1) ENTRY CONDITIONS

a) When directed by Procedure 5.4FIRE.

2) AUTOMATIC ACTIONS

A. None.

III. IMMEDIATE OPERATOR ACTIONS

3.1. None.

4. SUBSEQUENT OPERATOR ACTIONS

Monitor DG and SW operation throughout performance of procedure.

If DG(s) running without SW flow:

Immediately start SW pumps or shutdown DG(s) with local EMERGENCY STOP button.

If SW pumps do not start from Control Room, restart SW pumps from Critical Switchgear Room.

Place plant in safe stable condition, per applicable procedures.

Find most applicable fire location in CONFIRMED FIRE LOCATION column of Attachment 1. Use only one fire location.

If Attachment 1 requires Procedure 5.4FIRE-S/D entry, exit this procedure.

From SAFE SHUTDOWN SCENARIO(S) column of Attachment 1, identify shutdown scenarios associated with fire location.

From SAFE SHUTDOWN ACTIONS FOR AREA column of Attachment 1, go to safe shutdown action attachment for specific fire location.

Perform applicable safe shutdown actions of SAFE SHUTDOWN ACTIONS attachment, as required.

Identify AVAILABLE METHODS.

Identify AVAILABLE SYSTEMS.

Identify AVAILABLE INSTRUMENTATION.

Identify ACTIONS TO MINIMIZE ADVERSE EFFECTS.

Identify OPERATIONAL VARIANCES for each system.

[ ] **NOTE -** Fire induced high impedance faults may cause essential power supply feeder breakers to trip prior to load protective devices for non-essential loads tripping.

If essential power supply feeder breakers trip, ensure breakers for non-essential loads are open, prior to reclosing essential feeder breakers.

Operators dispatched to perform manual actions per this procedure should have following:

Portable two-way radio set on Frequency 1.

Portable lighting.

Keys as required for access to locked rooms/components.

Key 112 ASD locker.

Key 43 electrical breaker locks.

Security masters, as needed.

Keys 24 and 25 building grand masters, as needed.

Standard screwdriver.

Manual breaker charging ratchet (these are located in 4160V switchgear).

Fuse pullers (as needed).

Adjustable wrench (as needed).

[ ] **NOTE -** Reactor Building 903 around MCC-R and MCC-Q and all quads are communication problem areas.

If experiencing difficulty communicating with Control Room:

Step out of area and complete required communications.

Then re-enter area and complete task.

5) DISCUSSION

a) This procedure provides information and guidance for Operators to operate various plant systems, that may or may not be adversely affected by a fire, to safely shut down the reactor. Depending on the fire location, various safe shutdown systems could be rendered inoperable or have components affected such that their normal operation is inhibited. For six areas of the plant, this procedure will direct Operators to an alternate shutdown procedure since the fire may potentially affect control of the plant from the Control Room.

b) This procedure is intended to complement existing XXX procedures. Based on fire location, this procedure will inform Operators of instrumentation available, actions required to minimize potential adverse effects due to spurious operation of system components, and safe shutdown systems available, along with any potential abnormal component operational requirements. This procedure presupposes reliance on emergency power from either the Emergency Diesels or the Emergency Station Transformer. If non-emergency power sources are not affected, other systems/components may be available for use. Automatic load sequencing can not be relied on when power is transferred to emergency power sources.

c) This procedure also presupposes that any component which could be affected for a fire location, will be affected. Depending on actual fire severity, other systems may be available for use. Automatic operation of required safe shutdown systems is not assumed and should not be relied on. This includes high RX level HPCI and RCIC trips.

d) Additionally, a High Drywell Pressure or ECCS System initiation signal (actual or spurious) may impose generic operational constraints on HPCI or RHR. A High Drywell Pressure Signal may preclude alignment of HPCI to the ECST recirculation mode and will necessitate manual start stop operation of the HPCI turbine. An ECCS initiation signal could align the RHR System for LPCI injection and necessitate the use of train specific manual operation/alignment of RHR valves RHR-MOV-34A/B and/or RHR-MOV-39A/B for Suppression Pool Cooling.

e) Operation of required safe shutdown systems should be manually controlled using control switches in Control Room in conjunction with operational variances when applicable. Local operation of MOVs from MCC breaker cubicles requires that the control power fuses be removed prior to operating the contactor pushbuttons and that the power supply breaker be opened following valve operation to prevent inadvertent fire-induced repositioning. The information for controlling safe shutdown systems for each plant fire area is contained in Attachments 3 through 24.

f) Attachment 25 provides direction to restore power to the 125 VDC and 250 VDC battery chargers for the B Batteries. A fire in the Control Building Basement, Control Building 903 Hallway, Spare Battery Charger Room, or RPS 1B Room could disrupt the normal power supplies to the battery chargers.

g) Attachment 26 provides for restoring power to diesel fuel oil transfer Pump A or B due to a power cable loss. A fire in the southeast side of the Reactor Building 903 or Reactor Building torus area could disrupt the normal power supply to both pumps.

h) Attachment 27 provides for restoring control of either diesel fuel oil transfer Pump A or B due to a control cable failure. A fire in the Control Building Basement, Control Building 903 Hallway, Spare Battery Charger Room, RPS 1A Room could disrupt the control cables to one or both pumps.

i) Attachment 28 provides directions to restore power to MCC-E and/or MCC-F from 4160V Bus 1G. This attachment will only be required if off-site power is lost and the Shift Supervisor directs its implementation.

j) Attachment 29 provides a reference for converting ECST local level indications of inches of water to gallons.

6) REFERENCES

a) UPDATED SAFETY ANALYSIS REPORT

i) Section VIII-4.0, Auxiliary Power Distribution System.

ii) Section VIII-5.0, Standby A-C Power Source.

iii) Section VIII-6.0, 125/250 Volt D-C Power Systems.

iv) Section VIII-7.0, 24 Volt D-C Power System.

v) Section X-9.0, Fire Protection System.

b) DRAWINGS

i) B&R Drawing 2006, Circulating, Screen Wash, and Service Water Systems.

ii) B&R Drawing 2011, Turbine Oil and Diesel Oil Systems.

iii) B&R Drawing 2031, Reactor Building Closed Cooling System.

iv) B&R Drawing 2036, Reactor Building Service Water System.

v) B&R Drawing 2040, Residual Heat Removal System.

vi) B&R Drawing 2043, Reactor Core Isolation and Reactor Feed Systems.

vii) B&R Drawing 2044, High Pressure Coolant Injection and Reactor Feed Systems.

viii) B&R Drawing 2045, Core Spray and Standby Liquid Systems.

ix) B&R Drawing 2077, Diesel Generator Building, Service Water, Starting Air, Fuel Oil, Sump, and Roof Drains.

x) B&R Drawing 3001, Main One Line Diagram.

xi) B&R Drawing 3002, Auxiliary One Line Diagram.

xii) B&R Drawing 3003, Auxiliary One Line Diagram.

xiii) B&R Drawing 3006, Auxiliary One Line Diagram.

xiv) B&R Drawing 3007, Auxiliary One Line Diagram.

xv) B&R Drawing 3017, 4160V Switchgear Elementary Diagram.

xvi) B&R Drawing 3019, 4160V Switchgear Elementary Diagram.

xvii) B&R Drawing 3020, 4160V Switchgear Elementary Diagram.

xviii) B&R Drawing 3025, 4160V Switchgear Elementary Diagram.

xix) B&R Drawing 3031, Control Elementary Diagram.

xx) B&R Drawing 3032, Control Elementary Diagram.

xxi) B&R Drawing 3040, Control Elementary Diagram.

xxii) B&R Drawing 3045, Control Elementary Diagram.

xxiii) B&R Drawing 3048, DC One Line Diagram.

xxiv) B&R Drawing 3058, DC One Line Diagram.

xxv) GE Drawing 791E253, Automatic Depressurization System.

xxvi) GE Drawing 791E261, Residual Heat Removal.

xxvii) GE Drawing 791E264, Reactor Core Isolation Cooling.

xxviii) GE Drawing 791E265, Core Spray.

xxix) GE Drawing 791E271, High Pressure Coolant Injection.

c) VENDOR MANUALS

i) XXX Number 0228, Station Batteries, Battery Chargers, and Inverters.

ii) XXX Number 0245, Emergency Diesel Generators.

iii) XXX Number 0308, Exhaust Fan Area Accessories.

d) PROCEDURES

i) Administrative Procedure 0.39, Fire Watches.

ii) System Operating Procedure 2.2.19, 480V Auxiliary Power Distribution System.

iii) System Operating Procedure 2.2.20.2, Operation of Diesel Generators from Diesel Generator Rooms.

iv) System Operating Procedure 2.2.23, 120/240 VAC Instrument Power System.

v) System Operating Procedure 2.2.38, HVAC Control Building.

vi) Emergency Procedure 5.4FIRE, General Fire Procedure.

vii) Emergency Procedure 5.4FIRE-S/D, Fire Induced Shutdown from Outside Control Room.

e) MISCELLANEOUS

i) XXX Fire Hazards Analysis.

ii) SCAQ 96-0635, Appendix R Analysis did not Consider Multiple System Grounds Due to Fire.

iii) XXX Safe and Alternative Shutdown Analysis Report.

7) ATTACHMENTS

1 - FIRE AREA ACTIONS
2 - SAFE SHUTDOWN SCENARIOS

3 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA CB-A

4 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA CB-A-1

5 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA CB-B

6 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA CB-C

7 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA DG-A

8 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA DG-B

9 - SAFE SHUTDOWN ACTIONS for ANALYSIS AREA IS-A

CONFIRMED FIRE LOCATION	SAFE SHUTDOWN SCENARIO(S) (ATT. 2)	SAFE SHUTDOWN ACTIONS FOR AREA (ATTS 3 THRU 24)	ANALYSIS AREA
Control Building 877 and 882 Basement or Control Building 903 Reactor Protection System Room 1A or Spare Battery Charger Room or Hallway	C, E	See Attachment 3	CB-A
Control Building 903 DC Switchgear Room 1A or Battery Room 1A	B, C, E	See Attachment 4	CB-A-1
Control Building 903 DC Switchgear Room 1B or Battery Room 1B	A, C, E	See Attachment 5	CB-B
Control Building 903 Reactor Protection System Room 1B	B, C, E	See Attachment 6	CB-C
Control Building 903 Auxiliary Relay Room		Go to Procedure 5.4FIRE-S/D	CB-D
Control Building 918 Cable Spreading Room or Cable Expansion Room		Go to Procedure 5.4FIRE-S/D	CB-D
Control Building 932 Control Room or Computer Room		Go to Procedure 5.4FIRE-S/D	CB-D
Diesel Generator Room 1A	A, B, C, E	See Attachment 7	DG-A
Diesel Generator Room 1B	A, B, C, E	See Attachment 8	DG-B
Intake Structure	A, B, C, D, E	See Attachment 9	IS-A
Reactor Building Torus Area	C, E	See Attachment 15	RB-E
Reactor Building Northeast Quad 859 or Northeast Quad 881	B, C, E	See Attachment 10	RB-A
Reactor Building Southeast Quad 859 or Southeast Quad 881	A, C, D, E	See Attachment 11	RB-B
Reactor Building Northwest Quad 859 or Northwest Quad 881 or Reactor Building 903 North Central or Northwest Corner or RHR HX Room A	A, C, E	See Attachment 12	RB-CF
Reactor Building Southwest Quad 859 or	C, E	See Attachment 13	RB-DI

CONFIRMED FIRE LOCATION	SAFE SHUTDOWN SCENARIO(S) (ATT. 2)	SAFE SHUTDOWN ACTIONS FOR AREA (ATTS 3 THRU 24)	ANALYSIS AREA
Southwest Quad 881 or Reactor Building 903 Southwest Side Including MCC-S or RHR HX Room B			(SW)
Reactor Building 903 Southeast Side East of MCC-S	C, E	See Attachment 14	RB-DI (SE)
Reactor Building Northeast Corner 903		Go to Procedure 5.4FIRE-S/D	RB-FN
Steam Tunnel	C, D, E	See Attachment 16	TB-C
Reactor Building 931 North Side and East Side (IR 25-5 And 25-6) or RHR HX Room A	A, C, E	See Attachment 19	RB-M
Reactor Building 931 South Central (RWCU HX Room) or Southwest Corner or RHR HX Room B	A, C, E	See Attachment 20	RB-N
Reactor Building 958 Accessible Areas	A, B, C, D, E	See Attachment 21	RB-P
Reactor Building 976 East Side or Reactor Building 1001 Refueling Floor	A, B, C, D, E	See Attachment 22	RB-T
Reactor Building 976 West Side	A, B, C, D, E	See Attachment 23	RB-V
Reactor Building 931 Critical Switchgear Room 1F	B, C, E	See Attachment 17	RB-J
Reactor Building 931 Critical Switchgear Room 1G	A, C, E	See Attachment 18	RB-K
Office Building and Turbine Building including Non-Critical Switchgear Room	A, B, C, E	See Attachment 24	TB-A

SAFE SHUTDOWN SCENARIO	SYSTEMS UTILIZED	METHODS
A	RCIC	RCIC System will be operated to maintain reactor plant temperature/pressure and level. Steam demand by turbine will be adjusted to maintain plant temperature/pressure. Flow will be adjusted to maintain plant level. Excess flow will be routed to ECSTs via test line.
	RHR Suppression Pool Cooling Mode	One subsystem of RHR System will be operated, as required, to maintain suppression pool temperature.
	REC	REC System will be operated when RHR System in operation to provide cooling for RHR and RCIC area fan coolers.
	SW	SW System will be operated to provide cooling to REC and RHR HXs, and to DGs if they are in operation due to a loss of off-site power.
B	HPCI	HPCI System will be operated to maintain reactor plant temperature/pressure and level. Steam demand by turbine will be adjusted to maintain plant temperature/pressure. Flow will be adjusted to maintain plant level. Excess flow will be routed to ECSTs via test line.
	RHR Suppression Pool Cooling Mode	One subsystem of RHR System will be operated as required to maintain suppression pool temperature.
	REC	REC System will be operated when RHR System in operation to provide cooling for RHR and HPCI area fan coolers.
	SW	SW System will be operated to provide cooling to REC and RHR HXs, and to DGs if they are in operation due

SAFE SHUTDOWN SCENARIO	SYSTEMS UTILIZED	METHODS
		to a loss of off-site power.
C	ADS	ADS valves will be used to reduce and maintain reactor plant pressure so CS System can provide required makeup flow.
	CS	CS System will be operated to provide reactor plant makeup following reduction in pressure by ADS System.
C (con't)	RHR Suppression Pool Cooling Mode	One subsystem of RHR System will be operating, as required, to maintain suppression pool temperature.
	REC	REC System will be operated when RHR System in operation to provide cooling for RHR and CS area fan coolers.
	SW	SW System will be operated to provide cooling to REC and RHR HXs, and DGs if they are in operation.
D	ADS	ADS valves will be used to reduce and maintain reactor plant pressure so LPCI Mode of RHR System can provide required makeup flow.
	RHR/LPCI Mode	One subsystem of RHR System will be operated in LPCI Mode to provide required reactor plant makeup following reduction in pressure by ADS System.
	RHR Suppression Pool Cooling Mode	One subsystem of RHR System will be operated, as required, to maintain suppression pool temperature.
	REC	REC System will be operated when RHR System in operation to provide cooling for RHR area fan coolers.
	SW	SW System will be operated to provide cooling to REC and RHR HXs, and DGs if they are in operation due to

SAFE SHUTDOWN SCENARIO	SYSTEMS UTILIZED	METHODS
		loss of off-site power.
E	RHR Shutdown Cooling Mode or CS and RHR Suppression Pool Cooling Mode	Shutdown Cooling Mode of RHR or Core Spray with RHR in Suppression Pool Cooling Mode may be used for long term cooling. RPV pressure must first be reduced, utilizing systems of Scenarios C or D.

AREA DESCRIPTION:

Control Building 877 and 882 Basement or Control Building 903 Reactor Protection System Room 1A or Spare Battery Charger Room or Hallway.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN A
CORE SPRAY SYSTEM TRAIN B	HIGH PRESSURE COOLANT INJECTION
REACTOR EQUIPMENT COOLING TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN A
REC SUPPLIED BY SERVICE WATER TRAIN-B	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR VESSEL INSTRUMENTATION	REACTOR CORE ISOLATION COOLING
REACTOR VESSEL ISOLATION SYSTEM	REACTOR EQUIPMENT COOLING TRAIN A
SHUTDOWN COOLING TRAIN B	REC SUPPLIED FROM SERVICE WATER TRAIN A
SUPPRESSION POOL COOLING TRAIN B	SHUTDOWN COOLING TRAIN A
SERVICE WATER TRAIN B	SUPPRESSION POOL COOLING TRAIN A
	SERVICE WATER TRAIN A

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	RFC-PI-90B Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	NBI-PR-2A Reactor Pressure (Panel 9-3)
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	NBI-LI-85A Wide Range Level (Panel 9-5)
RFC-LI-94A RX NR Level (Panel 9-5)	NBI-LI-91C Fuel Zone Level (Panel 9-4)
RFC-LI-94C RX NR Level (Panel 9-5)	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
	RFC-LI-94B RX NR Level (Panel 9-5)

ECST Levels:	**ECST Levels:**
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	CM-LI-681A ECST A Level (Panel 9-3)
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	CM-LI-681B ECST B Level (Panel 9-4)
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-25 Torus Temperature (VBD-J)	PC-TR-24 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	PC-LR-1A Torus Level (PNL 9-3)
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Place ADS INHIBIT switches to INHIBIT.

3) Use RCIC-MO-15 to isolate RCIC Steamline, if required.

4) 125V CHARGER B and/or 250V CHARGER B may be rendered inoperable by fire. If one or both are not operating, initiate repairs per Attachment 25 within 1.5 hours from time charger(s) lost.

5) Both diesel fuel oil transfer pump control cables may be affected by fire. If off-site power has been lost and both diesel fuel oil transfer pumps are lost, initiate repairs per Attachment 27 within 3.5 hours from time DG2 Day Tank level reaches 39". Complete repairs within 5 hours of 39" level in order to ensure continued DG2 operation.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG2 to 4160V SWGR 1G by isolating and operating DG2 and Breaker EG2 per Procedure 2.2.20.2.

2) Remove NR and NQ fuses. Manually operate Breakers 1GE and 1GS, if required.

3) Transfer MCC-R to EMERGENCY per Procedure 2.2.19, if required.

4) Start Essential Control Building HVAC System local starter rack in Critical Switchgear Room 1G. Open Breaker 1AL, Starter Rack HV-STRR-ECBHI Feeder, on MCC-CA (R-931-W) to remove power from Division 1 Essential Control Building H&V. Ensure Non-Essential Control Building HVAC System is removed from service per Procedure 2.2.38.

CS:

1) Potential damage to 4160V Bus 1G undervoltage circuits could result in trip signal (load shed) to CS Pump B breaker. If necessary, remove NR and NQ fuses, then manually operate breaker.

REC:

1) Manual operation of REC-MO-711 may be required. Ensure Breaker 7B on MCC-Q (R-903-N) is off before manually operating valve. Operate handwheel to close valve if necessary, or close REC-V-19 and REC-V-21 if necessary.

2) REC-PI-472A may be affected by fire, use REC-PI-472B.

RHR:

1) Use RHR Subsystem B for SDC and/or LPCI, if necessary.

2) Potential damage to 4160V Bus 1G undervoltage circuits could result in trip signal (load shed) to RHR Pump D breaker. In addition, potential damage to shutdown cooling suction valve

interlocks could result in trip signal to RHR pump breaker when RHR pump suction valves are transferred. If necessary, remove NR and NQ fuses, then manually operate breaker.

OPERATIONAL VARIANCES: (con't)

3) Local operation of SW-MO-89B may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 6C on MCC-Y (R-903-SW).

4) Manual operation of RHR-MO-25B may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250DIV2 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

5) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-B. Operate handwheel to open valve.

6) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-B. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

7) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from Breaker 3B on MCC-R (R-903-NW).

8) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from motor starter at EE-PNL-BB3 (R-903-NE).

SW:

1) For SW Pumps B and D, locally manually operate breakers after removing NR and NQ control power fuses, if necessary.

2) De-energize valve SW-MOV-37MV by opening valve feeder Breaker 7C on MCC-Y (R-903-SW). Operate handwheel to close valve, if necessary.

3) Potential damage to SW Zurn Strainer B power or control power circuits could require opening SW-194, SW STRAINER B BYPASS (SW Pump Room).

AREA DESCRIPTION:

Control Building 903 DC Switchgear Room 1A or Battery Room 1A.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN A
CORE SPRAY SYSTEM TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN A
HIGH PRESSURE COOLANT INJECTION	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR EQUIPMENT COOLING TRAIN B	REACTOR CORE ISOLATION COOLING
REC SUPPLIED BY SERVICE WATER TRAIN-B	REACTOR EQUIPMENT COOLING TRAIN A
REACTOR VESSEL INSTRUMENTATION	REC SUPPLIED FROM SERVICE WATER TRAIN A
REACTOR VESSEL ISOLATION SYSTEM	SHUTDOWN COOLING TRAIN A
SHUTDOWN COOLING TRAIN B	SUPPRESSION POOL COOLING TRAIN A
SUPPRESSION POOL COOLING TRAIN B	SERVICE WATER TRAIN A
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	RFC-PI-90A Reactor Pressure (Panel 9-5)
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	RFC-PI-90B Reactor Pressure (Panel 9-5)
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	NBI-PR-2A Reactor Pressure (Panel 9-3)
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	NBI-LI-85A Wide Range Level (Panel 9-5)
RFC-LI-94C RX NR Level (Panel 9-5)	NBI-LI-91C Fuel Zone Level (Panel 9-4)
	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
	RFC-LI-94A RX NR Level (Panel 9-5)
	RFC-LI-94B RX NR Level (Panel 9-5)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)

Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-25 Torus Temperature (VBD-J)	PC-TR-24 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	PC-LR-1A Torus Level (PNL 9-3)
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

2) Use RCIC-MO-15 to isolate RCIC Steamline, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG2 to 4160V SWGR 1G by isolating and operating DG2 and Breaker EG2 per Section 9 of Procedure 2.2.20.2.

2) Transfer MCC-R to EMERGENCY per Procedure 2.2.19, if required.

3) Start Essential Control Building HVAC System local starter rack in Critical Switchgear Room 1G. Open Breaker 1AL, STARTER RACK HV-STRR-ECBHI FEEDER, on MCC-CA (R-931-W) to remove power from Division 1 Essential Control Building H&V. Ensure Non-Essential Control Building HVAC System is removed from service per Procedure 2.2.38.

4) After fire has been extinguished, inform Security SS and open doors to Control Building Corridor, Auxiliary Relay Room, Battery Room 1B, DC Switchgear Room 1B, and RPS MG Set Room 1B to allow air change for cooling equipment in these rooms. Ensure Fire Watch set per Procedure 0.39.

5) After fire has been extinguished, restore supply and exhaust ventilation to Battery Rooms 1A and 1B by resetting (or ensure open) the following dampers within 4 hours after damper closure to preclude potential hydrogen buildup:

   * HV-AD-AD1419, CSR TO BATTERY ROOM 1A HVAC SUPPLY
   * HV-AD-AD1420, CSR TO BATTERY ROOM 1A HVAC EXHAUST
   * HV-AD-AD1421, BATTERY ROOM 1A TO BATTERY ROOM 1B HVAC EXHAUST
   * HV-AD-AD1422, BATTERY ROOM 1A TO BATTERY ROOM 1B HVAC SUPPLY

REC:

1) Manual operation of REC-MO-711 may be required. Ensure Breaker 7B on MCC-Q (R-903-N) is off before manually operating valve. Operate handwheel to close valve if necessary, or close REC-V-19 and REC-V-21, if necessary.

2) REC-PI-472A may be affected by fire, use REC-PI-472B.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Use RHR Subsystem B for SDC and/or LPCI, if necessary.

2) Manual operation of RHR-MO-25B may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250DIV2 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

3) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250B (C-877-ECST Room) by pulling control power fuses and manually depressing starter to open valve, if necessary.

4) Local or Manual operation of RHR-MO-18 may be required to recover from RHR-SDC-B. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to Breaker 7A, open valve if necessary.

5) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from motor starter at EE-PNL-BB3 (R-903-NE).

AREA DESCRIPTION:

Control Building 903 DC Switchgear Room 1B or Battery Room 1B.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR CORE ISOLATION COOLING	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR EQUIPMENT COOLING TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
REC SUPPLIED FROM SERVICE WATER TRAIN A	SHUTDOWN COOLING TRAIN B
REACTOR VESSEL INSTRUMENTATION	SUPPRESSION POOL COOLING TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	HIGH PRESSURE COOLANT INJECTION
SHUTDOWN COOLING TRAIN A	REC SUPPLIED BY SERVICE WATER TRAIN B
SUPPRESSION POOL COOLING TRAIN A	SERVICE WATER TRAIN B
SERVICE WATER TRAIN A	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	NBI-PR-2B Reactor Pressure (Panel 9-4)
RFC-PI-90B Reactor Pressure (Panel 9-5)	RFC-PI-90C Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-91B Fuel Zone Level (Panel 9-3)
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-85B Wide Range Level (Panel 9-5)
NBI-LI-91C Fuel Zone Level (Panel 9-4)	RFC-LI-94C RX NR Level (Panel 9-5)
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	

ECST Levels:	**ECST Levels:**
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29) HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	CM-LI-681A ECST A Level (Panel 9-3) CM-LI-681B ECST B Level (Panel 9-4)
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	PC-TR-25 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1A Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
	PC-LR-11 Torus Level (PNL 9-3)
	PC-LR-1B Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Use RCIC-MO-16 to isolate RCIC steam line, if required.

3) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Bus 1F (4160V and 480V) to Emergency Transformer.

2) Start Essential Control Building HVAC System from local starter rack in Critical Switchgear Room 1F. Open Breaker 2A, STARTER RACK HV-STRR-ECBHII FEEDER, on MCC-RB (R-903-W) to remove power from Division 2 Essential Control Building H&V. Ensure Non-Essential Control Building HVAC System shutdown per Procedure 2.2.38.

3) Use Attachment 29 and place level gauges in service by opening HPCI-579 for HPCI-PI-117A (ECST 1A) and HPCI-580 for HPCI-PI-117B (ECST 1B).

4) After fire has been extinguished, inform Security SS, and open doors to Control Building Corridor, Auxiliary Relay Room, RPS MG Set Room 1A, and RPS MG Set Room 1B to allow air change for cooling equipment in these rooms. Ensure Fire Watch set per Procedure 0.39.

5) After fire has been extinguished, restore supply and exhaust ventilation to Battery Rooms 1A and 1B by resetting (or ensure open) the following dampers within four (4) hours after damper closure to preclude potential hydrogen buildup:

   * HV-AD-AD1419, CSR TO BATTERY ROOM 1A HVAC SUPPLY
   * HV-AD-AD1420, CSR TO BATTERY ROOM 1A HVAC EXHAUST
   * HV-AD-AD1421, BATTERY ROOM 1A TO BATTERY ROOM 1B HVAC EXHAUST
   * HV-AD-AD1422, BATTERY ROOM 1A TO BATTERY ROOM 1B HVAC SUPPLY

REC:

1) Manual operation of REC-MO-714 may be required. De-energize valve by opening valve feeder Breaker 7C on MCC-Y (R-903-SW). Operate handwheel to close valve if necessary, or close REC-V-19 and REC-V-21 if necessary.

2) REC-PI-472B may be affected by fire, use REC-PI-472A.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Use RHR Subsystem A for SDC and/or LPCI, as required.

2) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. Operate valve from EE-STRR-250DIV1 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

3) Local or Manual operation of RHR-MO-17 may be required to recover from RHR-SDC-A. Operate Handwheel to open valve.

4) Local or Manual operation of RHR-MO-18 may be required to recover from RHR-SDC-A. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

5) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from Breaker 3B on MCC-R (R-903-NW).

6) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Open feeder breaker at EE-PNL-BB3 (R-903-NE) and operate handwheel to open/close valve as required.

AREA DESCRIPTION:

Control Building 903 Reactor Protection System Room 1B.

AVAILABLE METHODS:

HPCI HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN A
HIGH PRESSURE COOLANT INJECTION	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR EQUIPMENT COOLING TRAIN A	REACTOR CORE ISOLATION COOLING
REC SUPPLIED FROM SERVICE WATER TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
REC SUPPLIED BY SERVICE WATER TRAIN B	SHUTDOWN COOLING TRAIN B
REACTOR VESSEL INSTRUMENTATION	SUPPRESSION POOL COOLING TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN A	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	NBI-PR-2B Reactor Pressure (Panel 9-4)
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-91B Fuel Zone Level (Panel 9-3)
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-85B Wide Range Level (Panel 9-5)
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	

RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29) HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	CM-LI-681A ECST A Level (Panel 9-3) CM-LI-681B ECST B Level (Panel 9-4)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	PC-TR-25 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1A Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
	PC-LR-11 Torus Level (PNL 9-3)
	PC-LR-1B Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Both ECST level indicators in Control Room may be damaged by fire. Place level gauges in service by using Attachment 29.

2) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

ADS:

1) Operation of ADS valves from ASD Room may be required.

CS:

1) Manual operation of valve CS-MO-12A may be required. Ensure Breaker 6A on MCC-Q (R-903-N) is off by pulling control power fuse before manually depressing starter to open valve for Core Spray (Transition).

HPCI:

1) Potential damage to HPCI suction valve transfer interlocks may require operating HPCI-MO-58 from ASD Panel. Cable failure HP7 may simulate low ECST A Level signal which may spuriously open HPCI-MOV-MO58 and therefore close HPCI-MOV-MO17, MO21, and MO24; or may simulate normal ECST A Level signal with actual ECST A Level low thereby not opening MO58 when required. However, ECST B Low Level Auto-transfer to Torus will be available. Operate MO58 using isolation switch at HPCI ASD Panel, if necessary, to isolate spurious signal. With MO58 closed (from the HPCI ASD Panel), MO17, MO21, and MO24 can be realigned from the Control Room for ECST RECIRC Mode of Operation.

REC:

1) REC-PI-472B may be affected by fire, use REC-PI-472A.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Use RHR Subsystem A for SDC and/or LPCI, as required.

2) Local operation of SW-MO-89A may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 8A on MCC-Q (R-903-N).

3) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. Operate valve from EE-STRR-250DIV1 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

4) Manual operation of RHR-MO-27A may be required to recover RHR-SDC-A. Operate valve from Breaker 3E on MCC-CA (R-931-W) by pulling control power fuse and manually depressing starter to open valve, if necessary.

5) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-A. Operate valve from EE-STRR-250B (C-877-ECST Room) by pulling control power fuses and manually depressing starter to open valve, if necessary.

6) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-A. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

7) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from Breaker 3B on MCC-R (R-903-NW).

8) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from motor starter at EE-PNL-BB3 (R-903-NE).

AREA DESCRIPTION:

Diesel Generator Room 1A.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	
CORE SPRAY SYSTEM TRAIN B	
HIGH PRESSURE COOLANT INJECTION	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR CORE ISOLATION COOLING	DIV I AC LOADS
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN-B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	

RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	None
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

2) Remove NR and NQ fuses from Breakers 1FE and 1FS. Manually operate Breakers 1FE and 1FS, if required.

3) Use Div II Systems.

AREA DESCRIPTION:

Diesel Generator Room 1B.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	
CORE SPRAY SYSTEM TRAIN A	
HIGH PRESSURE COOLANT INJECTION	
LOW PRESSURE COOLANT INJECTION TRAIN A	
REACTOR CORE ISOLATION COOLING	DIV II AC LOADS
REACTOR EQUIPMENT COOLING TRAIN A	
REC SUPPLIED BY SERVICE WATER TRAIN-A	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN A	
SERVICE WATER TRAIN A	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	

RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	None
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

2) Remove NR and NQ fuses from Breakers 1GE and 1GS. Manually operate Breakers 1GE and 1GS, if required.

3) Use Div I Systems.

AREA DESCRIPTION:
Intake Structure.

AVAILABLE METHODS:
CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	NONE
CORE SPRAY SYSTEM TRAIN A	
CORE SPRAY SYSTEM TRAIN B	
HIGH PRESSURE COOLANT INJECTION	
LOW PRESSURE COOLANT INJECTION TRAIN A	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR CORE ISOLATION COOLING	
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM SHUTDOWN COOLING TRAIN A	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5) RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally	

per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	None
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

SW:

1) Secure Service Water Pumps 1A and 1D to prevent mechanical damage due to potential loss of gland seal cooling water. Ensure gland seal cooling water supply to either SWP 1A or SWP 1D, by manually opening either SW-MO-2128 for SWP 1A or SW-MO-2129 for SWP 1D, as soon as fire conditions permit entry into Service Water Pump Room. Restart SWP 1A and/or 1D after gland seal water verified available.

2) Manual operation of SW-MO-2128 may be required to re-establish gland seal water to Service Water Pump 1A bearings. Open feeder breaker at EE-STRR-LZ (SW Pump Room) and manually open or verify open post fire if Service Water Train A is operable. Valve may have opened automatically if normal Seal Water Flow was unavailable.

3) Manual operation of SW-MO-2129 may be required to re-establish gland seal water to Service Water Pump 1D bearings. Open feeder breaker at EE-STRR-TZ (SW Pump Room) and manually open or verify open post fire if Service Water Train B is operable. Valve may have opened automatically if normal Seal Water Flow was unavailable.

4) Manual closing of SW-MO-37 and SW-1490 may be required to ensure adequate SW flow to required components. Ensure Breaker 7A on MCC-Y (R-903-SW) is off before manually operating SW-MO-37.

5) Potential damage to SW Zurn Strainer A power or control power circuits could require opening SW-193, SW STRAINER A BYPASS (SW Pump Room).

6) Potential damage to SW Zurn Strainer B power or control power circuits could require opening SW-194, SW STRAINER B BYPASS (SW Pump Room).

AREA DESCRIPTION:

Reactor Building Northeast Quad 859 or Northeast Quad 881.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN A
CORE SPRAY SYSTEM TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN A
HIGH PRESSURE COOLANT INJECTION	REACTOR CORE ISOLATION COOLING
LOW PRESSURE COOLANT INJECTION TRAIN B	REACTOR EQUIPMENT COOLING TRAIN A
REACTOR EQUIPMENT COOLING TRAIN B	REC SUPPLIED BY SERVICE WATER TRAIN A
REC SUPPLIED FROM SERVICE WATER TRAIN B	SHUTDOWN COOLING TRAIN A
REACTOR VESSEL INSTRUMENTATION	SUPPRESSION POOL COOLING TRAIN A
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	

RFC-LI-94B RX NR Level (Panel 9-5) RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
None	PC-TR-24 Torus Temperature (VBD-J)
	PC-TR-25 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1B Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
	PC-LR-11 Torus Level (PNL 9-3)
	PC-LR-1A Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

2) Use RCIC-MO-15 to isolate RCIC Steamline, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

2) All suppression pool temperature indication in Control Room may be affected. Use temperature indication in ASD Room or pyrometer locally at torus.

HPCI:

1) Potential cable failure HP108 may simulate a High Torus Level signal which may spuriously open HPCI-MOV-MO58 and auto close HPCI-MOV-MO17, MO21, and MO24. If necessary, operate MO58 using isolation switch at the HPCI ASD Panel. With MO58 closed (from the HPCI ASD Panel), MO17, MO21, and MO24 can be realigned from the Control Room for ECST RECIRC Mode of Operation.

2) Operate HPCI condensate pump from ASD Panel if required.

3) Loss of cable HP108 may result in loss of power to HPCI Logic. Loss of power to HPCI Logic will prevent capability to trip HPCI Turbine from Control Room. HPCI operation NOT adversely impacted.

REC:

NOTE - Position indication for SW-SPV-451B on Board M will be lost, but SW flow indication through the REC HX will still be available.

1) Fail Open SW-TCV-451B by de-energizing SW-SOV-SPV451B at EE-PNL-CCP1B Breaker 5 (Cable Spreading Room).

RHR:

1) Local operation of SW-MO-89B may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 6C on MCC-Y (R-903-SW).

AREA DESCRIPTION:

Reactor Building Southeast Quad 859 or Southeast Quad 881.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
LOW PRESSURE COOLANT INJECTION TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR CORE ISOLATION COOLING	SHUTDOWN COOLING TRAIN B
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	

RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	CM-LI-681B ECST B Level (Panel 9-4)
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1A Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
PC-LR-11 Torus Level (PNL 9-3)	PC-LR-1B Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

AREA DESCRIPTION:

Reactor Building Northwest Quad 859 or Northwest Quad 881 or Reactor Building 903 North Central or Northwest Corner or RHR HX Room A.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN A
CORE SPRAY SYSTEM TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR CORE ISOLATION COOLING	LOW PRESSURE COOLANT INJECTION TRAIN B
REC SUPPLIED FROM SERVICE WATER TRAIN B	HIGH PRESSURE COOLANT INJECTION
REACTOR VESSEL INSTRUMENTATION	REACTOR EQUIPMENT COOLING TRAIN A
REACTOR VESSEL ISOLATION SYSTEM	REACTOR EQUIPMENT COOLING TRAIN B
SHUTDOWN COOLING TRAIN B	REC SUPPLIED BY SERVICE WATER TRAIN A
SUPPRESSION POOL COOLING TRAIN B	SHUTDOWN COOLING TRAIN A
SERVICE WATER TRAIN B	SUPPRESSION POOL COOLING TRAIN A
	SERVICE WATER TRAIN A

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90B Reactor Pressure (Panel 9-5)	RFC-PI-90A Reactor Pressure (Panel 9-5)
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	RFC-PI-90C Reactor Pressure (Panel 9-5)
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	NBI-LI-85A Wide Range Level (Panel 9-5)
RFC-LI-94B RX NR Level (Panel 9-5)	NBI-LI-91C Fuel Zone Level (Panel 9-4)
	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-
	RFC-LI-94A RX NR Level (Panel 9-5)
	RFC-LI-94C RX NR Level (Panel 9-5)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	

HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	None
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Perform the following actions to prevent ADS and LLS valves from spuriously opening even if ADVERSE EFFECTS have not occurred.

   a) Place both ADS INHIBIT switches to INHIBIT.

   b) Open Breaker 15 on 125 VDC Panel AA2 (A Battery Room).

> **CAUTION** - Time that Breaker 8 on 125 VDC Panel BB2 is open should be minimized since it causes a loss of control power to B Subsystems of CS and RHR.

   c) Open Breaker 8 on 125 VDC Panel BB2 (B Battery Room).

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

d) At Panel 9-45 (Auxiliary Relay Room), remove following fuses to fail ADS and LLS valves closed:

i) Fuse 2E-F3A; ADS Valve MS-RV-71A.Initials: _____

ii) Fuse 2E-F4A; ADS Valve MS-RV-71A.Initials: _____

iii) Fuse 2E-F11A; ADS Valve MS-RV-71A.Initials: _____

iv) Fuse 2E-F12A; ADS Valve MS-RV-71A.Initials: _____

v) Fuse 2E-F3B; ADS Valve MS-RV-71B.Initials: _____

vi) Fuse 2E-F4B; ADS Valve MS-RV-71B.Initials: _____

vii) Fuse 2E-F11B; ADS Valve MS-RV-71B.Initials: _____

viii) Fuse 2E-F12B; ADS Valve MS-RV-71B.Initials: _____

ix) Fuse 2E-F3C; ADS Valve MS-RV-71C.Initials: _____

x) Fuse 2E-F4C; ADS Valve MS-RV-71C.Initials: _____

xi) Fuse 2E-F11C; ADS Valve MS-RV-71C.Initials: _____

xii) Fuse 2E-F12C; ADS Valve MS-RV-71C.Initials: _____

xiii) Fuse 2E-F3D; LLS Valve MS-RV-71D.Initials: _____

xiv) Fuse 2E-F4D; LLS Valve MS-RV-71D.Initials: _____

xv) Fuse 2E-F11D; LLS Valve MS-RV-71D.Initials: _____

xvi) Fuse 2E-F12D; LLS Valve MS-RV-71D.Initials: _____

e) Close Breaker 15 on 125 VDC Panel AA2.

f) Close Breaker 8 on 125 VDC Panel BB2.

2) MS Valves MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D could be affected by fire, use MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D to isolate main steam lines.

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

3) Use RCIC-MO-16 to isolate RCIC steam line, if required.

4) If fire is located at 903' elevation, operation of HPCI-MO-14 may be required to isolate steam to HPCI Turbine. Close valve from EE-STRR-250HPCI, 250 VDC HPCI Starter Rack (HPCI Room), by pulling control power fuses and depressing starter close button.

5) If fire is located at 903' elevation, operation of RHR-MOV-921MV may be required to isolate steam to AOG System. Close RHR-MOV-921MV at valve starter (R-881-NW QUAD) by pulling control power fuses and depressing starter close button, then opening the power disconnect switch to prevent valve reopening.

6) If fire is located at 859'/881' elevation of NW quad, operation of HPCI-MO-16 may be required to isolate HPCI steam line. Close valve from motor starter on EE-STR-125B (R-859-SE Quad) by pulling control power fuses and depressing the starter close button.

7) Operation of RWCU-MO-18 may be required to isolate RWCU System. Close valve from motor starter on EE-STR-125RX (R-958-NW) then open breaker to prevent spurious operation.

8) Vent reliable air header by closing IA-16 and removing plug and opening IA-26 to prevent spurious opening of CRD Scram Discharge Volume Drain Isolation Valves.

9) Operation of MS-MO-77 may be required to isolate main steam drain lines. Close valve from motor starter on EE-STR-125RX (R-958-NW) then open breaker to prevent spurious valve operation.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

2) Remove NR and NQ fuses from Breaker 1FS to allow manual operation.

3) Remove NR and NQ fuses from Breaker SS1F to allow manual operation.

ADS:

1) Use ADS Valves 71E, G, and H.

RCIC:

1) To prevent unwanted operation of RCIC valves, place RCIC ISOL (Panel 9-30, Auxiliary Relay Room) switch to ISOLATE. Manually line up RCIC System from Panel 9-4.

2) Sprinkler actuation in R-903-NE or R-903-N central areas may result in high water levels in B Sump, endangering RCIC operation. Instruct the Fire Brigade leader to minimize water use and isolate sprinkler system when appropriate.

OPERATIONAL VARIANCES: (con't)

REC/SW:

1) SW System should be cross-tied with REC System and used to supply REC cooling. Manual operation of REC-MO-694, REC-MO-695, REC-MO-697, REC-MO-698, and REC-MO-711 may be required in REC System, and manual operation of SW-MO-886, SW-MO-887, SW-MO-888, and SW-MO-889 may be required in SW System.

* REC-MO-694 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K (R-903-NE), or open valve feeder Breaker 8C on MCC-R (R-903-NW) post fire. Operate handwheel to open valve, if necessary.

* REC-MO-695 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-R (8B) post fire. Operate handwheel to open valve, if necessary.

* REC-MO-697 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-R (9C) post fire. Operate handwheel to close valve, if necessary.

* REC-MO-698 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-R (9D) post fire. Operate handwheel to close valve, if necessary.

* REC-MO-711 De-energize valve by opening MCC-Q feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-Q (7B) post fire. Operate handwheel to close valve, if necessary.

* SW-MO-886 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-R (4B) post fire. Operate handwheel to close valve, if necessary.

* SW-MO-887 De-energize valve by opening MCC-RB feeder from MCC-S at MCC-S (R-903-S), or open valve feeder

Breaker 4D on MCC-RB (R-903-W) post fire. Operate handwheel to open valve, if necessary.

* SW-MO-888 De-energize valve by opening MCC-R feeder from MCC-K at MCC-K, or open valve feeder breaker at MCC-R (9A) post fire. Operate handwheel post fire to close valve, if necessary.

OPERATIONAL VARIANCES: (con't)

* SW-MO-889 De-energize valve by opening MCC-RB feeder from MCC-S at MCC-S, or open valve feeder breaker at MCC-RB (5D) post fire. Operate handwheel post fire to open valve, if necessary.

2) Operation of SW-MOV-37MV may be required. De-energize valve by opening valve feeder breaker at Breaker 7A on MCC-Y (R-903-SW). Operate handwheel to close valve, if necessary.

RHR:

1) RHR-MO-16B could spuriously close. Secure RHR Pump 1D from the Control Room to preclude pump auto start until RHR-MO-16B operability restored. De-energize RHR train A logic at EE-PNL-AA2 Breaker 6 (C-903-Batt Room A) to restore RHR-MO-16B Control Room operability.

2) Operation of RHR Pump 1D breaker may be required. Loss of cable DC107, MR17, or MR12 will not cause spurious trip of RHR pump breaker when in the SPC or LPCI Modes of RHR. Manual operation of breaker may be required (pulling of Control Power fuses) when entering the SDC Mode of RHR.

3) Local operation of SW-MO-89B may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 6C on MCC-Y (R-903-SW).

4) Manual operation of RHR-MO-25B may be required to recover RHR-SDC-B. De-energize valve by opening EE-STRR-250DIV2 feeder from EE-SWGR-250B at EE-SWGR-250B (C-877-ECST Room), or open valve feeder breaker at EE-STRR-250DIV2 (R-903-W) post fire. Operate handwheel post fire to open valve, if necessary.

5) Manual operation of RHR-MO-27B may be required to recover RHR-SPC-B/RHR-SDC-B. De-energize valve by opening MCC-RB feeder from MCC-S at MCC-S (R-903-S), or open valve feeder Breaker 3C on MCC-RB (R-903-W) post fire.

   * Operate handwheel post fire to close valve and regain RHR-SPC-B, if necessary.
   * Operate handwheel post fire to open valve and regain RHR-SDC-B, if necessary.

6) Manual operation of RHR-MO-20 may be required. De-energize valve by opening MCC-R feeder from MCC-K at MCC-K (R-903-NE) or open valve feeder Breaker 3A on MCC-R (R-903-NW) post fire. Operate handwheel post fire to close valve.

OPERATIONAL VARIANCES: (con't)

7) RHR-MO-15A and RHR-MO-15C should be manually verified closed prior to opening RHR-MO-17 and RHR-MO-18. De-energize valves by opening MCC-Q feeder breaker from MCC-K at MCC-K (R-903-NE), or ensure Breakers 1E and 3A on MCC-Q (R-903-N) are off post fire before manually operating valves.

8) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-B. Operate handwheel post fire to open valve.

9) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-B. De-energize valve by opening MCC-R feeder from MCC-K at MCC-K (R-903-NE) or open valve feeder Breaker 7A on MCC-R (R-903-NW) post fire. Operate handwheel to open valve, if necessary.

10) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. De-energize valve by opening MCC-R feeder from MCC-K at MCC-K (R-903-NE), or open valve feeder Breaker 3B on MCC-R (R-903-NW) post fire. Operate handwheel post fire to position valve.

11) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Open valve feeder breaker at EE-PNL-BB3 (R-903-NE). Operate valve handwheel to position valve.

AREA DESCRIPTION:

Reactor Building Southwest Quad 859 or Southwest Quad 881 or Reactor Building 903 Southwest Side Including MCC-S or RHR HX Room B.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
REC SUPPLIED BY SERVICE WATER TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR VESSEL INSTRUMENTATION	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	REACTOR CORE ISOLATION COOLING
SHUTDOWN COOLING TRAIN A	REACTOR EQUIPMENT COOLING TRAIN A
SUPPRESSION POOL COOLING TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
SERVICE WATER TRAIN A	REC SUPPLIED FROM SERVICE WATER TRAIN B
	SHUTDOWN COOLING TRAIN B
	SUPPRESSION POOL COOLING TRAIN B
	SERVICE WATER TRAIN B

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	RFC-PI-90B Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-91B Fuel Zone Level (Panel
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-85B Wide Range Level (Panel
NBI-LI-91C Fuel Zone Level (Panel 9-4)	RFC-LI-94B RX NR Level (Panel 9-5)
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	CM-LI-681B ECST B Level (Panel 9-4)
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)

Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LR-11 Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
PC-LR-1A Torus Level (PNL 9-3)	PC-LR-1B Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Perform the following actions to prevent ADS and LLS valves from spuriously opening even if ADVERSE EFFECTS have not occurred.

   a) Place both ADS INHIBIT switches to INHIBIT.

   b) Open Breaker 15 on 125 VDC Panel AA2 (A Battery Room).

> **CAUTION** - Time that Breaker 8 on 125 VDC Panel BB2 is open should be minimized since it causes a loss of control power to B Subsystems of CS and RHR.

   c) Open Breaker 8 on 125 VDC Panel BB2 (B Battery Room).

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

d) At Panel 9-45 (Auxiliary Relay Room), remove following fuses to fail ADS and LLS valves closed:

i) Fuse 2E-F3A; ADS Valve MS-RV-71A.Initials: _____

ii) Fuse 2E-F4A; ADS Valve MS-RV-71A.Initials: _____

iii) Fuse 2E-F11A; ADS Valve MS-RV-71A.Initials: _____

iv) Fuse 2E-F12A; ADS Valve MS-RV-71A.Initials: _____

v) Fuse 2E-F3B; ADS Valve MS-RV-71B.Initials: _____

vi) Fuse 2E-F4B; ADS Valve MS-RV-71B.Initials: _____

vii) Fuse 2E-F11B; ADS Valve MS-RV-71B.Initials: _____

viii) Fuse 2E-F12B; ADS Valve MS-RV-71B.Initials: _____

ix) Fuse 2E-F3C; ADS Valve MS-RV-71C.Initials: _____

x) Fuse 2E-F4C; ADS Valve MS-RV-71C.Initials: _____

xi) Fuse 2E-F11C; ADS Valve MS-RV-71C.Initials: _____

xii) Fuse 2E-F12C; ADS Valve MS-RV-71C.Initials: _____

xiii) Fuse 2E-F3D; LLS Valve MS-RV-71D.Initials: _____

xiv) Fuse 2E-F4D; LLS Valve MS-RV-71D.Initials: _____

xv) Fuse 2E-F11D; LLS Valve MS-RV-71D.Initials: _____

xvi) Fuse 2E-F12D; LLS Valve MS-RV-71D.Initials: _____

e) Close Breaker 15 on 125 VDC Panel AA2.

f) Close Breaker 8 on 125 VDC Panel BB2.

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

2) MS Valves MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D could be affected by fire; use MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D to isolate main steam lines.

3) Use RCIC-MO-16 to isolate RCIC steam line, if required.

4) Use RWCU-MO-18 to isolate RWCU, if required.

5) Use MS-MO-77 to isolate drain lines, if required.

6) Both diesel fuel oil transfer pump power cables may be affected by fire. If off-site power has been lost and both diesel fuel oil transfer pumps are lost, initiate repairs per Attachment 7 within 3.5 hours from time DG1 Day Tank level reaches 39". Complete repairs within 5 hours of 39" level to ensure continued operation of DG1.

7) If fire occurs in R-903-S/SW area, operation of HPCI-MO-14 may be required to isolate steam to HPCI Turbine. Close valve from motor starter on 250 VDC HPCI Starter Rack (HPCI Room), then open breaker to prevent spurious valve operation.

8) If fire occurs in R-881/859-SW Quad, operation of HPCI-MO-15 may be required to isolate HPCI Steamline. Close valve from Breaker 5A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter. Open breaker to prevent spurious valve operation.

9) Vent reliable air header by closing IA-16 (C-877-S), and removing plug and opening IA-26 to prevent spurious opening of CRD Scram Discharge Volume Drain Isolation Valves.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Close NBI-620, RACK 25-51 CONTINUOUS REF LEG FILL ROOT (R-903-NW), to isolate continuous reference leg fill. This action should be performed promptly after confirmation of fire in area.

2) Align DG1 to 4160V SWGR 1F by isolating and operating DG1 and Breaker EG1 per Section 8 of Procedure 2.2.20.2.

ADS:

1) Use ADS Valves 71E, G, and H.

REC/SW:

1) SW System should be cross-tied with REC System and used to supply REC cooling. Manual operation of REC-MO-714 may be required in REC System and manual operation of SW-MO-887 and SW-MO-889 may be required in SW System.

   * REC-MO-714 De-energize valve by opening MCC-S feeder (feeds MCC-Y) at 480V SWGR Bus 1G or open valve feeder Breaker 7C on MCC-Y (R-903-SW) post fire. Operate handwheel to close valve, if necessary.

   * SW-MO-887 De-energize valve by opening MCC-S feeder (feeds MCC-RB) at 480V SWGR Bus 1G or open valve feeder Breaker 4D on MCC-RB (R-903-W) post fire. Operate handwheel to close valve, if necessary.

   * SW-MO-889 De-energize valve by opening MCC-S feeder (feeds MCC-RB) at 480V SWGR Bus 1G or open valve feeder Breaker 5D on MCC-RB (R-903-W) post fire. Operate handwheel to close valve, if necessary.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Operation of RHR Pump 1A breaker may be required. Loss of cable DC107 and MR12 will not cause spurious trip of RHR pump breaker when in the SPC or LPCI Mode of RHR. Manual operation of breaker may be required (pulling of Control Power fuses) when entering SDC Mode of RHR.

2) Local operation of SW-MO-89A may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 8A on MCC-Q (R-903-N).

3) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. De-energize valve by opening EE-STRR-250DIV1 feeder from EE-SWGR-250A at EE-SWGR-250A (C-903-DC SWGR Room A) or open feeder breaker at EE-STRR-250DIV1 (R-903-W) post fire. Operate handwheel post fire to open valve, if necessary.

4) Manual operation of RHR-MO-27A may be required to recover RHR-SPC-A/RHR-SDC-A. De-energize by opening feeder Breaker 3E on MCC-CA (R-931-W).

   * Operate handwheel post fire to close valve and regain RHR-SPC-A, if necessary.
   * Operate handwheel post fire to open valve and regain RHR-SDC-A, if necessary.

5) RHR-MO-15B and RHR-MO-15D should be manually verified closed prior to opening RHR-MO-17 and RHR-MO-18. De-energize valves by opening MCC-S feeder (feeds MCC-S) at 480V SWGR Bus 1G or ensure Breakers 1D and 1E on MCC-Y (R-903-SW) are off post fire before manually operating valves.

6) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-A. Operate handwheel post fire to open valve.

7) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-A. De-energize valve by opening MCC-R feeder from MCC-K at MCC-K (R-903-NE) or open valve feeder Breaker 7A on MCC-R (R-903-NW) post fire. Operate handwheel to open valve, if necessary.

8) Manual operation of RR-MO-43A or RR-MO-53A may be required to recover RHR SDC. If power available, close valve RR-MO-53A from valve starter (R-903-West); otherwise, perform manual action to close either valve in drywell.

AREA DESCRIPTION:

Reactor Building 903 Southeast Side East of MCC-S.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
REC SUPPLIED BY SERVICE WATER TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR VESSEL INSTRUMENTATION	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	REACTOR CORE ISOLATION COOLING
SHUTDOWN COOLING TRAIN A	REACTOR EQUIPMENT COOLING TRAIN A
SUPPRESSION POOL COOLING TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
SERVICE WATER TRAIN A	REC SUPPLIED FROM SERVICE WATER TRAIN B
	SHUTDOWN COOLING TRAIN B
	SUPPRESSION POOL COOLING TRAIN B
	SERVICE WATER TRAIN B

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	RFC-PI-90B Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-91B Fuel Zone Level (Panel
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-85B Wide Range Level (Panel
NBI-LI-91C Fuel Zone Level (Panel 9-4)	RFC-LI-94B RX NR Level (Panel 9-5)
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	CM-LI-681B ECST B Level (Panel 9-4)
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)

Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LR-11 Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
PC-LR-1A Torus Level (PNL 9-3)	PC-LR-1B Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Perform the following actions to prevent ADS and LLS valves from spuriously opening even if ADVERSE EFFECTS have not occurred:

   a) Place both ADS INHIBIT switches to INHIBIT.

   b) Open Breaker 15 on 125 VDC Panel AA2 (A Battery Room).

> **CAUTION** - Time that Breaker 8 on 125 VDC Panel BB2 is open should be minimized since it causes a loss of control power to B Subsystems of CS and RHR.

   c) Open Breaker 8 on 125 VDC Panel BB2 (B Battery Room).

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

d) At Panel 9-45 (Auxiliary Relay Room), remove following fuses to fail ADS and LLS valves closed:

i) Fuse 2E-F3E; ADS Valve MS-RV-71E.Initials: _____

ii) Fuse 2E-F4E; ADS Valve MS-RV-71E.Initials: _____

iii) Fuse 2E-F11E; ADS Valve MS-RV-71E.Initials: _____

iv) Fuse 2E-F12E; ADS Valve MS-RV-71E.Initials: _____

v) Fuse 2E-F3F; ADS Valve MS-RV-71F.Initials: _____

vi) Fuse 2E-F4F; ADS Valve MS-RV-71F.Initials: _____

vii) Fuse 2E-F11F; ADS Valve MS-RV-71F.Initials: _____

viii) Fuse 2E-F12F; ADS Valve MS-RV-71F.Initials: _____

ix) Fuse 2E-F3G; ADS Valve MS-RV-71G.Initials: _____

x) Fuse 2E-F4G; ADS Valve MS-RV-71G.Initials: _____

xi) Fuse 2E-F11G; ADS Valve MS-RV-71G.Initials: _____

xii) Fuse 2E-F12G; ADS Valve MS-RV-71G.Initials: _____

xiii) Fuse 2E-F3H; LLS Valve MS-RV-71H.Initials: _____

xiv) Fuse 2E-F4H; LLS Valve MS-RV-71H.Initials: _____

xv) Fuse 2E-F11H; LLS Valve MS-RV-71H.Initials: _____

xvi) Fuse 2E-F12H; LLS Valve MS-RV-71H.Initials: _____

e) Close Breaker 15 on 125 VDC Panel AA2.

f) Close Breaker 8 on 125 VDC Panel BB2.

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

2) MS Valves MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D could be affected by fire; use MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D to isolate main steamlines.

3) Use RCIC-MO-16 to isolate RCIC steam line, if required.

4) Use RWCU-MO-18 to isolate RWCU, if required.

5) Use MS-MO-77 to isolate drain lines, if required.

6) Both diesel fuel oil transfer pump power cables may be affected by fire. If off-site power has been lost and both diesel fuel oil transfer pumps are lost, initiate repairs per Attachment 7 within 3.5 hours from time DG1 Day Tank level reaches 39". Complete repairs within 5 hours of 39" level to ensure continued operation of DG1.

7) If fire occurs in R-903-S/SW area, operation of HPCI-MO-14 may be required to isolate steam to HPCI Turbine. Close valve from motor starter on 250 VDC HPCI Starter Rack (HPCI Room), then open breaker to prevent spurious valve operation.

8) If fire occurs in R-881/859-SW Quad, operation of HPCI-MO-15 may be required to isolate HPCI steamline. Close valve from Breaker 5A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter. Open breaker to prevent spurious valve operation.

9) Vent reliable air header by closing IA-16 (C-877-S) and removing plug (7/8" square pipe plug required adjustable wrench) and opening IA-26 to prevent spurious opening of CRD Scram Discharge Volume Drain Isolation Valves.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Close NBI-620, RACK 25-51 CONTINUOUS REF LEG FILL ROOT (R-903-NW), to isolate continuous reference leg fill. This action should be performed promptly after confirmation of fire in area.

2) Align DG1 to 4160V SWGR 1F by isolating and operating DG1 and Breaker EG1 per Section 8 of Procedure 2.2.20.2.

ADS:

1) Use ADS Valves 71A, B, and C.

REC/SW:

1) SW System should be cross-tied with REC System and used to supply REC cooling. Manual operation of REC-MO-714 may be required in REC System and manual operation of SW-MO-887 and SW-MO-889 may be required in SW System.

   * REC-MO-714 De-energize valve by opening MCC-S feeder (feeds MCC-Y) at 480V SWGR Bus 1G or open valve feeder Breaker 7C on MCC-Y (R-903-SW) post fire. Operate handwheel to close valve, if necessary.

   * SW-MO-887 De-energize valve by opening MCC-S feeder (feeds MCC-RB) at 480V SWGR Bus 1G or open valve feeder Breaker 4D on MCC-RB (R-903-W) post fire. Operate handwheel to close valve, if necessary.

   * SW-MO-889 De-energize valve by opening MCC-S feeder (feeds MCC-RB) at 480V SWGR Bus 1G or open valve feeder Breaker 5D on MCC-RB (R-903-W) post fire. Operate handwheel to close valve, if necessary.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Operation of RHR Pump 1A breaker may be required. Loss of cable DC107 and MR12 will not cause spurious trip of RHR pump breaker when in the SPC or LPCI Mode of RHR. Manual operation of breaker may be required (pulling of Control Power fuses) when entering SDC Mode of RHR.

2) Local operation of SW-MO-89A may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 8A on MCC-Q (R-903-N).

3) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. De-energize valve by opening EE-STRR-250DIV1 (R-903-W) feeder from EE-SWGR-250A at EE-SWGR-250A (C-903-DC SWGR Room A) or open feeder breaker at EE-STRR-250DIV1 (R-903-W) post fire. Operate handwheel post fire to open valve, if necessary.

4) Manual operation of RHR-MO-27A may be required to recover RHR-SPC-A/RHR-SDC-A. De-energize by opening feeder Breaker 3E on MCC-CA (R-931-W).

   * Operate handwheel post fire to close valve and regain RHR-SPC-A, if necessary.
   * Operate handwheel post fire to open valve and regain RHR-SDC-A, if necessary.

5) RHR-MO-15B and RHR-MO-15D should be manually verified closed prior to opening RHR-MO-17 and RHR-MO-18. De-energize valves by opening MCC-S feeder (feeds MCC-S) at 480V SWGR Bus 1G or ensure Breakers 1D and 1E on MCC-Y (R-903-SW) are off post fire before manually operating valves.

6) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-A. Operate handwheel post fire to open valve.

7) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-A. De-energize valve by opening MCC-R feeder from MCC-K at MCC-K or open valve feeder Breaker 7A on MCC-R (R-903-NW) post fire. Operate handwheel to open valve, if necessary.

8) Manual operation of RR-MO-43A or RR-MO-53A may be required to recover RHR SDC. If power available, close valve RR-MO-53A from valve starter (R-903-West); otherwise, perform manual action to close either valve in drywell.

AREA DESCRIPTION:

Reactor Building Torus Area.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	HIGH PRESSURE COOLANT INJECTION
CORE SPRAY SYSTEM TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN B
CORE SPRAY SYSTEM TRAIN B	REACTOR CORE ISOLATION COOLING
LOW PRESSURE COOLANT INJECTION TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
REACTOR EQUIPMENT COOLING TRAIN A	REC SUPPLIED FROM SERVICE WATER TRAIN B
REC SUPPLIED BY SERVICE WATER TRAIN A	SHUTDOWN COOLING TRAIN B
REACTOR VESSEL INSTRUMENTATION	SUPPRESSION POOL COOLING TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN A	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	CM-LI-681B ECST B Level (Panel 9-4)
HPCI-PI-117A ECST A Level (Monitor Locally	

per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
None	PC-TR-24 Torus Temperature (VBD-J)
	PC-TR-25 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1A Torus Level (PNL 9-3)	PC-LI-10 Torus Level (PNL 9-3)
PC-LR-1B Torus Level (PNL 9-3)	PC-LR-11 Torus Level (PNL 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

2) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

3) Both diesel fuel oil transfer pump power cables may be affected by fire. If off-site power has been lost and both diesel fuel oil transfer pumps are lost, initiate repairs per Attachment 7 within 3.5 hours from time DG1 Day Tank level reaches 39". Complete repairs within 5 hours of 39" level to ensure continued operation of DG1.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG1 to 4160V SWGR 1F by isolating and operating DG1 and Breaker EG1 per Section 8 of Procedure 2.2.20.2.

2) All suppression pool temperature indications in Control Room may be affected. Use temperature indications in ASD Room or pyrometer locally at torus when accessible.

REC:

1) Fail open SW-TCV-451A. De-energize Solenoid Bypass Valve by opening EE-PNL-CCP1A Breaker 5 (Cable Spreading Room) to Fail Valve Open.

RHR:

1) Operation of RHR Pump 1A breaker may be required. Potential damage to shutdown cooling suction valve interlocks will not cause or trip RHR Pump breaker when in the SPC or LPCI Modes of RHR. Manual operation of breaker may be required (pulling Control Power fuses) when entering the SDC Mode of RHR.

2) Local manual operation of RHR-MO-17 may be required to recover RHR-SDC-A. Operate handwheel to open valve.

3) Local operation of SW-MO-89A may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 8A on MCC-Q (R-903-N).

AREA DESCRIPTION:
Steam Tunnel.

AVAILABLE METHODS:
CORE SPRAY HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	REACTOR CORE ISOLATION COOLING
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
CORE SPRAY SYSTEM TRAIN B	
LOW PRESSURE COOLANT INJECTION TRAIN A	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SHUTDOWN COOLING TRAIN B SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	

HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	None
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Perform the following actions to prevent ADS and LLS valves from spuriously opening even if ADVERSE EFFECTS have not occurred.

   a) Place both ADS INHIBIT switches to INHIBIT.

   b) Open Breaker 15 on 125 VDC Panel AA2 (A Battery Room).

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

CAUTION - Time that Breaker 8 on 125 VDC Panel BB2 is open should be minimized since it causes a loss of control power to B Subsystems of CS and RHR.

c) Open Breaker 8 on 125 VDC Panel BB2 (B Battery Room).

d) At Panel 9-45 (Auxiliary Relay Room), remove following fuses to fail ADS and LLS valves closed:

i) Fuse 2E-F3E; ADS Valve MS-RV-71E.Initials: _____

ii) Fuse 2E-F4E; ADS Valve MS-RV-71E.Initials: _____

iii) Fuse 2E-F11E; ADS Valve MS-RV-71E.Initials: _____

iv) Fuse 2E-F12E; ADS Valve MS-RV-71E.Initials: _____

v) Fuse 2E-F3F; LLS Valve MS-RV-71F.Initials: _____

vi) Fuse 2E-F4F; LLS Valve MS-RV-71F.Initials: _____

vii) Fuse 2E-F11F; LLS Valve MS-RV-71F.Initials: _____

viii) Fuse 2E-F12F; LLS Valve MS-RV-71F.Initials: _____

ix) Fuse 2E-F3G; ADS Valve MS-RV-71G.Initials: _____

x) Fuse 2E-F4G; ADS Valve MS-RV-71G.Initials: _____

xi) Fuse 2E-F11G; ADS Valve MS-RV-71G.Initials: _____

xii) Fuse 2E-F12G; ADS Valve MS-RV-71G.Initials: _____

xiii) Fuse 2E-F3H; ADS Valve MS-RV-71H.Initials: _____

xiv) Fuse 2E-F4H; ADS Valve MS-RV-71H.Initials: _____

xv) Fuse 2E-F11H; ADS Valve MS-RV-71H.Initials: _____

xvi) Fuse 2E-F12H; ADS Valve MS-RV-71H.Initials: _____

e) Close Breaker 15 on 125 VDC Panel AA2.

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

f) Close Breaker 8 on 125 VDC Panel BB2.

2) MS Valves MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D could be affected by fire; use MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D to isolate main steam lines.

3) Use RCIC-MO-15 to isolate RCIC steamline, if required.

4) Use MS-MO-74 to isolate drain line, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

ADS:

1) Use ADS Valves 71A, B, and C.

AREA DESCRIPTION:

Reactor Building 932 Critical Switchgear Room 1F.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	REACTOR CORE ISOLATION COOLING
CORE SPRAY SYSTEM TRAIN B	CORE SPRAY SYSTEM TRAIN A
HIGH PRESSURE COOLANT INJECTION	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR EQUIPMENT COOLING TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN B
REC SUPPLIED FROM SERVICE WATER TRAIN B	REACTOR EQUIPMENT COOLING TRAIN A
REACTOR VESSEL INSTRUMENTATION	REC SUPPLIED BY SERVICE WATER TRAIN A
REACTOR VESSEL ISOLATION SYSTEM	SHUTDOWN COOLING TRAIN A
SHUTDOWN COOLING TRAIN B	SUPPRESSION POOL COOLING TRAIN A
SUPPRESSION POOL COOLING TRAIN B	SERVICE WATER TRAIN A
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	RFC-PI-90B Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	NBI-PR-2A Reactor Pressure (Panel 9-3)
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	NBI-LI-85A Wide Range Level (Panel 9-5)
RFC-LI-94A RX NR Level (Panel 9-5)	NBI-LI-91C Fuel Zone Level (Panel 9-4)
RFC-LI-94C RX NR Level (Panel 9-5)	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
	RFC-LI-94B RX NR Level (Panel 9-5)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally	

per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-25 Torus Temperature (VBD-J)	PC-TR-24 Torus Temperature (VBD-J)
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	PC-LR-1A Torus Level (PNL 9-3)
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1B Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

2) Use RCIC-MO-15 to isolate RCIC steamline, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG2 to 4160V SWGR 1G by isolating and operating DG2 and Breaker EG2 per Section 9 of Procedure 2.2.20.2.

2) Transfer MCC-R to EMERGENCY per Procedure 2.2.19, if required.

3) Start Div II Essential Control Building HVAC System at local starter rack in Critical Switchgear Room 1G. Open Breaker 1AL, STARTER RACK HV-STRR-ECBHI FEEDER, on MCC-CA (R-931-W) to remove power from Division 1 Essential Control Building H&V. Ensure Non-Essential Control Building HVAC System is removed from service per Procedure 2.2.38.

REC:

1) Manual operation of REC-MO-711 may be required. De-energize valve by opening valve feeder Breaker 7B on MCC-Q (R-903-NW). Operate handwheel to close valve, if necessary, or close REC-V-19 and REC-V-21 if necessary.

2) REC-PI-472A may be affected by fire; use REC-PI-472B.

RHR:

1) Local operation of SW-MO-89B may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 6C on MCC-Y (R-903-SW).

2) Manual operation of RHR-MO-16B may be required for shutdown cooling. Valve is normally open and could fail open. Operate with valve open for RHR SPC (DC94-322, Section 3.2.2, Page 7). Operate valve from Breaker 2D on MCC-Y (R-903-SW) by pulling control power fuse and manually depressing starter to close valve for SDC operation per Procedure 2.2.69.2.

3) Manual operation of RHR-MO-25B may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250DIV2 (R-903-W) by pulling

control power fuses and manually depressing starter to open valve, if necessary.

4) Manual operation of RHR-MO-27B may be required to recover RHR-SDC-B. Operate valve from Breaker 3C on MCC-RB (R-903-W) by pulling control power fuse and manually depressing starter to open valve, if necessary.

OPERATIONAL VARIANCES: (con't)

5) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250B (C-877-ECST Room) by pulling control power fuses and manually depressing starter to open valve, if necessary.

6) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-B. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

7) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from motor starter at EE-PNL-BB3 (R-903-NE).

AREA DESCRIPTION:

Reactor Building 932 Critical Switchgear Room 1G.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
REACTOR CORE ISOLATION COOLING	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR EQUIPMENT COOLING TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN B
REC SUPPLIED BY SERVICE WATER TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
REACTOR VESSEL INSTRUMENTATION	REC SUPPLIED FROM SERVICE WATER TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	SHUTDOWN COOLING TRAIN B
SHUTDOWN COOLING TRAIN A	SUPPRESSION POOL COOLING TRAIN B
SUPPRESSION POOL COOLING TRAIN A	SERVICE WATER TRAIN B
SERVICE WATER TRAIN A	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	NBI-PR-2B Reactor Pressure (Panel 9-4)
RFC-PI-90B Reactor Pressure (Panel 9-5)	RFC-PI-90C Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-932-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-932-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-91B Fuel Zone Level (Panel 9-3)
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-85B Wide Range Level (Panel 9-5)
NBI-LI-91C Fuel Zone Level (Panel 9-4)	RFC-LI-94C RX NR Level (Panel 9-5)
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	CM-LI-681A ECST A Level (Panel 9-3)
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	CM-LI-681B ECST B Level (Panel 9-4)

Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	PC-TR-25 Torus Temperature (VBD-J)
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Level Indication:	**Torus Level Indication:**
PC-LR-1A Torus Level (Panel 9-3)	PC-LI-10 Torus Level (Panel 9-3)
	PC-LR-11 Torus Level (Panel 9-3)
	PC-LR-1B Torus Level (Panel 9-3)

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Use RCIC-MO-16 to isolate RCIC steam line, if required.

3) Place ADS INHIBIT switches to INHIBIT.

4) Use RWCU-MO-15 to isolate RWCU, if required.

5) Use MS-MO-74 to isolate drain line, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG1 to 4160V SWGR 1F by isolating and operating DG1 and Breaker EG1 per Section 8 of Procedure 2.2.20.2.

2) Remove NR and NQ fuses, then manually trip Breaker 1FA to isolate Bus 1F from Bus 1A, if required.

3) Remove NR and NQ fuses, then manually operate 1FE and 1FS, if required.

4) Use Attachment 29 for ECST level indication.

CS:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to CS Pump A breaker. If necessary, remove NR and NQ fuses, then manually operate breaker.

REC:

1) Manual operation of REC-MO-714 may be required. De-energize valve by opening valve feeder Breaker 7C on MCC-Y (R-903-SW). Operate handwheel to close valve if necessary or close REC-V-19 and REC-V-21, if necessary.

2) REC-PI-472B may be affected by fire; use REC-PI-472A.

RHR:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to RHR Pump A and B breakers. If necessary, remove NR and NQ fuses, then manually operate breakers as required.

2) Local operation of SW-MO-89A may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 8A on MCC-Q (R-903-N).

OPERATIONAL VARIANCES: (con't)

3) Manual operation of RHR-MO-16A may be required for shutdown cooling. Valve is normally open and could fail open. Operate with valve open for RHR SPC. Operate valve from Breaker 4D on MCC-Q (R-903-NW) by pulling control power fuse and manually depressing starter to close valve for SDC operation per Procedure 2.2.69.2.

4) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. Operate valve from EE-STRR-250DIV1 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

5) Manual operation of RHR-MO-27A may be required to recover RHR-SDC-A. Operate valve from Breaker 3E on MCC-CA (R-932-W) by pulling control power fuse and manually depressing starter to open valve, if necessary.

6) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-A. Operate handwheel to open valve.

7) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-A. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

8) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from Breaker 3B on MCC-R (R-903-NW).

9) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Open feeder breaker at EE-PNL-BB3 (R-903-NE) and operate handwheel to open/close valve as required.

SW:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to SW Pump A and C breakers. If necessary, remove NR and NQ fuses, then manually operate breakers.

AREA DESCRIPTION:

Reactor Building 931 North Side and East Side (IR 25-5 and 25-6) or RHR HX Room A.

AVAILABLE METHODS:

RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
REACTOR CORE ISOLATION COOLING	LOW PRESSURE COOLANT INJECTION TRAIN A
REC SUPPLIED FROM SERVICE WATER TRAIN B	LOW PRESSURE COOLANT INJECTION TRAIN B
REACTOR VESSEL INSTRUMENTATION	REACTOR EQUIPMENT COOLING TRAIN A
REACTOR VESSEL ISOLATION SYSTEM	REC SUPPLIED BY SERVICE WATER TRAIN A
SHUTDOWN COOLING TRAIN B	REACTOR EQUIPMENT COOLING TRAIN B
SUPPRESSION POOL COOLING TRAIN B	SHUTDOWN COOLING TRAIN A
SERVICE WATER TRAIN B	SUPPRESSION POOL COOLING TRAIN A
	SERVICE WATER TRAIN A

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	RFC-PI-90A Reactor Pressure (Panel 9-5)
	RFC-PI-90B Reactor Pressure (Panel 9-5)
	NBI-PI-60A Reactor Pressure (On Rack 25-5, R-932-NW)
	NBI-PI-60B Reactor Pressure (On Rack 25-6, R-932-SE)
	NBI-PR-2A Reactor Pressure (Panel 9-3)
	NBI-PR-2B Reactor Pressure (Panel 9-4)
	RFC-PI-90C Reactor Pressure (Panel 9-5)
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	NBI-LI-85A Wide Range Level (Panel 9-5)
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-85B Wide Range Level (Panel 9-5)
NBI-LI-91C Fuel Zone Level (Panel 9-4)	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
	RFC-LI-94A RX NR Level (Panel 9-5)
	RFC-LI-94B RX NR Level (Panel 9-5)
	RFC-LI-94C RX NR Level (Panel 9-5)
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)

ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (PNL 9-3)	PC-LR-1B Torus Level (PNL 9-3)
PC-LR-11 Torus Level (PNL 9-3)	
PC-LR-1A Torus Level (PNL 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Place ADS INHIBIT switches to INHIBIT.

3) Use RWCU-MO-15 to isolate RWCU, if required.

4) Use MS-MO-74 to isolate drain line, if required.

ACTIONS TO MINIMIZE ADVERSE EFFECTS: (con't)

NOTE - Perform the following actions to prevent LLS valves from spuriously opening even if ADVERSE EFFECTS have not occurred.

5) Open Breaker 15 on 125 VDC Panel AA2 (A Battery Room).

CAUTION - Time that Breaker 8 on 125 VDC Panel BB2 is open should be minimized since it causes a loss of control power to B Subsystems of CS and RHR.

6) Open Breaker 8 on 125 VDC Panel BB2 (B Battery Room).

7) At Panel 9-45 (Auxiliary Relay Room), remove the following fuses to fail LLS valves closed:

   a) Fuse 2E-F3D; LLS Valve MS-RV-71D. Initials: _____

   b) Fuse 2E-F4D; LLS Valve MS-RV-71D. Initials: _____

   c) Fuse 2E-F11D; LLS Valve MS-RV-71D. Initials: _____

   d) Fuse 2E-F12D; LLS Valve MS-RV-71D. Initials: _____

   e) Fuse 2E-F3F; LLS Valve MS-RV-71F. Initials: _____

   f) Fuse 2E-F4F; LLS Valve MS-RV-71F. Initials: _____

   g) Fuse 2E-F11F; LLS Valve MS-RV-71F. Initials: _____

   h) Fuse 2E-F12F; LLS Valve MS-RV-71F. Initials: _____

8) Close Breaker 15 on 125 VDC Panel AA2.

9) Close Breaker 8 on 125 VDC Panel BB2.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

2) Remove NR and NQ fuses. Manually operate Breakers 1FS and 1GS, if required.

3) Remove NR and NQ fuses. Manually operate Breakers SS1F and SS1G, if required.

4) Control Room RPV pressure indications may be lost. Monitor RPV pressure locally utilizing NBI-PI-61 on Rack 25-51 (R-903-NW).

CS:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to CS Pump A breaker. If necessary, remove NR and NQ fuses, then manually operate breaker.

2) Manual operation of valve CS-MO-12A may be required. Ensure Breaker 6A on MCC-Q (R-903-N) is off before manually operating handwheel post fire to open valve for Core Spray Injection (Transition).

RCIC:

1) To prevent unwanted operation of RCIC valves, place RCIC ISOL (Panel 9-30, Auxiliary Relay Room) switch to ISOLATE. Manually line up RCIC System from Panel 9-4.

REC/SW:

1) Potential damage to 4160V Bus 1G undervoltage circuits could result in trip signal (load shed) to SW Pump B and D breakers. If necessary, remove NR and NQ fuses, then manually operate breakers.

OPERATIONAL VARIANCES: (con't)

2) SW System should be cross-tied with REC System and used to supply REC cooling. Manual operation of REC-MO-694, REC-MO-695, REC-MO-697, REC-MO-698, REC-MO-711, and REC-MO-714 may be required in REC System and manual operation of SW-MO-886 and SW-MO-887 may be required in SW System.

* REC-MO-694 De-energize valve by opening valve feeder Breaker 8C on MCC-R (R-903-NW). Operate handwheel post fire to open valve, if necessary.

* REC-MO-695 De-energize valve by opening valve feeder Breaker 8B on MCC-R (R-903-NW). Operate handwheel post fire to open valve, if necessary.

* REC-MO-697 De-energize valve by opening valve feeder Breaker 9C on MCC-R (R-903-NW). Operate handwheel post fire to close valve, if necessary.

* REC-MO-698 De-energize valve by opening valve feeder Breaker 9D on MCC-R (R-903-NW). Operate handwheel post fire to close valve, if necessary.

* REC-MO-711 De-energize valve by opening valve feeder Breaker 7B on MCC-Q (R-903-NW). Operate handwheel to close valve, if necessary.

* REC-MO-714 De-energize valve by opening valve feeder Breaker 7C on MCC-Y (R-903-SW). Operate handwheel to close valve, if necessary.

* SW-MO-886 De-energize valve by opening valve feeder Breaker 4B on MCC-R (R-903-NW). Operate handwheel post fire to close valve, if necessary.

* SW-MO-887 De-energize valve by opening valve feeder Breaker 4D on MCC-RB (R-903-W). Operate handwheel post fire to open valve, if necessary.

3) Manual operation of SW-MO-651 may be required. Ensure Breaker 6B on MCC-Y (R-903-SW) is off before manually closing valve, if necessary.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to RHR Pump B breaker. If necessary, remove NR and NQ fuses, then manually operate breaker.

2) Local operation of SW-MO-89B may be required for suppression pool cooling and shutdown cooling. Pull control power fuse and operate valve from Breaker 6C on MCC-Y (R-903-SW).

3) Manual operation of RHR-MO-27B may be required to recover RHR-SDC-B/RHR-SPC-B. De-energize valve by opening valve feeder Breaker 3C on MCC-RB (R-903-W).

   * Operate handwheel to close valve and regain RHR-SPC-B, if necessary.
   * Operate handwheel to open valve and regain RHR-SDC-B, if necessary.

4) Manual operation of RHR-MO-20 may be required to ensure SPC-B operation. Ensure Breaker 3A on MCC-R (R-903-W) is off before manually operating valve. Operate handwheel post fire to close valve, if necessary.

5) Manual operation of RHR-MO-25B may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250DIV2 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

6) Manual operation of RHR-MO-16B may be required for shutdown cooling. Valves normally open and could fail open. Operate with valve open for RHR SPC (DC94-332, Section 3.2.2, Page 7). Operate valve from Breaker 2D on MCC-Y (R-903-SW) by pulling control power fuse and manually depressing starter to close valve for SDC operation per Procedure 2.2.69.2.

7) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC-B. Operate valve from EE-STRR-250B (C-877-ECST Room) by pulling control power fuses and manually depressing starter to open valve, if necessary.

8) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC-B. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

9) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. De-energize valve by opening Valve Feeder Beaker 3B on MCC-R (R-903-NW). Operate handwheel post fire to open/close valve.

OPERATIONAL VARIANCES: (con't)

10) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. De-energize valve by opening valve feeder breaker at EE-PNL-BB3 (R-903-NE). Operate handwheel post fire to open/close valve.

AREA DESCRIPTION:

Reactor Building 931 South Central (RWCU HX Room) or Southwest Corner or RHR HX Room B.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	HIGH PRESSURE COOLANT INJECTION
REACTOR CORE ISOLATION COOLING	LOW PRESSURE COOLANT INJECTION TRAIN A
REACTOR EQUIPMENT COOLING TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN B
REC SUPPLIED BY SERVICE WATER TRAIN A	REACTOR EQUIPMENT COOLING TRAIN B
REACTOR VESSEL INSTRUMENTATION	REC SUPPLIED FROM SERVICE WATER TRAIN B
REACTOR VESSEL ISOLATION SYSTEM	SHUTDOWN COOLING TRAIN B
SHUTDOWN COOLING TRAIN A	SUPPRESSION POOL COOLING TRAIN B
SUPPRESSION POOL COOLING TRAIN A	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90B Reactor Pressure (Panel 9-5)	RFC-PI-90A Reactor Pressure (Panel 9-5)
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	NBI-PR-2A Reactor Pressure (Panel 9-3)
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	RFC-PI-90C Reactor Pressure (Panel 9-5)
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	NBI-LI-85A Wide Range Level (Panel 9-5)
RFC-LI-94B RX NR Level (Panel 9-5)	NBI-LI-91C Fuel Zone Level (Panel 9-4)
	NBI-LI-85C Wide Range Level (Panel 9-4)
	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
	RFC-LI-94A RX NR Level (Panel 9-5)
	RFC-LI-94C RX NR Level (Panel 9-5)
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally	

per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (Panel 9-3)	PC-LR-1B Torus Level (Panel 9-3)
PC-LR-11 Torus Level (Panel 9-3)	
PC-LR-1A Torus Level (Panel 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Use HPCI-MO-15 to isolate steam to HPCI, AOG, and RHR Systems, if required.

2) Place ADS INHIBIT switches to INHIBIT.

3) Use RWCU-MO-15 to isolate RWCU, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

REC:

1) Manual operation of REC-MO-714 may be required. De-energize valve by opening valve feeder Breaker 7C on MCC-Y (R-903-SW). Operate handwheel to close valve if necessary or close REC-V-19 and REC-V-21 if necessary.

2) Manual operation of REC-MO-712 may be required. De-energize valve by opening valve feeder Breaker 4C on MCC-Y (R-903-SW). Operate handwheel to close valve, if necessary.

RHR:

1) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. Operate valve from EE-STRR-250DIV1 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

2) Manual operation of RHR-MO-27A may be required to recover RHR-SDC-A/RHR-SPC-A. De-energize valve by opening MCC-CA feeder from 480V SWGR 1F at 480V SWGR 1F or open valve feeder Breaker 3E on MCC-CA (R-931-W) post fire.

   * Operate handwheel to close valve and regain RHR-SPC-A, if necessary.
   * Operate handwheel to open valve and regain RHR-SDC-A, if necessary.

AREA DESCRIPTION:

Reactor Building 958 Accessible Areas.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	HIGH PRESSURE COOLANT INJECTION
CORE SPRAY SYSTEM TRAIN A	
CORE SPRAY SYSTEM TRAIN B	
LOW PRESSURE COOLANT INJECTION TRAIN A	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR CORE ISOLATION COOLING	
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	

HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (Panel 9-3)	None
PC-LR-11 Torus Level (Panel 9-3)	
PC-LR-1A Torus Level (Panel 9-3)	
PC-LR-1B Torus Level (Panel 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

2) Use RWCU-MO-15 to isolate RWCU, if required.

3) Use MS-MO-74 to isolate drain line, if required.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

HPCI:

1) HPCI Gland Seal Exhauster operation may be impacted.

AREA DESCRIPTION:

Reactor Building 976 East Side or Reactor Building 1001 Refueling Floor.

AVAILABLE METHODS:
CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	NONE
CORE SPRAY SYSTEM TRAIN A	
CORE SPRAY SYSTEM TRAIN B	
HIGH PRESSURE COOLANT INJECTION	
LOW PRESSURE COOLANT INJECTION TRAIN A	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR CORE ISOLATION COOLING	
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	

SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
ECST Levels:	**ECST Levels:**

CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (Panel 9-3)	None
PC-LR-11 Torus Level (Panel 9-3)	
PC-LR-1A Torus Level (Panel 9-3)	
PC-LR-1B Torus Level (Panel 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

AREA DESCRIPTION:

Reactor Building 976 West Side.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
LPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
LPCI TRANSITION METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	HIGH PRESSURE COOLANT INJECTION
CORE SPRAY SYSTEM TRAIN A	
CORE SPRAY SYSTEM TRAIN B	
LOW PRESSURE COOLANT INJECTION TRAIN A	
LOW PRESSURE COOLANT INJECTION TRAIN B	
REACTOR CORE ISOLATION COOLING	
REACTOR EQUIPMENT COOLING TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SHUTDOWN COOLING TRAIN B	
SUPPRESSION POOL COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN B	
SERVICE WATER TRAIN A	
SERVICE WATER TRAIN B	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91A Fuel Zone Level (Panel 9-3)	None
NBI-LI-91B Fuel Zone Level (Panel 9-3)	
NBI-LI-85A Wide Range Level (Panel 9-5)	
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
NBI-LI-92 Steam Nozzle Level (Panel 9-3)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
CM-LI-681A ECST A Level (Panel 9-3)	None
CM-LI-681B ECST B Level (Panel 9-4)	

HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (Panel 9-3)	None
PC-LR-11 Torus Level (Panel 9-3)	
PC-LR-1A Torus Level (Panel 9-3)	
PC-LR-1B Torus Level (Panel 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align Buses 1F and 1G (4160V and 480V) to Emergency Transformer.

HPCI:

1) HPCI Gland Seal Exhauster operation may be impacted.

AREA DESCRIPTION:

Office Building and Turbine Building, all areas including Non-Critical Switchgear Room.

AVAILABLE METHODS:

CORE SPRAY HOT SHUTDOWN METHOD
HPCI HOT SHUTDOWN METHOD
RCIC HOT SHUTDOWN METHOD
CORE SPRAY TRANSITION SHUTDOWN METHOD
CORE SPRAY COLD SHUTDOWN METHOD
SHUTDOWN COOLING COLD SHUTDOWN METHOD

AVAILABLE SYSTEMS:	**AFFECTED SYSTEMS:**
AUTOMATIC DEPRESSURIZATION SYSTEM	CORE SPRAY SYSTEM TRAIN B
CORE SPRAY SYSTEM TRAIN A	LOW PRESSURE COOLANT INJECTION TRAIN B
HIGH PRESSURE COOLANT INJECTION	SHUTDOWN COOLING TRAIN B
LOW PRESSURE COOLANT INJECTION TRAIN A	SUPPRESSION POOL COOLING TRAIN B
REACTOR CORE ISOLATION COOLING	SERVICE WATER TRAIN B
REACTOR EQUIPMENT COOLING TRAIN A	
REC SUPPLIED BY SERVICE WATER TRAIN A	
REACTOR EQUIPMENT COOLING TRAIN B	
REC SUPPLIED FROM SERVICE WATER TRAIN B	
REACTOR VESSEL INSTRUMENTATION	
REACTOR VESSEL ISOLATION SYSTEM	
SHUTDOWN COOLING TRAIN A	
SUPPRESSION POOL COOLING TRAIN A	

SERVICE WATER TRAIN A	

AVAILABLE INSTRUMENTATION:	**AFFECTED INSTRUMENTATION:**
RPV Pressures:	**RPV Pressures:**
RFC-PI-90A Reactor Pressure (Panel 9-5)	None
RFC-PI-90B Reactor Pressure (Panel 9-5)	
NBI-PI-61 Reactor Pressure (On Rack 25-51, R-903-NW)	
NBI-PI-60A Reactor Pressure (On Rack 25-5, R-931-NW)	
NBI-PI-60B Reactor Pressure (On Rack 25-6, R-931-SE)	
NBI-PR-2A Reactor Pressure (Panel 9-3)	
NBI-PR-2B Reactor Pressure (Panel 9-4)	
RFC-PI-90C Reactor Pressure (Panel 9-5)	
RPV Levels:	**RPV Levels:**
NBI-LI-91B Fuel Zone Level (Panel 9-3)	NBI-LI-91A Fuel Zone Level (Panel 9-3)
NBI-LI-85A Wide Range Level (Panel 9-5)	NBI-LI-92 Steam Nozzle Level (Panel 9-3)
NBI-LI-85B Wide Range Level (Panel 9-5)	
NBI-LI-91C Fuel Zone Level (Panel 9-4)	
NBI-LI-85C Wide Range Level (Panel 9-4)	
RFC-LI-94A RX NR Level (Panel 9-5)	
RFC-LI-94B RX NR Level (Panel 9-5)	
RFC-LI-94C RX NR Level (Panel 9-5)	
ECST Levels:	**ECST Levels:**
HPCI-PI-117A ECST A Level (Monitor Locally per Attachment 29)	CM-LI-681A ECST A Level (Panel 9-3)
HPCI-PI-117B ECST B Level (Monitor Locally per Attachment 29)	CM-LI-681B ECST B Level (Panel 9-4)

Torus Temperature Indication:	**Torus Temperature Indication:**
PC-TR-24 Torus Temperature (VBD-J)	None
PC-TR-25 Torus Temperature (VBD-J)	
AVAILABLE INSTRUMENTATION: (con't)	**AFFECTED INSTRUMENTATION:** (con't)
Torus Level Indication:	**Torus Level Indication:**
PC-LI-10 Torus Level (Panel 9-3)	None
PC-LR-11 Torus Level (Panel 9-3)	
PC-LR-1A Torus Level (Panel 9-3)	
PC-LR-1B Torus Level (Panel 9-3)	

ACTIONS TO MINIMIZE ADVERSE EFFECTS:

1) Place ADS INHIBIT switches to INHIBIT.

OPERATIONAL VARIANCES:

May be required to ensure systems function:

GENERAL:

1) Align DG1 to 4160V SWGR 1F by isolating and operating DG1 and Breaker EG1 per Section 8 of Procedure 2.2.20.2.

2) Align DG2 to 4160V SWGR 1G by isolating and operating DG2 and Breaker EG2 per Section 9 of Procedure 2.2.20.2.

3) Remove NR and NQ fuses. Manually trip Breakers 1FA to isolate Bus 1F from Bus 1A, if required.

4) Remove NR and NQ fuses. Manually trip Breakers 1GB to isolate Bus 1G from Bus 1B, if required.

5) Remove NR and NQ fuses. Manually operate Breakers 1FE and 1FS, if required.

6) Remove NR and NQ fuses. Manually operate Breakers 1GE and 1GS, if required.

7) Start Essential Control Building HVAC System from local starter rack in Critical Switchgear Room 1F. Open Breaker 2A, STARTER RACK HV-STRR-ECBHII FEEDER, on MCC-RB (R-903-W) to remove power from Division 2 Essential Control Building H&V. Ensure Non-Essential Control Building HVAC System shutdown per Procedure 2.2.38.

8) Use Attachment 29 for ECST level indication.

CS:

1) Potential damage to 4160V Bus 1F undervoltage circuits could result in trip signal (load shed) to CS Pump A breaker. If necessary, remove NR and NQ fuses, then manually operate breaker.

OPERATIONAL VARIANCES: (con't)

RHR:

1) Potential damage to 4160V Bus 1F and 1G undervoltage circuits could result in trip signal (load shed) to all RHR pump breakers. If necessary, remove NR and NQ fuses then manually operate RHR Pump 1A and 1B breakers.

2) Potential damage to 4160V Bus 1F and 1G undervoltage circuits could result in trip signal (load shed) to all RHR SW booster pump breakers. If necessary, remove NR and NQ fuses, then manually operate RHR SW Booster Pump 1A or 1C breakers. RHR SW booster pump operation will recover SW-MOV-89A operation.

3) Manual operation of RHR-MO-25A may be required to recover RHR-SDC-A. Cable failures will not affect valve operability from Control Room for LPCI Mode of RHR. Operate valve from EE-STRR-250DIV1 (R-903-W) by pulling control power fuses and manually depressing starter to open valve, if necessary.

4) Local or Manual operation of RHR-MO-17 may be required to recover RHR-SDC. Operate valve from EE-STRR-250B (C-877-ECST Room) by pulling control power fuses and manually depressing starter to open valve, if necessary.

5) Local or Manual operation of RHR-MO-18 may be required to recover RHR-SDC. Operate valve from Breaker 7A on MCC-R (R-903-NW) by pulling control power fuse and manually depressing starter to open valve, if necessary.

6) Manual operation of RHR-MO-57 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from Breaker 3B on MCC-R (R-903-NW).

7) Manual operation of RHR-MO-67 may be required to warm-up RHR System for RHR SDC operation. Pull control fuses and operate valve from motor starter at EE-PNL-BB3 (R-903-NE).

SW:

1) Potential damage to 4160V Bus 1F and 1G undervoltage circuits could result in trip signal (load shed) to all SW Pump breakers.

If necessary, remove NR and NQ fuses, then manually operate SW Pump 1A and 1C breakers.

CAUTION 1 - Repairs shall commence within 1.5 hours from time battery charger lost. Repairs shall be complete no later than 4.5 hours after operability lost to prevent exceeding battery capacity limit.

CAUTION 2 - Observe proper electrical safety precautions while working with/on energized equipment.

1) Inform Security Shift Supervisor a guard will be required for Control Building 903 entrance who will also act as fire watch for open Security and Switchgear Room Doors.

Initials: _____

2) If off-site power has been lost, perform Attachment 28 concurrently with this attachment.

Initials: _____

3) If 250V Charger 1B not operating, perform following:

a) Break main condenser vacuum by opening AR-MO-150, VACUUM BREAKER. Manual operation may be required (Heater Bay east). Ensure Breaker 2D on MCC-X (C-882) off before manually operating valve.

b) After main turbine rpm zero or within 1 hour from time 250V CHARGER 1B lost, open breaker for EMERGENCY BEARING OIL PUMP (250 VDC Turbine Building Starter Rack T-882-N).

Initials: _____

4) Obtain cables designated 125V CHARGER 1B Emergency Repair Cable and 250V CHARGER 1B Emergency Repair Cable from South Warehouse in Location 5-1-B and transport them to area near MCC-F (T-903-N).

Initials: _____

5) Route cables from MCC-F through Control Building 903 Security Door into 125/250 VDC Switchgear Room 1B. Protect cables from physical damage where they pass through doors.

Initials: _____

6) At MCC-TX (Auxiliary Relay Room), open following breakers:

a) Breaker 1B, 125 VDC STA SERVICE BATTERY CHARGER 1B.

b) Breaker 2C, 250 VDC STA SERVICE BATTERY CHARGER 1B.

Initials: _____

7) At 125V CHARGER 1B, perform following:

   a) Open AC input breaker.

   b) Open DC output breaker.

   c) Separate cables and ensure 125V CHARGER 1B Emergency Repair Cable laid out to correct charger.

   d) Open door and feed repair cable up through bottom of charger to bottom of terminal board and secure it.

   e) Disconnect damaged supply leads from right side of terminal board (input) then connect leads of repair cable to same terminals.

Initials: _____

8) At 250V CHARGER 1B, perform following:

   a) Open AC input breaker.

   b) Open DC output breaker.

   c) Separate cables and ensure 250V CHARGER 1B Emergency Repair Cable laid out to correct charger.

   d) Open left-hand door and feed repair cable up through bottom of charger to bottom of terminal board.

   e) Disconnect damaged supply leads from left side of terminal board (Cable Tag 11-MTX9) and connect leads of repair cable to same terminals.

Initials: _____

9) Connect repair cables to breakers on MCC-F by performing following:

   a) Open Breaker 6EL on MCC-F, WELDING RECEPTS COLS E17 & G14, and open breaker door.

   b) Remove bottom access panel from Section 6.

c) Feed 125V CHARGER 1B Emergency Repair Cable up through bottom access panel to Breaker 6EL and secure it.

d) Disconnect leads on load side of fuses in Breaker 6EL (at bottom of left set of fuses).

e) Ensure 60 amp fuses installed in Breaker 6EL.

f) Connect repair cable leads to load side of fuses in Breaker 6EL and close breaker door.

Initials: _____

g) Open Breaker 1E on MCC-F for BLDG-HST-TG, TG BLDG CRANE, and open breaker door.

h) Remove bottom access panel from Section 1.

i) Feed 250V CHARGER 1B Emergency Repair Cable up through bottom access panel to Breaker 1E and secure it.

j) Disconnect leads on load side of fuses in Breaker 1E (right-hand side of fuses, allen wrench type screw).

k) Ensure 150 amp fuses installed in Breaker 1E.

l) Connect repair cable leads to load side of fuses in Breaker 1E and close breaker door.

Initials: _____

m) If off-site power has been lost, inform Shift Supervisor to energize MCC-F per Attachment 28.

Initials: _____

n) When MCC-F energized, close following breakers:

i) Breaker 6EL.

ii) Breaker 1E. Initials: _____

10) Ensure 125V CHARGER 1B breaker on 125 VDC Switchgear Bus 1B closed.

Initials: _____

11) Close DC output breaker on 125V CHARGER 1B. Initials: _____

12) Close AC input breaker on 125V CHARGER 1B. Initials: _____

13) Ensure 250V CHARGER 1B breaker on 250 VDC Switchgear Bus 1B closed.

Initials: _____

14) Close DC output breaker on 250V CHARGER 1B. Initials: _____

15) Close AC input breaker on 250V CHARGER 1B. Initials: _____

16) Inform Shift Supervisor 125V CHARGER 1B and 250V CHARGER 1B are in service.

Initials: _____

CAUTION 1 - Repairs shall commence within 3.5 hours. Repairs shall be complete no later than 5 hours after operability lost to ensure continuous diesel generator operation.

CAUTION 2 - Observe proper electrical safety precautions while working with/on energized equipment.

1) If off-site power has been lost, perform Attachment 28 concurrently with this attachment.

Initials: _____

2) Obtain cable designated Diesel Fuel Oil Transfer Pump Emergency Repair Cable from Warehouse (Location 5-1-B) and transport to area just below windows in Water Treatment Plant behind MCC-E.

Initials: _____

3) Route cables by performing following:

   a) Pull cable end labeled MCC-E END through window located behind MCC-E second floor southeast corner of Water Treatment Plant. Protect cable from physical damage where it passes through window.

   b) Ensure there is enough cable to reach MCC-E Breaker 4D and secure cable.

   c) Open manhole cover leading to diesel fuel oil transfer pump to be repaired and feed cable down to pump and secure cable. Protect cable from physical damage where it passes through manhole.

Initials: _____

4) At MCC-E, open Breaker 4D for WT-AG-CTA1C, COAGULANT TANK AGITATOR 1C.

Initials: _____

5) At MCC-K (R-903-NE), open Breaker 2A for DGFO-P-1A, DIESEL FUEL OIL TRANSFER PUMP 1A.

Initials: _____

6) At MCC-S (R-903-S), open Breaker 3B for DGFO-P-1B, DIESEL FUEL OIL TRANSFER PUMP 1B.

Initials: _____

7) At Lighting Panel LPR1F (R-903-near elevator), open Breaker 39, DIESEL FUEL OIL TRANSFER PUMP 1A MOTOR HEATER.

Initials: _____

8) At diesel fuel oil transfer pump selected for repair, perform following:

   a) Open terminal box on side of pump motor and withdraw existing power supply connections to pump motor leads.

   b) Note color tape on power and motor leads.

   c) Disconnect existing power motor leads from motor leads.

   d) Connect repair cable leads ensuring correct phasing by matching color tape.

Initials: _____

9) At MCC-E, perform following:

   a) Remove bottom access panel from Section 4.

   b) Open door for Breaker 4D.

   c) Feed repair cable through bottom access panel opening up to Breaker 4D and secure it.

   d) Disconnect leads at bottom of fuses in Breaker 4D.

   e) Ensure 20 amp fuses are installed in Breaker 4D.

   f) Note labels above fuses; L1, L2, and L3, and connect corresponding repair cable lead to its respective fuse connection point, ensuring proper phasing maintained.

   g) Close Breaker 4D door. Initials: _____

10) If off-site power has been lost, inform Shift Supervisor to energize MCC-E.

Initials: _____

CAUTION - Damage will occur to pump if it is rotating incorrectly for more than a short period of time.

NOTE - Sound powered phones may be used during rotation check. There is a sound-powered phone jack (SP-13) in Diesel Fuel Oil Transfer Pump 1B Pit and a jack (SP-29) on front of Water Treatment Control Panel.

11) Station personnel with communication equipment to check repaired diesel fuel oil transfer pump for correct rotation.

Initials: _____

NOTE - Correct rotation of diesel fuel oil transfer pump shaft clockwise when viewed from motor end.

12) Momentarily close, then open Breaker 4D on MCC-E and check for proper rotation.

Initials: _____

13) If rotation correct, inform Shift Supervisor to operate pump per Step 15.

Initials: _____

14) If rotation not correct, perform following:

a) Open Breaker 4D door.

b) Reverse two repair cable leads connected to fuses in Breaker 4D.

c) Close Breaker 4D door and perform Steps 11 through 13 to ensure proper rotation.

Initials: _____

15) Operate repaired diesel fuel oil transfer pump by performing following:

a) Open DGDO-57, DIESEL GENERATOR DAY TANK 1 SIGHTGLASS ROOT VALVE.

b) Open DGDO-60, DIESEL GENERATOR DAY TANK 2 SIGHTGLASS ROOT VALVE.

NOTE 1 - Steps 15.3 and 15.4 cross-connect Diesel Fuel Oil Storage Tanks.

NOTE 2 - Valves are located below green caps on east side of manholes to pumps. Operating handle located on east side of south roll-up door to Weld Shop.

c) Open DGDO-22, DIESEL FUEL OIL TANK 1A TRANSFER VALVE.

d) Open DGDO-23, DIESEL FUEL OIL TANK 1B TRANSFER VALVE.

e) When level in DG Day Tank 1 or 2 ≤ 39", close Breaker 4D on MCC-E.

f) Check for flow indicated by rising level in Day Tank(s) and pressure indication on DGDO-PI-636A or DGDO-PI-636B.

g) When level in DG Day Tanks 1 and 2 ~ 53", open Breaker 4D on MCC-E.

h) Repeat Steps 15.5 through 15.7 to maintain level in DG Day Tanks 1 and 2 between 39" and 53".

Initials: _____

CAUTION 1 - Repairs shall commence within 3.5 hours from time either Day Tank level < 39". Repairs shall be complete no later than 5 hours after level < 39" to ensure continuous diesel generator operation.

CAUTION 2 - Observe proper electrical safety precautions while working with/on energized equipment.

1) Obtain DGDO transfer pump jumper and fuse stored in ASD Cabinet (C-932).

2) Repair Diesel Fuel Oil Transfer Pump 1A control cables by performing following or go to Step 3 to repair Diesel Fuel Oil Transfer Pump 1B control cables:

   a) Open Breaker 2A on MCC-K (R-903-NE) for DGFO-P-1A, DIESEL FUEL OIL TRANSFER PUMP 1A.

   b) Open Breaker 2A door.

   c) Lift and tape all gray wires on Terminals 1 through 9 on farthest right terminal board inside Breaker 2A.

   d) Install jumper on right side of farthest right terminal board inside Breaker 2A between Terminals 1 and 4.

   e) Pull control power fuse and replace with fuse from ASD Locker.

   f) Inform Shift Supervisor Diesel Fuel Oil Transfer Pump A can be operated per Step 4.

   Initials: _____

3) Repair Diesel Fuel Oil Transfer Pump 1B by performing following:

   a) Open Breaker 3B on MCC-S (R-903-S) for DGFO-P-1B, DIESEL FUEL OIL TRANSFER PUMP 1B.

   b) Lift and tape all gray wires on Terminals 1 through 9 on farthest right terminal board inside Breaker 3B.

c) Install jumper on right side of farthest right terminal board inside Breaker 3B between Terminals 1 and 4.

d) Pull control power fuse and replace with fuse from ASD Locker.

e) Inform Shift Supervisor Diesel Fuel Oil Transfer Pump 1B can be operated per Step 4.

Initials: _____

4) Operate Diesel Fuel Oil Transfer Pump 1A(1B) by performing following:

a) Open DGDO-57, DIESEL GENERATOR DAY TANK 1 SIGHTGLASS ROOT VALVE.

b) Open DGDO-60, DIESEL GENERATOR DAY TANK 2 SIGHTGLASS ROOT VALVE.

NOTE 1 - Steps 4.3 and 4.4 cross-connect Diesel Fuel Oil Storage Tanks.

NOTE 2 - Valves are located below green caps on east side of manholes to pumps. Operating handle located on east side of south roll-up door to Weld Shop.

c) Open DGDO-22, DIESEL FUEL OIL TANK 1A TRANSFER VALVE.

d) Open DGDO-23, DIESEL FUEL OIL TANK 1B TRANSFER VALVE.

e) When level in DG Day Tank 1 or 2 level ≤ 39", close Breaker 2A(3B) on MCC-K(MCC-S).

f) Check for flow indicated by rising level in DG Day Tank(s) and pressure indication on DGDO-PI-636A or DGDO-PI-636B.

g) When level in DG Day Tanks 1 and 2 ~ 53", open Breaker 2A(3B) on MCC-K(MCC-S).

h) Repeat Steps 4.5 through 4.7 to maintain level in DG Day Tanks 1 and 2 between 39" and 53".

CAUTION - Observe proper electrical safety precautions while working with/on energized equipment.

1) Place all following switches to PULL-TO-LOCK:

   a) 1GS, EMERGENCY XFMR BKR.

   b) 1BN, NORMAL XFMR BKR.

   c) 1BS, STARTUP XFMR BKR.

   d) 1BE, BUS 1E TIE BKR.

   e) 1BG, BUS 1G TIE BKR.

   f) SS1B, 480V BUS 1B FDR BKR.

   g) SS1D, 480V BUS 1D FDR BKR.

   h) CIRC WATER PUMP C.

   i) CIRC WATER PUMP D.

   j) CONDENSATE BOOSTER PUMP B.

   k) CONDENSATE PUMP B. Initials: _____

2) At 4160V Bus 1B, ensure breakers identified in Steps 1.2 through 1.11 are open.

   Initials: _____

3) At 480V Bus 1B, ensure following breakers are open:

   a) TEC PUMP 1C.

   b) STATION AIR COMPRESSOR 1C.

   c) MECHANICAL VACUUM PUMP 1B.

   d) MCC-F FEEDER.

   e) MCC-G FEEDER.

   f) SWITCHBOARD MSA.

   g) SECURITY BUILDING.

   h) WAREHOUSE. Initials: _____

4) If battery charger repairs are required, open all breakers on MCC-F (T-903-N).

   Initials: _____

5) If diesel fuel oil transfer pump power cable repair required, perform following:

   a) At MCC-G (T-903-S), open all breakers.

   b) At MCC-E (WT), open all breakers. Initials: _____

6) At 4160V Bus 1G, perform following:

   a) Ensure Breaker 1GS, EMERGENCY TRANSFORMER FEED TO 4160V BUS 1G, open.

   b) Remove TRIPPING POWER FUSES NQ and CLOSING POWER FUSES NR in cubicle above Breaker 1GS.

   c) Remove TRIPPING POWER FUSES NQ and CLOSING POWER FUSES NR in cubicle above Breaker 1GB, 4160V BUS 1B FEED TO 4160V BUS 1G.

   d) Manually close Breaker 1GB. Initials: _____

7) Open Breaker 16 on 125 VDC Panel BB1 (Non-Critical Switchgear Room) to remove DC control power from Breakers 1BG and SS1B.
Initials: _____

8) Manually close Breaker 1BG to energize 4160V Bus 1B.Initials: _____

9) Manually close Breaker SS1B to energize 480V Bus 1B.Initials: _____

10) If battery charger repair required, perform following:

   a) Ensure personnel at MCC-F are ready for it to be energized.

   b) Manually close MCC-F FEEDER breaker to energize MCC-F.

Initials: _____

11) If diesel fuel oil transfer pump repair required, perform following:

   a) Manually close MCC-G FEEDER breaker to energize MCC-G.

   b) At MCC-G, close Breaker 3E, MCC-E EMERGENCY FEEDER.

   c) Ensure personnel at MCC-E are ready for it to be energized.

   d) At MCC-E, perform following:

      i) Press TRANS TO EMERG button.

      ii) Check MCC-E FED FROM MCC-G light on.Initials: _____

12) Inform Shift Supervisor MCC-F and/or MCC-E energized.Initials: _____