CONTROL ROOM JPM a

Facility: DC Cook Task No: _____

Task Title: Place Hydrogen Recombiner in Service **(ALTERNATE PATH)**

Job Performance Measure No: CR JPM a K/A Reference: 028 A4.01

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

Task Standard: Place a hydrogen recombiner in service. The first one will not reach temperature and the second one must be placed in service.

Required Materials: 02-OHP-4023.-005, "Placing Hydrogen Recombiners in Service."

General References: 2-OHP 4030-214-031, Rev. 26, Operations Weekly Surveillance Checks,

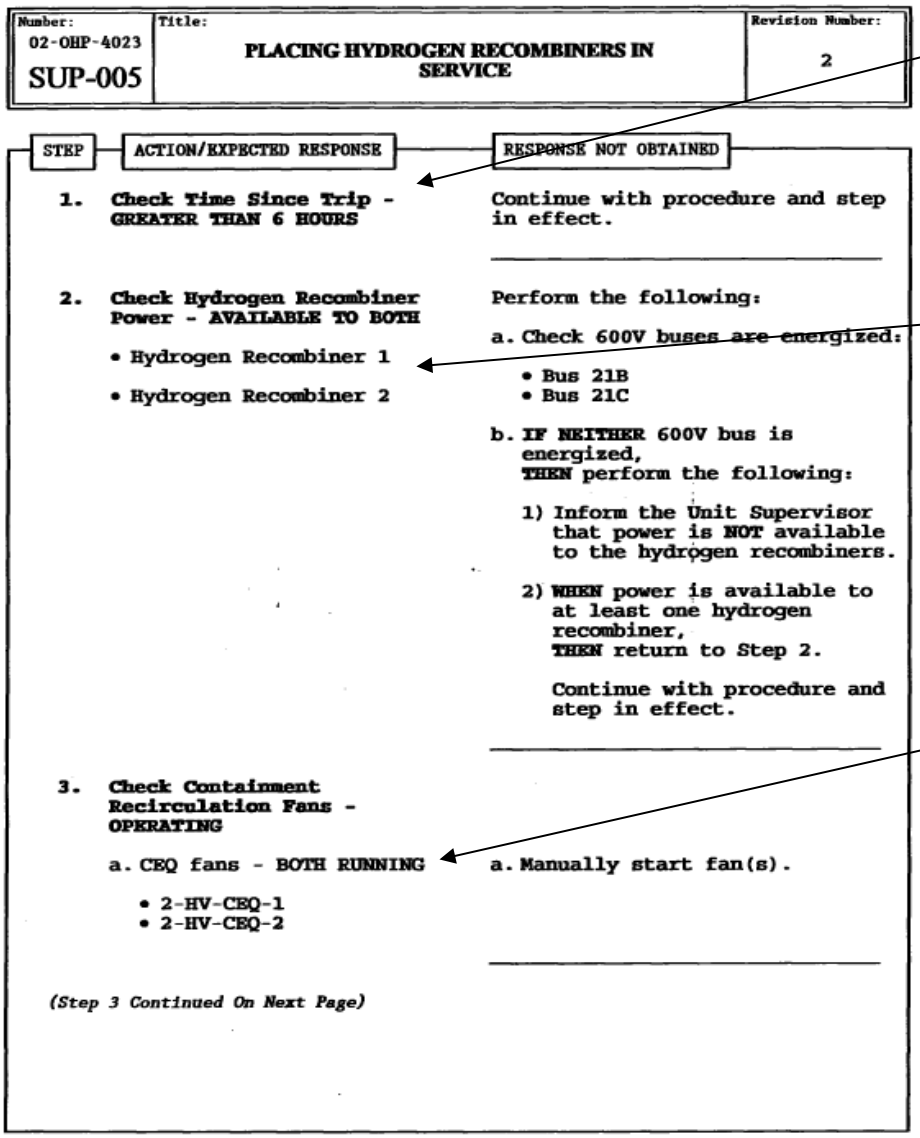
Read to the examinee:

Initial Conditions: The plant suffered a LOCA. All necessary mitigation actions per EOPs have been performed. Seven hours have elapsed since the onset of the LOCA. Hydrogen concentration in the containment is approximately 3%.

Initiating Cue: You are directed to place the hydrogen recombiners in service in accordance with 02-OHP-4023.-005, "Placing Hydrogen Recombiners in Service."

Time Critical Task: **No**

Validation Time: 20 Minutes



Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	**Check Time Since Trip - GREATER THAN 6 HOURS**	Continue with procedure and step in effect.
2.	**Check Hydrogen Recombiner Power - AVAILABLE TO BOTH** • Hydrogen Recombiner 1 • Hydrogen Recombiner 2	Perform the following: a. Check 600V buses are energized: • Bus 21B • Bus 21C b. **IF NEITHER** 600V bus is energized, **THEN** perform the following: 1) Inform the Unit Supervisor that power is **NOT** available to the hydrogen recombiners. 2) **WHEN** power is available to at least one hydrogen recombiner, **THEN** return to Step 2. Continue with procedure and step in effect.
3.	**Check Containment Recirculation Fans - OPERATING** a. CEQ fans - BOTH RUNNING • 2-HV-CEQ-1 • 2-HV-CEQ-2	a. Manually start fan(s).

(Step 3 Continued On Next Page)

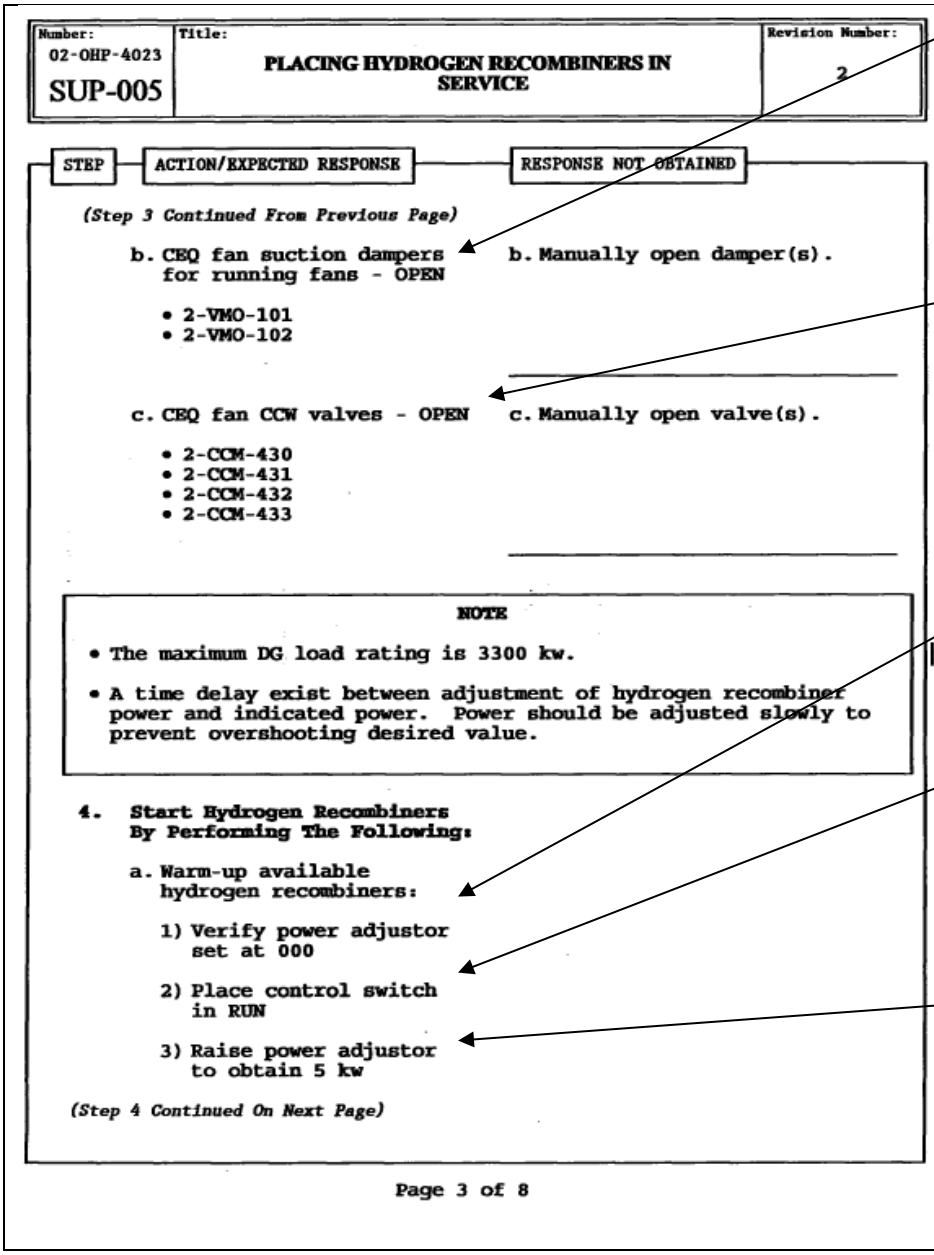
Page 2 of 8

Standard: IT HAS BEEN 7 HOURS S
CUE: If Required, IT HAS BEEN 7 H
LOCA
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: CHECKS 600V BUSES
21B AND 21C ARE ENERGIZED,
OR
CHECKS LIGHTS (HR1 & HR2) ENE
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: VERIFY CONTAINMENT
FANS RUNNING -CEQ FANS
- 2-HV-CEQ-1 RUNNING
- 2-HV-CEQ-2 RUNNING

SAT: ☐ UNSAT: ☐
COMMENT:



Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 3 Continued From Previous Page)

b. CEQ fan suction dampers for running fans - OPEN
- 2-VMO-101
- 2-VMO-102

b. Manually open damper(s).

c. CEQ fan CCW valves - OPEN
- 2-CCM-430
- 2-CCM-431
- 2-CCM-432
- 2-CCM-433

c. Manually open valve(s).

NOTE
- The maximum DG load rating is 3300 kw.
- A time delay exist between adjustment of hydrogen recombiner power and indicated power. Power should be adjusted slowly to prevent overshooting desired value.

4. Start Hydrogen Recombiners By Performing The Following:

a. Warm-up available hydrogen recombiners:

1) Verify power adjustor set at 000

2) Place control switch in RUN

3) Raise power adjustor to obtain 5 kw

(Step 4 Continued On Next Page)

Page 3 of 8

Standard: VERIFY DAMPERS OPEN
SUCTION DAMPERS FOR RUNNIN
- 2-VMO-101 OPEN
- 2-VMO-102 OPEN

SAT: ☐ UNSAT: ☐
COMMENT:

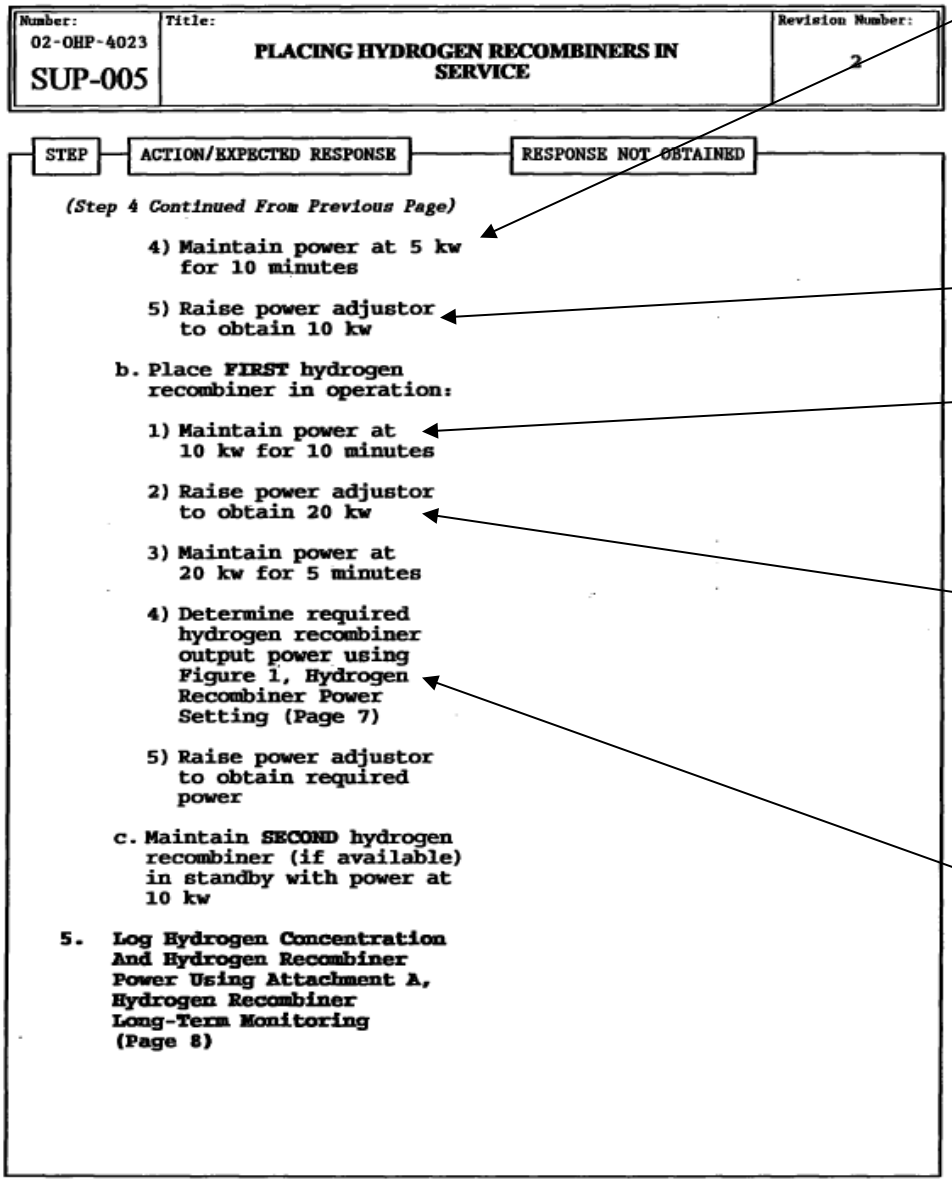
Standard: VERIFY CEQ FAN CCW V
- 2-CCM-430 OPEN
- 2-CCM-431 OPEN
- 2-CCM-432 OPEN
- 2-CCM-433 OPEN

SAT: ☐ UNSAT: ☐
COMMENT:

Standard: VERIFY POWER ADJUST
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: PLACE BOTH CONTROL
RUN:2-HRI AND 2-HR2
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: RAISE BOTH POWER AD
OBTAIN 5 kW
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:



Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 4 Continued From Previous Page)

4) Maintain power at 5 kw for 10 minutes

5) Raise power adjustor to obtain 10 kw

b. Place **FIRST** hydrogen recombiner in operation:

1) Maintain power at 10 kw for 10 minutes

2) Raise power adjustor to obtain 20 kw

3) Maintain power at 20 kw for 5 minutes

4) Determine required hydrogen recombiner output power using Figure 1, Hydrogen Recombiner Power Setting (Page 7)

5) Raise power adjustor to obtain required power

c. Maintain **SECOND** hydrogen recombiner (if available) in standby with power at 10 kw

5. **Log Hydrogen Concentration And Hydrogen Recombiner Power Using Attachment A, Hydrogen Recombiner Long-Term Monitoring (Page 8)**

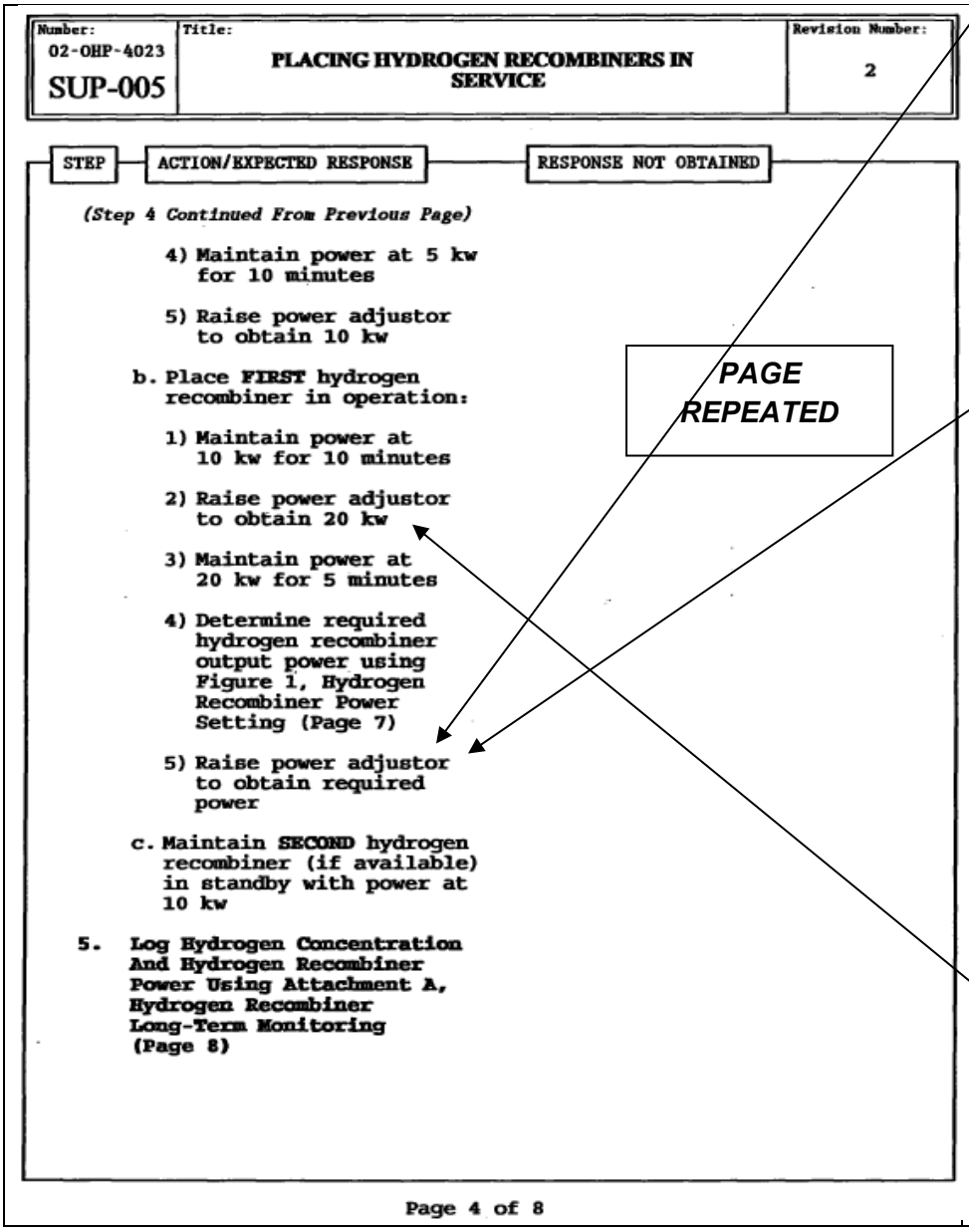
Page 4 of 8

Standard: MAINTAIN POWER AT 5
MINUTES (TIME COMPRESSION)
CUE: 10 Minutes Have Passed – Ter
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: RAISE POWER ADJUSTI
kW MAINTAIN POWER AT 10 KW F
(TIME COMPRESSION)
CUE: 10 Minutes Have Passed – Ter
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: RAISE ONE POWER ADJ
20 kW MAINTAIN POWER AT 20 kW
(TIME COMPRESS)
CUE: 5 Minutes Have Passed – Tem
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: USING THE VALUE OF T
PRESSURE (2.28 PSIG) THE APPL
THE HEATER POWER TARGET VA
1 OF SUP.005, PAGE 7
(HR1=67-67.5, HR2=58-58.5)
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:



Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 4 Continued From Previous Page)

4) Maintain power at 5 kw for 10 minutes

5) Raise power adjustor to obtain 10 kw

b. Place **FIRST** hydrogen recombiner in operation:

1) Maintain power at 10 kw for 10 minutes

2) Raise power adjustor to obtain 20 kw

3) Maintain power at 20 kw for 5 minutes

4) Determine required hydrogen recombiner output power using Figure 1, Hydrogen Recombiner Power Setting (Page 7)

5) Raise power adjustor to obtain required power

c. Maintain **SECOND** hydrogen recombiner (if available) in standby with power at 10 kw

5. Log Hydrogen Concentration And Hydrogen Recombiner Power Using Attachment A, Hydrogen Recombiner Long-Term Monitoring (Page 8)

PAGE REPEATED

Page 4 of 8

Standard: APPLICANT ATTEMPTS
ADJUSTER TO OBTAIN THE REQU
ABOVE.

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

NOTE: The Power Adjuster Knob wi
the first recombiner to reach 23 KW

Standard: APPLICANT DETERMINE
ADJUSTER WILL NOT FUNCTION T

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

NOTE: IF THE APPLICANT INFORM
CANNOT RAISE KW TO THE DESIR
THEM WHAT THEY RECOMMEND.
APPEAR NOT TO HAVE DETERMIN
SECOND H2 RECOMBINER, CUE T
RECOMBINER MUST BE PLACED I

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: RAISE THE SECOND HY
RECOMBINER POWER TO 20 kW A
FOR 5 MINUTES (TIME COMPRESS

CUE: 5 Minutes Have Passed – Tem

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 4 Continued From Previous Page)

4) Maintain power at 5 kw for 10 minutes

5) Raise power adjustor to obtain 10 kw

b. Place **FIRST** hydrogen recombiner in operation:

1) Maintain power at 10 kw for 10 minutes

2) Raise power adjustor to obtain 20 kw

3) Maintain power at 20 kw for 5 minutes

4) Determine required hydrogen recombiner output power using Figure 1, Hydrogen Recombiner Power Setting (Page 7)

5) Raise power adjustor to obtain required power

c. Maintain **SECOND** hydrogen recombiner (if available) in standby with power at 10 kw

5. **Log Hydrogen Concentration And Hydrogen Recombiner Power Using Attachment A, Hydrogen Recombiner Long-Term Monitoring (Page 8)**

PAGE REPEATED

Page 4 of 8

USING THE VALUE OF THE CONTA
PRESSURE (2.28 PSIG) THE APPL
THE HEATER POWER TARGET VA
1 OF SUP.005, PAGE 7
THE SELECTED VALUE SHOULD E
THAT SELECTED FOR THE FIRST
(HR1=67-67.5, HR2=58-58.5)

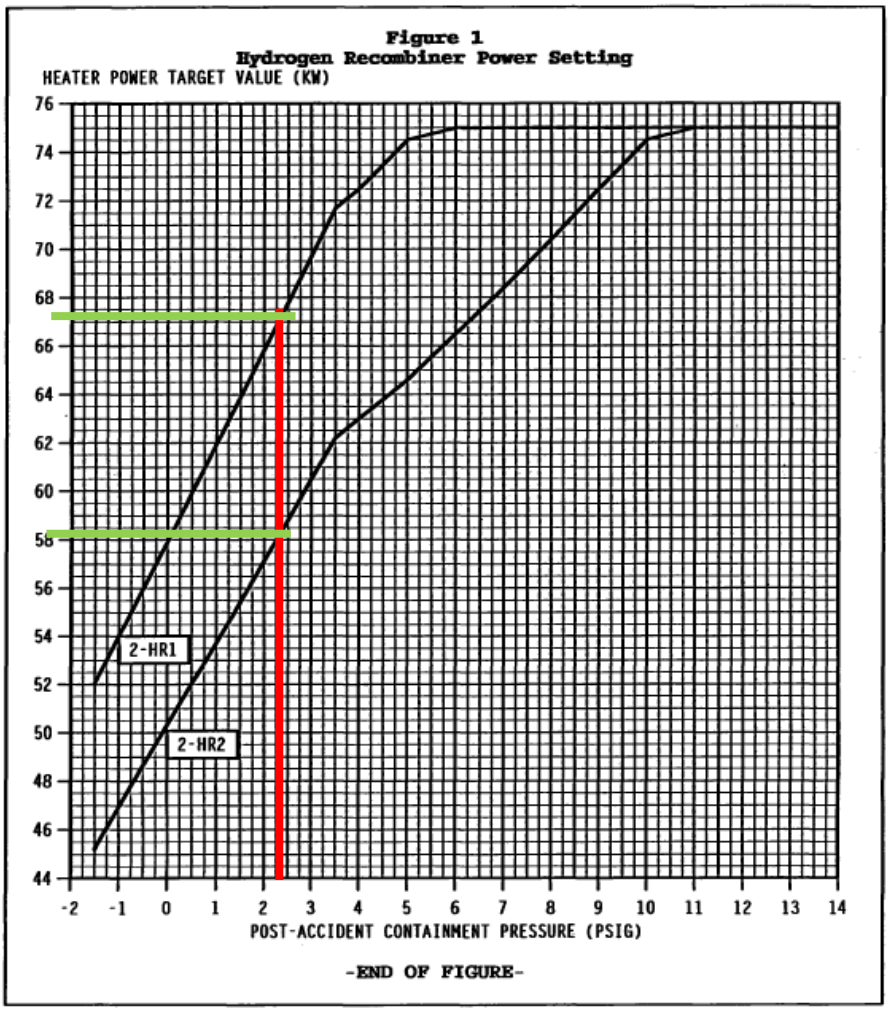
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: RAISE POWER ADJUSTI
REQUIRED POWER ABOVE,
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: LOG HYDROGEN CONC
HYDROGEN RECOMBINER POWE
ATTACHMENT A OF SUP.005, HYD
RECOMBINER LONG-TERM MONIT
SAT: ☐ UNSAT: ☐
COMMENT:

Number: 02-OHP-4023 SUP-005	Title: PLACING HYDROGEN RECOMBINERS IN SERVICE	Revision Number: 2

Figure 1
Hydrogen Recombiner Power Setting



-END OF FIGURE-

Attached for Reference ONLY

Based on 2.28 Psig in Containment
HR1=67-67.5

HR2=58-58.5

CONTROL ROOM JPM b

Facility: DC Cook Task No: _____

Task Title: Transfer to cold leg recirculation **(Alternate Path)**

Job Performance Measure No: CR JPM b K/A Reference: EPE.011.EA1.11

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____X_____

Classroom _____ Simulator _____X_____ Plant _____

Task Standard: The operator will stop both trains of CTS and RHR, re-align the West train for recirculation flow, and secure spray additive tank flow

Required Materials: 2-OHP-4023-ES-1.3 completed through step 5

General References: 2-OHP-4023-ES-1.3 REV.16

Read to the examinee:

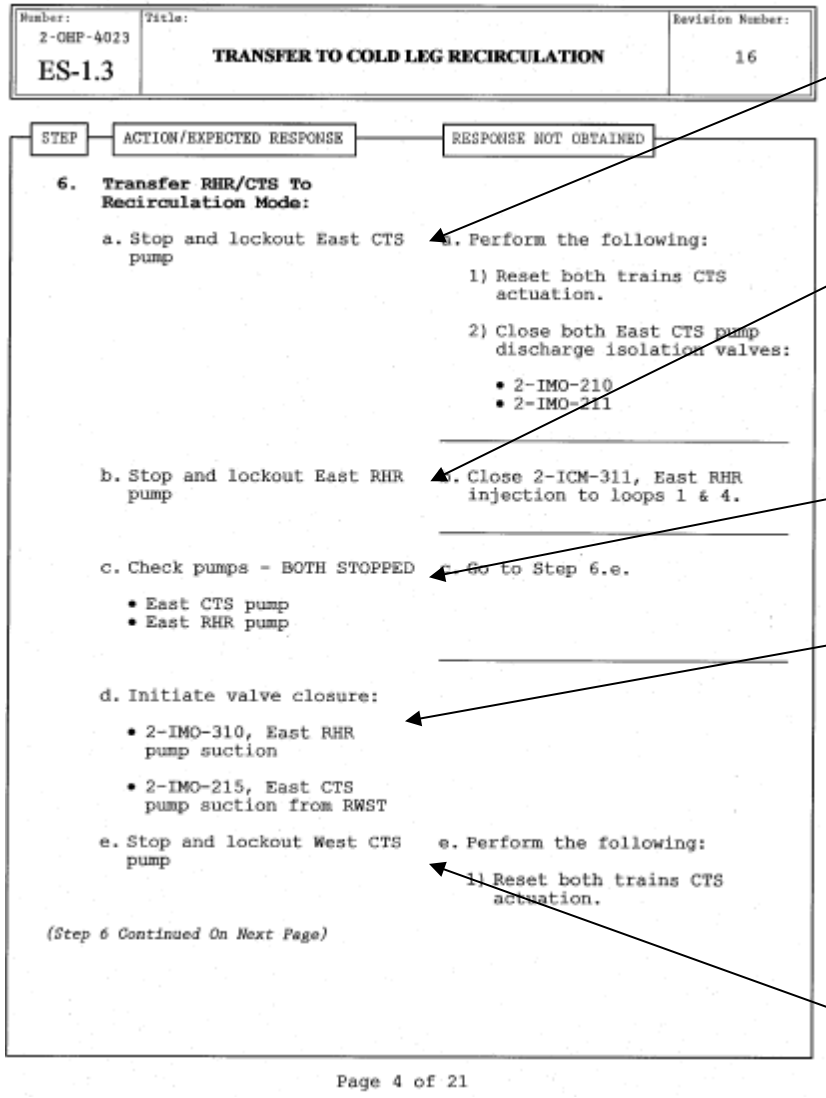
Initial Conditions: A reactor trip and safety injection have occurred on Unit 2 due to a large break LOCA. 2-OHP-4023-E-0. 2-OHP-4023-E-1, and 2-OHP-4023-ES-1.3 have been implemented. 2-OHP-4023-ES-1.3 has been completed through step 5. You are an extra RO.

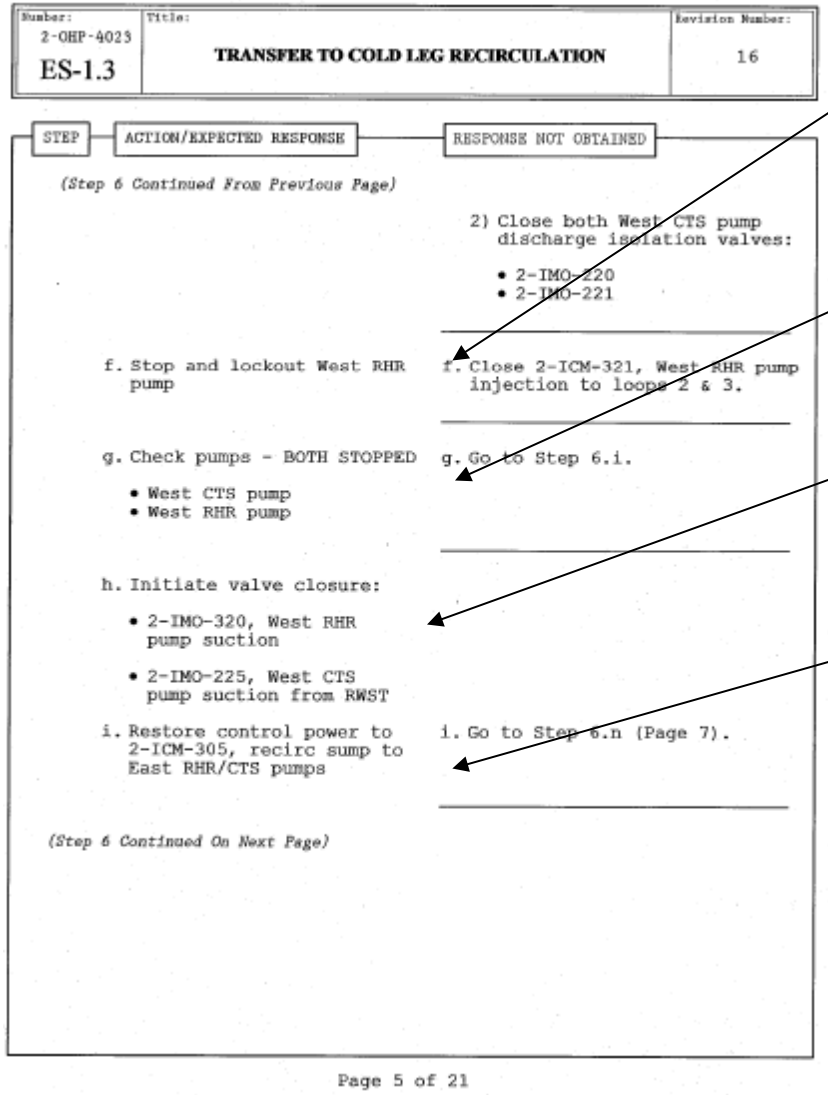
Initiating Cue:

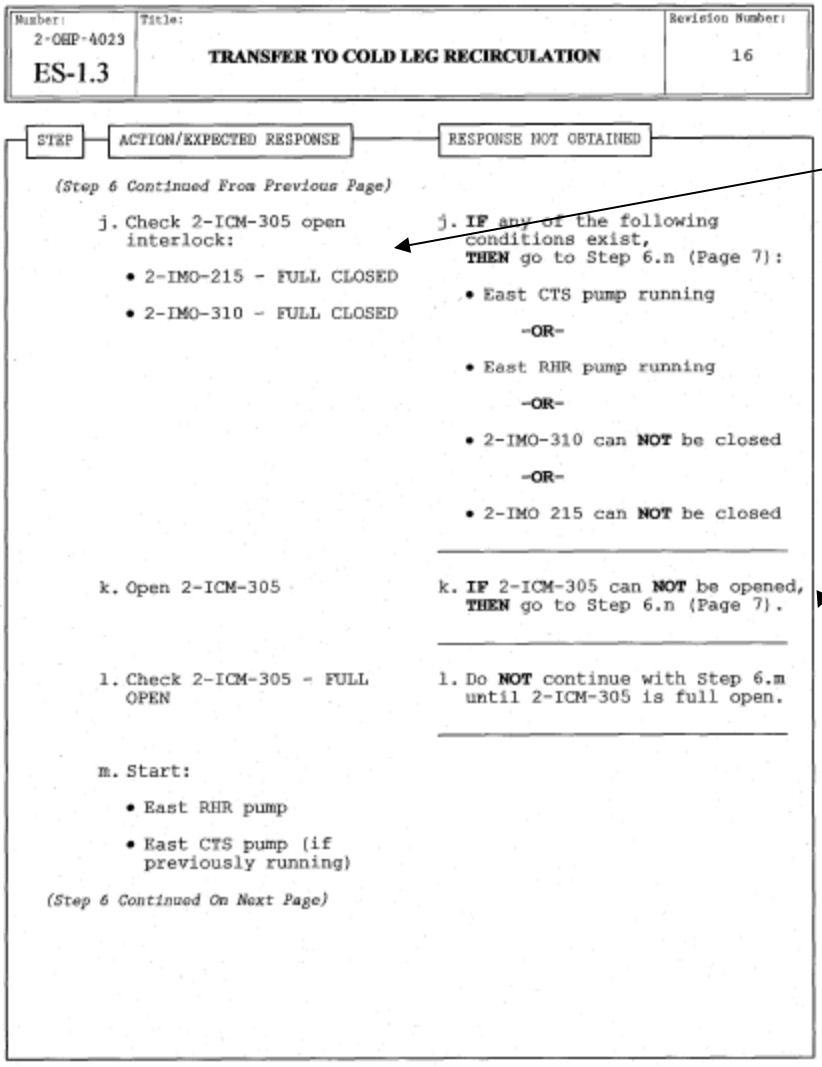
The US directs you to continue actions of 2-OHP-4023-ES-1.3, starting at step 6.
Report when step 6 is complete. You may review previously completed steps of 2-OHP-4023-ES-1.3 prior to starting the JPM.

Time Critical Task: **Yes** (PMP-4075-TCA-001 Attachment 1 & 29)

Validation Time: 15 MINUTES

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
	STANDARD: Operator stops East CTS pump and places control switch in lockout. **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator stops East RHR pump and places control switch in lockout. **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator verifies both pumps stopped. SAT: ☐ UNSAT: ☐ COMMENT: NOTE: Step not critical due to failure of 2-ICM-305 to open. STANDARD: Operator initiates valve closure for both valves SAT: ☐ UNSAT: ☐ COMMENT: EVALUATOR NOTE: Mark time West CTS and RHR pumps are stopped to evaluate time critical action (Re-start RHR and CTS pumps within 5 minutes of stopping them for switchover to the containment recirculation sump). TIME _____ STANDARD: Operator stops West CTS pump and places control switch in lockout. **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
	STANDARD: Operator stops West RHR pump and places control switch in lockout. **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator verifies both pumps stopped. SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: **CS** Operator initiates valve closure for both valves **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: NOTE: Step not critical due to failure of 2-ICM-305 to open. STANDARD: Operator restores control power to ICM-305 SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
	NOTE: Step not critical due to failure of 2-ICM-305 to open. STANDARD: Operator verifies IMO-215 and IMO-310 are full closed before proceeding SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator attempts to open ICM-305 (unsuccessful) and transitions to step 6.n (does not start East RHR/CTS pumps) **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")

Number: 2-OHP-4023 ES-1.3 | Title: **TRANSFER TO COLD LEG RECIRCULATION** | Revision Number: 16

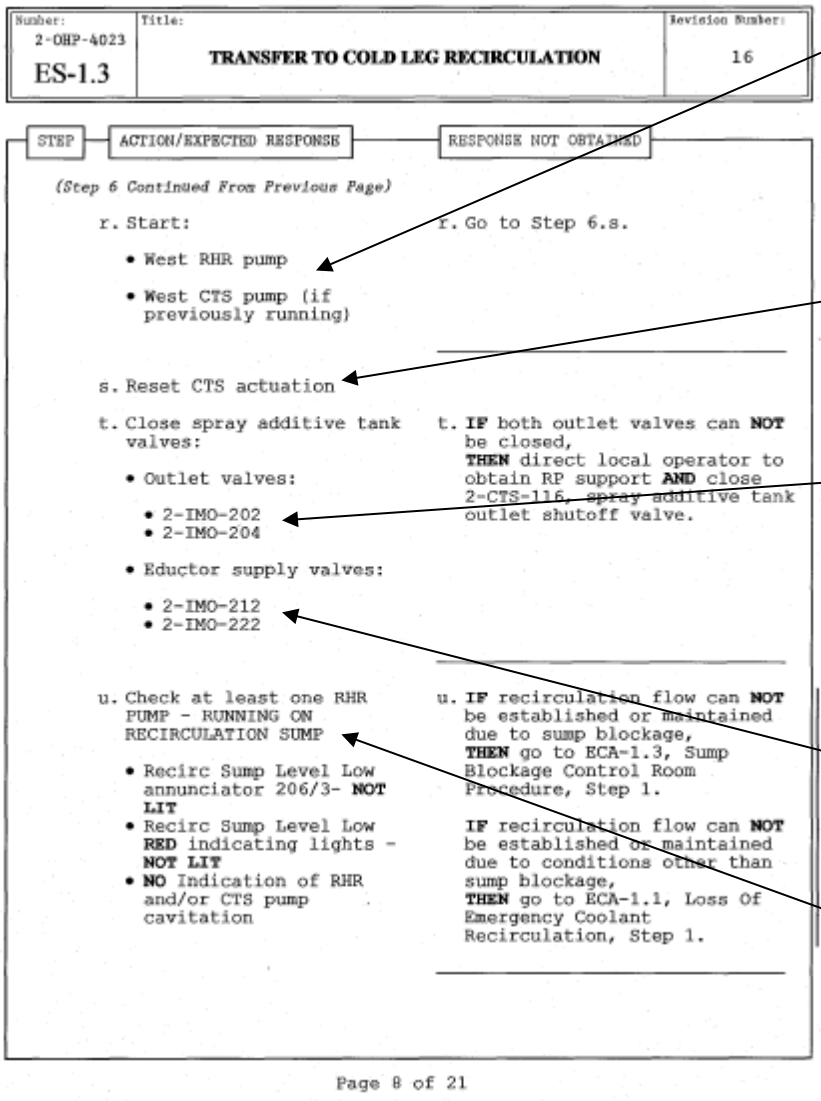
STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 6 Continued From Previous Page)	
n.	Restore control power to 2-ICM-306, recirc sump to West RHR/CTS pumps	n. Go to Step 6.s (Page 8).
o.	Check 2-ICM-306 open interlock: • 2-IMO-225 - FULL CLOSED • 2-IMO-320 - FULL CLOSED	o. **IF** any of the following conditions exist, **THEN** go to Step 6.s (Page 8): • West CTS pump running **-OR-** • West RHR pump running **-OR-** • 2-IMO-320 can **NOT** be closed **-OR-** • 2-IMO-225 can **NOT** be closed
p.	Open 2-ICM-306	p. **IF** 2-ICM-306 can **NOT** be opened, **THEN** go to Step 6.s (Page 8).
q.	Check 2-ICM-306 - FULL OPEN	q. Do **NOT** continue with Step 6.r (Page 8) until 2-ICM-306 is full open.
	(Step 6 Continued On Next Page)	

Page 7 of 21

STANDARD: Operator restores control power to ICM-306
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:

STANDARD: Operator verifies IMO-225 and IMO-320 are full closed before proceeding
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:

STANDARD: Operator opens ICM-306 and verifies valve is full open
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
	STANDARD: Operator starts the West RHR and West CTS pump within 5 minutes of stopping the pumps **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: EVALUATOR: Record time that West RHR/CTS pumps are started: TIME _____ STANDARD: Operator resets the CTS actuation **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator closes IMO-202 and IMO-204 within 5 minutes of starting the pumps in recirculation lineup. (Att. 29) **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: EVALUATOR: Record time that IMO-202 and IMO-204 are closed: TIME _____ STANDARD: Operator closes eductor supply valves **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator verifies the West RHR pump is running normally on the recirculation sump. SAT: ☐ UNSAT: ☐ COMMENT: **Terminating CUE: The JPM is complete.**

CONTROL ROOM JPM c

Facility: DC Cook Task No: _____

Task Title: Synchronize the Main Turbine Generator to the grid

Job Performance Measure No: CR JPM c K/A Reference: 045 A4.02

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____X_____

Classroom _____ Simulator _____X_____ Plant _____

Task Standard: The main turbine generator is synchronized to the grid.

Required Materials: 1-OHP-4021-050-001, Rev. 60, Turbine Generator Normal Startup and Operation Turbine Generator Normal Startup and Operation Steps 4.16.25 thru 4.16.30

General References: 1-OHP-4021-050-001

Read to the examinee:

Initial Conditions: Unit 1 is performing a start-up. The turbine is at 1800 rpm and all of the preparations are completed for synchronizing to the grid. You are the extra RO.

Initiating Cue: You are directed to synchronize the main generator to the grid using 1-OHP-4021-050-001, Rev. 60, Turbine Generator Normal Startup and Operation, using AUTO starting on **Step 4.16.25.**

Time Critical Task: **No**

Validation Time: 20 minutes

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Step in bold**”)

Continuous	1-OHP-4021-050-001	Rev. 60	Page 25 of 72
Turbine Generator Normal Startup and Operation			

4.16.24 Throttle open the following as necessary:

- 1-C-230-1, West Turbine End Generator Hydrogen Cooler 1-HE-51-1 TACW Outlet Valve _____
- 1-C-230-2, West Collector End Generator Hydrogen Cooler 1-HE-51-2 TACW Outlet Valve _____
- 1-C-230-3, East Collector End Generator Hydrogen Cooler 1-HE-51-3 TACW Outlet Valve _____
- 1-C-230-4, East Turbine End Generator Hydrogen Cooler 1-HE-51-4 TACW Outlet Valve _____

NOTE: Notification requirements are contained in Step 3.2.2 & 3.2.3 in the event the Main Generator is connected to the transmission system while the voltage regulator is NOT in the automatic mode.

4.16.25 **IF** synchronizing to Bus 1 using the O1 breaker (preferred method), **THEN** perform the following:

a. Place the 345 KV Generator CB O1 Synch Selector switch in – MAN. _____

NOTE:
- With the sync selector switch in Manual, turbine speed/load is controlled at the Generator panel.
- Each control switch manipulation will change turbine speed about 0.25 rpm.

b. Adjust turbine speed using the Speed and Load Changer until Synchroscope is rotating slowly in the FAST direction. _____

c. Verify Bus Gen Line Frequency recorder indicates between 59.5 and 60.5 Hz. _____

Standard: Switch is in Manual
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Raise turbine speed using the Speed and Load Changer until synchroscope is rotating slowly in the FAST direction.
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Verify Bus Gen Line Frequency recorder indicates between 59.5 and 60.5 Hz.
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")

Continuous	1-OHP-4021-050-001	Rev. 60	Page 26 of 72
Turbine Generator Normal Startup and Operation			

NOTE: Only one phase from the Switchyard comes in to the three phases read on the Voltage Selector. Therefore, all three phases will be reading the same voltage.

d. Verify voltage indicated on the following meters:

- Generator & Start (all three phases positions) _____
- Run & 345 kV Bus (any phase position) _____

e. **WHEN** the Synchroscope is at the 12 o'clock position, **THEN** verify the Generator & Start voltage 2 - 3 volts > the Run & 345 kV Bus voltage. _____

1. **IF** Generator & Start Voltage is **NOT** 2 - 3 volts > the Run & 345 kV Bus Voltage, **THEN** adjust the Generator & Start Voltage 2 - 3 volts > the Run & 345 kV Bus Voltage using the Generator Voltage Reg Manual Adjust. _____

f. Place the following Voltage Selector Switches in - OFF:

- Generator & Start _____
- Run & 345 kV Bus _____

NOTE:
- Only one of the following steps (4.16.25g and 4.16.25h) will be performed. With the sync selector switch in Manual or AUTO, turbine speed/load is controlled at the Generator panel.
- Digital Turbine Control will automatically pick up about 50 MW.

g. **IF** the unit is being manually synchronized, **THEN**:

1. Give the 345 KV Generator CB O1 Control switch a RED target. NA
2. Check the white "SYNCH PERMISSIVES MET" lamp – LIT. _____
3. **WHEN** the Synchroscope is at the 5 MINUTES TO 12 O'CLOCK position, **THEN** place Generator Synchronize Master Close control switch in – CLOSE. _____

Standard: Adjust the Generator & Start Voltage 2 - 3 volts > the Run & 345 kV Bus Voltage using the Generator Voltage Reg Manual Adjust.

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Place the following Voltage Selector Switches in - OFF:

- Generator & Start
- Run & 345 kV Bus

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")

Continuous	1-OHP-4021-050-001	Rev. 60	Page 27 of 72
Turbine Generator Normal Startup and Operation			

4. **IF** CB O1 breaker trips immediately after closing, **THEN** perform the following:

NA

a) Place 345 KV Generator CB O1 Synch Selector switch in - OFF. ____

b) Give 345 KV Generator CB O1 Control switch - GREEN TARGET. ____

c) Perform Attachment 4, Troubleshooting O or O1 Breaker. ____

NOTE: Placing a Generator Output Breaker Sync Selector Switch in AUTO energizes a 5 minute timer that will lock out the breaker if parallel is NOT completed prior to timing out.

h. **IF** the unit is being synchronized in AUTO, **THEN**:

1. Place 345 KV Generator CB O1 Synch Selector switch in – AUTO. ____

Standard: CB-O1 Synch Selector switch in - AUTO
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

NOTE: The next three steps may occur virtually simultaneously.

2. **WHEN** the Synchroscope is at the 5 MINUTES TO 12 O'CLOCK position, **THEN** give the 345 KV Generator CB O1 Control switch a RED target. ____

Standard: Place the CB-O1 control switch in - CLOSE
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

3. Check the white "SYNCH PERMISSIVES MET" lamp - LIT. ____

Standard: Verify white "SYNCH PERMISSIVES MET" lamp – LIT
SAT: ☐ UNSAT: ☐
COMMENT:

4. **IF** O1 breaker trips immediately after closing, **THEN** perform the following:

a) Place 345 KV Generator CB O1 Synch Selector switch in - OFF. ____

b) Give 345 KV Generator CB O1 Control switch - GREEN TARGET. ____

c) Perform Attachment 4, Troubleshooting O or O1 Breaker. ____

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Step in bold**”)

Continuous	1-OHP-4021-050-001	Rev. 60	Page 28 of 72
Turbine Generator Normal Startup and Operation			

5. **IF** O1 breaker fails to close after 5 minutes in AUTO, **THEN** refer to step 5.1. _____

i. Check CB O1 breaker – CLOSED. _____

j. Place the 345 KV Generator CB O1 Synch Selector switch to - OFF. _____

k. Verify MT is in ‘Generator Paralled’ status. _____

NOTE: With the sync selector in OFF, turbine is controlled at the HMI

1. Verify DCS raises turbine load to about 50 MW. _____

m. Close 345 KV Generator CB O as follows:

1. Place 345 KV Generator CB O Synch Selector switch in – MAN. _____

2. Give 345 KV Generator CB O Control switch a RED target _____

3. Place Generator Synchronize Master Close control switch in – CLOSE _____

4. **IF** O breaker trips immediately after closing, **THEN** perform the following:

a) Place 345 KV Generator CB O Synch Selector switch in - OFF. _____

b) Give 345 KV Generator CB O Control switch - GREEN TARGET. _____

c) Perform Attachment 4, Troubleshooting O or O1 Breaker. _____

5. Check O indicates – CLOSED. _____

6. Place 345 KV Generator CB O Synch Selector switch in - OFF. _____

Standard: Verify CB O1 breaker is CLOSED
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Selector switch to – OFF
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Verify Generator Paralleled and MW rising to ~ 50MW
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: CB-O Synch Selector switch in - MAN
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Place the CB-O control switch in - CLOSE
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Place GEN SYNC MASTER CLOSE - CLOSE
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Verify CB O breaker is CLOSED
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Selector switch to – OFF
SAT: ☐ UNSAT: ☐
COMMENT Terminating cue: JPM IS COMPLETE

CONTROL ROOM JPM d

Facility: DC Cook Task No: _____

Task Title: Fill ECCS Accumulator 1-2

Job Performance Measure No: CR JPM d K/A Reference: 006 A1.13

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

Task Standard: The accumulator is filled to within Tech Spec requirements

Required Materials: 1-OHP-4021-008-004, Rev. 20, ADJUSTING THE LEVEL OF AN ACCUMULATOR - Attachment 3
1-OHP-4023-008-007 Operation of the Safety Injection Pumps

General References: 1-OHP-4021-008-004

Read to the examinee:

Initial Conditions: ANNUNCIATOR #106 RESPONSE: RESIDUAL HEAT REMOVAL, DROP 17 is in alarm for Accumulator low level.

Initiating Cue: The Shift Manager has directed you to return the accumulator to the normal level in accordance with 1-OHP-4021-008-004, , ATTACHMENT 3 Rev. 20, ADJUSTING THE LEVEL OF AN ACCUMULATOR.

The Starting Team is standing by to start the South SI pump in accordance with 02-OHP-4021-008-007 and to assist with Local Operations.

Time Critical Task: **No**

Validation Time: 20 Minutes

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 24 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

1 PURPOSE AND SCOPE

1.1 This attachment provides instructions to raise an accumulator level with Reactor Coolant System (RCS) pressure greater than 1700 psig with the South Safety Injection (SI) Pump.

NOTE: Prerequisites has been verified as met

2 PREREQUISITES **INIT**

2.1 Portions of the Nitrogen System required to regulate the accumulator pressure are available for use per 12-OHP-4021-030-001, Operation of the Reactor Nitrogen System. _____

3 PRECAUTIONS AND LIMITATIONS

3.1 If during MODE 1, 2, or 3 an accumulator level or pressure gets out of specifications, it must be returned to normal within 24 hours per Technical Specification 3.5.1.

3.2 If during MODE 1, 2, or 3 an accumulator boron concentration gets out of specifications, it must be returned to normal within 72 hours per TS 3.5.1.

3.3 When adjusting accumulator level during MODE 1, 2, or 3, the accumulator is INOPERABLE. The level adjustment evolution shall be halted and the system restored per Section 5.1 of this attachment in the event that a SI signal is received during the evolution.

3.4 When adjusting accumulator level during MODE 1, 2, or 3, care must be taken to ensure TS limits are not exceeded. Refer to 1-OHL-4030-SOM-031, Unit 1 Tours – U1 CR M1&2 Shift Cks, and 1-OHL-4030-SOM-029, Unit 1 Tours – U1 CR M3&4 Shift Cks, to ensure compliance with TS including instrument uncertainties.

3.5 If an accumulator level is raised by 10 ft^3 or more (that is NOT the result of addition from the RWST) in MODE 1, 2, or 3 it must be sampled within 6 hours to verify boron concentration.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 25 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

3.6 For venting of accumulators without evacuation of personnel from the Lower Containment Annulus, a Containment Purge Exhaust Fan exhausting air from lower containment must be in service per 1-OHP-4021-028-005, Operation of the Containment Purge System.

3.7 High concentrations of nitrogen in an area can cause suffocation due to insufficient oxygen. Atmospheric monitoring shall be performed prior to and during venting of accumulators if personnel are in the Lower Containment Annulus.

4 DETAILS **INIT**

CAUTION: Only one accumulator will be filled at a time in this attachment. In the event of an incident during filling requiring ECCS (e.g., Safety Injection actuation), the evolution should be stopped and components aligned per the Corrective Actions section of this attachment.

4.1 Indicator accumulator number that level is being raised:
❑ #11 ❑ #12 ❑ #13 ❑ #14 _____

4.2 Verify RCS pressure is greater than 1700 psig. _____

4.3 Verify 1-ICM-265, Safety Injection Discharge to Cold Legs 2 & 3 – OPEN. _____

Standard: Operator checks the #12 Accumulator box.
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Operator verifies RCS pressure is greater than 1700 psig.
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Operator verifies valve 1-ICM-265 is OPEN
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 26 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

CAUTION: Oxygen monitoring of the Lower Containment Annulus atmosphere **SHALL** be performed prior to and during venting of accumulators if personnel are in the Lower Containment Annulus.

4.4 **IF** regulating accumulator pressure during fill, **THEN** perform the following:

4.4.1 Establish controls for personnel safety:

a. Verify all personnel evacuated from Lower Containment Annulus. _____

-OR-

b. Perform the following:

- Establish monitoring of Lower Containment Annulus atmosphere with an oxygen monitor. _____
- Verify a Containment Purge Exhaust Fan is in service exhausting air from lower containment per 1-OHP-4021-028-005, Operation of the Containment Purge System. _____
- Verify that at least one Lower Containment Ventilation Fan is operating in Quadrant 2 or 3 per 1-OHP-4021-028-001, Containment Ventilation. _____

(**NOTE**: Accumulator pressure regulation should NOT be required.)

Operator should mark step 4.4 as N/A with initial and date.

CUE: (If asked) Accumulator pressure control is NOT required at this time.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 27 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

NOTE: Steps 4.5 through 4.9 may be N/A if **ALL** of the following conditions are met:

- More than one accumulator will be filled (requiring multiple passes through this attachment).
- This is not the first accumulator being filled
- This attachment was entered as directed by step 4.20 of the previous performance of Attachment 3.

4.5 Perform the following to align the SI pump discharge flowpath:

4.5.1 Perform the following to minimize the pressure transient on the South SI Pump discharge header:

a. Declare the South SI Pump INOPERABLE. _____

b. Record time and date that TS 3.5.2 Condition A entered:
Time entered: _____ Date: _____ _____

c. Close 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve. _____

4.6 Start South Safety Injection Pump per 1-OHP-4021-008-007, Operation of the Safety Injection Pumps. _____

NOTE: South Safety Injection Pump Discharge Header pressure can be monitored in the control room at 1-IPI-265, South SI Pump discharge pressure indicator.

4.7 Slowly open 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve, to equalize pressure in the discharge line. _____

4.8 Independently Verify 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve, is – OPEN AND install seal. _____ IV

Operator reports that South SI pump is INOPERABLE

CUE: US acknowledges South SI pump is INOPERABLE.

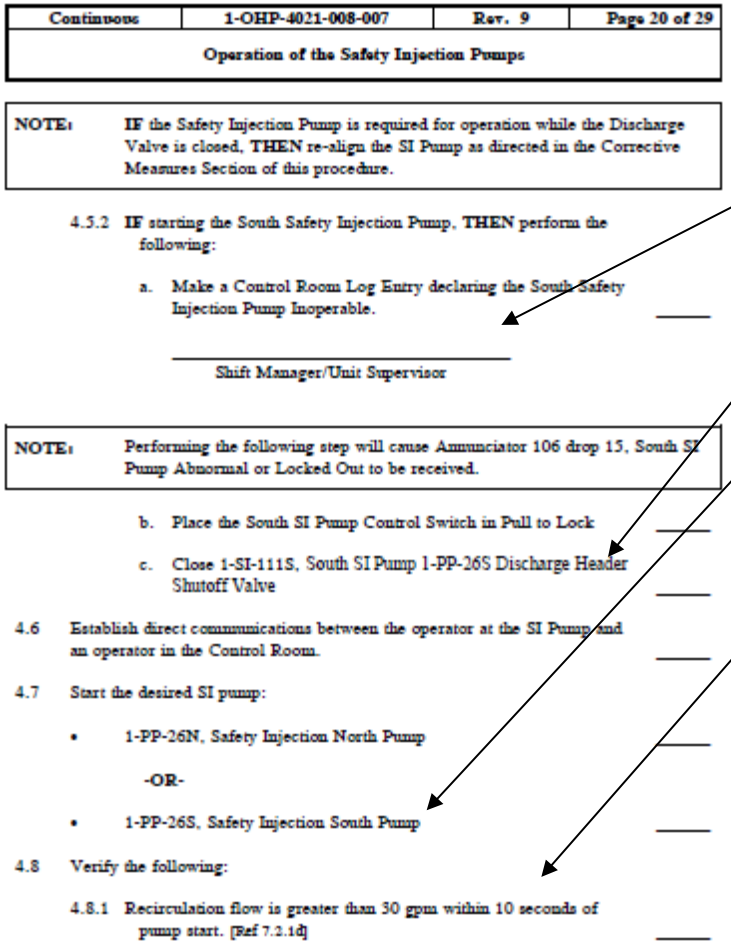
Standard: Operator directs AEO to CLOSE valve 1-SI-111S.
CRITICAL STEP
NOTE: When the Aux Tour AEO is directed to CLOSE 1-SI-111S, then
BOOTH Operator must enter MRF SIR13 to 0)

CUE: AEO reports 1-SI-111S is CLOSE

SAT: ☐ UNSAT: ☐
COMMENT:

NOTE: Provide a copy of 1-OHP 4021.008.007 to operator.
CUE: Local operator actions have been completed and verified.

Standard: Start South SI Pump
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")
	Operator reports that South SI pump is INOPERABLE CUE: US acknowledges South SI pump is INOPERABLE. Operator directs AEO to CLOSE valve 1-SI-111S. CUE: AEO reports valve 1-SI-111S is Already CLOSED. Standard: Start South SI Pump **CRITICAL STEP** SAT: ☐ UNSAT: ☐ COMMENT: CUE: AEO has verified recirculation flow of 55 gpm within 5 seconds of start.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-007	Rev. 9	Page 21 of 29
Operation of the Safety Injection Pumps			

4.8.2 **IF** the pump is operating on recirculation flow, **THEN** Verify the following:

- Vibration is within the limits of TDB Figure 15.2. _____
- Running current is approximately 30 amps (Control Room). _____

4.8.3 The following temperatures are normal (local) and not excessively hot to the touch:

- Pump/motor bearings _____
- Pump casing _____
- Recirculation line _____

CAUTION: If any of the listed pump limits cannot be met the SI Pump must be stopped from the Control Room and declared INOPERABLE.

4.9 Monitor the following parameters on a periodic basis during pump operation (local): _____

PARAMETER	LIMIT
Vibration Amplitude	Within Limits of TDB Figure 15.2 (when on recirculation)
Pump Flow	Greater than 30 gpm [Ref 7.2.1d]
Lube Oil Pressure	Greater than or equal to 10 psig [Ref. 7.2.1c]

CAUTION: If SI pump current fluctuates excessively indicating possible cavitation, the SI pump must be stopped from the Control Room and declared INOPERABLE.

4.10 Monitor SI pump current frequently during pump operation (Control Room). _____

CUE: AEO reports that all local indications are SAT for pump operation. {Vibration is lower than TDB 15.2 limits; lube oil pressure is > 10 psig}

CUE: AEO reports local temperatures are NORMAL and NO excessive hot spots exist.

Operator returns to procedure in effect for raising Accumulator Level at Step 4.7.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 27 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

NOTE: Steps 4.5 through 4.9 may be N/A if **ALL** of the following conditions are met:

- More than one accumulator will be filled (requiring multiple passes through this attachment).
- This is not the first accumulator being filled
- This attachment was entered as directed by step 4.20 of the previous performance of Attachment 3.

4.5 Perform the following to align the SI pump discharge flowpath:

4.5.1 Perform the following to minimize the pressure transient on the South SI Pump discharge header:

a. Declare the South SI Pump INOPERABLE. _____

b. Record time and date that TS 3.5.2 Condition A entered:
Time entered: _____ Date: _____ _____

c. Close 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve. _____

4.6 Start South Safety Injection Pump per 1-OHP-4021-008-007, Operation of the Safety Injection Pumps. _____

NOTE: South Safety Injection Pump Discharge Header pressure can be monitored in the control room at 1-IPI-265, South SI Pump discharge pressure indicator.

4.7 Slowly open 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve, to equalize pressure in the discharge line. _____

4.8 Independently Verify 1-SI-111S, South SI Pump 1-PP-26S Discharge Header Shutoff Valve, is – OPEN **AND** install seal. _____ IV

Repeated Page

Standard: Operator directs AEO to OPEN valve 1-SI-111S.
CRITICAL STEP
NOTE: When the Aux Tour AEO is directed to OPEN 1-SI-111S, then
BOOTH Operator must enter MRF SIR13 to 100)

CUE: AEO reports 1-SI-111S is OPEN
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 28 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump	Pages: 24 – 34	

4.9 Close 1-IMO-270, Safety Injection Pump Disch Xtie.[Commitment #6699] _____

4.10 Open 1-IRV-60, SI Pumps Disch to Accum Fill Line. _____

4.11 Declare the accumulator indicated in Step 4.1 inoperable **AND** enter Tech Spec 3.5.1 Condition B.

Time entered: _____ Date: _____ _____

NOTE: While filling an accumulator, all other accumulator levels should be monitored.

4.12 Open fill valve for accumulator to be filled **AND** record start time in Control Room Log (N/A valves not used):

- 1-IRV-111, Accum 1 Fill Line _____
- 1-IRV-121, Accum 2 Fill Line _____
- 1-IRV-131, Accum 3 Fill Line _____
- 1-IRV-141, Accum 4 Fill Line _____

4.13 **IF** regulating accumulator pressure during fill, **THEN** perform the following:

4.13.1 Open the nitrogen supply to the accumulator being filled (N/A valves not used):

- 1-IRV-112, Accum 1 Nitrogen Supply _____
- 1-IRV-122, Accum 2 Nitrogen Supply _____
- 1-IRV-132, Accum 3 Nitrogen Supply _____
- 1-IRV-142, Accum 4 Nitrogen Supply _____

4.13.2 Throttle 1-GRV-341, N_2 Vent from Accum Tank, as necessary to regulate accumulator pressure. _____

Standard: Close IMO-270 SI Discharge Xtie
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

Standard: Operator directs AEO to OPEN valve 1-IRV-60.
CRITICAL STEP
NOTE: When the Aux Tour AEO is directed to OPEN 1-IRV-60, then
BOOTH Operator must enter MRF U1_SIR21 to OPEN)

CUE: AEO reports 1-IRV-60 is OPEN
SAT: ☐ UNSAT: ☐
COMMENT:

CUE: STA will enter time and date of Tech Spec entry.

CUE: US directs you to fill the No. 2 Accumulator to 945 ft^3

Standard: Open 1-IRV-121
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 29 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

4.14 **WHEN** the required accumulator level is reached, **THEN** verify the following valves closed:

- 1-IRV-111, Accum 1 Fill Line _____
- 1-IRV-121, Accum 2 Fill Line _____
- 1-IRV-131, Accum 3 Fill Line _____
- 1-IRV-141, Accum 4 Fill Line _____
- 1-IRV-112, Accum 1 Nitrogen Supply _____
- 1-IRV-122, Accum 2 Nitrogen Supply _____
- 1-IRV-132, Accum 3 Nitrogen Supply _____
- 1-IRV-142, Accum 4 Nitrogen Supply _____
- 1-GRV-341, N_2 Vent from Accum Tank _____

4.15 Independently verify the following valves closed:

- 1-IRV-111, Accum 1 Fill Line _____
- 1-IRV-121, Accum 2 Fill Line _____
- 1-IRV-131, Accum 3 Fill Line _____
- 1-IRV-141, Accum 4 Fill Line _____
- 1-IRV-112, Accum 1 Nitrogen Supply _____
- 1-IRV-122, Accum 2 Nitrogen Supply _____
- 1-IRV-132, Accum 3 Nitrogen Supply _____
- 1-IRV-142, Accum 4 Nitrogen Supply _____
- 1-GRV-341, N_2 Vent from Accum Tank _____

Standard: Close 1-IRV-121
CRITICAL STEP
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Continuous	1-OHP-4021-008-004	Rev. 20	Page 30 of 52
Adjusting the Level of an Accumulator			
Attachment 3	Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump		Pages: 24 – 34

4.16 Close 1-IRV-60, SI Pumps Disch to Accum Fill Line. _____

_____ IV

4.17 Verify the adjusted accumulator level and pressure is within TS limits. Refer to 1-OHL-4030-SOM-031, Unit 1 Tours – U1 CR M1&2 Shift Cks **OR** 1-OHL-4030-SOM-029, Unit 1 Tours – U1 CR M3&4 Shift Cks for limits. _____

4.18 Declare the accumulator indicated in Step 4.1 OPERABLE **AND** exit Tech Spec 3.5.1 Condition B.

Time exited: _____ Date: _____ _____

4.19 Record completion time for raising accumulator level in the Control Room Log. _____

4.20 **IF** another accumulator level is to be raised, **THEN** perform the following:

4.20.1 N/A steps 4.21 through 4.24 of this attachment. _____

4.20.2 Start a new Attachment 3, Raising an Accumulator Level with the RCS Pressure above 1700 psig with the South Safety Injection Pump for the next accumulator level to be raised. _____

Standard: Operator directs AEO to CLOSE valve 1-IRV-60.
CRITICAL STEP
NOTE: When the Aux Tour AEO is directed to CLOSE 1-IRV-60, then
BOOTH Operator must enter MRF U1_SIR12 to CLOSE)

CUE: AEO reports 1-IRV-60 is CLOSED
SAT: ☐ UNSAT: ☐
COMMENT:

CUE: Independent verification has been performed satisfactory

CUE: STA will enter the time and date for exiting Tech Spec.

THIS JPM IS COMPLETE.

Facility: DC Cook Task No: _____

Task Title: PRESSURIZER HEATER CAPACITY TEST

Job Performance Measure No: CR JPM e K/A Reference: 010 A4.02

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

Task Standard: Pressurizer heater capacity test is completed.

Required Materials: 2-OHP-4030-202-040, Rev. 000, PRESSURIZER HEATER CAPACITY TEST

General References: 2-OHP-4030-202-040

Read to the examinee:

Initial Conditions: Plant is at 100% with all equipment functioning normally

Initiating Cue: You are the extra RO on shift. The Unit Supervisor directs you to perform a pressurizer heater capacity test in service in accordance with 2-OHP-4030-202-040, Rev. 000, "Pressurizer Heater Capacity Test."

Time Critical Task: **No**

Validation Time: 15 minutes

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

CONTINUOUS	2-OHP-4030-202-040	Rev. 0	Page 2 of 7
Pressurizer Heater Capacity Test			

1 PURPOSE AND SCOPE

1.1 To demonstrate the following Pressurizer Heaters are available to satisfy Technical Specification SR 3.4.9.2.

1.1.1 150 kW of Pressurizer Heaters from 21PHC

1.1.2 150 kW of Pressurizer Heaters from 21PHA

2 PREREQUISITES INIT

CUE: ALL Prerequisites are Met

2.1 RCS conditions are such that Pressurizer heaters can be energized for several minutes with actual Pressurizer Level Greater Than 22%. ____

2.2 21PHC is capable of being energized. ____

2.3 21PHA is capable of being energized. ____

3 PRECAUTIONS AND LIMITATIONS

3.1 Breaker 21PHA-4, Containment Welding Receptacles, will be without power for a short period of time during this test.

Standard: Direct AEO to Check 21PHA-4 Welding Receptacles Breaker - OPEN

SAT: ☐ UNSAT: ☐

COMMENT:

4 DETAILS INIT

CUE: 21PHA-4 Welding Receptacles Breaker isOPEN

NOTE: Steps 4.1 and 4.2 may be performed in any order.

4.1 Test the 21PHA Heaters as follows:

4.1.1 Verify Breaker 21PHA-4, Containment Welding Receptacles - OPEN ____

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

CONTINUOUS	2-OHP-4030-202-040	Rev. 0	Page 3 of 7
Pressurizer Heater Capacity Test			

4.1.2 Verify the following breakers - OPEN:

- SCR Power Control Circuit Breaker 21PHA6 _____
- Heater Group A1 Circuit Breaker 21PHA2 _____
- Heater Group A2 Circuit Breaker 21PHA3 _____
- Heater Group A3 Circuit Breaker 21PHA5 _____

4.1.3 Verify Breaker T21A6, 4KV Bus T21A to 480V Pressurizer Heater Bus Supply Transformer TR21PHA Supply Breaker – CLOSED. _____

4.1.4 Verify 0 amps on 21PHA AND record 21PHA Current:

_____ amps _____

4.1.5 Close the following breakers:

- Heater Group A1 Circuit Breaker 21PHA2 _____
- Heater Group A2 Circuit Breaker 21PHA3 _____
- Heater Group A3 Circuit Breaker 21PHA5 _____

4.1.6 Record 21PHA Current:

_____ amps _____

4.1.7 Return heater controls to positions required by current plant conditions. _____

4.1.8 Check difference in current on 21PHA - Greater Than OR Equal to 25 AMPS. _____

Amps from Step 4.1.6:	_____ Amps
Amps from Step 4.1.4:	_____ Amps
ACCEPTANCE CRITERIA: Difference in current greater than or equal to 25 Amps.	_____ Amps

Standard: Verifiy Open Breakers:

- 21PHA6 - SCR
- 21PHA2
- 21PHA3
- 21PHA5

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Verify T21A6 is CLOSED

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Verify 0 AMPS

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Close the Breakers:

- 21PHA2
- 21PHA3
- 21PHA5

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Record AMP Reading

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Return Controls to Normal:

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Verify Difference > 25 Amps

SAT: ☐ UNSAT: ☐

COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Steps in bold**”)

CONTINUOUS	2-OHP-4030-202-040	Rev. 0	Page 4 of 7
Pressurizer Heater Capacity Test			

4.1.9 Return Breaker 21PHA-4, Containment Welding Supply, to required position. _____

4.2 Test the 21PHC Heaters as follows:

4.2.1 Verify the following Breakers - OPEN:

- SCR Power Control Circuit Breaker 21PHC6 _____
- Heater Group C1 Circuit Breaker 21PHC2 _____
- Heater Group C2 Circuit Breaker 21PHC3 _____
- Heater Group C3 Circuit Breaker 21PHC5 _____

4.2.2 Verify Breaker T21D9, 4KV Bus T21D to 480V Pressurizer Heater Bus Supply Transformer TR21PHC Supply Breaker – CLOSED. _____

4.2.3 Verify 0 amps on 21PHC AND record 21PHC Current:

_____ amps _____

4.2.4 Close the following breakers:

- Heater Group C1 Circuit Breaker 21PHC2 _____
- Heater Group C2 Circuit Breaker 21PHC3 _____
- Heater Group C3 Circuit Breaker 21PHC5 _____

4.2.5 Record 21PHC Current:

_____ amps _____

4.2.6 Return heater controls to positions required by current plant conditions. _____

CUE: 21PHA-4 Welding Receptacles Breaker isOPEN as required

Standard: Verifiy Open Breakers:

- 21PHC6 - SCR
- 21PHC2
- 21PHC3
- 21PHC5

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Verify T21D9 is CLOSED

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Verify 0 AMPS

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Close the Breakers:

- 21PHA2
- 21PHA3
- 21PHA5

CRITICAL STEP

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Record AMP Reading

SAT: ☐ UNSAT: ☐

COMMENT:

Standard: Return Controls to Normal:

CRITICAL STEP

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

CONTINUOUS	2-OHP-4030-202-040	Rev. 0	Page 5 of 7
Pressurizer Heater Capacity Test			

4.2.7 Check difference in current on 21PHC - Greater Than OR Equal to 25 AMPS. _____

Amps from Step 4.2.5:	_____ Amps
Amps from Step 4.2.3:	_____ Amps
ACCEPTANCE CRITERIA: Difference in current greater than or equal to 25 Amps.	_____ Amps

Standard: Verify Difference > 25 Amps
SAT: ☐ UNSAT: ☐
COMMENT:

Terminating Cue: The JPM is Complete.

5 ACCEPTANCE CRITERIA

5.1 Both pressurizer backup heater groups have a capacity of 150 kW.

5.1.1 The pressurizer backup heaters supplied from 21PHC have been energized and demonstrate an increase of greater than 25 amps (150 kW).

5.1.2 The pressurizer backup heaters supplied from 21PHA have been energized and demonstrate an increase of greater than 25 amps (150 kW).

6 CORRECTIVE MEASURES

6.1 **IF** acceptance criteria are not met, **THEN** take action per LCO 3.4.9.

6.2 **IF** any heaters are determined to be inoperable, **THEN** initiate corrective action IAW PMP-7030-CAP-001, Action Initiation.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

CONTINUOUS	2-OHP-4030-202-040	Rev. 0	Page 6 of 7
Pressurizer Heater Capacity Test			

7 FINAL CONDITIONS

Test Performance

Start Time: _____ Date: ___/___/____ Stop Time: _____ Date: ___/___/____

Comments: _____

_____

_____

_____
Test Performer or Lead Worker

Department Review

Were all applicable Acceptance Criteria met? ☐ Yes ☐ No, Action: _____

Is this a Scheduled Surveillance? ☐ Yes, Work Order: _____ ☐ No

If yes, is this a complete surveillance? ☐ Yes ☐ No, Action: _____ ☐ N/A

Additional Work Orders: _____ _____ _____ _____

Comments: _____

_____

_____

Reviewed By: _____ Time: _____ Date: ___/___/___
Dept Supervisor or Designee

Senior Reactor Operator (SRO) Review and Acceptance

☐ A review of the test results was performed and the applicable Acceptance Criteria were met. Equipment is OPERABLE or the corresponding Event Initiated Surveillance has been satisfied.

☐ A review of the test results was performed and NOT all of the applicable Acceptance Criteria were met. Equipment is INOPERABLE with applicable Technical Specification LCO Actions in effect.

Comments: _____

_____

_____

Reviewed By: _____ Time: _____ Date: ___/___/___
Work Control or On-Shift SRO

CONTROL ROOM JPM f

Facility: DC Cook Task No: _____

Task Title: CONTAINMENT PRESSURE RELIEF **(ALTERNATE PATH)**

Job Performance Measure No: CRJPMf K/A Reference: 029 A1.03 3.0/3.3

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

Task Standard: CONTAINMENT PRESSURE IS REDUCED.

Required Materials: 2-OHP.4021.028.004 Operation of the Containment Pressure Relief System

General References: 2-OHP.4021.028.004 Operation of the Containment Pressure Relief System

Read to the examinee:

Initial Conditions: Unit 2 is operating at 100% power. Containment pressure has risen due to previous problems associated with containment cooling. Pressure is +0.18 psig and the Unit Supervisor directed that containment pressure be reduced in accordance with 2-OHP 4021-028-004, Operation of the Containment Pressure Relief System There are no abnormal RCS leak rates. All radiation monitors are operable. Containment pressure relief system absolute and charcoal filters are operable.

Initiating cue: The Unit Supervisor has directed you to relieve containment pressure to less than 0.00 psig in accordance with 2-OHP 4021-028-004, Operation of the Containment Pressure Relief System

Time Critical Task: **No**
Validation Time: 15 Minutes

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Steps in bold**”)

Reference	2-OHP-4021-028-004	Rev. 23	Page 2 of 14
Operation of the Containment Pressure Relief System			

1 PURPOSE AND SCOPE

1.1 To maintain Containment pressure within the limits of TS 3.6.4 by the use of the Containment Pressure Relief System.

2 PREREQUISITES **INIT**

2.1 Containment Pressure Relief System absolute and charcoal filters are OPERABLE.

CUE: Containment pressure relief system absolute and charcoal filters are operable.

3 PRECAUTIONS AND LIMITATIONS

3.1 Containment pressure should be maintained between -1.0 psig and +0.15 psig during normal operations. [Ref. 7.2.1d]

Standard: Candidate Reviews Precautions & Limitations

SAT: ☐ UNSAT: ☐

COMMENT:

3.2 The TS limit for Containment pressure, including instrument uncertainty, is -1.4 to +0.2 psig. [Ref. 7.2.1d]

3.3 It is possible to reset Containment Ventilation Isolation (CVI) even though the initiating signal is still present. This will block CVI from any other signal as long as the original CVI signal is present. [Ref. 7.2.1b.2]

3.4 INOPERABLE channels of Containment radiation monitors ERS-2300 and ERS-2400 may be removed from the Control Terminal (CT), allowing the radiation monitor to remain in NORMAL.

CUE: All radiation monitors are operable

3.5 SOURCE CHECKS shall NOT be performed on the following channels when any Containment release is in progress:

- 2-VRS-2101
- 2-VRS-2201
- 2-ERS-2301
- 2-ERS-2401
- 2-ERS-2305
- 2-ERS-2405

3.6 If both Containment Noble Gas Activity Monitor (Train “A” ERS-2305) and (Train “B” ERS-2405) are INOPERABLE, immediately suspend containment pressure relief (CPR) of radioactive effluents via this pathway.

3.7 Refer to TS 3.3.6 for channel operability requirements and provisions for performing a pressure relief with INOPERABLE channels.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 3 of 14
Operation of the Containment Pressure Relief System			

3.8 Flow through the unit vent of less than 20,908 CFM as read on 2-MR-54, Vent & Stack Flow, may result in erratic indications on 2-VRS-2510.

3.9 If an OPERABLE Containment radiation monitor that is required for the pressure relief alarms/fails/or becomes unreliable, Operator action may be necessary to terminate the pressure relief. An evaluation shall be performed of the required radiation monitors prior to re-establishing the pressure relief.

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 4 of 14
Operation of the Containment Pressure Relief System			

4 **DETAILS** **INIT**

NOTE: The activities below are defined as 'planned evolutions' that are expected to cause, or have the potential to cause, a high alarm on any of the Containment RMS channels (with subsequent CVI). Because the increase in Containment radiation levels (or spurious actuation) associated with these activities is expected, the resultant Containment isolation actuation is not reportable under the requirements of PMP-7030-001-001, Prompt NRC Notification, **so long as the actuation is attributed to one of the following:**

- Movement of highly radioactive trash in the vicinity of an area monitor
- Startup of Containment ventilation units
- Clock synchronization
- Transfer of vital power supply sources
- Increase in Containment background radiation levels due to ramp increase in Reactor Power

Actuations not reported, which are later found to be attributed to causes that were masked by the power escalation, should be reported upon discovery.

4.1 Verify proper operation of Radiation Monitoring System (RMS):

4.1.1 Check status of the following instruments [Ref. 7.2.1c, 7.2.1e]

- 2-VRS-2101
- 2-VRS-2201
- 2-ERS-2301
- 2-ERS-2401
- 2-ERS-2305
- 2-ERS-2405
- 2-VRA-2501
- 2-VRS-2505
- 2-VFR-2510
- 2-VFR-315
- 2-VFS-2521 ____

4.1.2 **IF** any required RMS channels are INOPERABLE, **THEN** refer to PMP-4030-EIS-001, Event-Initiated Surveillance Testing. ____

Information in this note is typically reviewed and discussed in task briefing.
NOTE: Not part of JPM.

CUE: None of the planned evolution activities are scheduled during the time we will be performing the pressure relief.

{NOTE: JPM starts here.}

STANDARD: Operator verifies that all listed monitors are functioning properly
SAT: ☐ UNSAT: ☐

CUE: If asked, AEO reports that 2-VFS-2521 is operating within the Normal range.

STANDARD: Operator determines that ALL channels are OPERABLE
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 5 of 14
Operation of the Containment Pressure Relief System			

NOTE: Abnormal leakage is 1 gpm unidentified and 10 gpm identified for Steps 4.1.3 and 4.1.4.

4.1.3 **IF** 2-VRA-2501 is INOPERABLE concurrent with no indication of abnormal RCS leakage, **THEN** perform the pressure relief without using the Pressure Relief Fan (enter N/A at Step 4.4.2). _____

N/A

4.1.4 **IF** 2-VRS-2505 is INOPERABLE concurrent with no indication of abnormal RCS leakage, **THEN** request Chemistry sample vent stack during pressure relief. _____

N/A

4.1.5 **IF** necessary to reduce the possibility of a spurious CVI, **THEN** request RP to perform the following:

NOTE: This is typically reviewed and discussed as part of the task briefing.

- **IF** performing Containment pressure relief concurrently with a power ascension, **THEN** re-evaluate the high alarm setpoint for applicable channels on OPERABLE radiation monitors. [Ref. 7.2.2a, 7.2.1h] _____

CUE: Shift Manager deems NONE of these actions as necessary."

- Remove INOPERABLE channels from the CT, which are not required by TS, to allow the radiation monitor to be placed in NORMAL (i.e., 2506 is INOPERABLE and removed to allow 2501 in normal). _____
- Remove INOPERABLE channels from the CT, which are required by TS, to allow the other OPERABLE channels to be placed in NORMAL (i.e., 2301 is INOPERABLE and removed to allow 2305 in normal). _____

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")
Reference | **2-OHP-4021-028-004** | **Rev. 23** | **Page 6 of 14** **Operation of the Containment Pressure Relief System**	NOTE: Data is recorded on Section A of Data Sheet 1 (FYI Page 13 of JPM)
4.1.6 Record the following data in Section A of Data Sheet 1, Containment Pressure Relief Release Data:	STANDARD: Enter Next CPR number **CUE**: Next Containment Pressure Relief Number is 14-0058 SAT: ☐ UNSAT: ☐
• CPR number (reference last completed CPR from Control Room Log search)	
• Unit vent flow	STANDARD: Record Vent Flow from 2-VFR-2510 or 2-VFR-315 on recorder 2-MR-54 and circles source **Critical step** SAT: ☐ UNSAT: ☐
• Instrument used to obtain Unit vent flow	
• Highest reading on 2-MR-37, Containment Low Range Pressure Recorder	STANDARD: Record Containment Pressure **Critical step** SAT: ☐ UNSAT: ☐
• Radiation monitor readings (N/A monitors removed from service) ____	
4.1.7 Perform a SOURCE CHECK on the following Containment Radiation Monitors and document completion on Data Sheet 1:	
• 2-ERS-2305, Cnmnt Lower Compt Train A Rad Monitor ERS-2300 Noble Gas Chamber Low Range Beta Rad Detector	STANDARD: Record Radiation Monitor readings **Critical step** SAT: ☐ UNSAT: ☐
• 2-ERS-2405, Cnmnt Lower Compt Train B Rad Monitor ERS-2400 Noble Gas Chamber Low Range Beta Rad Detector ____	
CAUTION: Refer to TS 3.3.6 for channel operability requirements and provisions for performing a pressure relief with INOPERABLE channels.	STANDARD: Perform Source Check on 2-ERS-2305 **Critical step** SAT: ☐ UNSAT: ☐
4.2 Verify proper TRIP/BLOCK switch positions:	STANDARD: Perform Source Check on 2-ERS-2405 **Critical step** SAT: ☐ UNSAT: ☐
4.2.1 **IF** there are INOPERABLE channels remaining in the CT, **THEN** verify the applicable RMS monitor TRIP/BLOCK switch(es) in - BLOCK. ____	
4.2.2 Verify TRIP/BLOCK switch for OPERABLE RMS monitors in - NORMAL:	STANDARD: Verify all Trip block switches in NORMAL SAT: ☐ UNSAT: ☐
• 2-VRS-2101 • 2-VRS-2201	
• 2-ERS-2300 • 2-ERS-2400 ____	

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 7 of 14
Operation of the Containment Pressure Relief System			

4.2.3 Initial for verification of TRIP/BLOCK switch positions in Section A of Data Sheet 1, Containment Pressure Relief Release Data. _____

STANDARD: Initial Data Sheet 1
SAT: ☐ UNSAT: ☐

4.2.4 **IF** any Containment radiation monitor is blocked, **THEN** provide **dedicated** Operator to be responsible for terminating the release in the event of any unexpected change in Containment conditions. _____

N/A

NOTE: RMS audible alarm function is NOT required for TS 3.3.6 compliance.

4.2.5 **IF** the CT audible alarm function is unavailable, **THEN** provide **dedicated** Operator(s) to be responsible to monitor the high alarm status lights associated with the RMS monitors being used for the release and to verify automatic actions have occurred in the event of a high alarm. The **dedicated** Operator(s) should be stationed for the duration of the Containment pressure relief. _____

CUE: If Required, Audible alarm is Available

N/A

NOTE: Step 4.3 or portions thereof may be performed as necessary at any time during the course of this procedure.

4.3 Contingencies:

NOTE: These contingencies may be reviewed by the Operator. They will be used later in this JPM and are repeated when appropriate.

4.3.1 **IF** only one Containment radiation monitor or train trips Containment Pressure Relief, **THEN** operator action will be necessary to manually isolate the opposite train. _____

4.3.2 **IF** either 2-VCR-107, Cntmt Pressure Relief Train 'A' Cntmt Isol Valve **OR** 2-VCR-207, Cntmt Pressure Relief Train 'B' Cntmt Isol Valve, will not open, **THEN** reset Containment Ventilation Isolation with Unit Supervisor approval as follows:

a. Verify NO valid signals for Containment Ventilation Isolation from the following:

- Safety Injection
- Lower Containment Pressure High
- RMS Channels 2101, 2201, 2301, 2401, 2305, 2405 _____

b. Reset Containment Ventilation Isolation. _____

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 8 of 14
Operation of the Containment Pressure Relief System			

4.3.3 **IF** 2-VRA-2501 **OR** 2-VRS-2505 alarms, **THEN** perform the following:

a. Terminate pressure relief to ensure TS release limits are not exceeded. _____

b. Obtain current unit vent flow rate from 2-VFR-2510 or 2-VFR-315. _____

c. Request RP recalculate and change the high alarm setpoint. _____

d. **WHEN** RP has recalculated and changed the 2-VRA-2501 / 2-VRS-2505 setpoint, **THEN** initiate pressure relief by re-performing this procedure starting at Step 4.4.1. _____

4.4 Initiate Containment pressure relief:

NOTE: Pressure Relief flowrates are limited to less than the design flow rate of 1000 cfm. This is verified by checks of 2-VFC-207 documented in 2-OHL-5030-SOM-007, Unit 2 Tours – Unit 2 Auxiliary Tour. [Ref. 7.2.2c, 7.2.2d]

4.4.1 Open Containment isolation valves:

- 2-VCR-107, Cntmt Press Relief Valve IC _____
- 2-VCR-207, Cntmt Press Relief Valve OC _____

4.4.2 **IF** pressure relief fan will be used, **THEN** start 2-HV-CPR-1, CNTMT Press Relief Fan. _____

4.4.3 **IF** pressure relief fan will NOT be used, **THEN** open 2-HV-CDP-2, Containment Pressure Relief Ventilation Unit HV-CPR-1 Bypass Volume Damper. _____

4.4.4 Record start time on Section B of Data Sheet 1. _____

4.4.5 Make a control room log entry (Release #, Start time, and Initial containment pressure). _____

CUE: If asked, 2-VFC-207 Containment Pressure Relief Flow controller is set at 500 cfm.

STANDARD: **CS** Places 2-VCR-107 to OPEN.
Critical step
SAT: ☐ UNSAT: ☐

STANDARD: **CS** Places 2-VCR-207 to OPEN and holds.
Critical step
SAT: ☐ UNSAT: ☐

CUE: After VCR-107 and VCR-207 are open, "US directs you to start HV-CPR-1, CNTMT Pressure Relief Vent Unit."

STANDARD: **CS** 2-HV-CPR-1 Fan switch is placed in START.
{NOTE: Rad Alarm on VRS-2501 in ~30 se**cs**)
Critical step
SAT: ☐ UNSAT: ☐

N/A

STANDARD: Operator records start time in Section B
SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Steps in bold**")

Reference	2-OHP-4021-028-004	Rev. 23	Page 8 of 14
Operation of the Containment Pressure Relief System			

PAGE REPEATED
(ALTERNATE PATH BEGINS HERE)

4.3.3 **IF** 2-VRA-2501 **OR** 2-VRS-2505 alarms, **THEN** perform the following:

a. Terminate pressure relief to ensure TS release limits are not exceeded. _____

STANDARD: Operator reports HI Alarm on VRA-2501
SAT: ☐ UNSAT: ☐

b. Obtain current unit vent flow rate from 2-VFR-2510 or 2-VFR-315. _____

c. Request RP recalculate and change the high alarm setpoint. _____

STANDARD: Operator places 2-HV-CPR-1 fan to STOP
Critical step
SAT: ☐ UNSAT: ☐

d. **WHEN** RP has recalculated and changed the 2-VRA-2501 / 2-VRS-2505 setpoint, **THEN** initiate pressure relief by re-performing this procedure starting at Step 4.4.1. _____

4.4 Initiate Containment pressure relief:

STANDARD: Operator places 2-VCR-107 to CLOSE
SAT: ☐ UNSAT: ☐

NOTE: Pressure Relief flowrates are limited to less than the design flow rate of 1000 cfm. This is verified by checks of 2-VFC-207 documented in 2-OHL-5030-SOM-007, Unit 2 Tours – Unit 2 Auxiliary Tour. [Ref. 7.2.2c, 7.2.2d]

STANDARD: Operator places 2-VCR-207 to CLOSE
Critical step
SAT: ☐ UNSAT: ☐

4.4.1 Open Containment isolation valves:

- 2-VCR-107, Cntmt Press Relief Valve IC _____
- 2-VCR-207, Cntmt Press Relief Valve OC _____

STANDARD: Operator records unit vent flow rate
SAT: ☐ UNSAT: ☐

4.4.2 **IF** pressure relief fan will be used, **THEN** start 2-HV-CPR-1, CNTMT Press Relief Fan. _____

4.4.3 **IF** pressure relief fan will NOT be used, **THEN** open 2-HV-CDP-2, Containment Pressure Relief Ventilation Unit HV-CPR-1 Bypass Volume Damper. _____

STANDARD: Operator request RP recalculate High alarm setpoint
SAT: ☐ UNSAT: ☐

4.4.4 Record start time on Section B of Data Sheet 1. _____

4.4.5 Make a control room log entry (Release #, Start time, and Initial containment pressure). _____

EVALUATOR: JPM is COMPLETE

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Steps in bold**”)

Reference	2-OHP-4021-028-004	Rev. 23	Page 9 of 14
Operation of the Containment Pressure Relief System			

NOTE: Containment pressure should be maintained between -1.0 psig and +0.15 psig during normal operations.

NOTE: Included for information only.

4.5 **WHEN** desired pressure is obtained, **THEN** stop Containment pressure relief as follows:

4.5.1 **IF** running, **THEN** stop 2-HV-CPR-1, CNTMT Press Relief Fan. _____

4.5.2 **IF** open, **THEN** close 2-HV-CDP-2. _____

4.5.3 Close Containment isolation valves:

- 2-VCR-107, Cntmt Press Relief Valve IC _____
- 2-VCR-207, Cntmt Press Relief Valve OC _____

4.5.4 Record stop time on Section B of Data Sheet 1. _____

4.6 Restore System:

4.6.1 Place TRIP/BLOCK switch for OPERABLE RMS monitors in - BLOCK:

- 2-VRS-2101
- 2-VRS-2201
- 2-ERS-2300
- 2-ERS-2400 _____

4.6.2 Record the following data in Section C of Data Sheet 1:

- Highest reading on 2-MR-37, Containment Low Range Pressure Recorder
- Radiation monitor readings (N/A monitors removed from service) _____

4.6.3 Initial for verification of TRIP/BLOCK switch positions in Section C of Data Sheet 1. _____

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Steps in bold**”)

Reference	2-OHP-4021-028-004	Rev. 23	Page 13 of 14
Operation of the Containment Pressure Relief System			
Data Sheet 1	Containment Pressure Relief Release Data		Pages: 13 - 14

SECTION A – INITIAL DATA

CPR Release No. _____ (Next in sequence)

Vent flow: _____CFM Containment Pressure _____psig (High pressure on 2-MR-37)

Vent Flow Instrument used: _____ (2-VFR-2510 **OR** 2-VFR-315 on 2-MR-54)

RADIATION MONITORS
(N/A monitors removed from service)

Containment Area Monitor:	_____mR/hr (2-VRS-2101)	_____mR/hr (2-VRS-2201)
Containment Air Particulate:	_____µCi (2-ERS-2301)	_____µCi (2-ERS-2401)
Containment Radiogas:	_____µCi/cc (2-ERS-2305)	_____µCi/cc (2-ERS-2405)
Vent Radiogas:	_____µCi/cc (2-VRS-2505)	

Source Check completed (N/A if inoperable) 2-ERS-2305 _____ INIT 2-ERS-2405 _____ INIT

All OPERABLE radiation monitors Trip/Block switches verified in – NORMAL. _____ INIT

SECTION B – TIME OF RELIEF

Beginning of Pressure Relief: Time:_____ Date: ____/____/____

End of Pressure Relief: Time:_____ Date: ____/____/____

NOTE: Included for information only.

CONTROL ROOM JPM g

Facility: DC Cook Task No: _____

Task Title: Respond to High Control Room Radiation **(ALTERNATE PATH)**

Job Performance Measure No: CR JPM g K/A Reference: P2.3.13

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

Task Standard: Control Room ventilation has been isolated.

Required Materials: None-Use Simulator Control Room procedures

General References: 02-OHP-4021-028-014, OPERATION OF THE CONTROL ROOM AIR CONDITIONING AND PRESSURIZATION/CLEANUP FILTER SYSTEMS, Rev 37
12-OHP-4024-139, ANNUNCIATOR #139 RESPONSE EBERLINE RADIATION, Rev. 16

Read to the examinee:

Initial Conditions: Unit 1 has experienced an accident which has resulted in several unexpected radiation monitor alarms within the Auxiliary Building. ERS-8401, Unit 2 Control Room Area Monitor High alarm (Red) has just been received.

Initiating Cue: You have been directed to respond to the ERS-8401 Red alarm using the alarm response procedure. Report when all actions have been completed.

This is a Time Critical JPM (20 minutes)

Validation Time: 10 MINUTES

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
12-OHP-4024-139 **Level of Use: REFERENCE** **#17** **2.0 AUTOMATIC ACTION(S):** 2.1 ERS- 8401 - RED: • Closes 2-HV-ACR-DA-1, Control Rm Vent Intake Damper. • Closes 2-HV-ACR-DA-1A, Control Rm Vent Intake Damper. • Partially Opens **EITHER:** • 2-HV-ACR-DA-2, CR Przn Cln-Up Intake Damper **-OR-** • 2-HV-ACR-DA-2A, CR Przn Cln-Up Intake Damper • Opens 2-HV-ACR-DA-3, CR Przn Cln-Up Recirc Damper (remains open). • Starts 2-HV-ACRF-1, West Ctrl Room Przn System. • Starts 2-HV-ACRF-2, East Ctrl Room Przn System. **Page 68 of 127** **Rev. 16**	NOTE: The Operator may manipulate equipment based on failure of an auto action to occur. This will satisfy the critical steps as long as the equipment is properly aligned at the end of the JPM STANDARD: Operator reviews automatic actions and determined they did not occur SAT: ☐ UNSAT: ☐ COMMENT: (NOTE : ONLY ONE pressurization fan should be left running MAY be Stopped at Step 4.4 in 2OHP-4021-028-014)

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
12-OHP-4024-139 **Level of Use: REFERENCE** **#17** **3.0 OPERATOR ACTION(S):** 3.1 RED: 3.1.1 **IF** alarm is unexpected, **THEN** sound Containment Evacuation Alarm. **NOTE** Operator action may be required to place the Control Room Ventilation System in the Pressurization mode within 20 minutes of a RCP Locked Rotor Accident (LRA) to meet analyzed Control Room dose. [Ref. 4.1.6, 4.1.7] 3.1.2 **IF** ERS-8401, **THEN** perform the following: a. **IF** ERS-8401 required automatic actions DO NOT occur, **THEN** manually place the control room ventilation system in the pressurization mode per 2-OHP-4021-028-014, Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems, Attachment 8, Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode. b. **IF** ERS-8401 automatic actions occur, **THEN** stop either 2-HV-ACRF-1 **OR** 2-HV-ACRF-2. c. Notify Unit 1 Control Room to manually place the Unit 1 Control Room ventilation system in the pressurization mode per 1-OHP-4021-028-014, Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems, Attachment 8, Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode. 3.1.3 Notify TS RP Technician of radiation monitor alarm. 3.1.4 Request RP verify requirements of 12-THP-6010-RPP-708, Response To Area Radiation Monitor Alarms, has been met. **Page 69 of 127** **Rev. 16**	STANDARD: Operator determines the alarm is unexpected and sounds the Containment Evacuation alarm using the switch located on the Flux/Rod Control Panel. **Critical Step** SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator determines automatic actions did not occur and that Control Room ventilation must be manually aligned. SAT: ☐ UNSAT: ☐ COMMENT: (NOTE : ONLY ONE pressurization fan should be left running MAY be Stopped at Step 4.4 in 2OHP-4021-028-014)

EXPECTED ACTIONS	CUES/STANDARDS (“**Critical Step in bold**”)

Reference	2-OHP-4021-028-014	Rev. 37	Page 37 of 102
Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems			
Attachment 8	Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode		Pages: 37 - 39

1 PURPOSE AND SCOPE

1.1 This attachment provides instructions to manually operate Control Room ventilation in Pressurization/Cleanup Mode. Following manual operation, the system is returned to standby.

2 PREREQUISITES

2.1 CREV is in standby alignment.

3 PRECAUTIONS AND LIMITATIONS

3.1 Control Room pressurization fans should not be run simultaneously. Resulting flow rates are outside range required for T/S OPERABILITY. Each fan provides 100% of required flow.

3.2 If Control Room ventilation dampers automatically reposition, the dampers shall not be repositioned until cause of repositioning has been determined and corrected.

3.3 Operating the Control Room A/C unit will lower Control Room humidity. The relative humidity range referenced in UFSAR Section 9.10.2 is 25%-85%. Engineering should be notified if humidity is less than 40%.

3.4 Except for actual emergencies, charcoal filters should not be placed in service if painting, a fire, or chemical release is occurring in any of the ventilation zones communicating with the respective fan. Charcoal filters could become adversely affected by paint fumes, foreign materials, and various chemicals. Refer to 12-MHP-5021-001-208, Auxiliary Building and Control Room Envelope Painting Guidelines, prior to placing any charcoal filter in service.

NOTE:
No actions required, included for Evaluator reference

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")

Reference	2-OHP-4021-028-014	Rev. 37	Page 38 of 102
Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems			
Attachment 8	Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode		Pages: 37 - 39

4 DETAILS **INIT**

4.1 Perform the following:

4.1.1 Close outside air supply dampers:

- 2-HV-ACR-DA-1, Control Rm Vent Intake Damper at 2-ACRA-1, Control Room Ventilation Subpanel _____
- 2-HV-ACR-DA-1A, Control Rm Vent Intake Damper at 2-ACRA-2 _____

4.1.2 Partially open either:

- 2-HV-ACR-DA-2, Control Room Pressurization/Cleanup Intake Damper #2 (at 2-ACRA-2) _____

-OR-

- 2-HV-ACR-DA-2A, Control Room Pressurization/Cleanup Intake Damper #2A (at 2-ACRA-1) _____

4.2 Start **one** Control Room pressurization fan:

- 2-HV-ACRF-1, West Ctrl Room Przn System _____

-OR-

- 2-HV-ACRF-2, East Ctrl Room Przn System _____

4.3 Complete applicable sections of Data Sheet 1, Charcoal Absorber Bed Service Log, of OHI-4016, Conduct Of Operations: Guidelines. _____

4.4 **WHEN** fan is no longer required to be in service, **THEN** stop applicable fan **AND** place in – AUTO:

- 2-HV-ACRF-1, West Ctrl Room Przn System _____

-OR-

- 2-HV-ACRF-2, East Ctrl Room Przn System _____

STANDARD: Operator closes both outside air dampers
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:

STANDARD: Operator partially opens ONE Control Room Pressurization/Cleanup Intake Damper
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:

STANDARD: Operator starts ONE Control Room pressurization fan
Critical Step
SAT: ☐ UNSAT: ☐
COMMENT:
(NOTE : ONLY ONE pressurization fan should be left running)

STANDARD: Operator determines that OHI-4016 Data Sheet 1 should be completed
CUE: Another operator will be responsible to complete Data Sheet 1
SAT: ☐ UNSAT: ☐
COMMENT:

STANDARD: STOPS ONE Control Room pressurization fan if both were running/started
Critical Step - ONLY ONE pressurization fan is left running
SAT: ☐ UNSAT: ☐
COMMENT:

EXPECTED ACTIONS	CUES/STANDARDS ("**Critical Step in bold**")
12-OHP-4024-139 **Level of Use: REFERENCE** **#14** **3.0 OPERATOR ACTION(S):** 3.1 RED: 3.1.1 **IF** alarm is unexpected, **THEN** sound Containment Evacuation Alarm. **NOTE** Operator action may be required to place the Control Room Ventilation System in the Pressurization mode within 20 minutes of a RCP Locked Rotor Accident (LRA) to meet analyzed Control Room dose. [Ref. 4.1.6, 4.1.7] 3.1.2 **IF** ERS-7401, **THEN** perform the following: a. **IF** ERS-7401 required automatic actions DO NOT occur, **THEN** manually place the Control Room ventilation system in the pressurization mode per 1-OHP-4021-028-014, Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems, Attachment 8, Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode. b. **IF** ERS-7401 automatic actions occur, **THEN** stop either 1-HV-ACRF-1 **OR** 1-HV-ACRF-2. c. Notify Unit 2 Control Room to manually place the Unit 2 Control Room ventilation system in the pressurization mode per 2-OHP-4021-028-014, Operation of the Control Room Air Conditioning and Pressurization/Cleanup Filter Systems, Attachment 8, Manual Operation of Control Room Pressurization/Cleanup Filter System in Pressurization/Cleanup Mode. 3.1.3 Notify TS RP Technician of radiation monitor alarm. 3.1.4 Request RP verify requirements of 12-THP-6010-RPP-708, Response To Area Radiation Monitor Alarms, has been met. **Page 56 of 127** **Rev. 16**	NOTE: The following step is not critical since ERS-7401 operated as designed STANDARD: Operator notifies Unit 1 to manually place the Unit 1 Control Room ventilation system in the pressurization mode CUE: Acknowledge the direction and report that automatic actions associated with ERS-7401 occurred and properly aligned the ventilation systems SAT: ☐ UNSAT: ☐ COMMENT: STANDARD: Operator notifies RP of the alarm and requests verification of 12-THP-6010-RPP-708 CUE: RP acknowledges communication SAT: ☐ UNSAT: ☐ COMMENT: Termination Cue: When operator reports completion of alarm response actions.

Facility: DC Cook Task No: _____

Task Title: Perform Emergency Boration due to Shutdown Margin Not Met
(ALTERNATE PATH)

Job Performance Measure No: CR JPM h K/A Reference: 024 A1.17

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____X_____

Classroom _____ Simulator _____X_____ Plant _____

Task Standard: Operator has established Emergency Boration to the RCS.

Required Materials: 01-OHP-4021.-005-007, "Operation of Emergency Boration Flow Paths"

General References: 01-OHP-4021-005-007, R4, Operation of Emergency Boration Flow Paths

Read to the examinee:

Task Briefing: You are the Reactor Operator. The crew has just performed 1-OHP-4021-001-012, Determination of Reactor Shutdown Margin and discovered that Shutdown Margin has NOT been met.

The Unit Supervisor directs you to initiate Emergency Boration to the RCS in accordance with 1-OHP-4021-005-007, Operation Of Emergency Boration Flow Paths, using the Preferred Method.

Time Critical Task: **No**

Validation Time: 20 Minutes

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	01-OHP-4021-005-007	Rev. 4	Page 3 of 8
Operation Of Emergency Boration Flow Paths			

4 DETAILS

4.1 Align a Boration Source

NOTE: **[Current TS]** VCT pressure must be ≤ 37 psig to ensure emergency flow rate can meet the operability requirements of Technical Specifications

[Improved TS] VCT pressure must be ≤ 37 psig to ensure emergency flow rate can meet the operability requirements of Technical Requirements Manual.

4.1.1 **IF** Borating Via Emergency Boration Flowpath, **THEN** perform the following: (preferred)

a. Place Speed Selector for operating Boric Acid Transfer pump(s) to FAST:

- Boric Acid XFER Pump 1 Speed Selector ❑
- Boric Acid XFER Pump 2 Speed Selector ❑

b. Verify BA Transfer Pump Recirculation valves closed:

- 12-QRV-420, Middle BAT Recirc ❑
- 1-QRV-410, North BA Tank Recirc ❑

c. Verify closed the following valves:

- 1-QRV-411, Boric Acid To Blender ❑
- 1-QRV-412, Prim Water To Blender ❑

d. Open 1-QMO-410, Emer Boration To CHG Pump Suct. ❑

e. Verify 1-QFI-410, Emer Boration Flow, indicates – GREATER THAN OR EQUAL TO 44 gpm. ❑

STANDARD: Operator Places Speed Selector for operating Boric Acid Transfer pump in FAST. (May place both Speed Selectors in FAST)
SAT: ☐ UNSAT: ☐

STANDARD: Operator Verifies BA Transfer Pump Recirculation valves are closed.
SAT: ☐ UNSAT: ☐

STANDARD: Operator verifies 1-QRV-411 and 1-QRV-412 are closed.
SAT: ☐ UNSAT: ☐

STANDARD: **(CS)** Operator attempts to open 1-QMO-410.
SAT: ☐ UNSAT: ☐

STANDARD: Operator identifies failed 1-QMO-410, and no flow on 1-QFI-410
SAT: ☐ UNSAT: ☐

CUE: If asked, as Unit Supervisor direct the candidate to complete the boration using another method.

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	01-OHP-4021-005-007	Rev. 4	Page 4 of 8
Operation Of Emergency Boration Flow Paths			

4.1.2 **IF** Borating Via RWST, **THEN** perform the following:

a. OPEN at least one of the following valves to align charging pump suction to the RWST:

- 1-IMO-910, CHG Pumps Suct From RWST ❑
- 1-IMO-911, CHG Pumps Suct From RWST ❑

b. CLOSE at least one of the following valves to isolate the charging pump suction from the VCT:

- 1-QMO-451, CHG Pumps Suct From VCT ❑
- 1-QMO-452, CHG Pumps Suct From VCT ❑

Note: Step 4.1.2 is N/A (The IMO-910 and IMO-911 valves will fail to open if the operator attempts to use this flowpath.)

NOTE: Boron addition through the blender can be used as an alternate boration source but cannot be credited to meet Tech Specs because of design considerations and a lack of a TS surveillance to prove function. [Ref. 7.2.2e]

CUE: Blender is NOT aligned to CVCS HUT or RWST.

4.1.3 **IF** Borating Via Blender, **THEN** perform the following:

a. **IF** blender is aligned to CVCS HUT or RWST, **THEN** close 1-CS-388, South BA Blender 1-QP-21 To RWST Blender Shutoff Valve. ❑

STANDARD: **(CS)** Operator Verifies Speed Selector for operating Boric Acid Transfer pump in FAST. (Previously placed in FAST Speed)
SAT: ☐ UNSAT: ☐

b. Place Speed Selector for operating Boric Acid Transfer pump(s) to FAST:

- Boric Acid XFER Pump 1 Speed Selector ❑
- Boric Acid XFER Pump 2 Speed Selector ❑

c. Verify the following valves - CLOSED:

- 12-QRV-420, Middle BAT Recirc ❑
- 1-QRV-410, North BA Tank Recirc ❑
- 1-QRV-451, Blender To VCT ❑
- 1-QRV-412, Prim Water to Blender ❑

STANDARD: Operator verifies following closed:

- 12-QRV-420, Middle BAT Recirc
- 1-QRV-410, North BA Tank Recirc
- 1-QRV-451, Blender To VCT
- 1-QRV-412, Prim Water to Blender

SAT: ☐ UNSAT: ☐

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	01-OHP-4021-005-007	Rev. 4	Page 5 of 8
Operation Of Emergency Boration Flow Paths			

d. Verify open the following valves:
- 1-QRV-400, Blender To CHG Pumps Suct ❑
- 1-QRV-411, Boric Acid To Blender ❑

e. Verify 1-QFC-411, Blender Boric Acid flow indicates – GREATER THAN OR EQUAL TO 36 gpm ❑

4.2 Verify Boration Flow Path to Reactor Coolant System.

4.2.1 Verify at least ONE Charging Pump running.
- 1-PP-50E, East Centrifugal Charging Pump ❑
- 1-PP-50W, West Centrifugal Charging Pump ❑

4.2.2 **IF** borating via the Charging Header, **THEN** perform the following:

a. Verify open the following:
- 1-QMO-200, Charging Flow To Regen ❑
- 1-QMO-201, Charging Flow To Regen ❑

b. Verify open **OR** throttled the following:
- 1-QRV-251, CCP Discharge Flow Control ❑
- 1-QRV-200, Charging HDR Press Ctrl ❑

c. Verify open at least ONE of the following:
- 1-QRV-61, Alt Chg Line To Cold Leg 1 ❑
- 1-QRV-62, Normal Chg Line To Cold Leg 4 ❑

d. **IF** 1-QRV-200, Charg Hdr Press Ctrl valve is failed closed, **THEN** open bypass valve 1-CS-319. ❑

4.2.3 **IF** borating via 1-QMO-410, Emer Boration To CHG Pump Suct, **THEN** verify 1-QFI-200, Charging Pumps Discharge Flow, indicates – GREATER THAN 60 gpm. ❑

STANDARD: **(CS)** Operator Opens 1-QRV-400 and 1-QRV-411.
SAT: ☐ UNSAT: ☐

STANDARD: **(CS)** Operator Verifies Flow at 1-QFC-411 Is Greater Than 36 gpm.
SAT: ☐ UNSAT: ☐

STANDARD: Operator verifies at least ONE Charging Pump running.
SAT: ☐ UNSAT: ☐

STANDARD: Operator verifies open the following 1-QMO-200 and l-QMO-201.
SAT: ☐ UNSAT: ☐

STANDARD: Operator verifies open OR throttled 1-QRV-251 and 1-QRV-200
SAT: ☐ UNSAT: ☐

STANDARD: Operator verifies open **EITHER** 1-QRV-61 **OR** 1-QRV-62.
SAT: ☐ UNSAT: ☐

CUE: QRV-200 is NOT failed closed

Note: Step 4.2.3 is N/A

EXPECTED ACTIONS	CUES/STANDARDS ("**CS**" Indicates Critical Standard)

Reference	01-OHP-4021-005-007	Rev. 4	Page 6 of 8
Operation Of Emergency Boration Flow Paths			

4.2.4 **IF** borating via RWST, **THEN** verify 1-QFI-200, Charging Flow, indicates – GREATER THAN 70 gpm. ❑

4.2.5 **IF** borating via boric acid blender, **THEN** verify 1-QFI-200, Charging Flow, indicates – GREATER THAN 50 gpm. ❑

4.2.6 **IF** the Charging flowpath is only through the Reactor Coolant Pump seals, **THEN** perform the following:

a. Verify open 1-QRV-251, CCP Discharge Flow Control. ❑

4.2.7 Divert letdown to the CVCS Holdup Tanks as necessary to maintain VCT level and pressure using the following.

- 1-RU-28, VCT Level Control (PREFERRED) ❑
- 1-QRV-303, VCT/HOLDUP TK Inlet Selector ❑

4.3 **WHEN** Emergency Boration is no longer required, **THEN** perform the following:

4.3.1 **IF** borating via 1-QMO-410, Emer Boration To CHG Pump Suct **OR** borating via boric acid blender, **THEN** perform the following:

a. Verify 1-QMO-410, Emer Boration To CHG Pump Suct. – CLOSED. ❑

b. Place Speed Selector for operating BA Transfer Pump(s) to – SLOW:

- Boric Acid XFER Pump 1 Speed Selector ❑
- Boric Acid XFER Pump 2 Speed Selector ❑

c. Verify closed the following:

- 1-QRV-411, Boric Acid To Blender ❑
- 1-QRV-400, Blender to CHG Pumps Suct ❑

d. Verify 1-QRV-303, VCT/HOLDUP TK Inlet Selector, in AUTO. ❑

Note: Step 4.2.4 is N/A

STANDARD:Operator Verifies Flow at 1-QFI-200 Is Greater Than 50 gpm..
SAT: ☐ UNSAT: ☐

Note: Step 4.2.6 is N/A

STANDARD: Operator Diverts Letdown as required to maintain VCT level and pressure.
SAT: ☐ UNSAT: ☐

TERMINATION CUE: This JPM is complete.