptable time for completion of the action. The starting time is the condition in column (1) unless otherwise noted.

(6) **Time Requirement Basis:**

References the technical basis or document for the time requirement.

(7) **Emergency Light(s):**

The lights required at the location where the action is required are identified. Pathway lighting to a component is not included.

NOTES:

- (1) The table includes action taken inside and outside of the control room. No exemptions are required for these actions.
- (2) For all MOVs, it is assumed that the breaker for the locally operated valve will be opened prior to valve operation. This is part of the required manual action.
- (3) Control Room Evacuation Analysis 86-9101191-001 provides the basis for the action time. This time has additional conservatism because the analysis is based on RCS inventory loss rate with Westinghouse RCP seals.
- (4) Technical Evaluation 352410-33 provides the basis for the action time. This time has additional conservatism because the analysis is based on RCS inventory loss rate with Westinghouse RCP Seals.
- (5) ECR 07-00702 provides the basis for the action time. This time has significant conservatism because CO-V-111A is now normally closed.