

ATTACHMENT 3-7A  
 MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.2 FIRE AREAS/ZONES (NOTE 5)

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
EFW Control	EF-V-30A spuriously closes due to hot short or loss of 2 Hr Backup IA	CB-FA-2g, FH-FZ-5, IB-FZ-2, DG-FA-2	Establish local control of EF-V-30A	IB-FZ-3	20 Min	GPU memo 5520-85-0520	5211-87-3066	5211-87-2021	EL-L-8
EFW Control	EF-V-30B spuriously closes due to hot short or loss of 2 Hr Backup IA	CB-FA-2g, FH-FZ-5, IB-FZ-2, DG-FA-2	Establish local control of EF-V-30B	IB-FZ-3	20 Min	GPU memo 5520-85-0520	5211-87-3066	5211-87-2021	EL-L-83
EFW Control	EF-V-30C spuriously closes due to hot short or loss of 2 Hr Backup IA	CB-FA-2g, FH-FZ-5, IB-FZ-2, DG-FA-2	Establish local control of EF-V-30C	IB-FZ-3	20 Min	GPU memo 5520-85-0520	5211-87-3066	5211-87-2021	EL-L-83
EFW Control	EF-V-30D spuriously closes due to hot short or loss of 2 Hr Backup IA	CB-FA-2g, FH-FZ-5, IB-FZ-2, DG-FA-2	Establish local control of EF-V-30D	IB-FZ-3	20 Min	GPU memo 5520-85-0520	5211-87-3066	5211-87-2021	EL-L-8
EFW Control	Loss of normal IA supply to EF-V-30A	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0)	Establish local control of EF-V-30A	IB-FZ-3	2 Hrs	For IB-FZ-3 & IB-FZ-8, basis is maximum time available to restore EFW if HPI cooling is required	5211-86-3333	5211-86-2124 (IB-FZ-3/8)	EL-L-8
						For all other fire areas/zones, basis is maximum local IA supply capacity	C311-87-3066	5211-87-2021 (All others)	
EFW Control	Loss of normal IA supply to EF-V-30B	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0)	Establish local control of EF-V-30B	IB-FZ-3	2 Hrs	For IB-FZ-3 & IB-FZ-8, basis is maximum time available to restore EFW if HPI cooling is required	5211-86-3333	5211-86-2124 (IB-FZ-3/8)	EL-L-83
						For all other fire areas/zones, basis is maximum local IA supply capacity	C311-87-3066	5211-87-2021 (All others)	
EFW Control	Loss of normal IA supply to EF-V-30C	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0)	Establish local control of EF-V-30C	IB-FZ-3	2 Hrs	For IB-FZ-3 & IB-FZ-8, basis is maximum time available to restore EFW if HPI cooling is required	5211-86-3333	5211-86-2124 (IB-FZ-3/8)	EL-L-83
						For all other fire areas/zones, basis is maximum local IA supply capacity	C311-87-3066	5211-87-2021 (All others)	

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 MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.2 FIRE AREAS/ZONES (NOTE 5)

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
EFW Control	Loss of normal IA supply to EF-V-30D	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0)	Establish local control of EF-V-30D	IB-FZ-3	2 Hrs	For IB-FZ-3 & IB-FZ-8, basis is maximum time available to restore EFW if HPI cooling is required	5211-86-3333	5211-86-2124 (IB-FZ-3/8)	EL-L-8
						For all other fire areas/zones, basis is maximum local IA supply capacity	C311-87-3066	5211-87-2021 (All others)	
Electrical Power / Component Cooling	EG-Y-1A is operating  (Area ventilation (AH-E-29A) is inoperable)	CB-FA-1, CB-FA-2d, CB-FA-2f, IB-FZ-3, IB-FZ-5, DG-FA-2	Open Doors D106 & D107	DG-FA-1	1 Hr	TDR 900	C311-88-3225	C311-88-2010	EL-L-5
Electrical Power / Component Cooling	EG-Y-1B is operating  (Area ventilation (AH-E-29B) is inoperable)	CB-FA-1, CB-FA-2d, CB-FA-2f, IB-FZ-3, IB-FZ-5, DG-FA-2	Open Doors D101, SB157, SB145, and SB147	DG-FA-2	1 Hr	TDR 900	C311-88-3225	C311-88-2010	EL-L-6
Electrical Power / Component Cooling	Loss of both trains of Control Building cooling (fans or chillers)	CB-FA-1, CB-FA-2d, CB-FA-2f	Open CT-2 breakers E2, 6, E6	CB-FA-4b	1 Hr	DR5375339A-2 TDR 900	5211-87-3066, C311-88-3225	C311-88-2010	EL-L-21A
Electrical Power / Component Cooling	Loss of both trains of ISPH cooling (AH-E-27A/B)	CB-FA-3b, FH-FZ-1, ISPH-FZ-1, ISPH-FZ-2, ISPH-FZ-3	Establish Portable Ventilation	ISPH-FZ-1, ISPH-FZ-2	4 Hrs	ECR 08-00728.	5211-87-3066	5211-87-2033, 5211-87-2047, 5211-87-2175	EL-L-20 EL-L-35
Electrical power	Maintain availability of vital bus VBA and VBC  (Loss of 1A ES MCC)	CB-FA-2a, CB-FA-3a	Cross tie DC system	CB-FA-2c, CB-FA-2d, CB-FA-2e, CB-FA-2f, CB-FA-2g, CB-FA-4b	2 Hrs	Battery design basis duty cycle is 2 Hrs  ECR 05-00671	Not required per RG 1.189 Rev.2. One train of required instruments remains available without this action	Not Required.	EL-L-80A/B EL-L-15 EL-L-16
Electrical power	Maintain availability of vital bus VBB and VBD  (Loss of 1B ES MCC)	CB-FA-2b, CB-FA-3b	Cross tie DC system	CB-FA-2c, CB-FA-2d, CB-FA-2e, CB-FA-2f, CB-FA-2g, CB-FA-4b	2 Hrs	Battery design basis duty cycle is 2 Hrs  ECR 05-00671	Not required per RG 1.189 Rev.2. One train of required instruments remains available without this action	Not required	EL-L-80A/B EL-L-15 EL-L-16
Letdown	Letdown is required (NOTE 2)	RB-FZ-2, CB-FA-1, FH-FZ-5	Locally open MU-V-1A or MU-V-1B to lineup one letdown cooler	RB-FZ-1c	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (RB-FZ-2, FH-FZ-5)	EL-L-109 (portable)

ATTACHMENT 3-7A  
 MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.2 FIRE AREAS/ZONES (NOTE 5)

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
	(MU-V-1A and MU-V-1B are closed, and are remotely inoperable)						C311-88-3225	5211-87-2175 (CB-FA-1)	
Letdown	Letdown is required (NOTE 2)  (MU-V-2A and MU-V-2B are closed, and are remotely inoperable)	CB-FA-1, CB-FA-2b, CB-FA-2c, FH-FZ-5	Locally open MU-V-2A or MU-V-2B to lineup one letdown cooler	RB-FZ-1c	4 Hrs	Historical NRC approved time limit to restore letdown	5211-87-3066	5211-87-2021 (CB-FA-2c)	EL-L-109 (portable)
							C311-88-3225	5211-87-2175 (CB-FA-1)	
							5211-86-3333	5211-86-2124 (CB-FA-2b, FH-FZ-5)	
Letdown	Letdown is required (NOTE 2)  (MU-V-3 is closed and is remotely inoperable)	CB-FA-1, CB-FA-2b, FH-FZ-5, PLUS (due to loss of normal Instrument Air only):  IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open MU-V-3	AB-FZ-4	4 Hrs	Historical NRC approved time limit to restore letdown	5211-87-3066	5211-87-2021 (CB-FA-1)	EL-L-293
							C311-88-3225	5211-87-2175 (FH-FZ-5 and all loss of IA)	
							5211-86-3333	5211-86-2124 (CB-FA-2b)	
Letdown	Letdown is required (NOTE 2)  (MU-V-4 is closed and is remotely inoperable)	CB-FA-1  PLUS (due to loss of normal Instrument Air only):  IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open MU-V-98	AB-FZ-3	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (CB-FA-1)	EL-L-89A
							C311-88-3225	5211-87-2175 (All loss of IA)	
Letdown	Letdown is required (NOTE 2)  (MU-V-5 is closed and is remotely inoperable)	CB-FA-1, FH-FZ-5  PLUS (due to loss of normal Instrument Air only):  IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open MU-V-98	AB-FZ-3	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (CB-FA-1, FH-FZ-5)	EL-L-89A
							C311-88-3225	5211-87-2175 (All loss of IA)	
Letdown	Letdown is required (NOTE 2)  (MU-V-6A and MU-V-6B are closed, and are remotely inoperable)	FH-FZ-5  PLUS (due to loss of normal Instrument Air only):  CB-FA-1, IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open MU-V-70A	AB-FZ-6	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (FH-FZ-5)	EL-L-94
							C311-88-3225	5211-87-2175 (All loss of IA)	
Letdown	Letdown is required (NOTE 2)	FH-FZ-5  PLUS (due to loss of normal Instrument	Locally open MU-V-110	AB-FZ-5	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (FH-FZ-5)	EL-L-88A

ATTACHMENT 3-7A  
 MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.2 FIRE AREAS/ZONES (NOTE 5)

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
	(MU-V-11A and MU-V-11B are closed, and are remotely inoperable)	Air only): IB-FZ-3, IB-FZ-8, TB-FA-1					C311-88-3225	5211-87-2175 (All loss of IA)	
Makeup	Loss of all NR pumps	ISPH-FZ-1	Transfer NR-P-1C control to RSD panel and start NR-P-1C	CB-FA-2b, CB-FA-2c	30 Min	See Note 3.	5211-87-3066	5211-87-2021	EL-L-78 EL-L-79B
Letdown Support	Letdown is required (Note 2)  (Loss of 1T 480V SWGR)	CB-FA-2b	Swap breakers to supply NR-P-1B from 1R 480V	ISPH-FZ-1 ISPH-FZ-2	4 Hrs	Tech Eval 09-00030	NRC letter dated March 30, 2009	5928-08-20023 & TMI-09-008	EL-L-20 EL-L-35
Letdown Support	Letdown is required. (Note 2)  (NR-V-15A spuriously closes and NR-V-15B fails closed)	IB-FZ-8, TB-FA-1, CB-FA-2b	Locally throttle NR-V-15A or NR-V-15B	AB-FZ-1	4 Hrs	Historical NRC approved time limit to restore letdown	5211-87-3066	5211-87-2021	EL-L-93
Letdown Support	Letdown is required. (Note 2)  (IC-V-2 spurious closure due to hot short)	CB-FA-2b, CB-FA-2c	Locally open IC-V-2	RB-FZ-1c	4 Hrs	Historical NRC approved time limit to restore letdown	5211-87-3066 5211-87-3066	5211-86-2124 (CB-FA-2b) 5211-87-2021 (CB-FA-2c)	EL-L-109 (Portable)
Letdown Support	Letdown is required. (Note 2) (IC-V-3 closes due to loss of IA OR due to a hot short)	Due to loss of normal Instrument Air only: CB-FA-1, IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open IC-V-3	AB-FZ-4	4 Hrs	Historical NRC approved time limit to restore letdown	C311-88-3225	5211-87-2175 (All loss of IA for fire areas/zones where letdown is required)	EL-L-91 EL-L-91A
Letdown Support	Letdown is required. (Note 2)  (IC-V-3 spurious closure due to hot short)	CB-FA-2b	Open 1E Panel Switch #15 to fail open IC-V-3	CB-FA-2d	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124	EL-L-80
Letdown Support	Letdown is required. (Note 2) (IC-V-4 closes due to loss of IA OR due to a hot short)	Due to loss of normal Instrument Air only: CB-FA-1, IB-FZ-3, IB-FZ-8, TB-FA-1	Locally open IC-V-4	AB-FZ-7	4 Hrs	Historical NRC approved time limit to restore letdown	C311-88-3225	5211-87-2175 (All loss of IA for fire areas/zones where letdown is required)	EL-L-307
Letdown Support	Letdown is required. (Note 2) (IC-V-4 closes due to a hot short)	CB-FA-2b	Open 1M Panel Switch #5 to fail valve open	CB-FA-2c	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124 (CB-FA-2b)	EL-L-79A

ATTACHMENT 3-7A  
 MANUAL ACTIONS REQUIRED FOR HOT SHUTDOWN IN APPENDIX R III.G.2 FIRE AREAS/ZONES (NOTE 5)

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
Letdown Support	Letdown is required. (Note 2)	CB-FA-2b	Place 69/IC-P-1A in the EMERG position	CB-FA-2e	4 Hrs	Historical NRC approved time limit to restore letdown	5211-86-3333	5211-86-2124	EL-L-76A
Makeup Pump Protection	Maintain MU pump minimum flow path  (MU-V-36 spuriously closes and loss of IA to MU-V-20)	AB-FZ-6	Open 1P 480V switchgear Unit 4C and locally open MU-V-36	CB-FA-2a AB-FZ-3	40 Min	ECR 07-00792	NRC ADAMS ML101310113	NRC ADAMS ML090630134 ML100750093	EL-L-76B EL-L-89B
Makeup Pump Protection	Maintain MU pump minimum flow path  (MU-V-36 spuriously closes due to hot short)	CB-FA-2b	Locally open MU-V-36	AB-FZ-3	2 Hrs	(See Att. 3-3 Note 6) Letter from pump manufacturer indicates seal injection flow is adequate to maintain pump minimum flow.	5211-86-3333 5211-87-3066	5211-86-2124 5211-86-2021 (Corrected time from original exemption from 1 Hr. to 2 Hrs.)	EL-L-89B
Makeup Pump Protection	Maintain MU pump minimum flow path  (MU-V-37 spuriously closes due to hot short)	AB-FZ-2c, AB-FZ-6a, CB-FA-2b, CB-FA-2c, CB-FA-2e, CB-FA-2g, CB-FA-3b	Locally open MU-V-37	AB-FZ-3	2 Hrs	(See Att. 3-3 Note 6) Letter from pump manufacturer indicates seal injection flow is adequate to maintain pump minimum flow.	C311-88-3225 5211-86-3333 5211-87-3066	5211-87-2175 (CB-FA-3b) 5211-86-2124 (AB-FZ-6a, CB-FA-2b) 5211-87-2021 (All others and corrected time to 2 Hrs)	EL-L-89B
RCS Heat Removal	MS-V-4A spurious closure due to hot short or loss of IA	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0) PLUS  CB-FA-2d, CB-FA-3a, CB-FA-3b, IB- FZ-2, IB-FZ-6, TB-FA-1	Locally operate MS-V-4A to control OTSG pressure	IB-FZ-2	3 Hrs	Historical NRC approved time limit to establish ADV control	5211-86-3333 C311-88-3225	5211-86-2124 (IB-FZ-2/6, CB- FA-2d/3a/3b, TB-FA-1) 5211-87-2175 (All loss of IA plus CB-FA-2c)	EL-L-84A
RCS Heat Removal	MS-V-4B spurious closure due to hot short or loss of IA	All fire areas/zones where a loss of normal Instrument Air is possible (See Attachment 3-0) PLUS  CB-FA-2b, CB-FA-2c, CB-FA-2d, CB- FA-3a, CB-FA-3b, FH-FZ-5, IB-FZ-2, IB-FZ-3, IB-FZ-6, TB-FA-1	Locally operate MS-V-4B to control OTSG pressure	IB-FZ-2	3 Hrs	Historical NRC approved time limit to establish ADV control	5211-86-3333 C311-88-3225	5211-86-2124 (IB-FZ-2/3/6, CB-FA- 2c/2d/3a/3b, FH- FZ-5, TB-FA-1) 5211-87-2175 (All loss of IA plus CB-FA-2b)	EL-L-84A Or EL-L-84B

(1) System Function	(2) Condition which requires action (Equipment Failure):	(3) Applicable Fire Area / Zones:	(4) Action Required (Note 1):	(5) Location where Action is Performed:	(6) Time Requirement	(7) Time Requirement Bases	(8) Exemption Approval/SER	(9) Exemption Request (Applicable Fire Areas/Zones)	(10) Emergency Light(s) Required for Action
RCS Inventory Control	Loss of all RCP seal cooling AND RCP and 6900V swgr remote trip unavailable	CB-FA-1	Locally trip RCPs at 6900V Switchgear	TB-FA-1	30 Min	Design Specification for Flowserve N-9000 RCP Seals SP-1101-12-170 Rev. 0	NRC letter dated March 30, 2009 (Historical – based on previous RCP seal design) NOTE 5	5928-08-20023 & TMI-09-008 (Historical – based on previous RCP seal design)	EL-L-72A EL-L-72B
RCS Inventory Control	Maintain RCS makeup capability  (All MU-Pumps shutdown, and MU-P-1A/C are not operable)	AB-FZ-5, AB-FZ-7, ISPH-FZ-1, ISPH-FZ-2	Select MU-P-1B for ES at 1E 4160V switchgear and start from CR	CB-FA-3b	1 Hr	86-9101191-001 (Loss of makeup with a loss of all RCP seal cooling)	Not required per RG 1.189 Rev.2. Action utilizing equipment “specifically designed with local controls” is not considered an operator manual action.	Not required	EL-L-25A
RCS Inventory Control	RCS makeup is required to maintain pressurizer level  (Normal makeup lost AND MU-V-16A/B fail closed AND MU-P-1C unavailable)	AB-FZ-6	Open 1P 480V switchgear Unit 4C breaker AND Locally throttle MU-V-16B	CB-FA-2a AB-FZ-4	1 Hr	86-9101191-001 (Loss of makeup with a loss of all RCP seal cooling)	NRC ADAMS ML101310113	NRC ADAMS ML090630134 ML100750093	EL-L-76B EL-L-293
					2 Hrs	Historical NRC approved time limit to restore makeup with RCP seal cooling available	5211-86-3333	5211-86-2124	
RCS Inventory Control	Maintain RCS makeup capability  (MU-V-14A or MU-V-14B cannot be remotely opened)	AB-FZ-4	Locally open MU-V-14A or MU-V-14B	AB-FZ-4	2 Hrs	Historical NRC approved time limit to restore makeup with RCP seal cooling available	5211-86-3333	5211-86-2124	EL-L-90
RCP Seal Cooling	MU-V-20 spurious closure due to hot short or loss of IA	AB-FA-1, AB-FZ-10, AB-FZ-2, AB-FZ-5, AB-FZ-7, AB-FZ-9, CB-FA-1, CB-FA-2b, CB-FA-2d, CB-FA-2f, CB-FA-3a, DG-FA-2, FH-FZ-1, FH-FZ-3, FH-FZ-4, FH-FZ-6, IB-FZ-1, IB-FZ-2, IB-FZ-3, IB-FZ-4, IB-FZ-5, IB-FZ-6, IB-FZ-8, ISPH-FZ-1, ISPH-FZ-2, ISPH-FZ-3, TB-FA-1  AB-FZ-3, AB-FZ-4, AB-FZ-6, FH-FZ-2	Ensure MU-V-20 is open under local control	FH-FZ-2	1 Hr	Tech Eval 14-00408	NOTE 5	NOTE 5	EL-L-292
			When accessible, ensure MU-V-20 is open under local control		2.5 Hr				
RCP Seal Cooling	MU-P-1A or MU-P-1B is not available	CB-FA-1, CB-FA-2a, CB-FA-2d, CB-FA-2f, CB-FA-3a, DG-FA-1, FH-FZ-1, FH-FZ-6  AB-FZ-3	Open MU-V-76A and MU-V-76B	AB-FZ-3	1 Hr	Tech Eval 14-00408	NOTE 5	NOTE 5	EL-L-89B
			When accessible, Open MU-V-76A and MU-V-76B		2.5 Hr				

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RCP Seal Cooling	Loss of remote control of MU-V-32	CB-FA-1, CB-FA-2d, CB-FA-2f, FH-FZ-1, FH-FZ-5 AB-FZ-3, FH-FZ-2	Close MU-V-89A and Throttle MU-V-90 When accessible, Close MU-V-89A and Throttle MU-V-90	AB-FZ-3	1 Hr 2.5 Hr	Tech Eval 14-00408	NOTE 5	NOTE 5	EL-L-89B
RCS Pressure Control / Makeup Pump Protection	Prevent excessive RCS pressure and maintain MU pump minimum flow path  (MU-V-16A/B spurious opening and MU-V-36/37 spurious closure due to inadvertent ESAS.)	AB-FZ-6, CB-FA-1, CB-FA-2a, CB-FA-2d, CB-FA-2f, FH-FZ-1	Locally close MU-V-16A/B and Ensure MU-V-36/37 are open prior to closure	AB-FZ-3 AB-FZ-4	1 Hr	86-9101191-001 (Uncontrolled RCS Injection)	Not required per RG 1.189 Rev.2. Spurious ESAS causing overfill is not part of SSD success path.	Not Required.	EL-L-293 EL-L-89B
RCS Pressure Control / Makeup Pump Protection	Prevent excessive RCS pressure and maintain MU pump minimum flow path  (MU-V-16C/D spurious opening and MU-V-36/37 spurious closure due to inadvertent ESAS.)	CB-FA-2b, CB-FA-2c, CB-FA-2e, CB-FA-2g, CB-FA-3b, FH-FZ-5	Locally close MU-V-16C/D and Ensure MU-V-36/37 are open prior to closure	AB-FZ-3 AB-FZ-6	1 Hr	86-9101191-001 (Uncontrolled RCS Injection)	Not required per RG 1.189 Rev.2. Spurious ESAS causing overfill is not part of SSD success path.	Not Required.	EL-L-89B EL-L-292
RCS Pressure Control	Prevent excessive RCS pressure  (MU-V-217 spuriously opens OR MU-V-17 fails open) AND MU-V-18 fails open	CB-FA-2d, CB-FA-2e	Locally close IA-V-1227 to fail closed MU-V-18	AB-FZ-4	1 Hr	86-9101191-001 (Uncontrolled RCS Injection)	C311-88-3271	C311-88-2057	EL-L-293
EFW Inventory	CO-V-111A spuriously opens AND loss of IA fails open CO-V-7 & 8 AND CO-V-13 is not available	CB-FA-1, FH-FZ-1, IB-FZ-3, IB-FZ4, IB-FZ-8	Locally CLOSE CO-V-8 and CO-V-108	TB-FA-1	1 Hr	ECR 07-00702	NOTE 5	NOTE 5	EL-L-328A

**Column Heading Notes**

**(1) System Function:**

The system function that the manual action supports.

**(2) 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.

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

List all of the fire zones where this manual action (item 4) is required for a successful safe shutdown strategy.

**(4) Action Required (Note 1):**

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.

**(5) Location where Action is Performed:**

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

**(6) Time Requirement:**

Describes the maximum acceptable time for completion of the action. The starting time is the condition in column (2) unless otherwise noted.

**(7) Time Requirement Basis:**

References the technical basis or document for the time requirement.

**(8) Exemption Approval/SER:**

The NRC exemption or SER that approves the manual action.

**(9) Exemption Request (Applicable Fire Areas/Zones):**

The exemption request submitted to the NRC for approval of the manual action. The fire zones that are addressed by the exemption request are included in parenthesis.

**(10) Emergency Light(s) Required for Action:**

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

**Notes**

1. 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.
2. Letdown is desired to maintain pressurizer level within the normal range, and enhance RCS inventory control. Letdown restoration and actions required to support letdown restoration (i.e., re-establishing NR or NS) are only required if (1) HPI cooling was used for decay heat removal or (2) Group 8 and Group 9 pressurizer heaters were lost and cannot be restored (including repairs Att. 3-7C).
3. The original basis of 30 minutes is based on the time required to support restoration of thermal barrier cooling. This function is no longer required. The NR system is only required for MU-P-1B and letdown cooling, however letdown restoration is not required for ISPH-FZ-1. Calculation 86-9101191-001 provides a time of at least 1 hour to support restoration of makeup on a loss of all RCP seal cooling. Therefore, a minimum time of 1 hour exists to start MU-P-1B and thus provide MU-P-1B required cooling. However, 30 minutes will be used for conservatism per the existing exemption.
4. Additional conservatism was added when the RCP seals were replaced. 86-9101191-001 time is based on RCS losses with Westinghouse RCP Seals.
5. This table includes ALL actions that require an exemption. (i.e. Any action required outside of the control room to achieve hot shutdown for a fire in a III.G.2 fire area to maintain a safe shutdown success path). After NRC Reg. Guide 1.189 Rev. 2 was issued, "orange box" manual actions do not require exemptions.

<b>Exemption Request / Exemption Key</b>	
<b>Exemption Request</b>	<b>NRC Exemption</b>
5211-86-2124 (July 22, 1986)	5211-86-3333 (December 30, 1986)
5211-87-2021 (February 2, 1987), 5211-87-2033 (February 11, 1987), 5211-87-2047 (February 28, 1987), 5211-87-2059 (March 10, 1987)	5211-87-3066 (March 19, 1987)
5211-87-2175 (October 16, 1987)	C311-88-3225 (September 7, 1988)
C311-88-2057 (May 21, 1988), C311-88-2010 (May 5, 1988)	C311-88-3271 (November 2, 1988)
5928-08-20023 (February 4, 2008) TMI-09-008 (January 28, 2009)	NRC ADAMS ML090830708 (March 30, 2009)
NRC ADAMS ML090630134 (March 3, 2009) NRC ADAMS ML100750093 (March 15, 2010)	NRC ADAMS ML101310113 (June 28, 2010)