

<p>XXX OPERATIONS MANUAL</p> <p>EMERGENCY PROCEDURE 5.4FIRE-S/D</p> <p>FIRE INDUCED SHUTDOWN</p> <p>FROM OUTSIDE CONTROL ROOM</p>	<p>USE: CONTINUOUS ⊥</p> <p>EFFECTIVE: 2/27/04</p> <p>APPROVAL: SORC/IQA</p> <p>OWNER: <u>ESD FP ENG</u></p> <p>DEPARTMENT: ESD</p>
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1) ENTRY CONDITIONS

- a) When directed by Procedure 5.4POST-FIRE.

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.

SS determines if Control Room evacuation required based on either of following:

Reports of spurious operation of components operated from Control Room.

Control Room habitability due to fire in adjacent areas.

If Control Room evacuation required:

Before leaving Control Room, perform following:

SCRAM.

Ensure REACTOR MODE switch in RUN.

If possible, trip following:

Main turbine generator.

All but one feed pump.

All but one condensate booster pump.

All but one condensate pump.

If possible, announce event with Gaitronics.

Direct Operations personnel to assemble in corridor outside of Electric Shop at Alternate Shutdown Locker.

Obtain Key 112 for Alternate Shutdown Locker.

Direct SAS Operator to evacuate SAS and bring key box to Alternate Shutdown Locker.

Designate Operators to concurrently perform Attachments 1, 2, 3, and 4.

Each dispatched Operator should have following:

Portable two-way radio set on Frequency 1 (all Operators).

Portable lighting (all Operators).

Required keys (all Operators):

Key 112 ASD Locker.

Key 43 Elect. Breaker Locks.

Security Masters, as needed.

Keys 24 and 25 BLDG Grand Masters, as needed.

Standard screwdriver (all Operators).

Manual breaker charging ratchet for Operators performing Control Building and DG actions (ratchets located in 4160V Switchgear).

Fuse puller (Operator performing Reactor Building actions).

Stopwatch (Operator performing Reactor Building actions).

7/16" socket, $\geq 2 \frac{1}{2}$ " extension and ratchet.

12" crescent wrench (Operator performing Control Building actions).

14" pipe wrench (Operator performing Control Building actions).

If normal Reactor Building access blocked:

Go to roof above steam tunnel.

Climb down ladder on east side of roof.

Enter Alternate Shutdown Room through access hatch in southeast side of Reactor Building wall.

If needed, notify other plant personnel, with Gaitronics or Speed Call List on designated Emergency Response Facility telephone in either TSC or EOF during non-working hours.

Direct STE or other personnel to make notifications using the password located in the ANS password envelope in the Alternate Shutdown (ASD) locker per Procedure 5.7.6.

5) DISCUSSION

- a) This procedure provides direction necessary to place plant in MODE 4 using Alternate Shutdown (ASD) Panel. It will be used during a fire in Control Room, Computer Room, Cable Spreading Room, Cable Expansion Room, Auxiliary Relay Room, or R-903-NE corner.
- b) Due to potential fire-induced damage, no automatic actions should be relied on to occur. If any automatic actions occur, initiating conditions should be verified to exist. If initiating conditions do not exist, action could be due to fire-induced damage and is indicative of severe fire damage. A fire of this magnitude could cause loss of control of multiple systems from Control Room. All required actions must be direct result of Operator action.
- c) This procedure requires four Operators. Shift Supervisor or Control Room Supervisor will be stationed in ASD Room. He will transfer control of components on HPCI, ADS/REC, and RHR ASD Panels to ASD Room panels. This will prevent spurious operation and give him control of components required to operate systems. From ASD Room, he will operate HPCI to control RPV level and temperature/pressure, operate RHR Subsystem B in suppression pool cooling to maintain suppression pool at desired temperature, secure REC pumps and ensure coolant flow to HPCI fan cooling unit and RHR pumps, open ADS valves when desired for depressurization, and transfer RHR System from suppression pool cooling to LPCI injection for long term cooling.
- d) Reactor Building Operator removes power from components required for RPV isolation. The Operator then performs a valve line-up to ensure REC, RHR, and SW System valves are in their required positions.
- e) Control Building Operator removes power from components to secure them or to fail them closed, operates breakers, as required, in Critical Switchgear Room 1G, and secures reliable and Control Building air headers.
- f) DG Operator ensures proper operation of DG2 to supply power to Division 2 critical bus network and manually operates SW System components to ensure SW System remains available.

- g) Plant Maintenance personnel will perform required repair activities necessary to achieve cold shutdown.

6) REFERENCES

a) TECHNICAL SPECIFICATIONS

- i) LCO 3.3.3.2, Alternate Shutdown System.

b) UPDATED SAFETY ANALYSIS REPORT

- i) Section VII-19.0, Alternate Shutdown Capability.

c) PROCEDURES

- i) System Operating Procedure 2.2.20.2, Operation of Diesel Generators from Diesel Generator Rooms.
- ii) System Operating Procedure 2.2.59, Plant Air System.
- iii) System Operating Procedure 2.2.60, Primary Containment Cooling and Nitrogen Inerting System.
- iv) Emergency Procedure 5.4FIRE-S/D, Fire Induced Shutdown from Outside Control Room.
- v) Emergency Plan Implementing Procedure 5.7.6, Notification.

d) MISCELLANEOUS

- i) XXX response to 10CFR50 Appendix R, Fire Protection of Safe Shutdown Capability.
- ii) NRC Generic Letter 86-10, Implementation of Fire Protection Requirements.
- iii) NRC Information Notice 92-18, Potential for Loss of Remote Shutdown Capability During a Control Room Fire.
- iv) XXX Fire Hazards Analysis.
- v) SCAQ 96-0635, Appendix R Analysis did not Consider Multiple System Grounds Due to Fire.
- vi) XXX Safe Shutdown Analysis Report (SSAR).
- vii) © SOER 87-2, Inadvertent Draining of RPV to Suppression Pool. Affects CAUTION prior to Step 2.9.1.4 on Attachment 1.

7) ATTACHMENTS

1 - ASD ROOM ACTIONS

2 - REACTOR BUILDING ACTIONS

3 - CONTROL BUILDING ACTIONS

4 - DIESEL GENERATOR OPERATOR ACTIONS

5 - SYSTEM STATUS CHECK SHEET

6 - CONTROL BUILDING OPERATOR ACTION RESULTS

7 - MOV OPERATION FROM MCC CUBICLE

8 - 125V CHARGER 1B AND 250V CHARGER 1B REPAIR

9 - BATTERY ROOM EXHAUST FAN C REPAIR

10 - DIESEL FUEL OIL TRANSFER PUMP B CONTROL CABLE REPAIR

11 - ENERGIZING MCC-F FROM 4160V BUS 1G

12 - REPAIR STATION AIR COMPRESSOR TO RESTORE ADS VALVE AIR
SUPPLY

13 - EMERGENCY CONDENSATE STORAGE TANK LEVEL DIAGRAM

1) SHIFT SUPERVISOR/CONTROL ROOM SUPERVISOR ACTIONS

- [] **NOTE** - As additional Operators become available, they should assist Operator in Reactor Building.

If reactor was not scrammed or turbine was not tripped prior to leaving Control Room, direct Control Building Operator to perform Attachment 3, Control Building Actions, Step 1.3 prior to Step 1.2 as rapidly as possible.

Check off steps in Attachment 5, System Status Check Sheet, as other Operators report actions they have completed.

Go to ASD Room.

SHIFT SUPERVISOR/CONTROL ROOM SUPERVISOR ACTIONS AT ASD ROOM

- [] **NOTE** - Control Room Supervisor should relieve Shift Supervisor in ASD Room as soon as possible so Shift Supervisor can perform duties of Emergency Director, as required.

Establish RPV pressure and level indications at HPCI Panel as follows:

Place following isolation switches in ISOLATE:

<u>SWITCH</u>	<u>CHECK</u>
Level Indicators. _____	
HPCI Control and Indication.	_____
HPCI-MO-15 (Steam Supply Inboard Isolation Valve).	_____
HPCI-MO-16 (Steam Supply Outboard Isolation Valve).	_____

- [] **NOTE** - If all off-site power is lost, DG2 must be carrying 4160V Bus 1G before proceeding.

If both position indicating lights for HPCI-MO-15 are off at any time during this procedure, direct Reactor Building Operator to transfer MCC-R to EMERGENCY (Attachment 2, Reactor Building Actions, Step 1.1.2).

- [] **CAUTION** - RPV pressure indication is obtained from steam inlet pressure to HPCI

turbine.

If HPCI-MO-15 and/or HPCI-MO-16 do not indicate open, then:

Open HPCI-MO-16.

Throttle open HPCI-MO-15.

Transfer control of ADS valves and REC pumps to ADS/REC Panel as follows:

Ensure REC pump control switches are in OFF.

Place ADS and REC isolation switches to ISOLATE.

If immediate HPCI operation is required, go to Step 2.5.

At RHR ASD Panel, perform following:

Ensure control switch for RHR-MO-13D (Pump D Torus Suction Valve) is positioned per Step 2.4.1.1 or 2.4.1.2.

[] **NOTE** - Operator in Control Building will inform ASD Room Operator when RHR Pump D is secured.

If RHR Pump D has been secured, place switch to CLOSED.

If RHR Pump D has not been secured, place switch to OPEN.

Position all RHR isolation switches to ISOLATE.

If RHR-MO-13D is open, open RHR-MO-16B (Minimum Flow Bypass Valve).

If RHR-MO-39B (Loop B SPC/Torus Spray Outboard Valve) does not indicate closed, close it.

Initiate operation of HPCI System at HPCI ASD Panel as follows:

If HPCI is running (speed indicated on HPCI-SI-2793), go to Step 2.6.

Align HPCI System as follows:

Place remaining isolation switches to ISOLATE.

[] **NOTE** - HPCI-MO-58 will not close unless HPCI-MO-17 indicates open.

Check CLOSED or CLOSE following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
HPCI-MO-14	Steam To Turbine	_____
HPCI-MO-19	Injection	_____
HPCI-MO-25	Minimum Flow Bypass	_____
HPCI-MO-58	Torus Pump Suction	_____

Check OPEN or OPEN following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
HPCI-MO-17	ECST Pump Suction	_____
HPCI-MO-20	Pump Discharge	_____
HPCI-MO-21	Test Bypass To ECST	_____
HPCI-MO-24	ECST Test Line Shutoff	_____

Start HPCI FCU FC-R-1G.

Ensure GLAND SEAL CNDSR BLOWER is in AUTO.

Ensure GLAND SEAL CNDSR COND PUMP is in AUTO.

Set HPCI flow controller to 4250 gpm.

Open HPCI-MO-14 (Steam To Turbine Valve).

[] **NOTE** - Following step starts HPCI turbine.

Start auxiliary lube oil pump.

Ensure turbine speed is > 2050 rpm by adjusting flow controller.

Proceed with initiating makeup (Step 2.7).

[] **NOTE** - Step 2.6 should be performed ONLY if HPCI turbine was in operation at Step 2.5.1.

TRANSFER OF CONTROL OF HPCI AFTER AUTO INITIATION

At HPCI Panel, place following control switches to positions stated:

	<u>SWITCH</u>	<u>POSITION</u>	<u>CHECK</u>
Auxiliary Oil Pump	AUTO		_____
Gland Seal Condenser			
Condensate Pump		AUTO	_____
Gland Seal Condenser			
Blower		AUTO	_____
HPCI Room FC-R-1G	RUN		_____

Set HPCI flow controller to 4250 gpm.

At HPCI Panel, place all isolation switches to ISOLATE.

Ensure turbine speed is > 2050 rpm by adjusting flow controller.

Align HPCI System as follows:

Check OPEN or OPEN following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
HPCI-MO-14	Steam To Turbine	_____
HPCI-MO-17	ECST Pump Suction	_____
HPCI-MO-20	Pump Discharge	_____
HPCI-MO-21	Test Bypass To ECST	_____
HPCI-MO-24	ECST Test Line Shutoff	_____

Check CLOSED or CLOSE following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
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HPCI-MO-19	Injection	_____
HPCI-MO-25	Minimum Flow Bypass	_____
HPCI-MO-58	Suction From Torus	_____

Initiate RPV makeup and control RPV pressure/temperature by operating HPCI System as follows:

- [] **CAUTION 1** - Before RPV level rises to 40" above INSTR 0, have Control Building Operator trip remaining RFP, remaining condensate booster pump, and Reactor Building Operator trip CRD.
- [] **CAUTION 2** - Maintain RPV cooldown < 900F/hr.
- [] **CAUTION 3** - Adjusting HPCI-MO-21 to adjust flow/discharge pressure may have a feedback effect on HPCI turbine speed. Turbine speed should be maintained in range of 2050 to 4000 rpm.

Throttle closed HPCI-MO-21 to raise HPCI pump discharge pressure until it is approximately equal to RPV pressure (steam inlet pressure to HPCI turbine).

Open HPCI-MO-19 using its control switch.

- [] **CAUTION** - Adjusting turbine speed will also change makeup flow rate. Speed and flow adjustments should be made in small increments in order to maintain level and pressure in desired band.
- [] **NOTE** - RPV pressure/temperature should be maintained in desired band by adjusting HPCI turbine speed. Raising turbine speed to provide additional heat removal or lowering speed to reduce heat removal.

Adjust turbine speed, as required, to maintain pressure in desired band.

- [] **CAUTION 1** - HPCI TURBINE WILL ONLY TRIP ON OVERSPEED (~ 5000 RPM) OR BY A MANUAL TRIP. HIGH LEVEL TRIP WILL NOT FUNCTION. RPV LEVEL MUST BE CLOSELY MONITORED WHEN OPERATING HPCI TURBINE FROM ASD PANEL.
- [] **CAUTION 2** - When LOW-LOW SET actuates, 20" RPV level swings are not uncommon.

Throttle HPCI-MO-21, as required, to maintain RPV level in desired band.

Monitor ECST level and perform following, as necessary, during HPCI turbine operation.

[]

CAUTION - After transferring HPCI suction to suppression pool, ECST will fill up much faster than it was depleted.

When ECST level indicates 5', open HPCI-MO-58 and close HPCI-MO-17.

When ECST level has risen to 12', open HPCI-MO-17 and close HPCI-MO-58.

Align SW System to feed REC South Critical Loop Header for cooling HPCI Room cooler and RHR pumps as follows:

[] **NOTE 1** - When Reactor Building Operator completes REC, RHR, and SW valve line-ups, he will inform ASD Room Operator. RHR line-up at ASD Panel may be performed concurrently with Reactor Building line-ups.

[] **NOTE 2** - Control Building Operator will report when he is in Critical Switchgear Room. SW pumps may already be in operation to support DG.

When Control Building Operator is in Critical Switchgear Room 1G and SW valve line-up is complete, direct Control Building Operator to start SW Pumps 1B and 1D by manually closing breakers (Attachment 3, Control Building Actions, Step 1.11).

Check flow to HPCI fan cooler by observing REC flow light is on or locally observing flow is ≥ 12 gpm at REC-FIS-24, FC-R-1G COOLING WATER OUTLET (R-859-HPCI RM NW inside Panel TB221).

Place RHR Subsystem B in Suppression Pool Cooling Mode as follows:

[] **NOTE** - Torus should be maintained $< 1000^{\circ}\text{F}$, as this will greatly aid in cooldown of plant in Step 3.

Align RHR Subsystem B at ASD Panel as follows:

Ensure all isolation switches are in ISOLATE.

[]

CAUTION - Do not close RHR-MO-13D or RHR-MO-16B if RHR Pump D has not been ensured secured by Operator in Control Building.

Check CLOSED or CLOSE following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
RHR-MO-13D	Pump D Torus Suction	_____
RHR-MO-15D	Pump D SDC Suction	_____
RHR-MO-16B	Minimum Flow Bypass	_____
RHR-MO-27B	Outboard Injection	_____
RHR-MO-34B	SPC Inboard Throttle	_____

Check OPEN or OPEN following valves:

<u>VALVE</u>	<u>FUNCTION</u>	<u>CHECK</u>
RHR-MO-12B	HX Outlet _____	
RHR-MO-65B	HX Inlet _____	
RHR-MO-66B	HX Bypass	_____

[] **CAUTION** - RHR-MO-MO39B open interlock with RHR-MO-MO15B/MO15D to preclude reactor drain down is bypassed during operation from ASD-RHR Panel.©

Check OPEN or OPEN RHR-MO-39B, SPC/TORUS SPRAY OUTBD VLV.

When Operator in Reactor Building has completed RHR valve line-up, ensure RHR-MO-13D is open.

When SW/REC flow to the RHR heat exchanger has been established, perform following:

[] **NOTE** - Step 2.9.3.2 must be performed within 10 seconds after Step 2.9.3.1 if RHR-MO-16B is closed.

Direct Operator in Critical Switchgear Room 1G to start RHR Pump D by manually closing pump breaker (Attachment 3, Control Building Actions, Step 1.12).

Throttle open RHR-MO-34B to raise flow to > 2500 gpm.

[]

CAUTION - RHR-MO-16B should be open whenever RHR flow is to be maintained < 2500 gpm.

Close RHR-MO-16B if it is open.

Direct Operator in Critical Switchgear Room 1G to monitor RHR Pump D current and perform following:

Throttle RHR-MO-34B to maintain a flow of 6000 to 8000 gpm. Do not exceed a pump motor current of 157 amps.

[]

CAUTION - As suppression pool cools, RHR-MO-34B may have to be throttled closed to maintain pump current < 157 amps.

Throttle RHR-MO-66B, as necessary, to adjust cooldown rate of suppression pool. Fully closing RHR-MO-66B will maximize cooling.

Continue operation of HPCI System as follows:

[]

CAUTION - Do not operate HPCI turbine at speeds < 2050 rpm.

If RPV pressure is insufficient to maintain HPCI turbine speed > 2050 rpm, go to Step 3.

Adjust HPCI flow controller to maintain desired RPV pressure/temperature.

Throttle HPCI-MO-21 to maintain desired RPV level. Throttle valve open to lower makeup rate or closed to raise makeup rate.

[]

CAUTION - ECSTs will fill much faster when HPCI pump suction is lined up to suppression pool.

Maintain ECST level between 5' and 12' by performing following:

To transfer HPCI pump suction from ECSTs to torus:

OPEN HPCI-MO-58.

CLOSE HPCI-MO-17.

To transfer HPCI suction from suppression pool to ECSTs:

OPEN HPCI-MO-17.

CLOSE HPCI-MO-58.

Continue operation of RHR suppression pool cooling as follows:

Throttle RHR-MO-34B to maintain pump current < 157 amps.

Throttle RHR-MO-66B, as necessary, to maintain desired suppression pool temperature.

Install following ADS valve switch jumpers by performing following:

Ensure Control Building Operator has opened Breaker 15 on 125 VDC Panel AA2 and Breaker 8 on 125 VDC Panel BB2.

Place ADS valve isolation switch to NORMAL.

[] **NOTE** - Following jumpers will cause ADS valves to open when ADS valve isolation switch is placed to ISOLATE in Step 3.

Install jumpers (inside ASD-ADS Panel) across following test jacks:

AA40 to AA41. CHECK: _____

AA42 to AA43. CHECK: _____

AA45 to AA46. CHECK: _____

AA47 to AA48. CHECK: _____

AA50 to AA51. CHECK: _____

AA52 to AA53. CHECK: _____

PLANT COOLDOWN

[] **NOTE 1** - Once RPV pressure lowers below 450 psig, there are two options for RPV pressure control. One is to continue cooldown with HPCI System, and second is to open ADS valves MS-71E, MS-71F, and MS-71G, and to transfer B RHR to LPCI Mode and cooldown with RHR heat exchanger. Preferred method will be to use HPCI System.

- [] **NOTE 2** - Both methods rely upon the capability to keep the ADS valves open for long term cooling. Air or nitrogen pressure at least 25 psi above drywell pressure is required to ensure that the ADS valves remain open.
- [] **NOTE 3** - Do not exceed Technical Specification cooldown rate of 1000F/hr while cooling down.

PREFERRED METHOD

Continue operating HPCI per Step 2.7 of this attachment until RPV pressure is 200 psig.

Maximize torus cooling whenever utilizing torus as heat sink.

As RPV pressure approaches 200 psig, have an Operator standing by to open RHR-MO-25B (Attachment 2, Step 1.1.9).

When RPV pressure reaches 200 psig, enter long term cooling as follows:

Ensure ADS valve jumper installation per Step 2.12 of this attachment is done.

Place ADS valve isolation switch to ISOLATE to open ADS valves MS-71E, MS-71F, and MS-71G.

Direct Reactor Building Operator to open RHR-MO-25B (Attachment 2, Step 1.1.9).

- [] **NOTE 1** - RPV will be filled solid by LPCI injection. Since level indicators will be off-scale, RHR flow should be monitored for indications of reduced flow. A sharp reduction of flow is indication that RPV is solid.

- [] **NOTE 2** - Do not raise RHR flow such that RHR pump current exceeds 157 amps.

When RPV pressure is reduced to 150 psig, open RHR-MO-27B.

- [] **NOTE** - When HPCI-MO-15 or HPCI-MO-16 are closed, reactor pressure indication at ASD Panel will be lost.

When RPV level is ~ 50" above instrument 0 or RPV pressure reaches 100 psig, trip HPCI as follows:

Hold turbine TRIP switch to TRIP.

Close HPCI-MO-14.

When HPCI-MO-14 is full closed, release turbine TRIP switch.

Close HPCI-MO-15 and HPCI-MO-16.

As RHR flow rises, throttle closed RHR-MO-34B to maintain 6000 to 8000 gpm RHR flow. Maintain < 157 amps on RHR pump.

When RHR-MO-34B is full closed, throttle RHR-MO-27B to maintain RHR flow 6000 to 8000 gpm.

Slowly throttle RHR-MO-66B shut to maximize cooling.

Dispatch an Operator to Rack 25-5 to monitor RPV pressure and primary containment pressure (PC-PI-2104AG).

Maintain RPV pressure 60 psi above containment pressure with three SRVs open using RHR-MO-27B after RPV is solid.

Instruct an Operator to monitor nitrogen pressure locally using PC-PI-631, NITROGEN SUPPLY TO DRYWELL INSTRUMENT AIR HEADER, hourly (R-903-S, above south HCUs). If nitrogen pressure is < 50 psi, restore nitrogen pressure per Procedure 2.2.60 or initiate actions in Attachment 12.

ALTERNATE METHOD

As RPV pressure approaches 450 psig, have an Operator standing by to open RHR-MO-25B.

When RPV pressure is between 400 and 450 psig, enter long term cooling as follows:

Ensure ADS valve jumper installation per Step 2.12 of this attachment is done.

Place ADS valve isolation switch to ISOLATE to open valves MS-71E, MS-71F, and MS-71G.

Open RHR-MO-27B.

[] **NOTE** - RPV will be filled solid by LPCI injection. Since level indicators will be off-scale, RHR flow should be monitored for indications of reduced flow. A sharp reduction of flow is indication that RPV is solid.

When RPV pressure is reduced to 400 psig, direct Reactor Building Operator to open RHR-MO-25B (Attachment 2, Step 1.1.9).

- [] **NOTE 1** - Do not raise RHR flow such that RHR pump current exceeds 157 amps.
- [] **NOTE 2** - When HPCI-MO-15 or HPCI-MO-16 are closed, reactor pressure indication at ASD Panel will be lost.

When RPV level is ~ 50" above INSTR 0, trip HPCI as follows:

Hold turbine TRIP switch in TRIP.

Close HPCI-MO-14.

When HPCI-MO-14 is full closed, release turbine TRIP switch.

Close HPCI-MO-15 and HPCI-MO-16.

As RHR flow rises, throttle closed RHR-MO-34B to maintain 6000 to 8000 gpm RHR flow. Maintain < 157 amps on RHR pump.

When RHR-MO-34B is full closed, throttle RHR-MO-27B to maintain RHR flow 6000 to 8000 gpm.

Slowly throttle RHR-MO-66B shut to maximize cooling.

Dispatch an Operator to Rack 25-5 to monitor RPV pressure and primary containment pressure (PC-PI-2104AG).

Maintain RPV pressure 60 psi above containment pressure with three SRVs open using RHR-MO-27B after RPV is solid.

Instruct an Operator to monitor nitrogen pressure locally using PC-PI-631, NITROGEN SUPPLY TO DRYWELL INSTRUMENT AIR HEADER, hourly (R-903-S, above south HCUs). If nitrogen pressure is < 50 psi, restore nitrogen pressure per Procedure 2.2.60 or initiate actions in Attachment 12.

REACTOR BUILDING ACTIONS

- [] **NOTE 1** - If access to Reactor Building is blocked due to fire being in northeast corner of Reactor Building 903', then access can be obtained by following Shift Supervisor to ASD Room and entering Reactor Building through ASD Room.
- [] **NOTE 2** - If you are in any area and having difficulty communicating with ASD Room or Control Room, step out of area and complete required communications. Then re-enter area and complete task. Areas that will be a problem are all of quads and Reactor Building 903' around MCC-R and MCC-Q.

Go to Reactor Building 903' and perform following:

At MCC-S, Cubicle 7B, unlock and close alternate feeder breaker to MCC-R.

- [] **NOTE 1** - Step 1.1.2.1 transfers MCC-R to emergency power. Remainder of Attachment 2, Reactor Building Actions, may be performed concurrently in event normal power to MCC-R is not lost.
- [] **NOTE 2** - If all off-site power is lost, DG2 must be carrying 4160V Bus 1G before transferring MCC-R to emergency power.

When directed by ASD Room Operator or MCC-R loses power, perform following:

Transfer MCC-R power supply to emergency by pressing red button labeled FED FROM MCC-S, EMERGENCY, located on master transfer panel on MCC-R.

Notify ASD Room Operator that MCC-R is powered from emergency power.

At MCC-Y, ensure following valves are closed. Operate valves per Attachment 7, MOV Operation from MCC Cubicle, for time (in seconds) indicated next to cubicle number.

	<u>VALVE</u>	<u>FUNCTION</u>	<u>CUBICLE (TIME)</u>	<u>CHECK</u>
RCIC-MO-15	Steam Supply	Isolation Valve	10B (20)	_____
SW-MO-37	Loop Crosstie	Valve	7A (20)	_____
Inform ASD Operator on position status of above valves and DG Operator that SW-MO-37 has been closed.				

- [] **NOTE** - While operating valves at MCC-R, ensure it is energized by observing lights on cubicles near master transfer panel.

At MCC-R, close the following valves. Operate valves per Attachment 7, MOV Operation from MCC Cubicle, for time (in seconds) indicated next to cubicle number.

	<u>VALVE</u>	<u>FUNCTION</u>	<u>CUBICLE (TIME)</u>	<u>CHECK</u>
RWCU-MO-15	Inboard	Isolation	5C (30)	_____
MS-MO-74	Drain Valve	4C (25)	_____	
RHR-MO-20	Cross-Connect	3A (120)	_____	
RHR-MO-57	Radwaste	Isolation	3B (20)	_____
REC-MO-695	Critical Loop	Supply Crosstie	8B (30)	_____

At MCC-Y, close following valves. Operate valves per Attachment 7 for times (in seconds) indicated.

	<u>VALVE</u>	<u>FUNCTION</u>	<u>CUBICLE (TIME)</u>	<u>CHECK</u>
RHR-MO-26B	Drywell Spray	Outboard Throttle Valve	3C (25)	_____
SW-MO-651	REC HX B Service	Water Outlet	6B (33)	_____
REC-MO-714	South Critical	Loop Supply	7C (55)	_____

At MCC-Y, open following valve. Operate valve per Attachment 7 for time (in seconds) indicated.

<u>VALVE</u>	<u>FUNCTION</u>	<u>CUBICLE (TIME)</u>	<u>CHECK</u>
SW-MO-89B	RHR HX B Service Water Outlet	6C (165)	_____

At MCC-RB, open following valves. Operate valves per Attachment 7, MOV Operation from MCC Cubicle, for times (in seconds) indicated.

<u>VALVE</u>	<u>FUNCTION</u>	<u>CUBICLE (TIME)</u>	<u>CHECK</u>
SW-MO-887	SW Supply To REC South Critical Loop	4D (32)	_____
SW-MO-889	SW Return From REC South Critical Loop	5D (28)	_____

Inform ASD Room Operator that REC, RHR, and SW valve line-ups are complete.

[] **NOTE** - Steps 1.1.9 and 1.1.10 may be performed in any order. Step 1.1.9 takes precedence when ASD Room Operator directs Operator in Reactor Building to standby to open RHR-MO-25B.

When ASD Room Operator directs Operator in Reactor Building to standby to open RHR-MO-25B, perform following:

Go to RHR-MO-25B starter rack and open breaker.

Unlatch and open cover.

Remove two 5 amp control power fuses located near center of starter rack.

Close breaker.

Inform ASD Room Operator that you are standing by to open RHR-MO-25B.

When directed by ASD Room Operator, open RHR-MO-25B by pressing white button on contactor labeled OPEN (farthest right) for 26 seconds.

Close PC-184, nitrogen makeup inlet isolation to PCV-513 (west end of south HCUs).

CONTROL BUILDING ACTIONS

- [] **NOTE** - If you are in any area and having difficulty communicating with ASD Room or Control Room, step out of area and complete required communications. Then re-enter area and complete task. Areas that will be a problem are all rooms in Control Building 903' area.

In Critical Switchgear Room 1G, perform following:

Pull closing and tripping control power fuses labeled NR and NQ respectively to Breakers 1GB and 1GS. Fuses are located on back wall inside upper portion of breakers.

Check open/manually trip open Breakers 1GB and 1GS.

Pull closing and tripping control power fuses labeled NR and NQ respectively to Breakers SS1G and 1GE.

Check closed/manually close Breakers 1GE and SS1G.

Coordinate with Operator at DG and have Breaker EG2 closed after DG is ready to load.

Check closed/manually close feeder breaker to MCC-S located on 480V Bus 1G.

Check closed/manually close feeder breaker to MCC-TX located on 480V Bus 1G.

Fire could damage MCC-TX or power cables feeding MCC-TX. If breaker trips open, do not reclose breaker. Inform ASD Room Operator that Station 1B battery chargers have been lost and Attachment 8 needs to be performed.

Manually close Power Supply Breakers SWP1B and SWP1D to start SW Pumps B and D.

Inform ASD Room Operator that DG2 is powering 4160V and 480V Bus 1G and that SW pumps are running.

Remove closing and tripping control power fuses and check open/manually open AIR COMPRESSOR 1B breaker.

If DG2 load is > 4000 kW, perform following in order listed until DG2 load is ≤ 4000 kW:

Remove closing power fuses (NR) and ensure following breakers are open:

RHR SWB Pumps B and D.

RHR Pump C.

CS Pump B.

Check open/manually open following breakers:

MCC-MR FEEDER.

MCC-W FEEDER.

MCC-V FEEDER.

MCC-U FEEDER.

Remove closing and tripping control power fuses and check open/manually open following breakers:

Open MCC-CB FEEDER.

Open MCC-T FEEDER.

If Breaker EG2 trips on overload, perform following:

Ensure actions in Step 1.1.11 are complete.

Ensure SW Pump D and RHR Pump D breakers are open.

Ensure Breaker EG2 is closed (86 lockout on DG2 Control Panel may require resetting).

Close SW and RHR Pump D breakers, if required.

Inform ASD Operator power is available.

[] **NOTE** - ASD Room Operator may direct that Step 1.3 be performed before Step 1.2.

Go to Critical Switchgear Rooms and perform following:

In Critical Switchgear Room 1G, ensure RHR Pump D breaker is open.

Remove following fuses:

[] **NOTE** - Closing and tripping fuses are located inside upper portion of breaker on back wall.

	<u>BREAKER</u>	<u>FUSE</u>	<u>LABEL</u>	<u>CHECK</u>
RHR Pump C	Closing	NR	_____	
RHR Pump D	Closing	NR	_____	
RHR Pump D	Tripping	NQ	_____	
SW Pump B	Tripping	NQ	_____	
SW Pump D	Tripping	NQ	_____	

Ensure breakers to RHR Pumps C and D are OPEN.

Inform ASD Room Operator that RHR Pump D is secured.

In Critical Switchgear Room 1F, remove following fuses:

	<u>BREAKER</u>	<u>FUSE</u>	<u>LABEL</u>	<u>CHECK</u>
RHR Pump A	Closing	NR	_____	
RHR Pump B	Closing	NR	_____	

Ensure breakers to RHR Pumps A and B are OPEN.

- [] **NOTE** - Refer to Attachment 6, Control Building Operator Action Results, for results of actions in Step 1.3.

Go to Control Building 903' and perform following actions:

Enter RPS Room 1A and perform following:

At Panel CDP1A, open breakers to Circuits 2 and 3.

Open input breaker to RPS MG Set 1A.

Go to RPS Room 1B and perform following:

At Panel CDP1B, open breakers to Circuits 3 and 9.

Open input breaker to RPS MG Set 1B.

Go to Battery Room 1B and perform following:

At 125 VDC Panel BB2, open breakers to Circuits 8 and 9.

At 125 VDC Distribution Panel B, open breaker to Circuit 3.

Go to Battery Room 1A and perform following:

At 125 VDC Panel AA2, open following breakers:

Circuit 6, Panel 9-32.

Circuit 12, Panel 9-41.

Circuit 15, Panel 9-45.

Inform ASD Room Operator that all ADS valves are de-energized.

Close IA-271, SUPPLY TO DAMPERS AD-1405, AD-1406, AD-1407, and AD-1408 (C-903-Corridor outside RPS MG Set Room B).

Remove pipe plug from end of IA-1851, CONTROL BUILDING SUPPLY (C-903-Corridor outside RPS MG Set Room B).

Open IA-1851.

Close IA-16, RELIABLE AIR SUPPLY VALVE (C-882-SE corner of room).

Remove pipe plug from end of IA-26, RELIABLE AIR HEADER DRAIN VALVE (C-882-SE corner of room).

Open IA-26.

Inform ASD Room Operator that reliable air header is secured.

Go to Critical Switchgear Room 1G and inform ASD Room Operator that you are there.

If Step 1.3 was performed prior to Step 1.2, perform Step 1.2 at this time.

Manually initiate essential cooling for 4160V Critical Switchgear Room 1G. Start HV-FAN-(SF-SWGR-1G) supply fan and HV-FAN-(EF-SWGR-1G) exhaust fan from local starter Rack HV-STRR-ECBHII.

At 480V Bus 1F (4160V Critical Switchgear Room 1F), open feeder breaker for MCC-K.

Check if 125V Charger 1B and 250V Charger 1B are operating properly or if either charger is not operating properly, inform ASD Operator Attachment 8 needs to be performed. Perform check periodically.

If fire is in Cable Spreading Room, go to Control Building 903 open doors to DC Switchgear Room 1B, Battery Room 1B, and RPS MG Set Room 1B to allow air change for cooling equipment in these rooms.

Check a Battery Room Exhaust Fan is running and if not operating properly, inform ASD Operator Attachment 9 needs to be performed. Perform check periodically.

When directed by ASD Room Operator or to provide cooling to DG, manually close Power Supply Breakers SWP1B and SWP1D to start SW Pumps B and D.

When directed by ASD Room Operator, manually close Power Supply Breaker RHRP1D to start RHR Pump D.

Go to DG2 Room and operate DGs per Procedure 2.2.20.2.

While operating DG2 per Procedure 2.2.20.2, perform following steps concurrently with Procedure 2.2.20.2.

Monitor DG2 load and if > 4000 kW, inform Control Building Operator to perform Step 1.1.11 of Attachment 3.

Go to SW Pump Room in Intake Structure and perform following:

Open SW-194, SW STRAINER B BYPASS (SW Pump Room).

Ensure Reactor Building Operator has turned off breaker for SW-MO-37, SW PUMPS CROSSTIE (SW Pump Room west).

Ensure SW-MO-37 is closed.

Open SW-V-543, SW-MOV-2129MV BYPASS (SW Pump Room).

Open DGDO-60, DIESEL GENERATOR DAY TANK 2 SIGHTGLASS ROOT VALVE, and monitor DG2 Day Tank level.

If DG2 Day Tank level ≤ 39 " and Diesel Fuel Oil Transfer Pump 1B is not running, inform ASD Operator repairs are required per Attachment 10.

REACTOR BUILDING

ACTION PERFORMEDCHECK

MCC-R transferred to emergency (may not be required).

REC, RHR, and SW line-ups done.

Standby by to open RHR-MO-25B.

CONTROL BUILDING

ACTION PERFORMEDCHECK

SW Pumps 1B and 1D energized.

RHR Pump D secured.

ADS valves de-energized.

Reliable air secured (may not be required).

In Critical Switchgear Room 1G.

DG powering buses (may not be required).

DIESEL GENERATOR

ACTION PERFORMEDCHECK

DG ready to load if required.

SW line-ups verified.

NOTE - When Panels RPSPP1A and RPSPP1B are secured, a complete reactor scram is ensured.

<u>PANEL</u>	<u>BREAKER</u>	<u>RESULTS</u>
CDP1A	2	Secures alternate power to Panel RPSPP1B. When RPSPP1B is secured and Circuit 9 on 125 VDC Panel BB2 is opened, MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D will fail closed.
CDP1A	3	Secures Panel CCP1A which fails open SW-AOV-TCV451A and starts the SGT System.
RPS MG Set 1A	Input	Secures normal power to Panel RPSPP1A. When RPSPP1A is secured and Circuit 12 on 125 VDC Panel AA2 is opened, MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D will fail closed.
CDP1B	3	Secures Panel CCP1B. This fails closed MS-AOV-738 and MS-AOV-739. Fails open SW-AOV-TCV451B.
CDP1B	9	Secures alternate power to Panel RPSPP1A. When RPSPP1A is secured and Circuit 12 is opened on 125 VDC Panel AA2, MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D fail closed.
RPS MG Set 1B	Input	Secures normal power to Panel RPSPP1B. When RPSPP1B is secured and Circuit 9 on 125 VDC Panel BB2 is opened, MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D will fail closed.
125 VDC Distribution Panel BB2	8	Secures half of power to ADS valves and logic power to the B Subsystems of CS and RHR. When Circuit 15 on 125 VDC Distribution Panel AA2 is opened, all eight valves fail closed.
125 VDC Distribution Panel BB2	9	Secures partial power to MS-AO-86A, MS-AO-86B, MS-AO-86C, and MS-AO-86D fail closed.
125 VDC Distribution Panel B	3	Secures Panel BB3 to remove control power from 4160V Bus 1G and 480V Bus 1G.
125 VDC Distribution Panel AA2	6	Secures logic power to the A Subsystems of CS and RHR.
125 VDC Distribution Panel AA2	12	Removed DC power to MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D. When Panel RPSPP1A is secured, MS-AO-80A, MS-AO-80B, MS-AO-80C, and MS-AO-80D fail closed.

<u>PANEL</u>	<u>BREAKER</u>	<u>RESULTS</u>
125 VDC Distribution Panel AA2	15	Secures half of power to ADS valves. When Circuit 8 on 125 VDC Distribution Panel BB2 is opened, all eight valves fail closed.

[] **NOTE** - Operate MOVs per following instructions.

VALVES POWERED FROM MCC-Y, MCC-R, and MCC-RB OPERATION

Ensure breaker is closed and rotate silver screw under switch which defeats mechanical interlock and open cubicle door.

Remove control power fuse to prevent spurious operation.

Perform applicable step to position valve in desired position.

Open valve by pressing button on LOWER contactor for time indicated for valve.

Close valve by pressing button on UPPER contactor for time indicated for valve.

Open breaker and close cubicle door.

- [] **CAUTION 1** - Repairs shall commence within 1.5 hours from time battery charger is lost. Repairs shall be completed no later than 4.5 hours after OPERABILITY is lost to prevent exceeding battery capacity limit.
- [] **CAUTION 2** - Observe proper electrical safety precautions while working with/on energized equipment.

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: _____

If off-site power has been lost, perform Attachment 11 concurrently with this attachment.

Initials: _____

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

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.

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

Initials: _____

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.

Initials: _____

Route cables from MCC-F through Control Building 903 security door into 125/250 VDC Switchgear Room 1B. Protect cable from physical damage where they pass through doors.

Initials: _____

At MCC-TX, open following breakers:

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

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

Initials: _____

At 125V Charger 1B, perform following:

Open AC input breaker.

Open DC output breaker.

Separate cables and ensure 125V Charger 1B Emergency Repair Cable is laid out to correct charger.

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

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

Initials: _____

At 250V Charger 1B, perform following:

Open AC input breaker.

Open DC output breaker.

Separate cables and ensure 250V Charger 1B Emergency Repair Cable is laid out to correct charger.

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

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

Initials: _____

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

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

Remove bottom access panel from Section 6.

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

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

Ensure 60 amp fuses installed in Breaker 6EL.

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

Initials: _____

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

Remove bottom access panel from Section 1.

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

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

Ensure 150 amp fuses installed in Breaker 1E.

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

Initials: _____

If off-site power has been lost, inform ASD Operator to energize MCC-F per Attachment 11.

Initials: _____

When MCC-F is energized, close following breakers:

Breaker 6EL.

Breaker 1E. Initials: _____

Ensure 125V Charger 1B breaker on 125 VDC Switchgear Bus 1B is closed.

Initials: _____

Close DC output breaker on 125V Charger 1B.

Initials: _____

Close AC input breaker on 125V Charger 1B.

Initials: _____

Ensure 250V Charger 1B breaker on 250 VDC Switchgear Bus 1B is closed.

Initials: _____

Close DC output breaker on 250V Charger 1B.

Initials: _____

Close AC input breaker on 250V Charger 1B.

Initials: _____

[] **NOTE** - If a Battery Room exhaust fan is not running, repairs per Attachment 9 shall be complete within 8 hours after restoring battery chargers to operation.

Inform ASD Operator 125V Charger 1B and 250V Charger 1B are in service.

Initials: _____

- [] **CAUTION 1** - Repairs shall commence within 6 hours after battery chargers are restored to operation. Repairs shall be complete no later than 8 hours after battery chargers are restored to operation to prevent hydrogen build-up.
- [] **CAUTION 2** - Observe proper electrical safety precautions while working with/on energized equipment.

If off-site power has been lost, perform Attachment 11 concurrently with this attachment.

Initials: _____

Obtain cable designated Exhaust Fan 1-EF-C-1C Emergency Repair Cable from Warehouse in Location 5-1-B and transport it to area near MCC-F.

Initials: _____

At MCC-TX, open Breaker 1C for EF-C-1C, BATTERY ROOM EXHAUST FAN 1C.

Initials: _____

Route cable end labeled FAN END up through Turbine Building 932' equipment hatch and into Battery Exhaust Fan Room and secure it. Protect cable from physical damage where they pass through doors.

Initials: _____

- [] **CAUTION** - Do not disconnect external motor ground lead.

Remove terminal box cover on motor to EF-C-1C (directly north of entrance to room) and disconnect existing supply cable.

Initials: _____

Connect repair cable leads to connection points where existing cable leads were removed.

Initials: _____

Open EF-C-1C discharge damper by performing following:

Unbolt pneumatic operator from damper.

Manually rotate damper handle clockwise to open damper.

Initials: _____

Connect repair cables to MCC-F by performing following:

Open Breaker 4F on MCC-F, SPARE, and open breaker door.

Remove bottom access panel from Section 4.

Feed battery exhaust fan repair cable end labeled MCC END up through bottom access panel opening to Breaker 4F and secure it.

Disconnect existing leads on load side of fuses (bottom of fuses) in Breaker 4F.

Ensure 30 amp fuses installed in Breaker 4F.

Connect repair cable leads to load side of fuses in Breaker 4F.

Close Breaker 4F door.

If off-site power has been lost, inform ASD Operator to energize MCC-F per Attachment 11.

Initials: _____

[] **NOTE** - Correct rotation of EF-C-1C shaft is clockwise when viewed from motor end.

Station personnel with communication equipment to check repaired EF-C-1C for correct rotation.

Initials: _____

Momentarily close, then open Breaker 4F on MCC-F and check for correct rotation.

Initials: _____

If rotation is correct, close Breaker 4F on MCC-F and inform ASD Operator fan is running.

Initials: _____

If rotation is not correct, perform following:

Open door for Breaker 4F on MCC-F.

Reverse two repair cable leads connected to fuses in Breaker 4F on MCC-F.

Close door for Breaker 4F on MCC-F and repeat Steps 1.9 through 1.11 to ensure proper rotation.

Initials: _____

- | | |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [] | CAUTION 1 - Repairs shall commence within 3.5 hours from time either DG2 Day Tank level < 39". Repairs shall be complete no later than 5 hours after level < 39" to ensure continuous DG operation. |
| [] | CAUTION 2 - Observe proper electrical safety precautions while working with/on energized equipment. |

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

Initials: _____

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

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

Open Breaker 3B door.

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

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

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

Inform ASD Operator Diesel Fuel Oil Transfer Pump 1B can be operated per Step 1.3.

Initials: _____

Operate Diesel Fuel Oil Transfer Pump 1B by performing following:

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

[] **NOTE 1** - Steps 1.3.2 and 1.3.3 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.

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

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

When level in DG2 Day Tank $\leq 39"$, close Breaker 3B on MCC-S.

Check for flow indicated by rising level in Day Tank and pressure indication on DGDO-PI-636B.

When level in DG2 Day Tank $\sim 53"$, open Breaker 3B on MCC-S.

Repeat Steps 1.3.4 through 1.3.6 to maintain DG2 Day Tank level between 39" and 53".

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

At 4160V Bus 1B, ensure following breakers are open:

1BN, NORMAL XFMR BKR.

1BS, STARTUP XFMR BKR.

1BE, BUS 1E TIE BKR.

1BG, BUS 1G TIE BKR.

SS1B, 480V BUS 1B FDR BKR.

SS1D, 480V BUS 1D FDR BKR.

CIRC WATER PUMP C.

CIRC WATER PUMP D.

CONDENSATE BOOSTER PUMP B.

CONDENSATE PUMP B.

Initials: _____

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

TEC PUMP 1C.

STATION AIR COMPRESSOR 1C.

MECHANICAL VACUUM PUMP 1B.

MCC-F FEEDER.

MCC-G FEEDER.

SWITCHBOARD MSA.

SECURITY BUILDING.

WAREHOUSE. Initials: _____

Open all breakers on MCC-F (T-903-N).
At 4160V Bus 1G, perform following:

Initials: _____

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

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

Remove TRIPPING POWER FUSES NQ and CLOSING POWER FUSES NR in Cubicle 1GB,
4160V BUS 1B FEED TO 4160V BUS 1G.

Manually close Breaker 1GB.

Initials: _____

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

Initials: _____

Manually close Breaker 1BG to energize 4160V Bus 1B.

Initials: _____

Manually close Breaker SS1B to energize 480V Bus 1B.

Initials: _____

When personnel at MCC-F are ready for it to be energized, manually close MCC-F FEEDER
breaker.

Initials: _____

Inform ASD Operator MCC-F is energized.

Initials: _____

Provide cooling water to STATION AIR COMPRESSOR 1B prior to closing 480V SWGR 1G Breaker 2C by performing the following:

Perform following actions in the 882' south Control Building:

Close IA-1936, AIR COMPRESSORS REC/TEC AOV HEADER ISOL, and disconnect 1A tubing fitting to vent/depressurize at REC-AOV-902AV, COMPRESSOR B REC SUPPLY ISOL.

Initials: _____

Verify closed valves TEC-AOV-22AV, COMPRESSOR B TEC SUP ISOL, and TEC-AOV-23AV, COMPRESSOR B TEC RETURN ISOL.

Initials: _____

Verify open valves REC-AOV-902AV, COMPRESSOR B REC SUPPLY ISOL, and REC-AOV-903AV, COMPRESSOR B REC RETURN ISOL.

Initials: _____

Verify open valves REC-553, EMERGENCY SUPPLY TO AIR COMPRESSOR 1B, and REC-556, EMERGENCY RETURN FROM AIR COMPRESSOR 1B.

Initials: _____

Perform following actions in the Reactor Building:

De-energize the following valves at MCC-R (R-903-NW):

REC-MO-694, CRITICAL LOOPS RETURN X-TIE VLV (8C).

Initials: _____

REC-MO-697, REC NORTH CRITICAL LOOP RETURN VLV (9C).

Initials: _____

REC-MO-700, NON-CRITICAL HEADER SUPPLY VALVE (7C).

Initials: _____

De-energize the following valve at MCC-RB (R-903-NW):

REC-MO-713, REC HX-B OUTLET VALVE (4B).

Initials: _____

De-energize the following valves at MCC-Y (R-903-SW):

REC-MO-714, REC SOUTH CRITICAL LOOP SUPPLY VLV (7C).

Initials: _____

REC-MO-722, NON-CRITICAL HEADER RETURN VLV (7D).

Initials: _____

Manually close the following valves at the 931' elevation:

REC-501, AUGMENTED RW SUPPLY (WEST OF REC HX).

Initials: _____

REC-778, DRYWELL SUPPLY BLOCK (ABOVE RWCU PUMP
ROOM).

Initials: _____

Manually open the following valves at 931' north:

REC-694MV, CRITICAL LOOP RETURN CROSSTIE.

Initials: _____

REC-MOV-697MV, NORTH CRIT SERVICES RETURN VLV.

Initials: _____

REC-MOV-700MV, NON-CRITICAL SUPPLY HEADER SHUTOFF.

Initials: _____

REC-MOV-713MV, REC HX B OUTLET.

Initials: _____

REC-MOV-714MV, SOUTH CRITICAL LOOP SUPPLY.

Initials: _____

REC-722MV, NON-CRIT SERVICES RET TO REC PUMPS C AND D.

Initials: _____

Prior to starting STATION AIR COMPRESSOR 1B, isolate instrument air lines to maintain the
MSIVs and SDIV isolation valves closed and
SW-TCV-451B open.

Perform following actions in the Reactor Building:

Close IA-249, STEAM TUNNEL AND OTHER RELIABLE AIR SUPPLY ROOT (R-881-NE QUAD).

Initials: _____

Manually open valve IA-571, REACTOR BUILDING DRYWELL SUPPLY (R-903-SE).

Initials: _____

Perform following actions in the 882' south Control Building:

Close IA-26, RX BUILDING RELIABLE AIR HEADER DRAIN.

Initials: _____

Open IA-16, RX BUILDING RELIABLE AIR SUPPLY.

Initials: _____

Close SA-18, 81MV INLET.

Initials: _____

Open IA-13A, A DRYER POST-FILTER BYPASS IA-V-13 BACKUP.

Initials: _____

Open IA-23A, A DRYER BYPASS SA-V-23 BACKUP.

Initials: _____

Reinstall pipe plug on outlet of IA-26, RX BLDG RELIABLE AIR HEADER DRAIN.

Initials: _____

Start and control STATION AIR COMPRESSOR 1B by performing following:

In Critical Switchgear Room G, start STATION AIR COMPRESSOR 1B at 480V Bus 1G by manually closing BREAKER 2C.

Ensure STATION AIR COMPRESSOR 1B component cooling water flow is established using local gage TEC-FI-2609B, COMPRESSOR 1B CYLINDER OUTLET (C-882-E).

Control STATION AIR COMPRESSOR 1B output locally by manually operating the regulator to the unloader valve per Procedure 2.2.59.

Verify AIR RECEIVER 1B pressure locally using PI-603B, AIR RECEIVER 1B PRESSURE. Ensure system pressurizes to ~ 100 psig.

Shutdown Service Air Compressor 1B when system pressure reaches ~ 100 psig.
Reperform Step 1.2.3, as needed, to maintain air supply to the Reliable Air Header.

Periodically monitor INSTRUMENT AIR RECEIVER 1B PRESSURE at PI-603B.

If INSTRUMENT AIR RECEIVER 1B cannot be pressurized to ~ 100 psig, then isolate the following valves, as needed, to maintain header pressure:

IA-10, IA DRYER OUTLET (C-882-S). Initials: _____

IA-209, PILOT AIR TO AIR COMPRESSORS 1A, 1B, and 1C SUPPLY ROOT (C-882-S).
Initials: _____

IA-210, IA-PS-608, IA-PT-606, and IS-PI-607 ROOT (C-882-S).
Initials: _____

IA-14, 80MV INLET (C-882-S). Initials: _____

IA-20, CONTROL BUILDING SUPPLY (C-882-S).
Initials: _____

IA-28, A RHR HX ROOM RELIABLE AIR SUPPLY, (R-903-RHR HX 1A RM).
Initials: _____

IA-85, PC-241AV, PC-PCV-513, and PC-PC-515 SUPPLY ROOT (R-903-SW-COLUMN P-17.1).
Initials: _____

IA-41, REACTOR BUILDING RHR HX ROOM 1B RELIABLE AIR SUPP ROOT (R-903-RHR HX 1B RM).
Initials: _____

IA-42, RX BUILDING 903' SE CRD RELIABLE AIR SUPPLY (R-903-SE-CRD AREA).
Initials: _____

IA-43, RX BUILDING 903 SE PC VLVS AND TIP DRIVE SHACK SUPPLY ROOT (R-903-SE-CRD AREA).

Initials: _____

IA-87, SOUTHEAST 903 RELIABLE AIR SUPPLY CONNECTION SHUTOFF (R-903-SOUTH CRD AREA HCU OVERHEAD).

Initials: _____

IA-247, PC-245AV AND RW-AO-1002 SUPPLY ROOT (R-881-TORUS BENT 4W).

Initials: _____

IA-337, MS-1331AV AND MS-1332AV SUPPLY ROOT (R-881-NW TORUS BENT 1/2).

Initials: _____

IA-248, TORUS VENTILATION CONNECTION TO PC-243AV, PC-244AV, PC-237AV, AND PC-238AV, ROOT (R-881-SW TORUS BENT 7/8).

Initials: _____

IA-77, SOUTHWEST QUAD 859 RELIABLE AIR SUPPLY ROOT (R-859-SW QUAD).

Initials: _____

IA-44, LR-118B SUPPLY ROOT (R-931-SE, 2ND LANDING STAIRS COLUMN K-7.1 OVERHEAD).

Initials: _____

IA-252, LR-118A SUPPLY ROOT (R-931-NW).

Initials: _____

IA-38, 976 HV SYSTEM, PC-AD-R-1A, PC-AD-R-1B AND FP SYSTEM 6
ACCUMULATOR SUPPLY ROOT (R-976-W COLUMN P-11.7).

Initials: _____

IA-39, SGT SUPPLY ROOT (R-976-W SOUTH WALL COLUMN P-7.1).

Initials: _____

IA-1112, HPCI-275AV SUPPLY SHUTOFF (R-976-COLUMN P-7.1).

Initials: _____

Once header has been pressurized to ~ 100 psig, inform ASD Room Operator that reliable air header is pressurized.

Initials: _____

