AS-SUBMITTED EXAMINATION

BRAIDWOOD STATION INITIAL EXAMINATION

DECEMBER 2007

CONTROL ROOM JPMS

TASK TITLE: Perform Emergency Boration for Inadequate Shutdown Margin

JPM No.:	SIM-110	REV:	20070301
Task No.:	R-OA-033	K/A No.:	004000A4.07
Objective No.:	4.D.OA-08	K/A IMP:	3.9/3.7

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. FAILED _____

TIME STARTED: _____
TIME FINISHED: _____
JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 6, 7, 8, 10**
APPROX COMPLETION TIME: 15 MINUTES

CRITICAL TIME: N/A

EVALUATION METHOD:
_X_ PERFORM
___ SIMULATE

LOCATION:
___ IN PLANT
_X_ SIMULATOR

GENERAL REFERENCES:

1. 1BwOA PRI-2, Rev. 101, Emergency Boration

MATERIALS:

1. 1BwOA PRI-2, Rev. 101.

TASK STANDARDS:

1. Determine emergency boration flow from the BAST is < 30 gpm.
2. Initiate emergency boration flow from the RWST in accordance with 1BwOA PRI-2.

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is in Mode 3 at Normal Operating Temperature and Normal Operating Pressure.
3. 1BwOSR 3.1.1.1-1, SHUTDOWN MARGIN DAILY VERIFICATION DURING SHUTDOWN, was completed 10 minutes ago.
4. 1BwOSR 3.1.1.1-1determined RCS Boron concentration is 58 ppm below the required Shutdown Margin.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to borate the RCS in accordance with 1BwOA PRI-2, EMERGENCY BORATION.
2. Inform the Unit 1 Unit Supervisor when you have initiated RCS boration.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwOA PRI-2 Emergency Boration **CUE: As US/SM acknowledge request to evaluate for Emergency Plan conditions.**	Refer to 1BwOA PRI-2, Emergency Boration • Inform US/SM to evaluate for Emergency Plan conditions.	SAT UNSAT N/A **Comments:**
2.	Check Centrifugal Charging pump status.	Perform the following at 1PM05J: • Verify1A CV pump running.	SAT UNSAT N/A **Comments:**
3.	Establish Boration flow from the BAT	Perform the following at 1PM05J: o Place 1CV8104, Emergency Boration Valve, C/S to OPEN. OR o Place 1CV110A, Boric Acid to Blender Valve, CS to OPEN. AND o Place 1CV110B, Boric Acid Blender to Charging Pump Valve, C/S to OPEN.	SAT UNSAT N/A **Comments:**
4.	Start Boric Acid Transfer pump	Perform the following at 1PM05J: • Place 1AB03P, Unit 1 Boric Acid Transfer pump, to START.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
5.	Determine BAST Emergency Boration flow inadequate **CUE: As US, acknowledge report of inadequate boration flow indication.**	Perform the following at 1PM05J: ○ If 1CV8104 used for boration: • Check Emergency Boration flow on 1FI-183A and determines it is less than 30 gpm. OR ○ If 1CV110A & B used for boration: • Check Boration flow on recorder 1FR-110 and determines boration flow is less than 30 gpm. • Informs US of lack of flow indication.	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: Alternate path begins here.		
***6.**	**Align alternate boration flowpath from the RWST**	Perform the following at 1PM05J: • Place 1AB03P, Unit 1 Boric Acid Transfer pump, to STOP. • Place either 1CV112D AND/OR 1CV112E, RWST to Charging Pump Suction Valve(s), CS(s) to OPEN.	SAT UNSAT N/A **Comments:**
***7.**	**Isolate charging pump suction from the VCT.**	Perform the following at 1PM05J: • *Place either* 1CV112B AND/OR 1CV112C, VCT Outlet Isolation Valve(s) to CLOSE.	SAT UNSAT N/A **Comments:**
***8.**	**Maximize letdown and charging flow**	Perform the following at 1PM05J: ○ VERIFY 120 gpm Letdown in service. • Place 1FK-121, Centrifugal Charging Pump Flow Control Valve, controller in MANUAL by depressing the MAN pushbutton. • Raise CV pump flow by depressing and holding RAISE on 1FK-121 to maximize charging flow while maintaining 1FI-121A indication on scale.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
9.	Align CV pump discharge flowpath	Perform the following at 1PM05J: • Verify 1CV8105, Charging Line Containment Isolation Valve OPEN. • Verify 1CV8106, Charging Line Containment Isolation Valve OPEN. • Verify 1CV8324A, Charging to Regen Hx 1A Isolation Valve, OPEN. • Verify 1CV8147, Charging to RC Loop 1A Isolation Valve, OPEN.	SAT UNSAT N/A **Comments:**
***10.**	**Throttle 1CV121 to establish 1FI-121A flow at maximum for normal charging** **CUE: As US, acknowledge report and inform the examinee, that another NSO will complete 1BwOA PRI-2.**	Perform the following at 1PM05J: • Throttle CV pump flow by depressing and holding RAISE or LOWER buttons on 1FK-121 to maximize charging flow on 1FI-121A. o Inform Unit 1 Unit Supervisor emergency boration flow is established.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-8, BOL Rx startup, shutdown banks out.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Insert **IOR ZAO1FI183A 0** to fail indicated boration flow to 0 gpm on 1FI-183A when using the emergency boration valve 1CV8104.
- Insert **IOR ZDI1CV110B CLS** to fail 1CV110B closed.
- If running the JPM repetitively, perform the following:
  - VERIFY/STOP 1AB03P, Unit 1 Boric Acid Transfer Pump.
  - VERIFY/OPEN 1CV112B AND1CV112C, VCT Outlet Isolation Valves.
  - VERIFY/CLOSED 1CV112D AND 1CV112E, RWST to Charging Pump Suction Valves.
  - PLACE 1FK-121 in AUTO and verify 1FK-121 is maintaining PZR Level in automatic.
  - Clear ALL place keeping marks from 1BwOA PRI-2.

COMMENTS:

A. PURPOSE

This procedure provides the actions required to borate the RCS under abnormal conditions requiring rapid but controlled insertion of negative reactivity.

B. SYMPTOMS OR ENTRY CONDITIONS

1) The following conditions require emergency boration:

- Failure of more than one RCCA to fully insert following a reactor trip or shutdown.
- Uncontrolled cooldown when the reactor is shutdown.
- Inadequate shutdown margin in Mode 2 (with k_{eff} less than 1.0), 3, 4, or 5.
- During Mode 6 when boron concentration is less than COLR limit in the refueling canal, refueling cavity, or any filled portions of the RCS.

2) This procedure may be entered from:

- 1BwEP ES-0.1, REACTOR TRIP RESPONSE, if temperature drops to less than 545°F.
- 1BwEP ES-0.1, REACTOR TRIP RESPONSE or 1BwGP 100-5 if 2 or more rods are not fully inserted.
- 1BwOA PRI-12, UNCONTROLLED DILUTION, when shutdown margin is not adequate in Mode 2 (with k_{eff} less than 1.0), 3, 4, or 5.
- 1BwGP 100-2 or 1BwGP 100-2A1, if criticality was achieved with the control banks below the low-low rod insertion limit, or if eight-fold curve indicates criticality will occur with the control banks below the low-low rod insertion limit.
- 1BwGP 100-6, REFUELING OUTAGE, if the RCS boron concentration drops to less than COLR limit.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

****
* NOTE *
* With this procedure in effect, the *
* Emergency Director shall evaluate *
* for Emergency Plan conditions. *
****

1 CHECK CENT CHG PUMP STATUS:

a. Check at least one CENT CHG pump - RUNNING

a. IF no CENT CHG pump is available,
THEN GO TO ATTACHMENT B, Step 1 (Page 12).

IF a CENT CHG pump is available,
THEN perform the following for the available pump:

1) Clear the admin OOS if necessary.

2) Verify a suction source aligned to the CENT CHG pump.

3) Verify CENT CHG pump(s) miniflow isol valves are open:

- CENT CHG Pump 1A:
  - 1CV8111
  - 1CV8114
- CENT CHG Pump 1B:
  - 1CV8110
  - 1CV8116

4) Start the CENT CHG pump.

5) IF no CENT CHG pump can be started,
THEN GO TO ATTACHMENT B, Step 1 (Page 12).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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* NOTE *
* To avoid lifting a PZR PORV it is *
* desirable to balance 1FI-121A flow *
* with letdown flow. *
****

****
* NOTE *
* Containment evacuation may be *
* necessary if the RCS is NOT intact. *
****

2 EMERGENCY BORATE RCS:

a. Establish boration flow from BAT:

1) Align boration flowpath:

- o Open emergency boration valve:
  - 1CV8104
- o Open normal boration valves:
  - 1CV110A
  - 1CV110B

2) Start boric acid transfer pump

*3) Check emergency boration flow - GREATER THAN 30 GPM

a. Align alternate boration flow from the RWST:

1) Stop the boric acid transfer pump.

2) Open at least ONE RWST to CENT CHG pumps suction valve:

- o 1CV112D
- o 1CV112E

3) Close at least ONE VCT outlet valve:

- o 1CV112B
- o 1CV112C

4) Maximize letdown flow.

*5) Maximize charging flow while maintaining 1FI-121A indication on scale.

Step continued on next page

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 2 (continued)

IF alternate boration from the RWST can NOT be established, THEN locally align emergency boration from the BAT:

1) IF the boric acid filter is plugged, THEN bypass the filter by opening the boric acid filter supply to boric acid tank valve:

   - 1AB8458 (401' N17)

2) Manually or locally open emergency boration valve:

   - 1CV8104 (426' Q16 VCT valve aisle) (MCC 132X5 B1)

3) Start the boric acid transfer pump.

b. Align CV pump discharge flowpath:

   1) Check charging line Cnmt isol valves - OPEN:

      - 1CV8105
      - 1CV8106

   2) Check in service charging to REGEN HX isol valve - OPEN:

      - 1CV8324A
      - 1CV8324B

   3) Check in service charging to RC loop isol valve - OPEN:

      - 1CV8146
      - 1CV8147

b. Manually align valves.

Step continued on next page

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 2 (continued)

*c. Throttle 1CV121 to - ESTABLISH 1FI-121A FLOW:

- o Greater than 30 GPM if BAT is source of boron
- o At maximum for normal charging header if RWST is source of boron

c. IF flow is indicated on 1FI-121A OR 1CV121 is bypassed with flow maintained, THEN GO TO Step 3.

IF no flow is indicated on 1FI-121A, THEN GO TO ATTACHMENT A, Step 1 (Page 9).

3 EQUALIZE RCS AND PZR BORON:

a. Check if PZR bubble - EXISTS — a. GO TO Step 4.

b. Energize PZR backup heaters

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is in Mode 3 at Normal Operating Temperature and Normal Operating Pressure.
3. 1BwOSR 3.1.1.1-1, SHUTDOWN MARGIN DAILY VERIFICATION DURING SHUTDOWN, was completed 10 minutes ago.
4. 1BwOSR 3.1.1.1-1 has determined that RCS Boron concentration is 58 ppm below the required Shutdown Margin.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to borate the RCS in accordance with 1BwOA PRI-2, EMERGENCY BORATION.
2. Inform the Unit 1 Unit Supervisor when you have initiated RCS boration.

TASK TITLE: Align Ventilation Systems for Emergency Operations

JPM No.:	SIM-222	REV:	20070301
Task No:	R-EF-013	K/A No	013000A4.01
Objective No.:	4C.EF-13	K/A Imp:	4.5/4.8

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 3, 5, 7, 9** APPROX COMPLETION TIME: 25 MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:

_X_ PERFORM

___ SIMULATE

LOCATION:

___ IN PLANT

_X_ SIMULATOR

GENERAL REFERENCES:

1. 1BwEP-0, Reactor Trip or Safety Injection, Rev. 103 WOG 1C.
2. BwOP VA-5, Aux Building Charcoal Booster Fan Operation, Rev. 18.
3. BwOP VA-6, Fuel Handling Building Charcoal Booster Fan Operation, Rev 16.

MATERIALS:

1. BwOP VA-5, Aux Building Charcoal Booster Fan Operation, Rev. 18.
2. BwOP VA-6, Fuel Handling Building Charcoal Booster Fan Operation, Rev 16.

TASK STANDARDS:

1. Determine HVAC components have failed to actuate.
2. Manually start one MCR Makeup Filter Fan.
3. Manually align one MCR Charcoal Absorber.
4. Manually start two Aux Building Charcoal Booster Fans in two separate plenums.
5. Manually start one FHB Charcoal Booster Fan.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 has experienced an RCS LOCA
3. 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, is in progress.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to perform steps 21, 22, and 23 of 1BwEP-0.
2. Inform the Unit 1 Unit Supervisor when you have completed steps 21, 22, and 23 of 1BwEP-0.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwEP-0. REACTOR TRIP OR SAFETY INJECTION.	Locate and open 1BwEP-0:	SAT UNSAT N/A **Comments:**
2.	Verify Control Room outside air intake monitors are less than high alarm setpoint.	Perform the following at the RM-11 console: ○ Depress Grid 2 button. • Verify 0PR31J & 0PR32J cursors are GREEN. • Verify 0PR33 & 34J cursors are GREEN.	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: Alternate path begins here.		
*3.	**Check operating VC train equipment alignment.**	Perform the following at 0PM02J: • Determine 0B VC train is running. ○ Verify 0VC01CB, MCR Supply Fan 0B, RUN light LIT. ○ Verify 0VC02CB, MCR Return Fan 0B, RUN light LIT. • Determine 0VC03CB did not automatically start. • Place 0VC03CB control switch to NAT. ○ Determine 0VC03CB RUN light LIT. ○ Verify 0WO01PB, MCR Chilled Water Pump 0B, RUN light LIT. ○ Verify 0WO01CB, MCR Chiller 0B, RUN light LIT.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*5.	**Verify 0B VC Train Damper Alignment**	Perform the following at 1PM06J: o Verify 0VC08Y, M/U Air Filter 0B Outlet Damper 0B, OPEN and CLOSED lights LIT. o Verify 0VC16Y/282Y/09Y/313Y, M/U Air Source Normal/M/U Air Filter, FILTER light LIT. o Verify 0VC09Y, Turbine Building Air to M/U Filter Isolation Damper, OPEN light LIT. o Verify 0VC313Y, Outside Air to M/U Filter Isolation Damper, CLOSED light LIT. • Determine Recirc Charcoal Absorber is not aligned. • Place Recirc Charcoal Absorber Select Switch 0VC44Y/05Y/06Y to ABSORB. o Verify 0VC44Y, Recirc Charcoal Absorber Bypass Damper, CLOSED light LIT. o Verify 0VC05Y, Recirc Charcoal Absorber Inlet Damper, OPEN light LIT. o Verify 0VC06Y, Recirc Charcoal Absorber Outlet Damper, OPEN light LIT. o Verify MCR pressure > +0.125" H2O on 0PDI-VC038.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE

6.	Verify Aux Building Ventilation Aligned for Emergency Operation.	Perform the following at 0PM02J:
		• Verify two inaccessible plenums aligned:
		  • 0VA084Y, Inaccessible Filter Plenum A OPEN light LIT.
		  • 0VA086Y, Inaccessible Filter Plenum C OPEN light LIT.
		• Check Aux Building Inaccessible Filter Plenum Charcoal Booster Fans:
		  • 0VA03CA, Inaccessible Filter Plenum A Charcoal Booster Fan 0A STOP light LIT.
		  • 0VA03CB, Inaccessible Filter Plenum A Charcoal Booster Fan 0B STOP light LIT.
		  • 0VA03CE, Inaccessible Filter Plenum C Charcoal Booster Fan 0E STOP light LIT.
		  • 0VA03CF, Inaccessible Filter Plenum C Charcoal Booster Fan 0F STOP light LIT.
		• Determines NO Inaccessible Plenum Charcoal Booster Fans operating.
			SAT UNSAT N/A
			Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
	EVALUATOR NOTE: The examinee may elect to immediately start the Aux Building Charcoal Booster Fans rather than starting the fans per BwOP VA-5. OP-AA-101-111, ROLES AND RESPONSIBILITIES OF ON SHIFT PERSONNEL, step 4.6.2.5, directs Reactor Operators to manually initiate safety systems automatic actions when operating parameters exceed the system's automatic initiation setpoints and the initiation does not occur.		

*7.	**Start Aux Building Charcoal Booster Fans.**
	
	CUE: After examinee locates procedure, provide copy.
	CUE: All prerequisites, precautions, and limitations and action are met.
	
	CUE: All fan transfer switches are in remote.
		Perform the following at 0PM02J:
		• Start ONE fan in plenum A and plenum C as follows:
		  • Place one Plenum A fan C/S to start:
		  o 0VA03CA
		  o 0VA03CB
		  • Place one Plenum C fan C/S to START
		  o 0VA03CE
		  o 0VA03CF
		- OR -
		Locate and open BwOP VA-5.
		Refer to BwOP VA-5.
		Perform the following at 0PM02J:
		o Verify NO Inaccessible Plenum Charcoal Booster Fans operating.
		o Verify two inaccessible plenums aligned:
		  o 0VA084YA OPEN.
		  o 0VA085Y, CLOSED
		  o 0VA086Y OPEN.
		o Verify fan control dampers CLOSED.
		  o 0VA023YA/B
		  o 0VA022YA/B
		  o 0VA025YA/B
		  o 0VA024YA/B
		  o 0VA072YA/B
		  o 0VA067YA/B
		• Start ONE fan in plenum A and plenum C as follows:
		  o Verify fan transfer switch in remote
		  • Place fan C/S to start
		  • Verify fan flow control damper THROTTLED
		  • Verify fan bypass damper CLOSED.
			SAT UNSAT N/A
			Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE

8.	Verify FHB Ventilation Aligned for Emergency Operation	Perform the following at 0PM02J:
		• Check Train A FHB Charcoal Absorber train aligned:
		  • 0VA04CA, FHB Booster Fan 0A, STOP light LIT.
		  • 0VA060Y, FHB Charcoal Absorber Inlet Isolation Damper CLOSED light LIT.
		  • 0VA057Y, FHB Filter Train 0A Flow Control Damper CLOSED light LIT.
		  • 0VA051Y, FHB Charcoal Absorber Bypass Damper OPEN light LIT.
		• Check Train B FHB Charcoal Absorber train aligned:
		  • 0VA04CB, FHB Booster Fan 0B, STOP light LIT.
		  • 0VA055Y, FHB Charcoal Absorber Inlet Isolation Damper CLOSED light LIT.
		  • 0VA062Y, FHB Filter Train 0A Flow Control Damper CLOSED light LIT.
		  • 0VA435Y, FHB Charcoal Absorber Bypass Damper OPEN light LIT.
		• Determines NO FHB Charcoal Absorber aligned.
			SAT UNSAT N/A
			Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
	EVALUATOR NOTE: The examinee may elect to immediately start the FHB Charcoal Booster Fans rather than starting the fans per BwOP VA-6. OP-AA-101-111, ROLES AND RESPONSIBILITIES OF ON SHIFT PERSONNEL, step 4.6.2.5, directs Reactor Operators to *manually initiate safety systems automatic actions when operating parameters exceed the system's automatic initiation setpoints and the initiation does not occur.*		

*9.	**Start Fuel Handling Building Charcoal Booster Fans.**
	
	CUE: After examinee locates procedure, provide copy.
	CUE: All prerequisites, precautions, and limitations and action are met.
	
	CUE: As US, acknowledge report.
		Perform the following at 0PM02J:
		• Start ONE FHB Charcoal Booster Fan as follows:
		  • Place Fan C/S to start:
		  o 0VA04CA
		  o 0VA04CB
		o Verify Charcoal Absorber Inlet Damper and Flow Control Damper open and Bypass Damper closed for the fan that was started.
		- OR -
		Locate and open BwOP VA-6.
		Refer to BwOP VA-6.
		Perform the following at 0PM02J:
		o Verify FHB Exhaust Plenum Pre-Filter OPEN for fan to be started:
		  o 0VA058Y & 0VA059Y
		  o 0VA053Y & 0VA054Y
		o Verify FHB Exhaust Plenum Pre-Filter CLOSED for fan to remain off:
		o Verify Flow Control Damper for fan to remain off is CLOSED.
		• Start ONE FHB Charcoal Booster Fan by placing the fan C/S to start.
		  • Verify fan flow control damper OPEN/THROTTLED
		  o Verify the FHB Charcoal Absorber Damper OPEN.
		  o Verify FHB Charcoal Absorber Bypass Damper CLOSED.
		o Inform Unit Supervisor 1BwEP-0 steps 21-23 are complete.
			SAT UNSAT N/A
			Comments:

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-21, BOL 100% Power, Steady State, Equilibrium Xenon.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Insert **IRF RP44 OUT** to disable Train A Slave Relay K602
- Insert **IRF RP70 OUT** to disable Train B Slave Relay K602.
- Insert **IMF TH06A 1000 0** to initiate an RCS LOCA.
- Manually actuate SI at 1PM05J or 1PM06J.
- If running JPM repetitively, perform the following before each performance:
    - Verify/Secure BOTH VC M/U Fans
    - Verify/Align BOTH VC Charcoal Absorbers to NORMAL
    - Verify/Secure ALL Aux Building Charcoal Booster Fans
    - Verify/Secure BOTH Fuel Handling Building Charcoal Booster Fan
    - Remove ALL place keeping marks from 1BwEP-0.

COMMENTS:

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

21 VERIFY CONTROL ROOM VENTILATION ALIGNED FOR EMERGENCY OPERATION:

a. *Control Room outside air intake* radiation - LESS THAN HIGH ALARM SETPOINT:

- Control Room Outside Air Intake 0A:
  - 0PR31J Grid 2 0PA231
  - 0PR31J Grid 2 0PB131
  - 0PR31J Grid 2 0PC331
  - 0PR32J Grid 2 0PA232
  - 0PR32J Grid 2 0PB132
  - 0PR32J Grid 2 0PC332
- Control Room Outside Air Intake 0B:
  - 0PR33J Grid 2 0PA233
  - 0PR33J Grid 2 0PB133
  - 0PR33J Grid 2 0PC333
  - 0PR34J Grid 2 0PA234
  - 0PR34J Grid 2 0PB134
  - 0PR34J Grid 2 0PC334

a. Locally verify the following fans are TRIPPED:

1) Control Room offices HVAC Panel 0VV01J (451' K24):
   - 0VV01CA, Supply Fan OA
   - 0VV01CB, Supply Fan OB
2) Laboratory HVAC Panel 0VL01J (426' M10):
   - 0VL02CA, Fume Hood Exhaust Fan OA
   - 0VL02CB, Fume Hood Exhaust Fan OB
3) Radwaste Building HVAC Panel 0VW01J (433' J45 SB):
   - 0VW03CA, Exhaust Fan OA
   - 0VW03CB, Exhaust Fan OB

Step continued on next page

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 21 (continued)

b. Operating VC train equipment - RUNNING:

- o Train A:
  - Supply fan 0A
  - Return fan 0A
  - M/U fan 0A
  - Chilled water pump 0A
  - MCR chiller 0A
- o Train B:
  - Supply fan 0B
  - Return fan 0B
  - M/U fan 0B
  - Chilled water pump 0B
  - MCR chiller 0B

b. Manually start equipment for VC train in operation.

IF equipment can NOT be started,
THEN perform the following:

1) Reset Control Room Vent Isolation.
2) Stop inoperable VC train equipment.
3) Start opposite VC train equipment.
4) **RETURN TO** Step 21b.

c. Operating VC train dampers - ALIGNED:

- M/U fan outlet damper - NOT FULLY CLOSED:
  - o 0VC24Y (Train A)
  - o 0VC08Y (Train B)
- VC train M/U filter light - LIT

c. Perform the following:

1) Reset Control Room Vent Isol.
2) Stop inoperable VC train equipment.
3) Start opposite VC train equipment.
4) **RETURN TO** Step 21b.

Step continued on next page

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 21 (continued)

d. Operating VC train M/U filter aligned to - NORMAL TB:

- o Train A:
  - 0VC25Y - OPEN
  - 0VC312Y - CLOSED
- o Train B:
  - 0VC09Y - OPEN
  - 0VC313Y - CLOSED

d. Place M/U Fltr Inlet Select switch to NORMAL TB position.

*e. Operating VC train Charcoal Absorber - ALIGNED:

- o Train A:
  - 0VC43Y bypass damper - CLOSED
  - 0VC21Y inlet damper - OPEN
  - 0VC22Y outlet damper - OPEN

-OR-

- o Train B:
  - 0VC044Y bypass damper - CLOSED
  - 0VC05Y inlet damper - OPEN
  - 0VC06Y outlet damper - OPEN

e. Place RECIRC Charcoal Absorber selector switch to the ABSORB position.

IF Charcoal Absorber is still NOT aligned, THEN perform the following:

1) Reset Control Room Vent Isol.

2) Stop inoperable VC train equipment.

3) Start opposite VC train equipment.

4) **RETURN TO** Step 21b (Previous Page).

f. Control Room pressure (MCR/TB DP, OPDI-VC038) - GREATER THAN +0.125" H_2O

f. Restore MCR pressure per BwOP VC-14, MAIN CONTROL ROOM PRESSURE LOW, while continuing with this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

22 VERIFY AUX BLDG VENTILATION ALIGNED FOR EMERGENCY OPERATION:

*a. Inaccessible Filter Plenums - TWO PLENUMS ALIGNED WITH CHARCOAL ABSORBERS ON-LINE:

- o Plenum A:
  - o Fan 0VA03CA - RUNNING:
    - 0VA022Y Flow Cont damper - OPEN
    - 0VA020Y Byp Isol damper - CLOSED

-OR-

  - o Fan 0VA03CB - RUNNING:
    - 0VA023Y Flow Cont damper - OPEN
    - 0VA436Y Byp Isol damper - CLOSED
- o Plenum B:
  - o Fan 0VA03CC - RUNNING:
    - 0VA024Y Flow Cont damper - OPEN
    - 0VA021Y Byp Isol damper - CLOSED

-OR-

  - o Fan 0VA03CD - RUNNING:
    - 0VA025Y Flow Cont damper - OPEN
    - 0VA437Y Byp Isol damper - CLOSED

a. Align plenums and start fans as necessary per BwOP VA-5, AUX BLDG CHARCOAL BOOSTER FAN OPERATION.

Step continued on next page

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

Step 22a (continued)

- o Plenum C:
  - o Fan 0VA03CE - RUNNING:
    - 0VA067Y Flow Cont damper - OPEN
    - 0VA052Y Byp Isol damper - CLOSED

-OR-

  - o Fan 0VA03CF - RUNNING:
    - 0VA072Y Flow Cont damper - OPEN
    - 0VA438Y Byp Isol damper - CLOSED

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

23 VERIFY FHB VENTILATION ALIGNED FOR EMERGENCY OPERATION:

a. FHB Charcoal Absorbers - ONE TRAIN ALIGNED:

o Train A:

- Fan 0VA04CA - RUNNING
- 0VA060Y Charcoal Absorber Inlet Isol damper - OPEN
- 0VA057Y Filter Flow Control damper - OPEN
- 0VA051Y Charcoal Absorber Bypass Isolation damper - CLOSED

-OR-

o Train B:

- Fan 0VA04CB - RUNNING
- 0VA055Y Charcoal Absorber Inlet Isolation damper - OPEN
- 0VA062Y Filter Flow Control damper - OPEN
- 0VA435Y Charcoal Absorber Bypass Isolation damper - CLOSED

a. Align one train per BwOP VA-6, FUEL HANDLING BLDG CHARCOAL BOOSTER FAN OPERATION.

AUX BUILDING CHARCOAL BOOSTER FAN OPERATION

A. STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to start and stop an Aux Building Charcoal Booster Fan.

B. REFERENCES

1. Station Procedure:
   a. BwOP VA-E2, Auxiliary Building Ventilation Electrical Lineup.
   b. BwOP VA-9, Shutdown of the Auxiliary Building Chilled Water System.
2. Station Drawings:
   a. M-95, Auxiliary Building HVAC System Diagram.
   b. 20E-0-4030VA13 through 19, Aux Bldg Charcoal Booster Fans.
   c. M-2095, Sheet 7 of 22, HVAC/C & I Diagram.
3. Tech Spec: 3.7.12.

C. PREREQUISITES

1. The system has been lined up in accordance with BwOP VA-E2, Auxiliary Building Ventilation Electrical Lineup.
2. Before shutting down the Auxiliary Building Charcoal Booster Fan, perform the following:
   a. OBTAIN SRO permission.
   b. NOTIFY Radiation Protection that the Non-accessible Filter Plenum Charcoal Booster Fan(s) is to be shutdown.
   c. CHECK that the Area Radiation Monitors for the Auxiliary Building are not in alarm.
   d. CHECK that the Process Radiation Monitors for the Auxiliary Building are not in alarm.

D. PRECAUTIONS

1. Minimize the amount of time the Charcoal Filters are operated while painting or other activities (i.e. running a semi-trailer diesel) are in progress that could deplete the Charcoal Filters prematurely.

2. Starting charcoal booster fans may cause spurious fan dp HI-LO alarms, and/or filter plenum HI-LO dp alarms due to running VA system in 2-fan or 4-fan system lineup.

3. The VA system is designed to maintain the Aux Building $\Delta P < 0$" wg during normal modes of operation. If the VA system is used to maintain the Aux Building ΔP at a more negative value to support maintenance activities, then swapping the main VA or charcoal booster fans, operating other Aux Building ventilation (VL, VW, VV) may affect Aux Building ΔP.

4. Operation of Auxiliary Building Char Bstr Fans without main VA fans running causes the Auxiliary Building Char Bstr Fans to operate in the stall region of the fan curve. Operation of Auxiliary Building Char Bstr Fans without main VA fans running should be limited to support maintenance activities and testing as required.

E. LIMITATIONS AND ACTIONS

1. Three independent Non-accessible Area Exhaust Filter Plenums SHALL be OPERABLE, when in MODES 1, 2, 3 and 4, in accordance with Tech Spec 3.7.12.

2. A Charcoal Booster Fan will not start unless the inlet isolation damper for the associated filter plenum is open.

3. Auxiliary Building Charcoal Booster Fans will automatically start on a Safety Injection Signal.

4. When any Fire Protection Deluge Valve opens in a plenum, the fan associated with that plenum will trip.

5. Only one Auxiliary Building Charcoal Booster Fan, for each plenum, will run at a time.

6. Each Non-accessible Area Exhaust Filter Plenum SHALL be demonstrated to be OPERABLE following painting, fire or chemical release in any ventilation zone communicating with the Exhaust Filter Plenum.

7. Only two Non-accessible Area Filter Plenums can be used at any one time.

F. MAIN BODY

NOTE
Non-accessible Area Exhaust Filter Plenum Ventilation System alignment requirement may be suspended intermittently under administrative controls for purposes of train realignment.

NOTE
To operate an Aux Bldg Charcoal Booster Fan from the MCB Steps F.1 or F.3 can be used. To operate locally Steps F.2 or F.4 can be used.

1. PERFORM the following to start an Auxiliary Building Charcoal Booster Fan, remotely from 0PM02J:

NOTE
A minimum of two plenums must be aligned per Tech Specs.

a. VERIFY that no Aux Bldg Charcoal Booster Fans are running in the plenum for the fan to be started.

NOTE
When swapping Non-accessible Filter Plenum Inlet Isol Dampers, VERIFY the third inlet damper goes full OPEN prior to closing the inlet damper for the train to be placed in standby. This is done to ensure a minimum of two plenums are aligned per Tech Specs.

b. VERIFY/OPEN the following Non-accessible Filter Plenum Inlet Isol Dampers for the two trains desired for operation:

- Plenum A - damper 0VA084YA/B.
- Plenum B - damper 0VA085YA/B.
- Plenum C - damper 0VA086YA/B.

F. 1. c. VERIFY/CLOSE the Non-accessible Filter Plenum Inlet Isol Dampers for the train to be placed in standby:

- O Plenum A - damper 0VA084YA/B.
- O Plenum B - damper 0VA085YA/B.
- O Plenum C - damper 0VA086YA/B.

d. VERIFY the following damper interlock positions for the fans to be started:

- O Plenum A
  - O 0VA03CA - damper 0VA023YA/B, Fan 0B Control Damper, CLOSED.
  - O 0VA03CB - damper 0VA022YA/B, Fan 0A Control Damper, CLOSED.
- O Plenum B
  - O 0VA03CC - damper 0VA025YA/B, Fan 0D Control Damper, CLOSED.
  - O 0VA03CD - damper 0VA024YA/B, Fan 0C Control Damper, CLOSED.
- O Plenum C
  - O 0VA03CE - damper 0VA072YA/B, Fan 0F Control Damper, CLOSED.
  - O 0VA03CF - damper 0VA067YA/B, Fan 0E Control Damper, CLOSED.

NOTE
Only one Aux Bldg Charcoal Booster Fan may be started in each Non-Accessible Area Exhaust Filter Plenum A, B, and C.

NOTE
Verification that the 0VA03CA/B/C/D/E/F Transfer Switch is in the REMOTE position can be accomplished by verifying the associated fan indicating lights are lit on 0PM02J.

F. 1. e. START one of two fans in the aligned plenums by performing the following:

- O START 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B, as follows:

  a) VERIFY/PLACE 0VA03CA/B Transfer Switch in the REMOTE position.

  b) START 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B.

  c) CHECK 0VA022Y/23Y Non-access Fltr Plen A Flow Cont Dmprs, OPEN or THROTTLED.

  d) CHECK 0VA020Y/436Y Non-access Fltr Plen A Byp Isol Dmprs, CLOSED.

- O START 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D, as follows:

  a) VERIFY/PLACE 0VA03CC/D Transfer Switch in the REMOTE position.

  b) START 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D.

  c) CHECK 0VA024Y/25Y Non-access Fltr Plen B Flow Cont Dmprs, OPEN or THROTTLED.

  d) CHECK 0VA021Y/437Y Non-access Fltr Plen B Byp Isol Dmprs, CLOSED.

F. 1. e. O START 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F, as follows:

a) VERIFY/PLACE 0VA03CE/F Transfer Switch in the REMOTE position.

b) START 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F.

c) CHECK 0VA067Y/072Y Non-access Fltr Plen C Flow Cont Dmprs, OPEN or THROTTLED.

d) CHECK 0VA052Y/438Y Non-access Fltr Plen C Byp Isol Dmprs, CLOSED.

2. PERFORM the following to start an Auxiliary Building Charcoal Booster Fan locally, from 0VA01JA/B/C/D:

NOTE
A minimum of two plenums must be aligned per Tech Specs.

a. VERIFY that no Aux Bldg Charcoal Booster Fans are running in the plenum for the fan to be started.

NOTE
When swapping Non-accessible Filter Plenum Inlet Isol Dampers, VERIFY the third inlet damper goes full OPEN prior to closing the inlet damper for the train to be placed in standby. This is done to ensure a minimum of two plenums are aligned per Tech Specs.

b. VERIFY/OPEN the following Non-accessible Filter Plenum Inlet Isol Dampers for the two trains desired for operation:

O Plenum A - damper 0VA084YA/B.

O Plenum B - damper 0VA085YA/B.

O Plenum C - damper 0VA086YA/B.

F. 2. c. VERIFY/CLOSE the following Non-accessible Filter Plenum Inlet Isol Dampers for the train to be placed in standby:

- Plenum A - damper 0VA084YA/B.
- Plenum B - damper 0VA085YA/B.
- Plenum C - damper 0VA086YA/B.

d. VERIFY the following damper interlock positions for the fans to be started, as listed below:

- Plenum A
  - 0VA03CA - damper 0VA023YA/B, Fan 0B Control Damper, CLOSED.
  - 0VA03CB - damper 0VA022YA/B, Fan 0A Control Damper, CLOSED.
- Plenum B
  - 0VA03CC - damper 0VA025YA/B, Fan 0D Control Damper, CLOSED.
  - 0VA03CD - damper 0VA024YA/B, Fan 0C Control Damper, CLOSED.
- Plenum C
  - 0VA03CE - damper 0VA072YA/B, Fan 0F Control Damper, CLOSED.
  - 0VA03CF - damper 0VA067YA/B, Fan 0E Control Damper, CLOSED.

NOTE
Only one Aux Bldg Charcoal Booster Fan may be started in each Non-Accessible Area Exhaust Filter Plenum A, B, and C.

F. 2. O START 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B, as follows:

1) VERIFY/PLACE 0VA03CA/B Transfer Switch in the LOCAL position.

2) START 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B.

3) CHECK 0VA022Y/23Y Non-access Fltr Plen A Flow Cont Dmprs, OPEN or THROTTLED.

4) CHECK 0VA020Y/436Y Non-access Fltr Plen A Byp Isol Dmprs, CLOSED.

O START 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D, as follows:

1) VERIFY/PLACE 0VA03CC/D Transfer Switch in the LOCAL position.

2) START 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D.

3) CHECK 0VA024Y/25Y Non-access Fltr Plen B Flow Cont Dmprs, OPEN or THROTTLED.

4) CHECK 0VA021Y/437Y Non-access Fltr Plen B Byp Isol Dmprs, CLOSED.

O START 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F, as follows:

1) VERIFY/PLACE 0VA03CE/F Transfer Switch in the LOCAL position.

2) START 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F.

3) CHECK 0VA067Y/072Y Non-access Fltr Plen C Flow Cont Dmprs, OPEN or THROTTLED.

4) CHECK 0VA052Y/438Y Non-access Fltr Plen C Byp Isol Dmprs, CLOSED.

F. 3. PERFORM the following to stop an Auxiliary Building Charcoal Booster Fan remotely, from 0PM02J:

a. STOP Auxiliary Building Refrigeration Units using BwOP VA-9 unless VA HVAC System is in operation or will be in operation within 5 minutes.

NOTE
Verification that the 0VA03CA/B/C/D/E/F Transfer Switch is in the REMOTE position can be accomplished by verifying the associated fan indicating lights are lit on 0PM02J.

b. SHUTDOWN the desired Auxiliary Building Char Bstr Fan(s) by performing the following:

- O SHUTDOWN 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B, as follows:

  a) VERIFY/PLACE the fan Transfer Switch in the REMOTE position.

  b) STOP 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B.

  c) CHECK 0VA022Y/23Y Non-access Fltr Plen A Flow Cont Dmprs, CLOSED.

  d) CHECK 0VA020Y/436Y Non-access Fltr Plen A Byp Isol Dmprs, OPEN.

- O SHUTDOWN 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D, as follows:

  a) VERIFY/PLACE the fan Transfer Switch in the REMOTE position.

  b) STOP 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D.

  c) CHECK 0VA024Y/25Y Non-access Fltr Plen B Flow Cont Dmprs, CLOSED.

  d) CHECK 0VA021Y/437Y Non-access Fltr Plen B BYP Isol Dmprs, OPEN.

F. 3. b. O SHUTDOWN 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F, as follows:

a) VERIFY/PLACE the fan Transfer Switch in the REMOTE position.

b) STOP 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F.

c) CHECK 0VA067Y/072Y Non-access Fltr Plen C Flow Cont Dmprs, CLOSED.

d) CHECK 0VA052Y/438Y Non-access Fltr Plen C Byp Isol Dmprs, OPEN.

4. PERFORM the following to stop an Auxiliary Building Charcoal Booster Fan locally, at 0VA01JA/B/C/D:

a. STOP Auxiliary Building Refrigeration Units using BwOP VA-9 unless VA HVAC System is in operation or will be in operation within 5 minutes.

b. SHUTDOWN the desired Auxiliary Building Char Bstr Fan(s) by performing the following:

O SHUTDOWN 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B as follows:

a) VERIFY/PLACE 0VA03CA/B Transfer Switch in the LOCAL position.

b) STOP 0VA03CA/B, Auxiliary Building Char Bstr Fan 0A/0B.

c) CHECK 0VA022Y/23Y Non-access Fltr Plen A Flow Cont Dmprs, CLOSED.

d) CHECK 0VA020Y/436Y Non-access Fltr Plen A Byp Isol Dmprs, OPEN.

e) PLACE the fan Transfer Switch in the REMOTE position.

F. 4. b. O SHUTDOWN 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D as follows:

a) VERIFY/PLACE 0VA03CC/D Transfer Switch in the LOCAL position.

b) STOP 0VA03CC/D, Auxiliary Building Char Bstr Fan 0C/0D.

c) CHECK 0VA024Y/25Y Non-access Fltr Plen B Flow Cont Dmprs, CLOSED.

d) CHECK 0VA021Y/437Y Non-access Fltr Plen B BYP Isol Dmprs, OPEN.

e) PLACE the fan Transfer Switch in the REMOTE position.

O SHUTDOWN 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F, as follows:

a) VERIFY/PLACE 0VA03CE/F Transfer Switch in the LOCAL position.

b) STOP 0VA03CE/F, Auxiliary Building Char Bstr Fan 0E/0F.

c) CHECK 0VA067Y/072Y Non-access Fltr Plen C Flow Cont Dmprs, CLOSED.

d) CHECK 0VA052Y/438Y Non-access Fltr Plen C Byp Isol Dmprs, OPEN.

e) PLACE the fan Transfer Switch in the REMOTE position.

FUEL HANDLING BUILDING CHARCOAL BOOSTER FAN OPERATION

A. STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to start, and stop a Fuel Handling Building Charcoal Booster Fan.

B. REFERENCES

1. Station Procedure: BwOP VA-E3, Auxiliary Building Ventilation Electrical Lineup.
2. Station Drawings:
   a. M-95, Auxiliary Building HVAC System Diagram.
   b. 20E-0-4030VA19/20, Fuel Handling Building Charcoal Booster Fan.
   c. M-2095, Sheet 9, HVAC/C&I Diagram.
3. Tech Spec: 3.7.13.
4. Station Commitment: 456-402-91-00100, Step D.1.

C. PREREQUISITES

1. The system has been lined up in accordance with BwOP VA-E2.
2. Before shutting down the Fuel Handling Building Charcoal Booster Fan, PERFORM the following:
   a. OBTAIN SRO permission.
   b. NOTIFY Radiation Protection that the Fuel Handling Building Charcoal Booster Fan is to be shutdown.
   c. CHECK that 0RT-AR055/56, Area Radiation Monitors for the Fuel Handling Building, are not in alarm. (If the skid is in alarm or removed from service, have a Shift Supervisor evaluate the use of this procedure).
   d. CHECK that Process Radiation Monitors for the Fuel Handling Building, are not in alarm. (If the skid is in alarm or removed from service, have a Shift Supervisor evaluate the use of this procedure).

D. PRECAUTIONS

1. Startup and Shutdown of the Fuel Handling Bldg Charcoal Booster Fan may impact Spent Fuel Pool Level if the Spent Fuel Pool is connected to the Refueling Cavity via the Transfer Canal. If the "Spent Fuel Pit Level High Low" annunciator is not operable, direct communications between the Control Room and the Spent Fuel Pool MUST be maintained until conditions stabilize.

2. Minimize the amount of time the Charcoal Filters are operated while painting or other activities (i.e. running a semi-trailer diesel) are in progress that could deplete the Charcoal Filters prematurely.

3. Starting FHB charcoal booster fans may cause spurious fan dp HI-LO alarms, filter dp alarms, and low flow alarms due to VA system operating in 2-fan or 4-fan mode of operation.

4. The VA system is designed to maintain the Aux Building $\Delta P < 0$" wg during normal modes of operation. If the VA system is used to maintain the Aux Building ΔP at a more negative value to support maintenance activities, then swapping the main VA or charcoal booster fans, operating other Aux Building ventilation (VL, VW, VV) may affect Aux Building ΔP.

5. Operation of Auxiliary Building Char Bstr Fans without main VA fans running causes the Auxiliary Building Char Bstr Fans to operate in the stall region of the fan curve. Operation of Auxiliary Building Char Bstr Fans without main VA fans running should be limited to support maintenance activities and testing as required.

E. LIMITATIONS AND ACTIONS

1. In accordance with Tech Spec 3.7.13, two Fuel Handling Building Exhaust Filter Plenum Ventilation System trains shall be OPERABLE:

   a. During movement of irradiated fuel assemblies in the fuel building.

   b. During movement of irradiated fuel assemblies in the containment with the equipment hatch not intact; and

   c. During CORE ALTERATIONS with equipment hatch not intact.

2. FHB Charcoal Booster Fans will automatically start on a Safety Injection Signal or High Radiation in the Fuel Handling Building.

3. When any Fire Protection Deluge Valve opens, in a plenum, the fan associated with that plenum will trip.

4. Only one Fuel Handling Building Charcoal Booster Fan will run at a time.

5. If painting is in progress in the FHB, consult VA System Engineer prior to starting FHB Charcoal Booster Fans.

6. Trucks should not be allowed to idle in the FHB while a booster fan is running.

F. MAIN BODY

NOTE
To operate an FHB Charcoal Booster Fan from the MCB, Steps F.1 or F.2 can be used. To operate locally, Steps F.3 or F.4 can be used.

1. PERFORM the following to start a Fuel Handling Building Charcoal Booster Fan remotely, at 0PM02J:

NOTE
Only one Fuel Handling Building Charcoal Booster Fan may be run at a time.

a. VERIFY/OPEN the desired FHB Exhaust Plenum Pre-Filter by opening ONE of the following, at 0PM02J:

- O Plenum A - 0VA058Y and 0VA059Y, FHB Pre-Filter 0A Isol Damper.
- O Plenum B - 0VA053Y and 0VA054Y, FHB Pre-Filter 0B Isol Damper.

b. VERIFY/CLOSE the opposite FHB Exhaust Plenum Pre-Filter by closing ONE of the following, at 0PM02J:

- O Plenum A – 0VA058Y and 0VA059Y, FHB Pre-Filter 0A Isol Damper.
- O Plenum B – 0VA053Y and 0VA054Y, FHB Pre-Filter 0B Isol Damper.

c. VERIFY/CLOSE the Flow Control Damper for the FHB Charcoal Booster Fan not to be started (for 0VA04CA-damper 0VA057Y, or for 0VA04CB-damper 0VA062Y).

NOTE
Starting fans may cause spurious dp and/or flow alarms due to 2-fan or 4-fan VA system lineup.

F. 1. d. START 0VA04CA/B, 0A/0B Fuel Handling Building Charcoal Booster Fan.

e. VERIFY that the FHB Fltr Trn 0A/0B Flow Cont Damper, OPENS (for 0VA04CA-damper 0VA057Y, or for 0VA04CB-damper 0VA062Y).

f. VERIFY that the FHB Char Absorb 0A/0B Inlet Isol, OPENS (for 0VA04CA-damper 0VA060Y, or for 0VA04CB-damper 0VA055Y).

g. VERIFY that the FHB Char Absorb Bypass Isol Damper, CLOSES (for 0VA04CA-damper 0VA051Y, or for 0VA04CB-damper 0VA435Y).

2. PERFORM the following to stop a Fuel Handling Building Charcoal Booster Fan remotely, at 0PM02J:

a. STOP 0VA04CA/B, 0A/0B FHB Charcoal Booster Fan.

b. CHECK 0VA057Y/62Y, FHB Fltr Trn 0A/0B Flow Cont Dmpr, CLOSED.

c. CHECK 0VA060Y/55Y, FHB Char Absorb 0A/0B Inlet Isol Dmpr, CLOSED.

d. CHECK 0VA051Y & 0VA435Y, FHB Char Absorb Byp Isol Dmprs, OPEN.

F. 3. PERFORM the following to start a Fuel Handling Building Charcoal Booster Fan locally, at 0VA01JA/B:

NOTE
Only one Fuel Handling Building Charcoal Booster Fan may be run at a time.

a. VERIFY/OPEN the desired FHB Exhaust Plenum Pre-Filter by opening ONE of the following, at 0PM02J:

- O Plenum A - 0VA058Y and 0VA059, FHB Pre-Filter 0A Isol Damper.
- O Plenum B - 0VA053Y and 0VA054Y, FHB Pre-Filter 0B Isol Damper.

b. VERIFY/CLOSE the opposite FHB Exhaust Plenum Pre-Filter by closing ONE of the following, at 0PM02J:

- O Plenum A – 0VA058Y and 0VA059Y, FHB Pre-Filter 0A Isol Damper.
- O Plenum B – 0VA053Y and 0VA054Y, FHB Pre-Filter 0B Isol Damper.

c. VERIFY/CLOSE the Flow Control Damper for the FHB Charcoal Booster Fan not to be started (for 0VA04CA-damper 0VA057Y, or for 0VA04CB-damper 0VA062Y).

CAUTION
Placing Local/Remote switch to LOCAL may result in inoperability of affected train since no operability surveillances conducted while in local (See ER# 94-00-306).

d. PLACE the fan Transfer Switch in the LOCAL position.

NOTE
Starting fans may cause spurious dp and/or flow alarms due to 2-fan or 4-fan VA system lineup.

F. 3. e. START 0VA04CA/B, 0A/0B Fuel Handling Building Charcoal Booster Fan.

f. VERIFY that the FHB Fltr Trn 0A/0B Flow Cont Damper, OPENS (for 0VA04CA-damper 0VA057Y, or for 0VA04CB-damper 0VA062Y).

g. VERIFY that the FHB Char Absorb 0A/0B Inlet Isol, OPENS (for 0VA04CA-damper 0VA060Y, or for 0VA04CB-damper 0VA055Y).

h. VERIFY that the FHB Char Absorb Bypass Isol Damper, CLOSES (for 0VA04CA-damper 0VA051Y, or for 0VA04CB-damper 0VA435Y).

4. PERFORM the following to stop a Fuel Handling Building Charcoal Booster Fan locally, at 0VA01JA/B:

a. ENSURE that the fan Transfer Switch is in the LOCAL position.

b. STOP 0VA04CA/B, 0A/0B FHB Charcoal Booster Fan.

c. CHECK 0VA057Y/62Y, FHB Fltr Trn 0A/0B Flow Cont Dmpr, CLOSED.

d. CHECK 0VA060Y/55Y, FHB Char Absorb 0A/0B Inlet Isol Dmpr, CLOSED.

e. CHECK 0VA051Y & 0VA435Y, FHB Char Absorb Byp Isol Dmprs, OPEN.

f. PLACE the fan Transfer Switch in the REMOTE position.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 has experienced an RCS LOCA
3. 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, is in progress.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to perform steps 21, 22, and 23 of 1BwEP-0.
2. Inform the Unit 1 Unit Supervisor when you have completed steps 21, 22, and 23 of 1BwEP-0.

TASK TITLE: Lower 1C SI Accumulator Level

JPM Number: SIM-206 Rev: 20070301

Task No.: R-SI-002 K/A No.: 006000A1.13

Objective No:. 4C.SI-03 K/A Imp.: 3.5/3.7

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 6, 7** APPROX COMPLETION TIME: 25 MINUTES

CRITICAL TIME: **40 MINUTES**

EVALUATION METHOD: LOCATION:

_X_ PERFORM ___ IN PLANT

___ SIMULATE _X_ SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, Rev. 8E2
2. BwOP SI-6, LOWERING SI ACCUMULATOR LEVEL, Rev. 17.
3. Technical Specification 3.5.1

MATERIALS:

1. Copy of BwOP SI-6, Rev. 17.

TASK STANDARDS:

1. Align SI Accumulator 1C drain path in accordance with BwOP SI-6.
2. Lower 1C SI Accumulator level to within Tech Spec limits within 40 minutes in accordance with Tech Spec 3.5.1.

TASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are the Unit 1 Assist NSO.
3. All systems are properly aligned for the current Unit 1 mode.
4. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW alarmed 20 minutes ago.
5. BwARs 1-5-C1 has been addressed by the Unit 1 NSO.

INITIATING CUES:

1. The Unit 1 Unit Supervisor directs you to lower 1C SI Accumulator level to 58% by draining to the HUT in accordance with BwOP SI-6, Lowering SI Accumulator Level, step F.2.

   CUE: Hand examinee copy of BwOP SI-6.
2. Equipment operators are standing by in the field to assist you.
3. Inform the Unit 1 Unit Supervisor when you have restored 1C SI Accumulator level to 58%.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to BwOP SI-6, Lowering SI Accumulator level. **CUE: All Prerequisites, Precautions, Limitations and Actions are met.** **CUE: Perform step F.2 per SM direction (from initiating cue).** **NOTE: Critical Time begins when examinee understands initiating cue and accepts responsibility for task performance.** **Record critical time start time:** _____	Refer to BwOP SI-6: • Determine step F.2 is to be performed (from initiating cue).	SAT UNSAT N/A **Comments:**

2.	Dispatch operator to Verify/Close 1SI8971A and B, SI Test Line to RWST/HUT Inst. Root to 1FI-SI046 and 1FI-928A/B. (step F.2.a)
	NOTE: If dispatched as equipment operator to verify valve positions, provide the following cues:
	CUE: 1SI8971A is closed.
	CUE: 1SI8971B is closed.
		Perform the following:
		• Dispatch operator to Verify/Close:
		  • 1SI8971A
		  • 1SI8971B
			SAT UNSAT N/A
			Comments:

3.	Verify/Close 1SI8878C at 1PM06J. (step F.2.b)	Perform the following at 1PM06J: • Verify 1SI8878C, SI Accumulator 1C Make-Up Valve, CLOSED light LIT.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
4.	Perform SI Test Line Valve Lineup at 1PM11J. (step F.2.c)	Perform the following at 1PM11J • Verify 1SI8879A, B, C, & D, SI Accumulator 1A, B, C, & D Test Line Isolation Valves, CLOSED lights LIT. • Verify 1SI8877A, B, C, & D, SI Accumulator 1A, B, C, & D Test Line Isolation Valves, CLOSED lights LIT. • Verify 1SI8889A, B, C, & D, SI to Loop 1A, B, C, & D Hot Leg Test Line Isolation Valves, CLOSED lights LIT. • Verify 1SI8823, SI Pumps to Cold Legs Test Line Isolation Valve, CLOSED (from MCB placard). • Verify 1SI8824, SI Pumps to 1B & C Hot Legs Test Line Isolation Valve, CLOSED (from MCB placard). • Verify 1SI8825, RH Pumps to 1A & C Hot Legs Test Line Isolation Valve, CLOSED (from MCB placard). • Verify 1SI8881, SI Pumps to 1A & D Hot Legs Test Line Isolation Valve, CLOSED (from MCB placard). • Verify 1SI8882, CV Pumps to Cold Legs Test Line Isolation Valve, CLOSED light LIT. • Verify 1SI8843, CV Pumps to Cold Legs Test Line Isolation Valve, CLOSED (from MCB placard). • Verify 1SI8890A and B, RH Pumps to 1A & D and 1B & C Cold Legs Test Line Isolation Valves, CLOSED (from MCB placard).	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
5.	Align HUT drain path. (step F.2.d) **NOTE: If dispatched as equipment operator to verify valve positions, provide the following cues:** **CUE: 1SI8959 is open.** **CUE: 1AB024 is open.** **CUE: 1SI8963 is locked closed.**	Dispatch operators to perform lineup to drain to the HUT: • Verify OPEN 1SI8959 • Verify OPEN 1AB024 • Verify LOCKED CLOSED 1SI8963	SAT UNSAT N/A **Comments:**
*6.	**Align SI Accumulator drain path.** (step F.2.e)	Perform the following at 1PM11J: • Place 1SI8964, SI Test Lines to Radwaste Isolation Valve, C/S to OPEN.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*7.	**Lower 1C SI Accumulator Level.** (step F.2.f) **NOTE: Critical Time ends when accumulator level is less than 63%.** **Record time that 1C SI accumulator level is <63%:** _____ **Critical time =** _____ - _____ **(end time) (start time)** ≤ **40 minutes.**	Perform the following at 1PM06J/1PM11J: o Verify 1SI8888, SI Pump to Accumulator Fill Valve, CLOSED light LIT. o Place 1SI8877C, SI Accumulator 1C Test Line Isolation Valve, C/S to OPEN. • Place 1SI8871, SI Fill/Test Line Isolation Valve, C/S to OPEN. o Monitor SI accumulator level on 1LI-954/955 until desired level (58%) is reached. o Inform Unit 1 Unit Supervisor that 1C SI Accumulator level is within Tech Spec limits when level is <63%. When 1C SI Accumulator is at 58% (± 1%), perform the following: • Place 1SI8871, SI Fill/Test Line Isolation Valve, C/S to CLOSED. • Place 1SI8877C, SI Accumulator 1C Test Line Isolation Valve, C/S to CLOSED.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
8.	Restore lineup. (steps F.2.g – F.2.k) **NOTE: If dispatched as equipment operator to verify valve positions, provide the following cues:** **CUE: 1SI8963 is locked closed.** **CUE: 1SI8959 is open.** **CUE: 1AB024 is open.** **CUE: 1SI8971A is open.** **CUE: 1SI8971B is open.** **CUE: As US, acknowledge report.**	Perform the following to restore the lineup to 1C SI accumulator: • Place 1SI8964, SI Test Lines to Radwaste Isolation Valve, C/S to CLOSED at 1PM11J. • Verify/Lock Closed 1SI8963 • Verify/Open 1SI8959 • Verify/Open 1AB024 • Open 1SI8971A and B • Inform Unit 1 Unit Supervisor 1C SI Accumulator level is restored.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-21, BOL 100% Power, Steady State, Equilibrium Xenon.

  - OR -
- IC-8 if JPM is being performed concurrently with JPM SIM-110 (JPM IC must be Mode 3 with RCS pressure greater than 1000 psig or higher mode)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- OPEN Monitor Screen and perform the following:
  - SET **SIMACC[3] = 58,900** to raise 1C SI Accumulator Level to 65%.
  - SET **SIMN2ACC[3] = 1228** to lower 1C SI Accumulator Pressure within limits.
- If running the JPM repetitively, set the above monitor items prior to each performance.

COMMENTS:

LOWERING SI ACCUMULATOR LEVEL

A. STATEMENT OF APPLICABILITY

The purpose of this procedure is to outline the steps necessary for the following:

1. To lower the SI Accumulator level via a chemistry sample purge, or
2. To lower the SI Accumulator level to the RWST, or
3. To lower the SI Accumulator level to the Recycle HUT, or
4. To lower the SI Accumulator level to the RCDT, or
5. To drain the SI Accumulator to the Reactor Cavity.
6. To drain the SI Accumulator to the Containment Drain System.

This procedure can also be used in conjunction with BwOP SI-5, to feed and bleed an SI Accumulator, for adjustment of Boron Concentration.

B. REFERENCES

1. Station Procedures:
   a. BwOP SI-5, Raising SI Accumulator Level With SI Pumps.
   b. BwOP SI-8, Increasing SI Accumulator Pressure.
   c. BwOP SI-9, Lowering SI Accumulator Pressure.
   d. BwCP 613-5, Drawing SI Accumulator Sample.
   e. BwOP SI-100, Energizing and De-Energizing SVAG Valve MCCs and SI Accumulator Outlet Valves in Modes One Through Four.
2. Station Drawings:
   a. M-61 (M-136), Diagram of Safety Injection, Sheets 3, 5 and 6.
   b. M-70 (M-141), Reactor Building and Containment Equipment Drains and Vents to Radwaste, Sheet 1.
   c. M-68 (M-140), Diagram of Process Sampling Sheets 1b.

B. 3. Tech Spec: 3.5.1.

4. Station Commitments:

a. 456-200-88-05001.

b. 456-171-89-00100.

C. PREREQUISITES

1. The RWST, the Recycle Holdup Tank, or the Reactor Cavity has sufficient room to handle the volume to be drained from the SI Accumulator(s), or the RF System is available, whichever is applicable.

2. When performing Step F.3., the Unit for which the SI Accumulator(s) is to be drained, shall not be in Mode 1, 2 or 3.

• 3. Obtain Rad Protection and Shift Manager's approval prior to containment entry.

4. When performing step F.3, the affected Accumulator(s) must be LESS THAN 50 psig.

5. NOTIFY the Radiation Protection Department that this procedure is being performed and the purpose of its performance.

6. Execution of this procedure in Modes 1-4 may require the use of BwOP SI-100. SVAG valve MCCs will be energized/de-energized per BwOP SI-100.

D. PRECAUTIONS

1. Monitor SI Accumulator level and pressure closely, while performing this procedure.

2. Monitor RCDT level closely, while performing this procedure.

• 3. When draining water from an SI Accumulator through the fill line to the RWST or the HUT, never exceed 50 psig nitrogen blanket pressure in the accumulator.

4. When draining water from an SI Accumulator to the Reactor Cavity, do NOT exceed 120 psig in the accumulator.

5. When draining water from an SI Accumulator to the RF system, accumulator pressure should be approximately 10 psig or less.

6. When draining water from an SI Accumulator to the Reactor Cavity in MODE DEFUELED, gravity draining is the preferred method.

E. LIMITATIONS AND ACTIONS

1. When the Unit is in Modes 1, 2 and 3, with Pressurizer pressure greater than 1000 psig, the SI Accumulators shall be maintained:

   a. At a borated water level of 31% to 63%.

   b. At a boron concentration of 2200 to 2400 ppm.

   c. At a pressure of 602 to 647 psig.

   d. With the isolation valve _SI8808A/B/C/D open.

F. MAIN BODY

NOTE

Refer to Attachment A for location of valves that are referenced in this procedure.

NOTE

Step F.1 is to be used for lowering SI Accumulator(s) level by a small volume when SI Accumulators are pressurized, and in MODES 1, 2, or 3. If this is not the case, GO to Step F.2 per Shift Manager direction.

Step F.2 is to be used for lowering SI Accumulator(s) level, when in MODES 1, 2, or 3, or when SI Accumulators are pressurized with the respective Accumulator Discharge (_SI8808A/B/C/D) valve OPEN.

Step F.3 is to be used for draining the SI Accumulator(s) to the HUT or to the RWST, at the Shift Manager's discretion, in MODES 4, 5, & 6 at less than or equal to 50 psig pressure through the makeup fill line.

Step F.4 is to be used for draining the SI Accumulator(s) to the RCDT, in MODES 4, 5, & 6.

Step F.5 is to be used for gravity draining the SI Accumulator(s) to the Reactor Cavity, in MODE DEFUELED.

Step F.6 is to be used for Pressure draining the SI Accumulator(s) to the Reactor Cavity in MODE DEFUELED

Step F.7 is to be used for draining the SI Accumulator(s) to the Containment Drain System in MODES 4, 5, 6 and DEFUELED.

F. 1. Draining the SI Accumulator(s) via a chemistry sample purge at the Shift Manager's discretion, in MODES 1, 2 or 3.

CAUTION

Do NOT drain an SI accumulator to <31% level when draining the SI accumulator(s) in Modes 1, 2, or 3. (performing step F.1).

a. CONTACT Chemistry to initiate sample purge of the desired SI Accumulator per BwCP 613-5.

NOTE

While draining of SI accumulator is in progress it may be necessary to maintain SI accumulator pressure per BwOP SI-8.

b. WHEN the desired level is reached in the affected SI Accumulator, CONTACT Chemistry to SECURE the sample purge.

2. Draining the SI Accumulator(s) to the HUT or to the RWST at the Shift Manager's discretion, in MODES 1, 2, or 3.

CAUTION

Do NOT drain an SI accumulator to <31% level when draining the SI accumulator(s) in Modes 1, 2, or 3. (performing step F.2).

a. VERIFY/CLOSE _SI8971A & B, SI Test Line to RWST/Holdup Tanks Inst Root to _FT-SI046, _FI-928A,B.

b. VERIFY/CLOSE _SI8878A/B/C/D, SI Accum _A/B/C/D Make-Up Vlv, at _PM06J.

F. 2. c. VERIFY/CLOSE the following SI Test Line Isolation Valves, at _PM11J:

1) _SI8879A, B, C, & D, SI Test Line Isol Vlv SI Accum _A, B, C, & D.

2) _SI8877A, B, C, & D, SI Test Line Isol Vlv SI Accum _A, B, C, & D.

3) _SI8889A, B, C, & D, SI to Loop _A, B, C, & D Hot Leg.

4) _SI8823, SI Pumps to Cold Legs.

5) _SI8824, SI Pumps to _B & C Hot Legs.

6) _SI8825, RH Pumps to _A & C Hot Legs.

7) _SI8881, SI Pumps to _A & D Hot Legs.

8) _SI8882, CV Pumps to Cold Legs.

9) _SI8843, CV Pumps to Cold Legs.

10) _SI8890A and B, RH Pumps to _A & D and _B & C Cold Legs.

d. DETERMINE the flow path at Shift Manager's discretion.

1) IF draining to the HUTS:

a) VERIFY/OPEN _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

b) VERIFY/OPEN _AB024, Accum Fill Line Flush to Recycle HUTS Isol Vlv.

c) VERIFY/LOCK CLOSED _SI8963, SI Rtrn Line Isol to RWST.

2) IF draining to the RWST:

a) CLOSE _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

b) UNLOCK and OPEN _SI8963, SI Rtrn Line Isol to RWST.

F. 2. e. OPEN _SI8964, SI Test Lines to Radwaste Isol Vlv, at _PM11J.

f. PERFORM the following, at _PM06J, or _PM11J.

1) VERIFY/CLOSE _SI8888, SI Pumps to Accum Fill Vlv.

NOTE
Steps F.2.f.2) through F.2.f.6) can be repeated for each SI Accumulator that requires draining.

2) OPEN _SI8877A/B/C/D, SI Test Line Isol Vlv SI Accum _A/B/C/D, for the Accumulator to be drained.

3) OPEN _SI8871, Fill/Test Line Isol Vlv.

4) MONITOR SI Accumulator level and pressure closely to ENSURE Technical Specification Limits are not exceeded (Refer to Tech Spec 3.5.1).

5) CLOSE _SI8871, Fill/Test Line Isol Vlv when the desired SI Accumulator level is reached.

6) CLOSE _SI8877A/B/C/D, SI Test Line Isol Vlv SI Accum _A/B/C/D.

g. CLOSE _SI8964, SI Test Lines to Radwaste Isol Vlv, at _PM11J.

h. VERIFY/LOCK CLOSED _SI8963, SI Rtrn Line Isol to RWST.

i. VERIFY/OPEN _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

j. VERIFY/OPEN _AB024, Accum Fill Line Flush to Recycle HUTS Isol Vlv.

k. OPEN _SI8971A & B, SI Test Line to RWST/Holdup Tanks Inst Root to _FT-SI046, _FI-928A,B.

CAUTION

Accumulator pressure must be reduced to less than or equal to 50 psig prior to performing step F.3.g to prevent cracking of the accumulator fill lines.

NOTE

Step F.3 is to be used for lowering SI Accumulator(s) level, by a large volume, when in MODES 4, 5 or 6 and renders the SI Accumulator(s) INOPERABLE.

F. 3. Draining the SI Accumulator(s) to the HUT or to the RWST, at the Shift Manager's discretion, in MODES 4, 5, and 6.

a. VERIFY/CLOSE _SI8971A & B, SI Test Line to RWST/Holdup Tanks Inst Root to _FT-SI046, _FI-928A,B.

b. VERIFY/CLOSE _SI8877A, B, C, & D, SI Test Line Isol Vlv SI Accum _A, B, C, & D, at _PM11J.

c. VERIFY/CLOSE _SI8879A, B, C, & D, SI Test Line Isol Vlv SI Accum _A, B, C, & D, at _PM11J.

d. DETERMINE flow path at Shift Manager's discretion.

1) IF draining to the HUTS:

a) VERIFY/OPEN _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

b) VERIFY/OPEN _AB024, Accum Fill Line Flush to Recycle HUTS Isol Valve.

c) VERIFY/LOCK CLOSED _SI8963, SI Rtrn Line Isol to RWST.

2) IF draining to the RWST:

a) CLOSE _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

b) UNLOCK and OPEN _SI8963, SI Rtrn Line Isol to RWST.

F. 3. e. OPEN _SI8964, SI Test Lines to Radwaste Isol Vlv, at _PM11J.

* f. LOWER SI Accumulator _A/B/C/D pressure to less than or equal to 50 psig using BwOP SI-9, Lowering SI Accumulator Pressure.

g. PERFORM the following, at _PM06J:

1) VERIFY/CLOSE _SI8888, SI Pumps to Accum Fill Vlv.

2) OPEN _SI8871, Fill/Test Line Isol Vlv.

NOTE
Steps F.3.g.3) through F.3.g.5) can be repeated for each SI Accumulator that requires draining.

3) OPEN _SI8878A/B/C/D, SI Accum _A/B/C/D Make-Up Vlv.

4) MONITOR SI Accumulator level and pressure closely.

5) CLOSE _SI8878A/B/C/D, SI Accum _A/B/C/D Make-Up Vlv, when the desired SI Accumulator level is reached.

6) CLOSE _SI8871, Fill/Test Line Isol Vlv.

h. CLOSE _SI8964, SI Test Lines to Radwaste Isol Vlv, at _PM11J.

i. RETURN the SI Accumulator _A/B/C/D pressure to the pressure specified by the Shift Manager, using BwOP SI-8, Increasing SI Accumulator Pressure.

j. VERIFY/LOCK CLOSED _SI8963, SI Rtrn Line Isol to RWST.

k. VERIFY/OPEN _SI8959, Accums/SI Test Line Isol to Holdup Tanks.

l. VERIFY/OPEN _AB024, Accum Fill Line Flush to Recycle HUTS Isol Vlv.

m. OPEN _SI8971A & B, SI Test Line to RWST/Holdup Tanks Inst Root to _FT-SI046, _FI-928A,B.

F. 4. Draining the SI Accumulator(s) to the RCDT in Modes 4, 5, & 6.

a. DECREASE SI Accumulator _A/B/C/D pressure to approximately 10 psig, per BwOP SI-9, Lowering SI Accumulator Pressure.

b. VERIFY/CLOSE _SI8955A/B/C/D, _A/B/C/D Accum Drain Vlv.

c. VERIFY/CLOSE _RE9164A/B/C/D, _A/B/C/D Accum Drain.

d. Have Mechanical Maintenance REMOVE the blind flange and INSTALL the temporary spool piece in the SI Accumulator Drain Line to the RCDT, downstream of _SI8955A/B/C/D.

e. OPEN _SI8955A/B/C/D, _A/B/C/D Accum Drain Vlv.

f. CHECK the temporary spool piece for leaks.

CAUTION
Do NOT exceed RCDT pump capacity when draining the SI accumulators.

g. OPEN _RE9164A/B/C/D, _A/B/C/D Accum Drain.

NOTE
A sufficient level should exist in the RCDT prior to starting _RE01PA/B, _A/B Reactor Coolant Drain Tank Pp. The level should be > 38%, which is the Auto Stop for the pumps.

h. VERIFY/START _RE01PA/B, _A/B Reactor Coolant Drain Tank Pump.

i. THROTTLE _SI8955A/B/C/D, _A/B/C/D Accum Drn Valve, to maintain RCDT level.

j. MAINTAIN SI Accumulator pressure from 0 to 10 psig while draining. IF pressure needs to be increased, USE BwOP SI-8.

* k. CLOSE _SI8955A/B/C/D, _A/B/C/D Accum Drain Vlv, when the desired SI Accumulator level is reached.

l. VERIFY/STOP _RE01PA/B, _A/B Reactor Coolant Drain Tank Pump.

m. CLOSE _RE9164A/B/C/D, _A/B/C/D Accum Drn.

*F. 4. n. Have Mechanical Maintenance REMOVE temporary spool piece and REPLACE the blind flange.

o. PERFORM Steps F.4.a. through F.4.n. for each SI Accumulator which requires draining.

NOTE
When draining water from an SI Accumulator to the Reactor Cavity in MODE DEFUELED, gravity draining is the preferred method.

5. Gravity Draining the SI Accumulator(s) to the Reactor Cavity, in MODE DEFUELED.

a. REDUCE pressure to "0" psig using BwOP SI-9, Lowering SI Accumulator Pressure.

b. VERIFY/CLOSE _SI943, U1/2 Vent Cont Vlv.

c. OPEN _AOV-SI8875A/B/C/D, _A/B/C/D Vent Vlv.

d. THROTTLE OPEN _SI943, U1/2 Vent Cont Vlv.

e. OPEN _SI8808A/B/C/D, SI Accumulator _A/B/C/D Discharge Isolation Valve.

f. CLOSE _SI8808A/B/C/D, when the SI Accumulator volume change has been made or reactor cavity level stabilizes, as desired.

g. CLOSE _AOV-SI8875A/B/C/D, _A/B/C/D Vent Vlv.

h. CLOSE _SI943, U1/2 Vent Control Vlv.

i. PERFORM Steps F.5.a through F.5.h. for each SI Accumulator which requires draining.

F. 6. Draining the SI Accumulator(s) to the Reactor Cavity, in MODE DEFUELED.

NOTE
When draining water from an SI Accumulator to the Reactor Cavity, accumulator pressure should not exceed 120 psig.

a. ADJUST pressure as necessary using BwOP SI-8 (Increasing SI Accumulator Pressure) and BwOP SI-9 (Lowering SI Accumulator Pressure).

b. OPEN _SI8808A/B/C/D, SI Accumulator _A/B/C/D Discharge Isolation Valve.

c. CLOSE _SI8808A/B/C/D, when the SI Accumulator pressure is reduced to zero.

d. PERFORM Steps F.6.a through F.6.c for each SI Accumulator which requires draining.

7. Draining the SI Accumulator(s) to the Containment Drain System in MODES 4, 5, 6 and DEFUELED.

a. DECREASE SI Accumulator _A/B/C/D pressure to approximately 5-10 psig, per BwOP SI-9, Lowering SI Accumulator Pressure.

b. VERIFY/CLOSE _SI8955 A/B/C/D, _A/B/C/D Accum Drain Vlv.

c. Have Mechanical Maintenance REMOVE the Blind flange (at _SI8955 A/B/C/D) (from the accumulator side only) and INSTALL a flange with a drain hose connected.

d. ROUTE the drain hose to the containment drain trough or as directed by the Ops Supervisor.

CAUTION
Verify hose is secured or controlled by another operator to prevent spilling water outside the drain trough.

e. THROTTLE OPEN _SI8955 A/B/C/D, _A/B/C/D Accumulator Drain Vlv.

f. CLOSE _SI8955 A/B/C/D when the desired SI Accumulator level is reached.

g. Have Mechanical Maintenance REMOVE the temporary flange with drain hose connection and REPLACE the blind flange.

h. PERFORM steps F.6.a through F.6.g for each SI Accumulator which requires draining.

ATTACHMENT A

BwOP SI-6 Valve Location Guide

U1 VALVE LOCATIONS

VALVE #	ELEVATION	GRID	COMMENTS
1SI8959	364' AB	U-13	CWA +20' PEN-55
1SI8963	364' AB	U-13	CWA +20' PEN-55
1SI8971A	364' AB	U-13	CWA +20' PEN-55
1SI8971B	364' AB	U-13	CWA +20' PEN-55
1AB024	401' AB	S-13	
1SI8955A	412' Cnmt	R-15	OMB
1SI8955B	412' Cnmt	R-18	OMB
1SI8955C	412' Cnmt	R-4	OMB
1SI8955D	412' Cnmt	R-9	OMB
1RE9164A	412' Cnmt	R-14	OMB +8'
1RE9164B	412' Cnmt	R-18	OMB +6'
1RE9164C	412' Cnmt	R-4	OMB +8'
1RE9164D	412' Cnmt	R-10	OMB Near stairs

U2 VALVE LOCATIONS

VALVE #	ELEVATION	GRID	COMMENTS
2SI8959	364' AB	U-23	CWA +20' PEN-55
2SI8963	364' AB	U-23	CWA +20 PEN-55
2SI8971A	364' AB	U-23	CWA +20 PEN-55
2SI8971B	364' AB	U-23	CWA +20' PEN-55
2AB024	401' AB	S-24	Against wall by 2PR06J
2SI8955A	412' Cnmt	R-39	OMB
2SI8955B	412' Cnmt	R-35	OMB +7'
2SI8955C	412' Cnmt	R-28	OMB +6'
2SI8955D	412' Cnmt	R-23	OMB
2RE9164A	412' Cnmt	R-40	OMB +8'
2RE9164B	412' Cnmt	R-35	OMB
2RE9164C	412' Cnmt	R-29	OMB +6'
2RE9164D	412' Cnmt	R-23	OMB Near stairs

TASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are the Unit 1 Assist NSO.
3. All systems are properly aligned for the current Unit 1 mode.
4. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW alarmed 20 minutes ago.
5. BwARs 1-5-C1 has been addressed by the Unit 1 NSO.

INITIATING CUES:

1. The Unit 1 Unit Supervisor directs you to lower 1C SI Accumulator level to 58% by draining to the HUT in accordance with BwOP SI-6, Lowering SI Accumulator Level, step F.2.
2. Equipment operators are standing by in the field to assist you.
3. Inform the Unit 1 Unit Supervisor when you have restored 1C SI Accumulator level to 58%.

TASK TITLE: Secure 1B RH Pump from Shutdown Cooling and Align for Cold Leg Injection

JPM Number:	SIM-400P	Rev.	20070301
Task No:	R-RH-005	K/A No.:	005000A4.01
Objective No.:	4C.RH-06	K/A Imp.:	3.6

EXAMINEE: _____ RO

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

Critical Elements: **(*) 2, 3, 4, 5** Approx. Completion Time: 35 MINUTES

Critical Time: N/A

EVALUATION METHOD:
_X_ PERFORM
___ SIMULATE

LOCATION:
___ IN PLANT
_X_ SIMULATOR

GENERAL REFERENCES:

1. BwOP RH-11, SECURING THE RH SYSTEM FROM SHUTDOWN COOLING, Rev 20.

MATERIALS:

1. Copy of BwOP RH-11, Rev 20

TASK STANDARDS:

1. Remove 1B RH Train from shutdown cooling.
2. Secure the 1B RH Pump.
3. Align 1B RH Pump for cold leg injection.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is in Mode 5.
3. RH Train swap is in progress with both RH trains running.
4. RH letdown is aligned to 1A RH pump.
5. ALL SVAG valves are energized.

INITIATING CUES:

1. The Unit Supervisor directs you to secure the 1B RH pump and align the 1B RH pump for cold leg injection in accordance with BwOP RH-11, SECURING THE RH SYSTEM FROM SHUTDOWN COOLING.

   CUE: Hand examinee marked up copy of BwOP RH-11.
2. Equipment operators are standing by in the field to assist you.
3. BwOP RH-11 steps F.1 thru F.8 are complete.
4. Inform the Unit Supervisor when the 1B RH pump is aligned for cold leg injection.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to BwOP RH-11 (steps F.1 – F.8) **CUE: Provide copy of procedure to examinee.** **CUE: All prerequisites, precautions, and limitations and actions are met.**	Refer to BwOP RH-11. • Determine step F.1 thru F.8 are complete	SAT UNSAT N/A **Comments:**
*2.	**Secure 1B RH Pump.** (step F.9)	Perform the following at 1PM06J: • Place 1B RH Pump C/S to TRIP. • Verify 1RH611, RH Pump 1B Miniflow Valve, C/S in AUTO.	SAT UNSAT N/A **Comments:**
*3.	**Align 1B RH Pump for Cold Leg Injection.** (steps F.11 – F.12) **NOTE: If examinee requests US to determine if LCO 3.4.12 must be entered when closing 1RH8702A or B, provide the following cue:** **CUE: LCO 3.4.12 entry is NOT required.**	Perform the following at 1PM06J: ○ Determine 1RH8702A, Loop C to RH Pump 1B Suction Valve is ENERGIZED. • Place 1B RH Pump C/S to PULL OUT. • Place 1RH8702A, Loop 1C to RH Pump 1B Suction Valve, to CLOSED. • Place 1RH8702B, Loop 1C to RH Pump 1B Suction Valve, to CLOSED. ○ Place 1FK-619, RH Hx 1B Bypass Flow Controller in MANUAL and lower demand to 0%. (should already be in manual at 0% from step F.7.b & c) • Throttle open 1RH607, RH Hx 1B Flow Control Valve, by raising POT demand to 100%. ○ Verify 1SI8840, RH to Hot Leg 1A & 1C, CLOSED. ○ Verify 1SI8809A, RH to Cold Legs 1B & 1C, OPEN. • Place 1RH8716B, RH Hx 1B Discharge Crosstie Valve, C/S to OPEN. ○ Verify 1SI8804B, 1B RH Hx to CV Pump Suction Isolation Valve, CLOSED.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4	**Switch 1B RH Pump Suction to the RWST:** (steps F.13-14)	Perform the following at 1PM06J: Prevent steam binding of the 1B RH pump suction by performing the following: • Determine 1B RH Pump was stopped and at least ONE Hot Leg Suction valves was closed when RCS hot leg temperature was < 260°F. • Place 1SI8812B, RH Pump 1B Suction from RWST Valve, C/S to OPEN.	SAT UNSAT N/A **Comments:**
*5.	**Complete 1B RH Pump alignment** (steps F.15 – 20) **CUE: As equipment operator, report 1RH8734B is locked closed.** **NOTE: Examinee may elect to leave both CC pumps running.** **CUE: As equipment operator, report 1RH8735 is locked closed.** **CUE: Inform examinee another NSO will complete RH piping vent.**	Perform the following: • Dispatch an operator to LOCK CLOSED 1RH8734B, RH Train 1B to CV Letdown Hx Isolation Valve. • Place 1CC9412B, CC to RH Hx 1B Isolation Valve, C/S to CLOSE. ○ Stop ONE CC Pump. • Dispatch an equipment operator to verify 1RH8735, RH Recirc to RWST Isolation Valve, is LOCKED CLOSED. • Place 1B RH Pump C/S in Normal After Trip at 1PM06J. ○ Verify 1SI8811B, Containment Sump 1B Isolation Valve, CLOSED light is LIT at 1PM06J.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-4, BOL cold shutdown, PZR bubble, RCS 195°F, 360 psig.
- Place simulator in RUN.
- Place BOTH SVAG valve 480V bus feed C/S to CLOSE.
- Align 1B RH pump by performing the following at 1PM04J:
  - CLOSE 1RH607 by lowering demand to 0%.
  - Place 1RH618 in MANUAL and lower demand to 0%.
  - START 1B RH pump.
  - Verify 1RH607 is in AUTO and OPEN.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.

COMMENTS:

SECURING THE RH SYSTEM FROM SHUTDOWN COOLING

A. STATEMENT OF APPLICABILITY

This procedure provides the steps necessary to shutdown an operating RH Loop, when swapping loops, or securing from Shutdown Cooling.

B. REFERENCES

1. Station Procedures:

   a. BwOP CC-9, Realigning CC System from Shutdown Cooling MODE.

   b. BwOP RH-6, Placing the RH System in Shutdown Cooling.

   c. BwOP SI-100, Energizing and De-energizing SVAG Valve MCCs and SI Accumulator Outlet Valves in Modes One Through Four.

   c. BwAP 330-11A1, Shift Manager's Locked Safety Related Valve Log.

2. Station Drawings:

   a. M-61 (M-136), Diagram of Safety Injection System

   b. M-62 (M-137), Diagram of Residual Heat Removal System

3. Tech Specs:

   a. 3.4.6 e. 3.5.3

   b. 3.4.7 f. 3.9.5

   c. 3.4.8 g. 3.9.6

   d. 3.5.2 h. 3.4.12

4. Station Commitments:

   a. 020-251-84-131, Step C.3.

   b. 457-200-90-00602, Step E.9 and E.10.

5. Westinghouse Technical Bulletin ESBU-TB-96-03-R0.

C. PREREQUISITES

1. The RH Train is in Shutdown Cooling per BwOP RH-6.

2. The opposite RH Train is IN OPERATION if required by Tech Specs 3.4.6, 3.4.7, 3.4.8, 3.9.5, or 3.9.6.

* 3. A steam bubble exists in the Pressurizer prior to securing Shutdown Cooling completely. (N/A when Defueled)

4. Notify the Radiation Protection Department that this procedure is being performed and the purpose of the performance.

D. PRECAUTIONS

1. Closure of _RH606/607, RH HX _A/B Outlet Flow Control Valve, will render its' respective RH Train inoperable. VERIFY that this will meet applicable Tech Specs for the plant condition, before the respective RH Train is disabled.

2. Operate _RH606/607, RH HX _A/B Outlet Flow Control Vlv, SLOWLY, to prevent RCS pressure transients.

3. When only the "D" RCP is running with an idle RH Pump aligned to the RCS (_RH8701A/B, _RH8702A/B, SI8809A/B are open as applicable), the potential exists for forward flow to pass through the idle RH Pump and possibly cause the pump to rotate. It is advisable to periodically monitor the idle RH Pump when in this configuration. If the RH Pump rotates in the forward direction, it is acceptable to start the rotating RH Pump. If the RH Pump rotates in the reverse direction, actions shall be taken to prevent the rotating RH Pump from being started.

4. IF RH Pump discharge temperature is $\geq$ 260°F when the system is being removed from shutdown cooling, THEN the system must be cooled down at a rate not to exceed 100°F/HR to reduce the potential for pump seizure. IF during the cooldown of the system, RH pump discharge temperature decreases by more than 25°F in a 15 minute period, then RH pump discharge temperature must be held stable for at least 10 minutes. This cooldown limitation only applies when RH pump discharge temperature is $\geq$ 260°F.

5. It is expected that when the RH Pump miniflow valve is opened, the cooldown rate will exceed 25°F in 15 minute period. If this happens, RH pump discharge temperature must be allowed to stabilize and the system allowed to soak for at least 10 minutes. This limitation only applies when RH pump discharge temperature is $\geq$ 260°F.

6. Execution of this procedure in MODES 1-4 may require the use of BwOP SI-100. SVAG valve MCCs will be energized/de-energized per BwOP SI-100.

E. LIMITATIONS AND ACTIONS

1. In MODE 5, with the Reactor Coolant Loops filled, at least 1 RH Loop SHALL be OPERABLE and IN OPERATION, and either:

   a. One additional RH Loop SHALL be OPERABLE, or

   b. The Secondary Side Narrow range level of at least 2 Steam Generators SHALL be greater than 18%.

2. In MODE 5, with the Reactor Coolant Loops not filled, 2 RH Loops SHALL be OPERABLE and at least 1 RH Loop SHALL be IN OPERATION.

3. In MODE 6, when the water level above the top of the Reactor Vessel Flange is ≥ 23 feet, at least 1 RH Loop SHALL be OPERABLE and IN OPERATION.

4. In MODE 6, when the water level above the top of the Reactor Vessel Flange is less than 23 feet, 2 RH Loops SHALL be OPERABLE and at least 1 RH Loop SHALL be IN OPERATION.

5. RH to CV Letdown must be established and maintained from at least one RH Train, whenever the RCS is in Water Solid condition.

6. In modes 1-3, _RH8701A, and _RH8702A or _RH8701B and _RH8702B must be removed from service to prevent overpressurizing the RH system due to spurious opening of the RH loop suction valves due to a hot short on the control cables.

7. In MODE 4, while RH is being utilized for decay heat removal, at least one of the _RH8716 valves must be closed, but be capable of being opened from the MCB.

8. In MODE 4, while RH is not being utilized for decay heat removal, the _RH8716A and B may be closed, provided they are capable of being opened from the MCB.

* 9. In MODE 4, the _RH8735, RH Supply to SI Pump Suct Hdr, (Recirc to RWST) may be open provided ALL of the following conditions are met:

   a. _RH8701A&B/_RH8702A&B for the train that is NOT in shutdown cooling MODE is CLOSED.

   b. Personnel are stationed near _RH8735 with communications established with the Control Room.

   c. The Shift Manager or designee has been informed PRIOR to opening the _RH8735.

   d. When locking or unlocking _RH8735, complete BwAP 330-11A1.

*E. 10. In MODE 5 or 6, the _RH8735, RH Supply to SI Pump Suct Hdr (Recirc to RWST), may be open provided ALL of the following conditions are met:

a. _RH8716A/B valve is CLOSED and under administrative control on the train in/being placed in shutdown cooling.

b. Personnel are stationed near _RH8735 with communications established with the Control Room.

c. The Shift Manager or designee has been informed PRIOR to opening the _RH8735.

d. When locking or unlocking _RH8735, complete BwAP 330-11A1, Shift Manager's Locked Safety Related Valve Log.

11. If RCS Hot Leg Temperature is > 260°F, steam binding of the RH pump suction may occur when switching to the RWST suction due to lower RWST pressure. Switchover should not be performed when RCS hot leg temperature is > 260°F or RH pump may be rendered inoperable. (Consult _BwGP 100-1 and _BwGP 100-5.)

12. _RH610/_RH611 C/S must be in the "AUTO" position for the RH pump to be considered operable. Contact the Shift Manager or designee to determine if LCO entry is required.

F. MAIN BODY

1. If swapping RH trains, PERFORM the following:

   a. VERIFY/PLACE in OPERATION the opposite RH Train per BwOP RH-6.

   b. PLACE RH letdown in service on the RH train that is to remain in shutdown cooling per BwOP CV-17.

2. PERFORM one of the following:

   IF RH pump discharge temperature is ≥ 260°F, GO TO Step F.3.

   IF RH pump discharge temperature is < 260°F, GO TO Step F.7.

3. VERIFY/PLACE the following parameters on trend so that RH system cooldown can be monitored:

   - RH pump discharge temperature
     - T0630 (Train A)
     - T0631 (Train B)
   - RCS Hot Leg Temperature
     - T0404, T0409 (Train A)
     - T0444, T0449 (Train B)
   - RH pump miniflow
     - F0601 (Train A)
     - F0602 (Train B)
   - RH Hx discharge flow to the RCS
     - F0626 (Train A)
     - F0627 (Train B)

NOTE

It is expected the RH pump discharge temperature will decrease when the RH Pump miniflow valve is opened.

F. 4. PLACE the control switch for the RH Pump Miniflow Vlv on the train to be removed from shutdown cooling in the OPEN position.

5. DETERMINE if RH system soak is required:

a. CHECK RH Pump discharge temperature change.

b. IF RH pump discharge temperature has DECREASED by ≥ 25°F in a 15 minute period, PERFORM the following:

1) ALLOW RH pump discharge temperature to STABILIZE.

2) MAINTAIN RH pump discharge temperature STABLE for at least 10 minutes.

CAUTION

IF, during cool down, the RH pump discharge temperature decreases by ≥ 25°F in a 15 minute period, THEN the cooldown of the system must be stopped and temperature held stable for at least 10 minutes.

CAUTION

When throttling on the RH flow control valves, the cooldown of the RH system must be closely monitored due to the delay time in valve response.

F. 6. PERFORM the following to initiate a cooldown of the RH train to be removed from shutdown cooling:

a. PLACE the RH HX Bypass Flow Cont Vlv in MANUAL for the affected train:

- ❍ _RH618
- ❍ _RH619

b. THROTTLE CLOSED the RH HX Bypass Flow Cont Vlv in small increments (~5%) to initiate a cooldown of the RH system at rate not to exceed 100°F/HR:

- ❍ _RH618
- ❍ _RH619

c. WHEN the RH HX Bypass Flow Cont Vlv is fully CLOSED, THROTTLE CLOSED the RH HX Outlet Flow Cont Vlv to continue the cooldown of the RH system at rate not to exceed 100°F/HR:

- ❍ _RH606
- ❍ _RH607

F. 6. d. WHEN RH Pump discharge temperature is <260°F, PERFORM the following:

1) ALLOW RH Pump discharge temperature to STABILIZE.

2) MAINTAIN RH Pump discharge temperature stable for at least 10 minutes.

3) THROTTLE CLOSED RH HX Outlet Flow Cont Vlv:

- ○ _RH606
- ○ _RH607

4) VERIFY the RH Pump Miniflow Vlv is OPEN:

- ○ _RH610
- ○ _RH611

5) GO TO Step F.8.

F. 7. PERFORM the following to remove the RH train from shutdown cooling:

a THROTTLE CLOSED RH HX Outlet Flow Cont Vlv:

- ❍ _RH606
- ❍ _RH607

b. PLACE the RH HX Bypass Flow Cont Vlv in MANUAL for the affected train:

- ❍ _RH618
- ❍ _RH619

c. THROTTLE CLOSED the RH HX Bypass Flow Cont Vlv:

- ❍ _RH618
- ❍ _RH619

d. VERIFY the RH Pump Miniflow Vlv OPENS:

- ❍ _RH610
- ❍ _RH611

F. 8. ALLOW the affected RH train to run in recirculation until either of the following conditions are observed:

- ❍ RH pump discharge temperature indicates < 180°F:
  - ❍ _TR-612
  - ❍ _TR-613
- ❍ IF RH pump discharge temperature stabilizes at ≥ 180°F, then all of the following conditions must be met:
  - ● CC to RH HX flow is indicating in the green band:
    - ❍ _FI-688
    - ❍ _FI-689
  - ● RH pump suction is ≥ 50°F subcooled as indicated by the following:
    - ❍ _TR-612 and computer point P0601
    - ❍ _TR-613 and computer point P0602
  - ● The Unit Supervisor/Shift Manager concurs and grants permission to continue with this procedure.

9. STOP the RH pump being removed from shutdown cooling:

- ❍ _RH01PA
- ❍ _RH01PB

10. VERIFY/PLACE the control switch for the RH Pump Miniflow Vlv in the AUTO position.

- ○ _RH610
- ○ _RH611

F. 11. VERIFY/RETURN TO SERVICE the following valve(s) as required:

- ❍ _RH8701A, Loop _A to RH Pp _A Suction Isol Vlv (No C/O card on Main Control Board C/S - MCB placard acceptable).
- ❍ _RH8702A, Loop _C to RH Pp _B Suction Isol Vlv (No C/O card on Main Control Board C/S - MCB placard acceptable).

NOTE

Steps F.12 through F.23 are only required if aligning the RH Train for Cold Leg Injection. If it is desirable to only secure CC to the RH Hx, perform steps F.16, F.17, and F.22.

F. 12. ALIGN the RH train for Cold Leg Injection:

NOTE

Depending on plant status, appropriate LCOARS may need to be entered prior to placing RH pump in pull-to-lock.

- ❍ Train A:

  1) VERIFY/PLACE _RH01PA, _A RH Pump, to PTL at _PM06J.

NOTE

Closure of _RH8701A or _RH8701B will make the associated RH Train unavailable for Cold Overpressure Protection. Refer to LCO 3.4.12.

  2) VERIFY/CLOSE the following valves:

     - ❍ _RH8701A, RC Loop _A to RH Pp _A Suct Isol Vlv
     - ❍ _RH8701B, RC Loop _A to RH Pp _A Suct Isol Vlv

  3) PLACE _RH618, RH HX _A Bypass Flow Cont Vlv, in MANUAL at 0% demand.

  4) OPEN _RH606, RH HX _A Outlet Flow Cont Vlv, by placing the controller at 100% demand.

  5) VERIFY/CLOSE _SI8840, RH to Hot Leg A & C Isol Vlv.

F. 12. O Train A:

6) VERIFY/OPEN the following:

- _SI8809A, RH to Cold Legs A & D Isol Vlv.
- _RH8716A, RH HX _A Discharge Crosstie Vlv.

NOTE
_SI8812A is interlocked with _CV8804A so that _SI8812A will not open unless the _CV8804A is closed.

7) VERIFY/CLOSE _CV8804A, _A RH HX to CV Pump Suct Isol Vlv.

O Train B:

1) VERIFY/PLACE _RH01PB, _B RH Pump, to PTL at _PM06J.

NOTE
Closure of _RH8702A or _RH8702B will make the associated RH Train unavailable for Cold Overpressure Protection. Refer to LCO 3.4.12.

2) VERIFY/CLOSE the following valves:

- _RH8702A, RC Loop _B to RH Pp _B Suct Isol Vlv
- _RH8702B, RC Loop _A to RH Pp _B Suct Isol Vlv

3) PLACE _RH619, RH HX _B Bypass Flow Cont Vlv, in MANUAL at 0% demand.

4) OPEN _RH607, RH HX _B Outlet Flow Cont Vlv, by placing the controller at 100% demand.

5) VERIFY/CLOSE _SI8840, RH to Hot Leg A & C Isol Vlv.

F. 12. O Train B:

6) VERIFY/OPEN the following:

- _SI8809B, RH to Cold Legs B & C Isol Vlv.
- _RH8716B, RH HX _B Discharge Crosstie Vlv.

NOTE
_SI8812B is interlocked with _SI8804B so that _SI8812B will not open unless the _SI8804B is closed.

7) VERIFY/CLOSE _SI8804B, _B RH HX to CV Pump Suct Isol Vlv.

CAUTION

If RCS Hot Leg Temperature is greater than 260°F, steam binding of the RH pump suction may occur when switching to the RWST suction due to lower RWST pressure. Switchover should not be performed when RCS Hot Leg Temperature is greater than 260°F or RH pump may be rendered inoperable. (consult _BwGP 100-1 and _BwGP 100-5).

F. 13. MAINTAIN the affected RH Pump in pull-to-lock until the RH suction temperature is below 260°F in accordance with one of the following criteria:

- ❍ The RH pump was stopped and at least one of the Hot Leg Suction Valves, _RH8701A/B or _RH8702A/B, was closed when the RCS Hot Leg Temperature was less than 260°F on heatup (preferred method).
- ❍ The RH pump was stopped and _RH8701A/B OR _RH8702A/B was closed 15 hours prior to re-aligning the RH train to RWST suction. The 15 hour time may be reduced by one hour for each 6°F that the RCS Hot Leg temperature is below 350°F at the time when the RH pump is stopped and isolated from the RCS.
- ❍ Verifying by measurement that the appropriate RH suction piping at the CWA side of Penetration P-68 (A Train) or P-75 (B Train) is below 260°F.

14. OPEN RH Pp Suct From RWST Isol Vlvs:

- ❍ _SI8812A
- ❍ _SI8812B

15. Locally CLOSE and LOCK CLOSED RH Trains to CV Letdown HXs Isol,

- ❍ _RH8734A
- ❍ _RH8734B

16. VERIFY/CLOSE CC to RH HX _A/B Isol Vlv:

- ❍ _CC9412A
- ❍ _CC9412B

F. 17. STOP a Component Coolant Pump, if desired.

18. VERIFY/LOCK CLOSED _RH8735, RH Recirc to RWST Isol Vlv.

19. Place RH pump control switch to normal after trip:

- ○ _RH01PA
- ○ _RH01PB

20. VERIFY that the power is available to the following Cnmt Sump Isol Vlvs:

- ● _SI8811A
- ● _SI8811B

CAUTION

While Venting the _SI059A/B, take extra caution for Hot Temperature and High Pressure.

NOTE

Step F.21 should be performed when the suction piping is less than 212°F.

NOTE

The system is considered to be adequately vented when it has been vented for approximately 4 minutes after a solid water stream has been obtained.

21. To VENT downstream of the _SI8811A/B PERFORM the following:

a. REMOVE the pipe cap downstream of Cnmt Recirc Sump to CS/RH Test Conn Isol Vlv:

- ○ _SI059A
- ○ _SI059B

F. 21. b. ATTACH poly bottle or vent hose (directed to floor drain) to, Cnmt Recirc Sump to CS/RH Test Conn Isol Vlv:

- ○ _SI059A
- ○ _SI059B

c. OPEN _A/B Cnmt Recirc Sump to CS/RH Test Conn Isol Vlv, and VENT any air from the line:

- ○ _SI059A
- ○ _SI059B

d. CLOSE Cnmt Recirc Sump to CS/RH Test Conn Isol Vlv.

- ○ _SI059A
- ○ _SI059B

e. Remove poly bottle or hose installed in step F.21.b.

f. REPLACE the pipe cap removed in step F.21.a.

g. LOG venting complete in Unit NSO Log.

22. REALIGN the CC System per BwOP CC-9, Realigning CC System From Shutdown Cooling MODE, if desired.

23. IF RH is being secured in preparation for a MODE change to Mode 3, Tag Out the following valves (No C/O card on Main Control Board C/S - MCB placard acceptable):

- _RH8701A, RC loop _A to RH Pp _A Suct Isol Vlv
- _RH8702A, RC loop _C to RH Pp _B Suct Isol Vlv

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is in Mode 5.
3. RH Train swap is in progress with both RH trains running.
4. RH letdown is aligned to 1A RH pump.
5. ALL SVAG valves are energized.

INITIATING CUES:

1. The Unit Supervisor directs you to secure the 1B RH pump and align the 1B RH pump for cold leg injection in accordance with BwOP RH-11, SECURING THE RH SYSTEM FROM SHUTDOWN COOLING.
2. Equipment operators are standing by in the field to assist you.
3. Inform the Unit Supervisor when the 1B RH pump is aligned for cold leg injection.

TASK TITLE: Drain the Pressurizer Relief Tank

JPM Number: SIM-501 Rev. 20070301

Task No.: R-RY-003 K/A No.: 007000A1.01

Objective No.: 4C.RY-03 K/A Imp.: 2.9/3.1

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

Critical Elements: **(*) 4, 5, 8** Approx. Completion Time: 25 MINUTES

Critical Time: N/A

EVALUATION METHOD:

_X_ PERFORM

___ SIMULATE

LOCATION:

___ IN PLANT

_X_ SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-12-A7, PRT LEVEL HIGH/LOW, Rev. 53.
2. BwOP RY-4, DRAINING THE PRESSURIZER RELIEF TANK, Rev. 9.

MATERIALS:

1. Copy of BwAR 1-12-A7, Rev. 53.
2. Copy of BwOP RY-4, Rev. 9.

TASK STANDARDS:

1. Lower PRT level to clear annunciator 1-2-A7.
2. Restores PRT pressure to > 0 psig, if reduced to $\leq$ 0 psig.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All systems are properly aligned for the current Unit 1 mode.

INITIATING CUES:

1. Annunciator 1-12-A7, PRT LEVEL HIGH/LOW, alarmed 5 minutes ago.
2. The Unit 1 Unit Supervisor directs you to lower PRT level to clear annunciator 1-12-A7 in accordance with BwOP RY-4, DRAINING THE PRESSURIZER RELIEF TANK.
3. Inform the Unit 1 Unit Supervisor when you have completed lowering PRT level.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwAR 1-12-A7: **CUE: When examinee locates 1BwAR 1-12-A7, provide copy.** **CUE: As Unit Supervisor, acknowledge report of PRT level.**	Refer to 1BwAR 1-12-A7: Perform the following at 1PM05J: • Determine PRT level is high on 1LI-470, PRT Level Indicator. • Check PZR PORVs and Safety Valves CLOSED: o Check 1RY455A & 1RY456, PZR PORVs, CLOSED lights LIT and OPEN lights NOT LIT. o Check 1RY8010A, B, & C, PZR Safety Valves, CLOSED light LIT and OPEN lights NOT LIT. o Check RCS pressure stable on 1PI-455A, 456, 457, & 458, PZR pressure indicators. o Check PRT level & pressure stable on 1LI-470 & 469, PRT Level & Pressure indicators. o Check annunciator 1-12-B2, PZR PORV OR SAFETY VLV OPEN, NOT lit. o Check annunciator 1-12-C6, PZR PORV DSCH TEMP HIGH, NOT lit. o Check annunciator 1-12-C7, PZR SAF RLF DSCH TEMP HIGH, NOT lit. **CUE: As Unit Supervisor, inform examinee another operator will check RCS leakage.** • Inform Unit 1 Unit Supervisor PRT level is high and PRT draining is required. • Check RCS leakage.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
2.	Refer to BwOP RY-4: **CUE: When examinee locates BwOP RY-4, provide copy.** **CUE: All prerequisites, precautions, and Limitations and Actions have been met.**	Locate and open BwOP RY-4:	SAT UNSAT N/A **Comments:**
3.	Verify open 1AOV-RY8033, Nitrogen supply to PRT isolation valve.	Perform the following at 1PM05J: • Verify 1RY8033, N2 Supply to PRT Isolation Valve, OPEN light LIT.	SAT UNSAT N/A **Comments:**
***4.**	**Verify/Open 1RE1003, RCDT Pumps Discharge CNMT Isolation Valve.**	Perform the following at 1PM11J: • Place 1RE1003, RCDT Pumps Inside Isolation Valve, C/S to OPEN.	SAT UNSAT N/A **Comments:**
***5.**	**Open 1AOV-RY8031, PRT Drain Isolation Valve.**	Perform the following at 1PM05J: • Place 1RY8031, PRT Drain Isolation Valve, C/S to OPEN.	SAT UNSAT N/A **Comments:**
6.	Verify/Start 1RE01PA/B, RCDT pump.	Perform the following at 1PM05J: • Verify 1RE01PB, RCDT Pump 1B, RUN light LIT.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7.	Monitor PRT pressure:	Perform the following at 1PM05J: • Verify PRT pressure remains > 0 psig on 1PI-469. ○ If PRT pressure drops to ≈ 0 psig, perform the following at 1PM05J: ○ Place 1RE01PB, RCDT Pump 1B, C/S to STOP. ○ When PRT pressure is ≈ 3 psig, perform the following: ○ Place 1RE01PB, RCDT Pump 1B, C/S to AUTO.	
*8.	**Close 1AOV-RY8031, PRT Drain Isolation valve, when desired level is reached.**	When annunciator 1-12-A7, PRT LEVEL HIGH/LOW is clear, perform the following at 1PM05J: • Place 1RY8031, PRT Drain Isolation Valve, C/S to CLOSE.	SAT UNSAT N/A **Comments:**
9.	Stop running RCDT pump.	Perform the following at 1PM05J: • Verify 1RE01PB, RCDT Pump 1B, STOP light LIT.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
  - OR -
- Other IC if being performed concurrently with other JPMs. (JPM is not IC dependent)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify 1RE1003, RCDT Pumps Inside Isolation Valve, is CLOSED and in LOCAL on 1PM11J.
- Verify 1RE01PA & 1RE01PB, RCDT Pumps 1A & 1B are in AUTO on 1PM05J.
- Open 1RY469, PRT to GW Isolation Valve, to vent PRT while filling.
- Open 1RY8030, PW to PRT Cnmt Isolation Valve, to fill PRT.
  - Fill PRT to 90%
  - Close 1RY469
  - Close 1RY8030 when PRT pressure is $\leq$ 3 psig.
- If running the JPM repetitively, perform the following prior to each performance:
  - Verify 1RE1003, RCDT Pumps Inside Isolation Valve, is CLOSED and in LOCAL on 1PM11J.
  - Verify 1RE01PA & 1RE01PB, RCDT Pumps 1A & 1B are in AUTO on 1PM05J.
  - Open 1RY469, PRT to GW Isolation Valve, to vent PRT while filling.
  - Open 1RY8030, PW to PRT Cnmt Isolation Valve, to fill PRT.
  - Fill PRT to 90%
  - Close 1RY469
  - Close 1RY8030 when PRT pressure is $\leq$ 3 psig.
  - Check HMI terminals not displaying PRT parameters.

COMMENTS:

PRT LEVEL HIGH LOW

ALARM NO: 1-12-A7

SETPOINT: High - 88%
Low - 59%

A. PROBABLE CAUSE

1. High level:
   a. Valve leakoff or relief valve flow.
   b. Pressurizer PORV or Safety Valve Lifting.
2. Low level:
   a. Leakage through 1AOV-RY8031, PRT Drn Isol. Vlv.
   b. Tank pumped down too far.

B. AUTOMATIC ACTIONS

None.

C. IMMEDIATE OPERATOR ACTIONS

DETERMINE PRT level.

D. SUBSEQUENT OPERATOR ACTIONS

1. For High level, PERFORM the following:
   - CHECK PORV and Safety Valves NOT OPEN.
   - DRAIN the PRT per BwOP RY-4.
   - CHECK RCS leakage.
2. For Low level, PERFORM the following:
   - CHECK closure of 1AOV-RY8031, PRT Drain Isolation Valve.
   - FILL PRT per BwOP RY-3.
3. INITIATE corrective action.

E. S.E.R. PRINTOUT

1. 0405 PRESSURIZER RELIEF TANK LEVEL HIGH
2. 0406 PRESSURIZER RELIEF TANK LEVEL LOW

F. REFERENCES

1. S&L INSTRUMENT NUMBER: 1UL-AN006.
2. S&L BOX NUMBER: 06.
3. SENSOR DESIGNATION: 1LT-470.
4. ELECTRICAL PRINT: 20E-1-4031RY10.

DRAINING THE PRESSURIZER RELIEF TANK

A. STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to drain the Pressurizer Relief Tank (PRT).

B. REFERENCES

1. Station procedures:
   a. BwOP RE-1, Reactor Coolant Drain Tank Pump Startup.
   b. BwOP RE-2, Reactor Coolant Drain Tank Pump Shutdown.
2. Station Drawing: M-60/135 Sheet 6, Diagram of Reactor Coolant.

C. PREREQUISITES

1. RCDT pumps are available for operation.
2. The Nitrogen header is capable of supplying the PRT.
3. Sufficient storage capacity exists in the Recycle Holdup Tanks.
4. Notify the Radiation Protection Department that this procedure is being performed and the purpose of the performance.

D. PRECAUTIONS

None.

E. LIMITATIONS AND ACTIONS

1. Water level in the Pressurizer Relief Tank should be maintained between 59% and 88% in Modes 1-4.

2. Control PRT draining such that PRT pressure does not decrease below 0 psig.

3. Frequent need for draining the PRT indicates excessive leakage into the tank. Check for possible sources of in leakage:

   a. Primary Water Make-Up.

   b. Pressurizer Safeties and Reliefs.

   c. Relief Valves.

      1) Letdown relief.

      2) RCP seal return line relief (from RCP seals or excess letdown).

   d. RCS Valve leakoff.

F. MAIN BODY

1. VERIFY/OPEN, at _PM05J, _AOV-RY8033, N_2 to PRT Isol Vlv.

2. VERIFY/OPEN , at _PM11J, _RE1003, RCDT Pumps Discharge Cnmt Isol. Vlv.

3. OPEN, at _PM05J, _AOV-RY8031, PRT Drain Isol. Vlv.

4. VERIFY/START _RE01PA/B, RCDT Pump, at _PM05J.

NOTE
The rate at which the PRT is drained is greater than the rate at which N_2 is supplied. Verify that PRT pressure remains above 0 psig as indicated on _PI-469 at _PM05J.

5. IF the PRT pressure reaches approximately 0 psig, PERFORM the following:

   a. STOP _RE01PA/B, RCDT Pump, at _PM05J.

   b. AFTER PRT pressure is restored to approximately 3 psig, START _RE01PA/B, RCDT Pump, at _PM05J.

   c. CONTINUE with the draindown of the PRT UNTIL the desired level is reached.

6. WHEN desired level is reached, CLOSE _AOV-RY8031, Drn. Isol. Vlv. at _PM05J.

7. VERIFY/STOP _RE01PA/B when _AOV-RY8031 closes.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All systems are properly aligned for the current Unit 1 mode.

INITIATING CUES:

1. Annunciator 1-12-A7, PRT LEVEL HIGH/LOW, alarmed 5 minutes ago.
2. The Unit 1 Unit Supervisor directs you to lower PRT level to clear annunciator 1-12-A7 in accordance with BwOP RY-4, DRAINING THE PRESSURIZER RELIEF TANK.
3. Inform the Unit 1 Unit Supervisor when you have completed lowering PRT level.

TASK TITLE: Perform Low Power Electrical Lineup

JPM Number: SIM-610 Rev. 20070301

Task No: R-AP-011 K/A No.: 062000A4.07

Objective No: 4C.AP-08 K/A Imp.: 3.1/3.1

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

Critical Elements: **(*) 2, 3, 4, 5** Approx. Completion Time: 20 MINUTES

Critical Time: N/A

EVALUATION METHOD:

_X_ PERFORM

___ SIMULATE

LOCATION:

___ IN PLANT

_X_ SIMULATOR

GENERAL REFERENCES:

1. 1BwGP 100-4, POWER DESCENSION, Rev. 25.

MATERIALS:

1. None

TASK STANDARDS:

1. Energize the respective non-ESF Buses from the SAT prior to opening the respective buses UAT feed breaker.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All conditions are normal for the current power level on Unit 1.
3. Unit 1 is preparing for a rapid power reduction in accordance with 1BwGP 100-4, POWER DESCENSION and 1BwGP 100-4T3, RAPID POWER REDUCTION FLOWCHART.

INITIATING CUES:

1. The Unit 1 Unit Supervisor directs you establish a shutdown electrical lineup in accordance with 1BwGP 100-4, step F.11.
2. Inform the Unit 1 Unit Supervisor when you have established a shutdown electrical lineup.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwGP 100-4, step F.11 **CUE: All prerequisites, precautions, and limitations and actions have been met.**	Locate and open 1BwGP 100-4.	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: JPM steps 2-5 are independent of one another and can be performed in any order. The individual JPM steps must be performed in the order specified.		
*2.	**Establish Bus 143 shutdown electrical lineup.**	Perform the following at 1PM01J: • Place SAT 142-1 Feed to Bus 144 Synch C/S to ON. • Verify 1SI-AP104, Synchroscope Division 11, indicates approximately 12 o'clock position. • Place ACB1432, SAT 142-1 Feed to 4KV Bus 143, C/S to CLOSE. ○ Verify ACB 1432 CLOSED light LIT. • Place ACB1431, UAT Feed to 4KV Bus 143, C/S to TRIP. • Place SAT 142-1 Feed to Bus 144 Synch C/S to OFF.	SAT UNSAT N/A **Comments:**
*3.	**Establish Bus 144 shutdown electrical lineup.**	Perform the following at 1PM01J: • Place SAT 142-2 Feed to Bus 144 Synch C/S to ON. • Verify 1SI-AP107, Synchroscope Division 12, indicates approximately 12 o'clock position. • Place ACB1442, SAT 142-2 Feed to 4KV Bus 144, C/S to CLOSE. ○ Verify ACB 1442 CLOSED light LIT. • Place ACB1441, UAT Feed to 4KV Bus 144, C/S to TRIP. • Place SAT 142-2 Feed to Bus 144 Synch C/S to OFF.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4.	**Establish Bus 157 shutdown electrical lineup.**	Perform the following at 1PM01J: • Place SAT 142-1 Feed to Bus 157 Synch C/S to ON. • Verify 1SI-AP037, Synchroscope Switchyart/6.9 KV Buses, indicates approximately 12 o'clock position. • Place ACB 1572, SAT 142-1 Feed to 6.9 KV Bus 157, C/S to CLOSE. o Verify ACB 1572 CLOSED light LIT. • Place ACB1571, UAT Feed to 4KV Bus 157, C/S to TRIP. • Place SAT 142-1 Feed to Bus 157 Synch C/S to OFF.	SAT UNSAT N/A **Comments:**
*5.	**Establish Bus 156 shutdown electrical lineup.**	Perform the following at 1PM01J: • Place SAT 142-2 Feed to Bus 156 Synch C/S to ON. • Verify 1SI-AP037, Synchroscope Switchyart/6.9 KV Buses, indicates approximately 12 o'clock position. • Place ACB 1562, SAT 142-2 Feed to 6.9 KV Bus 156, C/S to CLOSE. o Verify ACB 1562 CLOSED light LIT. • Place ACB1561, UAT Feed to 4KV Bus 156, C/S to TRIP. • Place SAT 142-2 Feed to Bus 156 Synch C/S to OFF.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
  - OR -
- Other at power IC if being performed concurrently with other JPMs. (JPM must be performed with main generator synched to grid)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify UATs are supplying 6.9KV buses and 4KV non-ESF buses.
- If running the JPM repetitively, perform the following prior to each performance:
  - Align 6.9 KV buses and 4KV non-ESF buses to the UATs.
  - Ensure bus synch switches are OFF.
  - Verify/remove place keeping marks from 1BwGP 100-4.

COMMENTS:

C DD **PREREQUISITES**

D DD **PRECAUTIONS**

E DD **LIMITATIONS AND ACTIONS**

Time: 30 MINUTES AGO

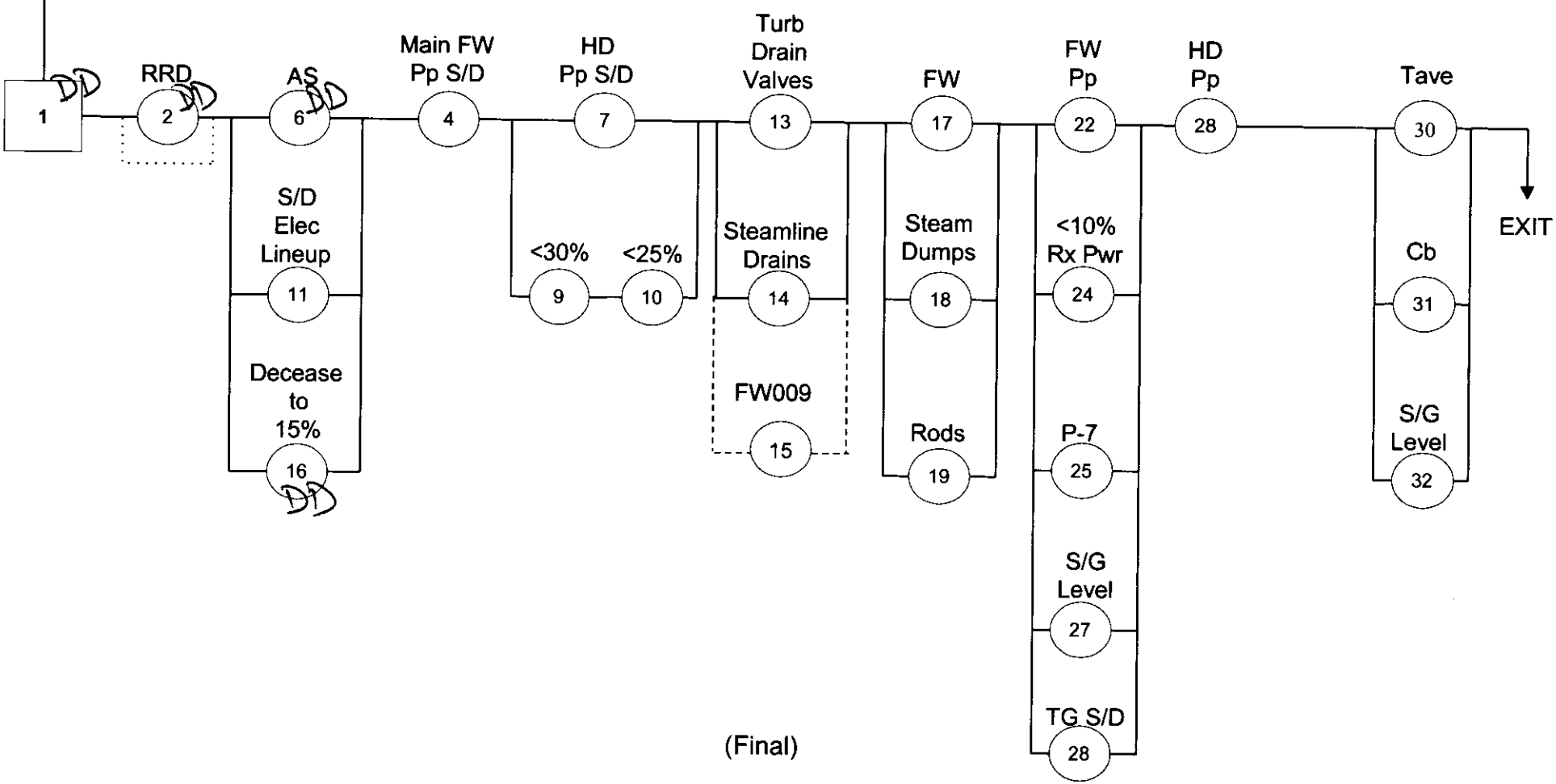
Date: TODAY

S.M.: DON DOE

1BwGP 100-4 FLOWCHART

Exceptions are to be listed on 1BwGP 100-1T26, Flowchart EXCEPT Sheet.
Place the circled "exception number" at the excepted step.
Place the circled "exception number" just prior to the step listed in "resolve prior to step #" column, if applicable.

INITIAL EACH RO ○ SRO □



(Final)

F. 11. ESTABLISH a Shutdown Electrical Line-up as follows:

- Bus 143:
  1) TURN ON the Synchroscope for the SAT Feed Breaker to BUS 143.
  2) VERIFY the Synchroscope locks in at approximately the 12 o'clock position.
  3) CLOSE the SAT Feed Breaker to BUS 143 (ACB 1432).
  4) OPEN the UAT Feed Breaker to BUS 143 (ACB 1431).
  5) TURN OFF the Synchroscope.
- Bus 144:
  1) TURN ON the Synchroscope for the SAT Feed Breaker to Bus 144.
  2) VERIFY the Synchroscope locks in at approximately the 12 o'clock position.
  3) CLOSE the SAT Feed Breaker to Bus 144 (ACB 1442).
  4) OPEN the UAT Feed Breaker to Bus 144 (ACB 1441).
  5) TURN OFF the Synchroscope.
- Bus 157:
  1) TURN ON the Synchroscope for the SAT Feed Breaker to Bus 157.
  2) VERIFY the Synchroscope locks in at approximately the 12 o'clock position.
  3) CLOSE the SAT Feed Breaker to Bus 157 (ACB 1572).
  4) OPEN the UAT Feed Breaker to Bus 157 (ACB 1571).
  5) TURN OFF the Synchroscope.
- Bus 156:
  1) TURN ON the Synchroscope for the SAT Feed Breaker to Bus 156.
  2) VERIFY the Synchroscope locks in at approximately the 12 o'clock position.
  3) CLOSE the SAT Feed Breaker to Bus 156 (ACB 1562).
  4) OPEN the UAT Feed Breaker to Bus 156 (ACB 1561).
  5) TURN OFF the Synchroscope.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All conditions are normal for the current power level on Unit 1.
3. Unit 1 is preparing for a rapid power reduction in accordance with 1BwGP 100-4, POWER DESCENSION and 1BwGP 100-4T3, RAPID POWER REDUCTION FLOWCHART.

INITIATING CUES:

1. The Unit 1 Unit Supervisor directs you establish a shutdown electrical lineup in accordance with 1BwGP 100-4, step F.11.
2. Inform the Unit 1 Unit Supervisor when you have established a shutdown electrical lineup.

TASK TITLE: Swap Component Cooling Pumps with Failure of 1B CC Pump.

JPM No.: SIM-800 REV: 20070301

Task No: R-CC-02 K/A No.: 008000A4.01

TASK No.: 4C.CC-05 K/A IMP: 3.3/3.1

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 3, 4, 5** APPROX COMPLETION TIME: 20 MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:

___ PERFORM

_X_ SIMULATE

LOCATION:

_X_ IN PLANT

___ SIMULATOR

GENERAL REFERENCES:

1. BwOP CC-15, SWITCHING OPERATING AND STANDBY COMPONENT COOLING SYSTEM PUMPS, Rev. 16.
2. BwOP CC-2, COMPONENT COOLING WATER SYSTEM SHUTDOWN, Rev. 11.

MATERIALS:

1. Copy of BwOP CC-15, Rev. 16.
2. Copy of BwOP CC-2, Rev. 11.

TASK STANDARDS:

1. Perform Component Cooling Water Pump Swap.
2. Determine 1B CC pumps amps have not lowered after the pump was started.
3. Secure 1B CC pump.
4. Verify at least one CC pump operating.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All systems are properly aligned for the current Unit 1 mode.
3. The 1B CC pump was recently returned to service following maintenance on the pump motor.
4. The "0" CC pump is mechanically aligned to Unit 1.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to start the 1B CC Pump and secure the 1A CC Pump in accordance with BwOP CC-15, SWITCHING OPERATING AND STANDBY COMPONENT COOLING SYSTEM PUMPS.

   CUE: Hand examinee copy of BwOP CC-15.
2. The 1B CC pump casing has been vented.
3. Non-licensed operators are standing by in the field to assist you.
4. Inform the Unit 1 US when the CC pump swap is complete.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to BwOP CC-15. **CUE: All prerequisites, precautions, and limitations and actions are met.**	Refer to BwOP CC-15.	SAT UNSAT N/A **Comments:**
2.	Vent the 1B CC pump casing: **NOTE: If examinee asks if 1B CC pump is being run for ASME surveillance, provide the following cue:** **CUE: 1B CC pump is NOT being run for ASME surveillance.**	Vent the 1B CC pump casing: • Determine 1B CC pump casing was vented (from initiating cue)	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: Alternate path begins here.		
*3.	**Start 1B Component Cooling Pump.** **CUE: If examinee reports pump amps, provide acknowledgement but do not provide direction.** **NOTE: If examinee asks for pump preference provide the following cue:**	Perform the following at 1PM06J: ○ Make page announcement for pump start • Place 1CC01PB, 1B CC Pump, C/S to START.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
	EVALUATOR NOTE: In order to meet JPM critical step 4, the examinee must have the 1A CC pump or 0 CC pump running. **During the performance of JPM steps 4 and 5, the examinee may take the following courses of action, depending on when the examinee stops the 1A CC pump and when examinee recognizes the 1B CC pump amps are not lowering:** **1. The examinee may stop the 1B CC pump prior to securing the 1A CC pump. If the examinee stops the 1B CC pump prior to securing the 1A CC pump, JPM step 4 task is met.** **2. If the 1A CC pump is secured when the examinee recognizes 1B CC pump amps are not lowering, the examinee may manually start the 1A CC pump or 0 CC pump prior to securing the 1B CC pump OR the examinee may elect to immediately secure the 1B CC pump. If the examinee elects to immediately secure the 1B CC pump, the examinee must manually start the 1A CC pump or 0 CC pump, as the auto start function is defeated.**		
*4.	**Start 1A OR 0 Component Cooling Pump.** **CUE: Unit Supervisor directs you to start the 1A CC pump. (if 1A CC pump previously secured)**	Perform the following at 1PM06J: • Place 1CC01PA, 1A CC Pump, C/S to START. OR • Place 0CC01P, 0 CC Pump, C/S to START.	SAT UNSAT N/A **Comments:**
*5.	**Stop the 1B CC pump.** **CUE: As Unit Supervisor, acknowledge report of abnormal amps on 1B CC pump.**	Perform the following at 1PM06J: • Determines that 1B CC pump motor current has NOT lowered to less than 56 amps within 5 seconds. o Informs Unit Sup of problem with 1B CC pump. • Place 1CC01PB, 1B CC Pump, C/S to TRIP until system pressure stabilizes. o Place C/S for 1B CC pump in PTL • If examinee continues on without noticing 1B CC pump amps the JPM is complete.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7.	Verify/Open _1CC685, CC from RCP Thermal Barrier HX Isolation Valve.	Perform the following at 1PM06J: • Verify 1CC685, CC From RC Pumps Thermal Barrier Isolation Valve, OPEN light is LIT.	SAT UNSAT N/A **Comments:**
8.	Verify/Clear any RCP CC annunciators/alarms.	Perform the following at 1PM05J: • Verify annunciator box 7 columns 4 and 5 are NOT lit.	SAT UNSAT N/A **Comments:**
9.	Verify/Clear "CNMT PEN CLG FLOW HIGH/LOW" alarm.	Perform the following at 1PM06J: • Verify annunciator 1-2-D7, CNMT PEN CLG FLOW HIGH/LOW is NOT lit.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
	EVALUATOR NOTE: During performance of the following step, RO candidates are only required to determine if entry conditions for Tech Spec 3.7.7 are met. SRO candidates are required to determine if entry conditions are met and are required to determine which LCO actions apply.		
10.	**Review system lineup and C/S position for CC system Tech Spec compliance.** **NOTE: If examinee does not refer to Tech Specs, provide the following cue:** **CUE: US directs you to review Tech Specs for applicability with current system alignment.** **CUE: As Unit Supervisor, acknowledge report of Tech Spec entry conditions and applicability.**	Perform ONE of the following: • If the 1B CC pump C/S is in NORMAL AFTER TRIP, determine Tech Spec 3.7.7 entry conditions are met for the 1B CC pump. • If the 1B CC pump C/S is in PULL OUT, determine Unit 1 does NOT currently meet Tech Spec entry conditions associated with the Component Cooling System. o Examinee may state that Unit 1 was briefly in TS 3.7.7, condition A for the 1B CC pump. • (SRO candidates only, N/A for RO candidates) If the 1B CC pump C/S is in NORMAL AFTER TRIP, determine Tech Spec 3.7.7 condition B applies for the 1B CC pump. o Informs Unit Supervisor of Tech Spec entry conditions. o Notify Unit Supervisor Tech Spec entry conditions and applicability.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOPT TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.

  - OR -
- Other IC if being performed concurrently with other JPMs. (JPM is not IC dependent)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify 1A CC pump running.
- Verify 1B CC pump and 0 CC pump in normal after trip.
- Place 0 CC Pump C/S for 141 in Pull Out.
- Place 0 CC Pump C/S for 142 in NAT.
- Run **caep SIM-800** from disk and verify the following actuate:
  - IRF CC42 RO
  - IRF CC07 RI
  - TRGSET 1 "ZDI1CC01PB(4)==1"
  - TRG 1 "IOR ZAO1IICC01B (1 2) 80 2"
  - TRGSET 2 "ZDI1CC01PB(1)==1"
  - TRG 2 "IOR ZAO1IICC01B 0"
- If running the JPM repetitively, perform the following:
  - Verify 1A CC pump running.
  - Verify 1B CC pump and 0 CC pump in normal after trip.
  - Reset trigger 1
  - Reset trigger 2.

COMMENTS:

- Provide copy of BwOP CC-15

SWITCHING OPERATING AND STANDBY COMPONENT COOLING SYSTEM PUMPS

A. STATEMENT OF APPLICABILITY

This procedure provides the steps for starting and placing the standby Component Cooling Pump in service and removing an operating pump.

B. REFERENCES

1. Station Procedures:
   a. BwOP CC-1, Component Cooling System Startup.
   b. BwOP CC-10, Alignment of "0" CC Pump to a Unit.
   c. _BwOA PRI-6, Component Cooling Malfunction.
2. Station Drawings:
   a. M-66 Sheet 4, Component Cooling.
   b. M-139 Sheets 1 & 2, Component Cooling UNIT 2.
3. Tech Specs:
   a. 3.7.7
   b. 3.4.6

C. PREREQUISITES

1. If the "0" CC Pump is to be started, verify that it is aligned in accordance with BwOP CC-10.
2. Component Cooling System is in operation per BwOP CC-1.
3. The associated CC Surge Tank is within normal operating range (50-60%).

D. PRECAUTIONS

1. The maximum pump discharge pressure should not exceed 150 psig as indicated on _PI-CC673 locally, on _PI-CC107 at _PM06J, or computer point P0670 to prevent lifting of CC system relief valves.

2. During normal operation, the minimum recommended flow for an operating CC pump is 2,900 gpm to ensure stable pump operation. For short periods of time (< 1 hour), the design minimum flow for an operating CC pump is 500 gpm. Verify sufficient flow paths are available to meet the minimum flow requirements for the number of operating CC pumps.

3. CC flow to the SFP heat exchanger shall be ≥ 1,200 gpm. This flow path assures the minimum flow requirements for two CC pumps will be met following a LOCA prior to establishing CC flow to the RHR heat exchangers. If CC flow to the SFP heat exchanger must be isolated, an alternate 1,200 gpm flow path must be established.

4. DO NOT operate more than two Component Cooling Pumps through one Component Cooling Heat Exchanger.

5. The temperature of the cooling water supplied to the various components should be ≥ 60°F but not exceed 105°F during normal operation. During initial operation of the Residual Heat Removal System, the temperature may be permitted to increase to 120°F for a maximum period of three hours.

6. Operation of the CCW Pumps may cause relief valves to lift. If this is suspected, due to decreasing CC Surge Tank level, refer to _BwOA PRI-6, Component Cooling Malfunction.

7. When starting a CC Pump, if motor current does not decrease to less than 56 amps within 5 seconds, the pump should be TRIPPED.

E. LIMITATIONS AND ACTIONS

1. CC Surge Tank Level will be maintained between 45% and 55% by the CC Auto Makeup System.

2. Do not exceed Component Cooling Pump starting duties.

   a. A motor is allowed 2 starts without any conditions if the first start is at a Cold Start condition. A Cold Start is defined as follows: The motor has SAT IDLE for GREATER THAN 3 hours.

   b. All other starts must meet Hot Start conditions prior to attempting a start. A Hot Start is defined as follows: The motor has RUN for GREATER THAN 20 minutes OR, the motor has SAT IDLE for GREATER THAN 45 minutes.

3. If starting a CC pump for the first time after an oil change, the outboard bearing oil bubbler may need to be filled after startup. If necessary, the CC pump should be shutdown if the oil level goes too low. Oil can now be added and the pump restarted.

4. If the Unit 0 CC pump is being used to satisfy the requirements of LCO 3.7.7, the Control Switch for the pump that the Unit 0 CC pump is replacing (_A/_B) MUST be in PULL OUT.

F. MAIN BODY

NOTE

To prevent preconditioning, the pump casing MUST NOT be vented before an ASME surveillance unless following maintenance or draining of the pump, which requires that the pump be vented to prevent potential equipment damage.

1. VENT the pump casing of the pump that is being started by performing the following:

   a. OPEN _CC064A/B or 0CC025 for the pump that is being started.

   b. After one minute, CLOSE _CC064A/B or 0CC025 that was opened in the prior step.

CAUTION

Starting an additional Component Cooling pump could result in Auto-Closure of _CC685, CC from RCP Thermal Barrier HX Isol Vlv, on High Flow of 231 gpm.

CAUTION

CC Discharge Header Relief Valves are set at 150 psig. Starting an additional Component Cooling Pump could result in lifting a Relief Valve. Prompt Operator action in securing the pump to be shutdown will minimize the potential to lift a Relief Valve in the system.

2. START _CC01PA/B or 0CC01P, Component Cooling Pump.

3. STOP the desired CC pump when system pressure increases and hold the control switch in the TRIP position until system pressure stabilizes.

4. VERIFY/OPEN _CC685, CC from RCP Thermal Barrier Hx Isol Vlv.

5. VERIFY/CLEAR any RCP CC annunciators/alarms.

6. VERIFY/CLEAR "CNTMT PEN CLG FLOW HIGH/LOW" alarm.

7. REVIEW system lineup and C/S position for CC system Tech Spec compliance.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. All systems are properly aligned for the current Unit 1 mode.
3. The "0" CC pump is mechanically aligned to Unit 1.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to start the 1B CC Pump and secure the 1A CC Pump in accordance with BwOP CC-15, SWITCHING OPERATING AND STANDBY COMPONENT COOLING SYSTEM PUMPS.
2. The 1B CC pump casing has been vented.
3. Non-licensed operators are standing by in the field to assist you.
4. Inform the Unit 1 US when the CC pump swap is complete.

TASK TITLE: Perform Waste Gas Release Channel Checks

JPM No.: SIM-901 REV: 70070301

Task No.: R-GW-001 K/A No.: 071000A4.25

Objective No.: 4C.GW-01 K/A IMP: 3.2/3.2

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 5, 9** APPROX COMPLETION TIME: 30 MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:

_X_ PERFORM

___ SIMULATE

LOCATION:

___ IN PLANT

_X_ SIMULATOR

GENERAL REFERENCES:

1. BwOP GW-500T1, GAS DECAY TANK RELEASE FORM, Rev. 32, Gas Decay Tank Release Form

MATERIALS:

1. Copy of BwOP GW-500T1, Rev. 32, completed through step 17.

TASK STANDARDS:

1. Perform Gas Decay Tank pre-release channel checks in accordance with BwOP GW-500T1.
2. Adjust RM-11 setpoints to verify proper operation of waste gas discharge valve.
3. Adjust RM-11 setpoints for gas release.

TASK CONDITIONS:

1. You are an extra NSO.
2. 0PR02J, Gas Decay Tank Monitor, is operable.
3. A release package is in progress for the 0F Gas Decay Tank.
4. BwOP GW-500T1, GAS DECAY TANK RELEASE FORM, has been completed through step D.17 for the 0F Gas Decay Tank release.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to perform steps D.18 through D.21 of BwOP GW-500T1.

   CUE: Hand examinee copy of partially completed BwOP GW-500T1.
2. Inform the Unit 1 Unit Supervisor when you have completed steps D.18 through D.21 of BwOP GW-500T1.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to BwOP GW-500T1:	Refer to BwOP GW-500T1	SAT UNSAT N/A **Comments:**
2.	Select the High Alarm setpoint for 0PA202. (steps D.18 - 19.a)	Perform the following at the RM-11 console: • Place the RM-11 console key to SUPERVISOR. ○ Depress GRID 3 key. • Key in 0202. • Depress the SEL key. ○ Verify 0PA202 selected. • Depress CHAN ITEM key. • Key in 9. • Depress the SEL key.	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: The following procedure step is not required to be performed if 0PA202 is NOT in HIGH ALARM.		
3.	Verify/enter High Alarm setpoint for 0PA202 suggested by Health Physics is section C.3.c. (step D.19.b) **NOTE: If examinee requests independent verification of steps, provide the following cue:** **CUE: Verification has been provided.**	Perform the following at the RM-11 console: ○ Refer to step C.3.c. ○ Verify the new High Alarm setpoint from step C.3.c (6.06E-03). ○ Depress the ENTER key. ○ Verify the new ALERT alarm setpoint is displayed. ○ Obtain verification.	SAT UNSAT N/A **Comments:**
4.	Select and enter the Alert Alarm setpoint for 0PA202. (step D.19.c) **NOTE: If examinee requests independent verification of steps, provide the following cue:** **CUE: Verification has been provided.**	Perform the following at the RM-11 console: ○ Depress Grid 3 key. ○ Key in 0202. ○ Depress the SEL key. ○ Verify 0PA202 selected. ○ Depress CHAN ITEM key. • Key in 10. • Depress the SEL key. ○ Refer to step C.3.c. ○ Verify the new Alert Alarm setpoint 3.03E-03. ○ Depress the ENTER key. • Verify the new ALERT alarm setpoint is displayed. ○ Obtain verification.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE

*5.	**Verify 0RE-PR002B will cause 0GW014 to automatically close.**
	(steps D.19.d-q)
	CUE: As local operator report 0GW014 C/S is in open
	CUE: As local operator report 0GW014 controller is at 100%.
	0PA202 current activity setting:
	_____
	0PA202 new Hi Alarm setting:
	_____
	CUE: As local operator report 0GW014 Auto Closed
	CUE: As local operator report 0GW014 control switch is in closed
	CUE: As local operator report 0GW014 controller is at 0%.
	NOTE: If examinee requests independent verification of steps, provide the following cue:
	CUE: Verification has been provided.
		Contact the local operator to:
		• Verify/Place 0GW014 C/S in OPEN.
		• Place 0GW014 controller to 100% open.
		Perform the following at the RM-11 console:
		o Depress Grid 3 key.
		o Key in 0202.
		o Depress the SEL key.
		o Verify 0PA202 selected.
		o Depress CHAN ITEM key.
		o Key in 9.
		o Record the current activity reading.
		• Enter a new HIGH ALARM setpoint below the current activity value.
		o Record the new HIGH ALARM setpoint that was entered.
		• Depress the ENTER key.
		o Acknowledge the alarm at the RM-11 console.
		o Contact the local operator to:
		  o Verify 0GW014 AUTO CLOSED.
		  o Place 0GW014 control switch in CLOSED.
		  o Place 0GW014 controller at 0% demand.
		o Depress Grid 3 key.
		o Key in 0202.
		o Depress the SEL key.
		o Verify 0PA202 selected.
		o Depress CHAN ITEM key.
		o Key in 9.
		• Enter the HIGH ALARM setpoint determined in step C.3.c (6.06 E-03).
		o Obtain verification.
			SAT UNSAT N/A
			Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
6.	Select the High Alarm setpoint for 0PA202. (step D.20.a)	Perform the following at the RM-11 console: o Depress Grid 3 key. • Key in 0102. • Depress the SEL key. o Verify 0PB102 selected. • Depress CHAN ITEM key. • Key in 9. • Depress the SEL key.	SAT UNSAT N/A **Comments:**
	EVALUATOR NOTE: The following procedure step is not required to be performed if 0PA202 is NOT in HIGH ALARM, otherwise mark step N/A.		
7.	Verify/enter High Alarm setpoint for 0PB102 suggested by Health Physics is section C.3.c. (step D.20.b) **NOTE: If examinee requests independent verification of steps, provide the following cue:** **CUE: Verification has been provided.**	Perform the following at the RM-11 console: o Refer to step C.3.c. o Verify the new High Alarm setpoint from step C.3.c (6.06E-04). o Depress the ENTER key. o Verify the new ALERT alarm setpoint is displayed. o Obtain verification.	SAT UNSAT N/A **Comments:**
8.	Select and enter the Alert Alarm setpoint for 0PB102. (step D.20.c) **NOTE: If examinee requests independent verification of steps, provide the following cue:** **CUE: Verification has been provided.**	Perform the following at the RM-11 console: o Depress Grid 3 key. o Key in 0102. o Depress the SEL key. o Verify 0PB102 selected. o Depress CHAN ITEM key • Key in 10. • Depress the SEL key. o Refer to step C.3.c. • Verify the new Alert Alarm setpoint (6.06E-05). o Depress the ENTER key. o Verify the new ALERT alarm setpoint is displayed. o Obtain verification.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*9.	**Verify 0RE-PR002A will cause 0GW014 to automatically close:** (steps D.20.d-q) **CUE: As local operator report 0GW014 C/S is in open** **CUE: As local operator report 0GW014 controller is at 100%.** **0PB102 current activity setting_____** **0PB102 new Hi Alarm setting_____** **CUE: As local operator report 0GW014 Auto Closed** **CUE: As local operator report 0GW014 control switch is in closed** **CUE: As local operator report 0GW014 controller is at 0%.** **NOTE: If examinee requests independent verification of steps, provide the following cue:** **CUE: Verification has been provided.**	Contact the local operator to: • Verify/Place 0GW014 C/S in OPEN. • Place 0GW014 controller to 100% open. Perform the following at the RM-11 console: o Depress Grid 3 key. o Key in 0102. o Depress the SEL key. o Verify 0PB102 selected. o Depress CHAN ITEM key. • Key in 9. o Record the current activity reading. • Enter a new HIGH ALARM setpoint below the current activity value. o Record the new HIGH ALARM setpoint that was entered. • Depress the ENTER key. o Acknowledge the alarm at the RM-11 console. o Contact the local operator to: o Verify 0GW014 AUTO CLOSED. o Place 0GW014 control switch in CLOSED. o Place 0GW014 controller at 0% demand. o Depress Grid 3 key. o Key in 0102. o Depress the SEL key. o Verify 0PB102 selected. o Depress CHAN ITEM key. o Key in 9. • Enter the HIGH ALARM setpoint determined in step C.3.c (6.06 E-04). o Obtain verification.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
10.	Place RM-11 in NORMAL MODE: (step D.21)	Perform the following at the RM-11 console: • Place the RM-11 console key to NORMAL.	SAT UNSAT N/A **Comments:**
11.	Inform US pre-release channel checks complete **CUE: As Unit Supervisor, acknowledge report.**	Inform Unit Supervisor BwOP GW-500T1 steps D.18 through D.21 are completed.	

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
  - OR -
- Other IC if being performed concurrently with other JPMs. (JPM is not IC dependent)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Adjust 0PR02J radiation level as follows:
  - Record as found values of monitored item **RMK0PR02ABKD** _____.
  - Set monitor item **RMK0PR02ABKD = 1.31 E-8**
  - Record as found values of monitored item **RMK0PR02BBKD** _____.
  - Set monitor item **RMK0PR02BBKD = 1.31 E-8**
- Adjust 0PR02J setpoints as follows.
  - Record 0PB102 High Alarm current setpoint _____.
  - Set 0PB102 High Alarm Setpoint = **6.06 E-04** (channel item #9).
  - Record 0PB102 Alert Alarm current setpoint _____.
  - Set 0PB102 Alert Alarm Setpoint = **6.06 E-05** (channel item #10).
  - Record 0PA202 High Alarm current setpoint _____.
  - Set 0PA202 High Alarm Setpoint = **6.06 E-03** (channel item #9).
  - Record 0PA202 Alert Alarm current setpoint _____.
  - Set 0PA202 Alert Alarm Setpoint = **3.03 E-03** (channel item #10).
- Select grid 1 on the RM-11 console.
- Place RM-11 keys switch to NORMAL.
- If running the JPM repetitively, perform the following:
- Verify/Set 0PB102 High Alarm Setpoint = **6.06 E-04** (channel item #9).
- Verify/Set 0PB102 Alert Alarm Setpoint = **6.06 E-05** (channel item #10).
- Verify/Set 0PA202 High Alarm Setpoint = **6.06 E-03** (channel item #9).
- Verify/Set 0PA202 Alert Alarm Setpoint = **3.03 E-03** (channel item #10).
- Verify/Select grid 1 on the RM-11 console.
- Verify/Place RM-11 keys switch to NORMAL.
- **AT CONCLUSION OF JPM(S), RESTORE 0PR02J MONITORED ITEMS ALARM SETPOINTS TO ORIGINAL AS FOUND VALUES**

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. 0PR02J, Gas Decay Tank Monitor, is operable.
3. A release package is in progress for the 0F Gas Decay Tank.
4. BwOP GW-500T1, GAS DECAY TANK RELEASE FORM, has been completed through step D.17 for the 0F Gas Decay Tank release.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to perform steps D.18 through D.21 of BwOP GW-500T1.
2. Inform the Unit 1 Unit Supervisor when you have completed steps D.18 through D.21 of BwOP GW-500T1.