TASK TITLE: **Emergency Borate During an ATWS from RWST**

JPM No.: **SIM-108** REV: **NRC2006301**
TPO No.: 4D.OA-08 K&A No.: 000029EK3.12
TASK No.: R-FR-018, Respond to an ATWS K&A IMP: 4.4/4.7

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 4, 5, 6** APPROX COMPLETION TIME **10 MINUTES**

CRITICAL TIME: **NA**

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. 1BwFR-S.1, Rev. 1A WOG 1C, Response to Nuclear Power Generation/ATWS.

MATERIALS:

1. 1BwFR-S.1, Rev. 1A WOG 1C

TASK STANDARDS:

1. Determine emergency boration flowpath from BAST unavailable.
2. Manually align CV system to perform emergency boration of RCS from the RWST prior to completion of step 4 of 1BwFR-S.1.

TASK CONDITIONS:

1. You are an extra NSO.
2. The turbine has tripped without a reactor trip from high power.
3. 1BwFR-S.1. Response to Nuclear Power Generation/ATWS is in progress.

INITIATING CUES:

1. The simulator is frozen and annunciator panel horns are turned off.
2. The US has directed you to perform an Emergency Boration per step 4 of 1BwFR-S.1. All other steps of 1BwFR-S.1 are being addressed by other NSOs. All annunciator horns are silenced.
3. Notify the US when emergency boration flow has been initiated.
4. When you are ready to begin the JPM, the simulator will be placed in run. Annunciator horns will be left OFF to minimize noise during JPM performance.

RECORD START TIME _____

Note: After giving the initiating cue, cue the simulator operator to start the simulator.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1BwFR-S.1 Step 4 **Note: Examinee will use simulator copy of 1BwFR-S.1 for JPM performance.**	Locate and Open 1BwFR-S.1 to Step 4	SAT UNSAT N/A **Comments:**
2.	Check at least one Centrifugal Charging pump running	Determine one CV pump is running: • OBSERVE RUN light indication and/or ammeter for 1A CV pump • OBSERVE flow indicated on 1FI-121A, charging header flow indicator	SAT UNSAT N/A **Comments:**
3.	Initiate emergency boration from BAST	Attempt to initiate emergency boration from the BAST as follows: • Attempt to OPEN 1CV8104 • Determine emergency boration flow cannot be established from BAST	SAT UNSAT N/A **Comments:**
	Note: Alternate path begins here		
	Examiners note: 1BwFR-S.1 step 4 RNO column allows establishing emergency boration flow from either the RWST or BAST (using normal RMCS boration flowpath). If examinee attempts to establish emergency boration via RMCS, the boric acid transfer pump will not start. (See JPM step 6 if examinee attempts emergency boration via RMCS)		
***4**	**Align CV pump suction to the RWST**	Perform the following at 1PM05J: • OPEN 1CV112D and/or 1CV112E	SAT UNSAT N/A **Comments:**
***5**	**Isolate CV pump suction from the VCT**	Perform the following at 1PM05J: • CLOSE 1CV112B and/or 1CV112C	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
***6**	**Maximize Charging flow**	Perform the following at 1PM05J: • Place 1CV121 in manual and raise demand o OBSERVE 1FI-121A increasing o VERIFY letdown established	SAT UNSAT N/A **Comments:**
Examiners note: 1BwFR-S.1 step 4 RNO column allows establishing emergency boration flow from either the RWST or BAST (using normal RMCS boration flowpath). If examinee attempts to establish emergency boration via RMCS, the boric acid transfer pump will not start. See JPM step 4 for emergency boration via RWST steps.			
7.	Initiate emergency boration from RMCS (N/A if not performed)	Attempt to initiate emergency boration from RMCS as follows: • OPEN 1CV110A • OPEN 1CV110B • Attempt to start boric acid transfer pump • Determine emergency boration flow cannot be established from RMCS	SAT UNSAT N/A **Comments:**
8.	Check Pressurizer Pressure < 2335 psig	CHECKS Pzr Pressure < 2335 psig as follows: • OBSERVES PZR Pressure indicators o Operate PZR PORV(s) as necessary until pressure <2135 psig, then close PZR PORV(s)	SAT UNSAT N/A **Comments:**
9.	Notify Unit Supervisor **CUE: Acknowledge reports.**	Perform the following: o Notify the Unit Supervisor emergency boration flow is established o Notify Unit Supervisor of 1CV8104 failure to open	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. The turbine has tripped without a reactor trip from high power.
3. 1BwFR-S.1. Response to Nuclear Power Generation/ATWS is in progress.

INITIATING CUES:

1. The simulator is frozen and annunciator panel horns are turned off.
2. The US has directed you to perform an Emergency Boration per step 4 of 1BwFR-S.1. All other steps of 1BwFR-S.1 are being addressed by other NSOs. All annunciator horns are silenced.
3. Notify the US when emergency boration flow has been initiated.
4. When you are ready to begin the JPM, the simulator will be placed in run. Annunciator horns will be left OFF to minimize noise during JPM performance.

SIMULATOR SETUP GUIDE:

- 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.
- Complete items on Simulator Ready for Training Checklist
- Place simulator in RUN.
- Run **caep SIM-108** from disk and verify the following actuate:
    - IMF RP02A
    - IMF RP02B
    - IOR ZDI1CV8104 CLS
    - IMF CV03
    - IOR ZDIRMIO IN
    - IOR ZDIBKSEL MAN
    - IRF TC03 TRIP
- Start both AF pumps.
- Place simulator in freeze.
- Turn off simulator horns.
- Verify simulator copy of 1BwFR-S.1 is place kept through step 3. Verify all other place keeping marks removed.
- At examiner’s cue, place simulator in run.
- If running the JPM repetitively, perform the following:
    - Open 1CV112B & C
    - Close 1CV112D & E
    - Restore 1CV121 to automatic
    - Verify simulator copy of 1BwFR-S.1 is place kept through step 3. Verify all other place keeping marks removed.
    - Place simulator in freeze.
    - Turn off simulator horns.

COMMENTS:

TASK TITLE: **Establish Excess Letdown to the Volume Control Tank**

JPM No.: **SIM-210** REV: **NRC2006301**
TPO No.: 4.C.CV-07 K&A No.: 000022AK3.03
TASK No.: R-CV-007, Establish excess L/D to either VCT or RCDT K&A IMP: 3.1/3.3

TRAINEE: _____ RO SRO SRO Cert(Circle One)

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 2, 3, 4** APPROX COMPLETION TIME **11 MINUTES**

CRITICAL TIME: **NA**

EVALUATION METHOD:
X PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
X SIMULATOR

GENERAL REFERENCES:

1. BwOP CV-15, Rev. 10, Excess Letdown Operations.

MATERIALS:

1. BwOP CV-15

TASK STANDARDS:

1. Place Excess Letdown in service.
2. Maintain excess letdown temperature < 165°F

TASK CONDITIONS:

1. You are the Assist NSO.
2. The Unit is at 100% power.
3. Normal Letdown is in service at 120 gpm.

INITIATING CUES:

1. A suspected 0.5 gpm leak exists in the normal letdown line.
2. The US directs you to establish Excess Letdown to the VCT using ALL loop drains and BOTH excess letdown heat exchangers.
3. Estimated time for Excess Letdown operations will be approximately 2 hours.
4. The SM does NOT desire flow directed to the VCT spray nozzle.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwOP CV-15 **CUE: When examinee locates correct procedure, provide copy.** **CUE: All Prerequisites, Precautions, Limitations and Actions have been met.**	Locate and open BwOP CV-15	SAT UNSAT N/A **Comments:**
***2.**	**Establish CC Flow to the Excess Letdown HXs** (steps F.1.a.-h.) **Note: Initiating cue was to align to the VCT** **Note: Initiating cue was excess letdown to remain in service approximately 2 hours**	Perform the following at 1PM05J/6J: o VERIFY/OPEN 1CV8100 o VERIFY/OPEN 1CV8112 • OPEN 1CC9437A • OPEN 1CC9437B o VERIFY/CLOSE 1HCV-CV123, Excess Letdown HX Flow Control Valve o VERIFY/PLACE 1CV8143 o Determine seal return flow will NOT be aligned to VCT spray nozzle. (step F.1.g. is NOT performed) o Determine flow will NOT be directed to RCDT (step F.1.h. is NOT performed)	SAT UNSAT N/A **Comments:**

***3.**	**Align Excess Letdown Flowpath**
	(steps F.1.i.-j.)
	
	Note: Initiating cue was to align all loop drains
	
	Note: Initiating cue was to align both excess letdown heat exchangers
		Perform the following at 1PM05J:
		• Align RCS loop drain valves
		  • OPEN 1RC8037A
		  • OPEN 1RC8037B
		  • OPEN 1RC8037C
		  • OPEN 1RC8037D
		• Align excess letdown heat exchangers
		  • OPEN 1CV8153A
		  • OPEN 1CV8153B
			SAT UNSAT N/A
			Comments:

	PERFORMANCE STEP	STANDARD	Circle applicable
*4.	**Initiate Excess Letdown Flow** (steps F.1.k.-l.)	Perform the following at 1PM05J: • SLOWLY OPEN 1HCV-CV123 to obtain desired flow o ENSURE Excess Letdown Outlet Temperature is < 165 °F o 1TI-122A	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Assist NSO.
2. The Unit is at 100% power.
3. Normal Letdown is in service at 120 gpm.

INITIATING CUES:

1. A suspected 0.5 gpm leak exists in the normal letdown line.
2. The US directs you to establish Excess Letdown to the VCT using ALL loop drains and BOTH excess letdown heat exchangers.
3. Estimated time for Excess Letdown operations will be approximately 2 hours.
4. The SM does NOT desire flow directed to the VCT spray nozzle.

SIMULATOR SETUP GUIDE:

- 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.
- Complete items on Simulator Ready for Training Checklist
- Place simulator in RUN.

COMMENTS:

- Provide copy of BwOP CV-15, Rev. 10

(Final)

TASK TITLE: **Raise SI Accumulator Level with 1A SI pump (375 psig in RCS)**

JPM Number: **SIM-204** Rev. **NRC2006301**
TPO No.: 4C.SI-02 K&A No.: 006000A1.13
Task No.: R-SI-001, Fill the SI accumulators K&A Imp.: 3.5/3.7

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

Critical Elements: **(*) 4, 6, 9, 11-13, 16, 21, 22** Approx. Completion Time: **45 minutes**

Critical Time: **N/A**

EVALUATION METHOD:
X PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
X SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-5-C1, Rev. 8E2, ACCUM 1C LEVEL HIGH/LOW
2. BwAR 1-5-C2, Rev 6E3, ACCUM 1C PRESS HIGH/LOW
3. BwOP SI-5, Rev. 22, Raising SI Accumulator Level with SI Pumps
4. BwOP SI-9, Rev 11, Lowering SI Accumulator Pressure
5. Tech Spec 3.5.1

MATERIALS:

1. Copy of BwAR 1-5-C1
2. Copy of BwAR 1-5-C2, if needed
3. Copy of BwOP SI-5
4. Copy of BwOP SI-9, if needed

TASK STANDARDS:

1. Determine 1A SI train required to be isolated from RCS cold legs during fill of 1C SI Accumulator.
2. Restore 1C SI Accumulator Level to 40%-45% prior to completion of BwOP SI-5, step F.8.b.5.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is in Mode 3, RCS temperature is 360°F and RCS pressure is 375 psig.
3. RCS heat up is in progress per 1BwGP 100-1.
4. All systems and controls are normal for the present conditions.

INITIATING CUES:

1. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, is lit.
2. The US has directed you to raise the 1C accumulator level to 40%–45% using the 1A SI pump. Other control room operators are maintaining all other plant conditions. NLOs have been briefed and are standing by as needed.
3. Inform the US when you have raised 1C SI accumulator level to 40%-45%.
4. There are NO personnel in Unit 1 Containment.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwAR 1-5-C1, ACCUM 1C LEVEL HIGH LOW **CUE: When student locates correct procedure, provide copy.** **CUE: If asked as US, confirm that DEQUIP has been entered for 1C SI Accumulator level, LCO 3.4.13 has been reviewed, and AAR 1BwOS SI-1a is being reviewed.**	Locate and open BwAR 1-5-C1 and perform the following: o Monitor 1LI-954 and 955 to determine level is low. o Monitor SER points 0581 and 2042 to determine level is low. • Monitor 1PI-964 and 965 to determine pressure is stable. o Notify US to enter LCO 3.5.1.	SAT UNSAT N/A **Comments:**
2.	Refer to BwOP SI-5, Raising SI Accumulator Level with SI Pumps. **CUE: When examinee locates correct procedure, provide copy.** **CUE: All Prerequisites, Precautions, Limitations and Actions are met.** **CUE: If asked as US, RWST recirc pump and purification loop are not running, and RWST boron is 2300 ppm and has not been diluted since last sampled.**	Locate and open BwOP SI-5:	SAT UNSAT N/A **Comments:**
Examiner's note: 1SI8806 and 8813 are SVAG valves and are maintained deenergized. Their position may be verified on the 1PM06J Group 1 or 4 Readiness Lights, 1PM06J SVAG Valve Status Lights, or locally. The examinee should NOT energize 1SI8806 and/or 1SI8813 per BwOP SI-100 in order to check 1SI8806 and/or 1SI8813 position using the indicating lights at 1PM06J. Energizing 1SI8806 and/or 1SI8813 is NOT necessary since the valves are in their correct position and energizing 1SI8806 and/or 1SI8813 would make BOTH trains of ECCS inoperable and unnecessarily place Unit 1 in Tech Spec 3.5.2.			

	PERFORMANCE STEP	STANDARD	Circle applicable

3.	Verify valve alignment.
	(steps F.1 – F.4)
	CUE: If asked to verify valves locally, as NLO report all valves are OPEN.
		At 1PM06J, perform the following:
		• VERIFY/OPEN:
		  • 1SI8806
		  • 1SI8923A
		  o 1SI8923B
		  • 1SI8814
		  • 1SI8813
		  o 1SI8920
			SAT UNSAT N/A
			Comments:

***4**	**Align 1A SI Pump to Accumulator fill header.** (step F.5)	At 1PM06J, perform the following: • OPEN 1SI8888	SAT UNSAT N/A **Comments:**
5.	Verify SI to Radwaste flowpath isolated. (step F.6)	At 1PM11J, perform the following: • Verify/CLOSE 1SI8964	SAT UNSAT N/A **Comments:**
***6.**	**Align Accumulator for fill.** (step F.7)	At 1PM06J, perform the following: • OPEN 1SI8871	SAT UNSAT N/A **Comments:**
7.	Determine applicable plant status for accumulator fill (step F.8)	Determine plant status for accumulator fill • Unit 1 in Mode 3 (RCS temperature > 350°F, Keff <0.99) • RCS pressure ≤ 1850 psig • Determine BwOP SI-5, step F.8.b applicable for 1C SI accumulator fill	SAT UNSAT N/A **Comments:**
8.	Initiate LCOAR 1BwOL 3.5.2. (step F.8.b) **CUE: As US, acknowledge LCOAR 3.5.2 entry requirement.**	Inform US of need to enter LCOAR 1BwOL 3.5.2. • Determine LCO 3.5.2 entry required prior to closing 1SI8821A	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
***9.**	**Isolate 1A SI Pump from Cold Legs.** (step F.8.b.1)	At 1PM06J, VERIFY/CLOSE: • 1SI8821A	SAT UNSAT N/A **Comments:**
Examiner's note: 1SI8802A is SVAG valve and is maintained deenergized; its position may be verified on the 1PM06J Group 1 or 5 Readiness Lights, 1PM06J SVAG Valve Status Lights, or locally. The examinee should NOT energize 1SI8802A per BwOP SI-100 in order to check valve position using the indicating lights at 1PM06J. Energizing 1SI8802A is NOT necessary since it is in their correct position and energizing 1SI8802A would make BOTH trains of ECCS inoperable and unnecessarily place Unit 1 in Tech Spec 3.5.2.			
10.	Verify/close 1SI8802A, SI to Hot Legs 1A and 1D Isol vlv. (step F.8.b.2) **CUE: If asked to verify 1SI8802A position locally, as NLO report 1SI8802A is CLOSED.**	At 1PM06J, perform the following: • VERIFY/CLOSE 1SI8802A	SAT UNSAT N/A **Comments:**
Examiner's note: Student may elect to have an NLO do a prestart check of 1A SI pump prior to starting. If so, provide the following CUE: **CUE: NLO reports that the 1A SI Pump is ready for a start.**			
***11.**	**Start 1A SI pump.** (step F.8.b.3) **CUE: If dispatched as NLO to monitor pump start locally, report satisfactory start of 1A SI pump shortly after pump started.**	At 1PM06J, perform the following: o Announce pump start on plant page • Start 1A SI Pump. o Check 1A SI Pump Run Light LIT. o Check 1A SI Pump amps.	SAT UNSAT N/A **Comments:**
***12.**	**Fill 1C Accumulator.** (step F.8.b.4)	At 1PM06J, perform the following: • OPEN 1SI8878C o Monitor Accumulator Level.	SAT UNSAT N/A **Comments:**
***13.**	**Stop filling accumulator when level is within Tech Spec limits.** (step F.8.b.5) **Note: Per the initiating cue, direction was given to restore level to >38% but ≤ 63%.** **CUE: As US, acknowledge report of 1C SI Accumulator level restoration.**	At 1PM06J, perform the following: • CLOSE 1SI8878C when Accumulator Level is >38%, but prior to exceeding 63%. • Inform US 1C SI Accumulator level restored within Tech Spec limits.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
14.	Stop 1A SI pump. (step F.8.b.6)	At 1PM06J, perform the following: • Stop 1A SI Pump. o Check 1A SI Pump Stop Light LIT.	SAT UNSAT N/A **Comments:**
15.	Depressurize SI pump discharge header to less than 50 psig. (step F.8.b.7 – F.8.b.8)	Depressurize the fill header to less than 50 psig: • At 1PM11J, open 1SI8964 • At 1PM06J, monitor 1A SI pump discharge header pressure (1PI-919/923). • When pressure is less than 50 psig, perform the following at 1PM11J: • CLOSE 1SI8964	SAT UNSAT N/A **Comments:**
***16.**	**Restore 1A SI pump to Cold Legs.** (step F.8.b.9) **CUE: Acknowledge exit LCOAR 1BwOL 3.5.2.**	At 1PM06J, perform the following: • OPEN 1SI8821A	SAT UNSAT N/A **Comments:**
17.	Isolate SI pump from Accumulator. (step F.11 & F.12)	At 1PM06J, close Fill/Test line Isolation valves: • 1SI8871 • 1SI8888	SAT UNSAT N/A **Comments:**
18.	Inform US that it may be necessary to initiate 1BwOS SI-1A, and to contact chemistry for Accumulator samples, and exit LCOAR for level. (step F.13 & 14) **CUE: US will evaluate the need to perform 1BwOS SI-1a and will inform chemistry, and exit LCOAR.**	Inform US of the following potential requirements: • 1BwOS SI-1a • Chemistry to sample the Accumulators for boron. • Exit LCOAR from Accumulator level.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
Examiner's note: If 1C SI accumulator rises enough to cause annunciator 1-5-B2 to alarm during accumulator fill, examinee will perform JPM steps 19-23 to lower 1C SI accumulator pressure. If annunciator 1-5-B2 is not in alarm, end JPM here and mark steps 19-23 N/A.			
19.	Refer to BwAR 1-5-C2 **CUE: When student locates correct procedure, provide copy.** **CUE: If asked as US, confirm that the LCOAR (1BwOL 3.5.1) has been entered, LCO 3.4.13 has been reviewed, and AAR 1BwOS SI-1a is being reviewed.**	Locate and open BwAR 1-5-C2 and perform the following: o Monitor 1PI-964 and 965 to determine pressure is high. o Monitor SER points 0578 and 2045 to determine level is low. • Monitor 1LI-954 and 955 to determine level is stable. o Notify US to enter LCO 3.5.1.	SAT UNSAT N/A **Comments:**
20.	Refer to BwOP SI-9, Lowering SI accumulator pressure. **CUE: After examinee locates copy of procedure, provide a copy and inform them all prerequisites, precautions, limitations and actions are met**	Perform the following • Locate and open BwOP SI-9. • Determine step F.1 is the applicable step.	SAT UNSAT N/A **Comments:**
***21.**	**Lower 1B SI Accumulator pressure** **CUE: If asked, as US inform examinee that there are no personnel in Unit 1 containment.**	Perform the following to lower 1B SI Accumulator pressure to 625 psig: o Verify / Close 1AOV-SI8880, N_2 Supply Isolation valve o Verify / Close 1SIHCV943, Vent control valve • Open 1AOV-SI8875C, SI Accumulator 1C Vent valve. • Throttle open 1SIHCV943, Vent control valve o Monitor 1PI-964/965	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
***22.**	**Secure lowering 1B SI accumulator pressure.**	Perform the following • Verify 1C SI accumulator pressure 612-637 psig • Close 1AOV-SI8875C o Close 1SIHCV943, Vent Control valve.	SAT UNSAT N/A **Comments:**
23.	Exit LOCAR 1BwOL 3.5.1 **CUE: US acknowledges pressure restored and exits LCOAR.**	Inform US that pressure is within the Tech Spec limit, the alarm cleared, and the LCOAR may be exited.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is in Mode 3, RCS temperature is 360°F and RCS pressure is 375 psig.
3. RCS heat up is in progress per 1BwGP 100-1.
4. All systems and controls are normal for the present conditions.

INITIATING CUES:

1. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, is lit.
2. The US has directed you to raise the 1C accumulator level to 40%–45% using the 1A SI pump. Other control room operators are maintaining all other plant conditions. NLOs have been briefed and are standing by as needed.
3. Inform the US when you have raised 1C SI accumulator level to 40%-45%.
4. There are NO personnel in Unit 1 Containment.

SIMULATOR SETUP GUIDE:

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 5, BOL hot shutdown, plant heat up in progress, 340°F, 375 psig.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Place 1B CV pump, 1A SI pump, and 1B SI pump in NAT.
- Place PZR PORVs in AUTO.
- Remove placards from 1SI8808A-D C/S.
- Allow the RCS to heat up above 350°F.
- Modify SIMACC[3] TO 57,280 to lower 1C SI Accumulator level to 30%.
- Modify SIMN2ACC[3] TO 1270 to lower 1C SI Accumulator pressure.
- Place RCS Heatup Limits graphic display on right hand MCR CRT.
- Verify/remove 1A SI pump data from HMI terminal screens.
- **Replace 1SI8808A-D placards when all examinees have completed JPM.**

COMMENTS:

- Provide copy of BwAR 1-5-C1, Rev. 8E2
- Provide copy of BwAR 1-5-C2, Rev 6E3
- Provide copy of BwOP SI-5, Rev. 22
- Provide copy of BwOP SI-9, Rev 11

TASK TITLE: **Swap Essential Service Water Pumps**

JPM No.:	SIM-S403	REV:	**NRC2006301**
TPO No.:	4C.SX-03	K&A No.:	075000A4.01
TASK No.:	R-SX-004, Operate the SX system	K&A IMP:	3.2/3.2

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 4, 6, 8** APPROX COMPLETION TIME: **25** MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:
X PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
X SIMULATOR

GENERAL REFERENCES:

1. BwOP SX-7, Rev. 16, Swapping Essential Service Water Pumps.

MATERIALS:

1. BwOP SX-7, Rev. 16, Swapping Essential Service Water Pumps.

TASK STANDARDS:

1. Manually open 1SX016B prior to completing BwOP SX-7, step F.2.
2. Start the 1B SX pump prior to securing the 1A SX pump.

TASK CONDITIONS:

1. You are the Assist NSO.
2. Both Units are at 100% power.
3. Unit 2 has placed the 2A SX pump in service 5 minutes ago and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
4. NLOs have been briefed and are standing by to assist in the field.

INITIATING CUES:

1. The US has directed you to start the 1B SX pump and shutdown the 1A SX pump per BwOP SX-7.
2. Inform the US when you have completed the pump swap.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwOP SX-7. **CUE: When examinee locates correct procedure, provide copy.** **CUE: All Prerequisites, Precautions, Limitations and Actions have been met.**	Locate and open BwOP SX-7.	SAT UNSAT N/A **Comments:**
2.	Verify 1B SX pump suction valve open. **CUE: If requested, NLO reports that 1SX001B is open.**	Perform the following at 1PM06J: • Verify/Open 1SX001B.	SAT UNSAT N/A **Comments:**
3	Verify 1PR03J in service	Perform the following at the RM-11 console o Verify 1PR03J cursor status indicates normal (green) on grid 1, grid 5, or grid 6.	SAT UNSAT N/A **Comments:**
***4.**	**Verify RCFC 1B and 1D inlet and outlet valves open.** **CUE: Acknowledge as US report of 1SX016B found closed and concur with request to open 1SX016B.**	Perform the following at 1PM06J: • Place control switch for 1SX016B to OPEN. o Verify/Open 1SX027B.	SAT UNSAT N/A **Comments:**
5.	Start 1A and 1B SX pump Aux. Oil pumps. **Note: Simulator operator to start both Unit 1SX pump aux. oil pumps when called.**	Direct NLO to locally start 1A and 1B SX pump Aux. Oil pumps. (1SX01PA/B-C) o At 1PM06J verify 1A and 1B SX pump Aux. Oil pump run lights lit.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
***6.**	**Start 1B SX pump.** **CUE: If contacted as Unit 2 operator, acknowledge upcoming SX pump swap.** **CUE: If dispatched as NLO to monitor 1B SX pump start locally, report satisfactory start of 1B SX pump shortly after pump started.**	Perform the following at 1PM06J: o Announce pump swap over plant page • Start 1B SX pump by taking the control switch to CLOSE until pump starts.	SAT UNSAT N/A **Comments:**
7.	Check running SX pumps parameters.	Perform the following at 1PM06J: • Check ammeters for 1A and 1B SX pumps • Determines 1A and 1B SX pumps amps approximately equal. • Checks 1PI-SX007 and 1PI-SX008 • Determines 1A and 1B SX pumps discharge pressure < 112 psig.	SAT UNSAT N/A **Comments:**
***8.**	**Stop 1A SX pump.** **CUE: If dispatched as NLO to monitor 1A SX pump stop locally, report satisfactory stop of 1A SX pump shortly after pump stopped.**	Perform the following at 1PM06J: • Stops 1A SX pump by placing the control switch to TRIP. • Determines step F.7 is NOT applicable (1B SX pump and 2A SX pump are running)	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
9.	Check 1B SX pump local operating conditions. **CUE: As NLO, report all local operating conditions for the pump and strainer are normal.** **CUE: As NLO, report 1A SX pump is not rotating.** **CUE: As US, inform examinee another NSO will complete the remaining portions of BwOP SX-7.**	Direct NLO to check the following local operating conditions: • SX pump lube oil temperature: 50-130 °F. • SX pump seals not leaking. • SX pump bearing bracket drain holes not plugged. • Oil flow in bearing oil return sightglass. • 1SX01FB, strainer control switch for 1B SX pump in AUTO. • 1A SX pump is not reverse rotating.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Assist NSO.
2. Both Units are at 100% power.
3. Unit 2 has placed the 2A SX pump in service 5 minutes ago and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
4. NLOs have been briefed and are standing by to assist in the field.

INITIATING CUES:

1. The US has directed you to start the 1B SX pump and shutdown the 1A SX pump per BwOP SX-7.
2. Inform the US when you have completed the pump swap.

SIMULATOR SETUP GUIDE:

- 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.
- Complete items on Simulator Ready for Training Checklist
- Place simulator in RUN.
- Verify/start 1A SX pump
- Verify/stop 1B SX pump
- Close 1SX016B RCFC 1B and 1D inlet isolation valve.
- Remove SX Pump Trends from the HMI.
- Run **caep SIM-S403** from disk and verify the following actuate:
    - trgset 1 "ZLO1SX01PB(3)==1"
    - trg 1 "IMF SW04 (0 3) 15000"
    - trgset 2 "ZDI1SX01PA(1)==1"
    - trg 2 "DMF SW04"
- To start/stop SX Pump Aux Oil Pumps, use the following remote functions:
    - **RF SW03 ON / OFF**
    - **RF SW04 ON / OFF**

COMMENTS:

- Provide copy of BwOP SX-7, Rev. 16

TASK TITLE: **Synchronize 1A EDG to Bus 141 and respond to Gov. Adj. malfunction.**

JPM No.: **SIM-608** REV: **NRC2006301**
TPO No.: 4C.DG-06 K&A No.: 064000A4.06
TASK No.: R-DG-015, Operate the EDG K&A IMP: 3.9/3.9

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 3, 4, 6** APPROX. COMPLETION TIME: **18 MINUTES**

CRITICAL TIME: NA

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. BwOP DG-11, Rev. 30, Diesel Generator Startup
2. 1BwOSR 3.8.1.2-1, Rev. 15, Unit One 1A Diesel Generator Operability Surveillance

MATERIALS:

1. BwOP DG-11, Rev. 30, Diesel Generator Startup (steps 1-8 completed)
2. BwOP DG-11T1, Rev. 6, Diesel Generator Start/Stop Log (partially completed)
3. 1BwOSR 3.8.1.2-1, Rev. 15 (sections 1.0, 2.0, 4.0 completed.)

TASK STANDARDS:

1. Synchronize 1A Diesel Generator to bus 141
2. Recognize a failure of the Governor Adjust switch
3. Open 1A DG Output Circuit Breaker prior to completion of BwOP DG-11, step F.9.l.

TASK CONDITIONS:

1. You are the extra NSO.
2. All conditions are normal for current mode on Unit 1.
3. The 1A Diesel Generator was SLOW started from the control room per BwOP DG-11 step F.5, and has been running unloaded for approximately fifteen minutes. Step 9 is ready to be performed.
4. 1BwOSR 3.8.1.2-1 is in progress, and complete through step F.4.0.

INITIATING CUES:

1. Using the partially completed procedures provided, (**CUE: Hand examinee copy of 1BwOSR 3.8.1.2-1, BwOP DG-11, and BwOP DG-11T1**) you have been directed by the Unit Supervisor to complete Section F.5.0 of 1BwOSR 3.8.1.2-1.
2. Inform the US when you have completed section F.5.0 of 1BwOSR 3.8.1.2-1.

RECORD START TIME _____

Note: Provide the partially completed copies of 1BwOSR 3.8.1.2-1, BwOP DG-11, and BwOP DG-11T1 to the examinee.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1BwOSR 3.8.1.2-1, 1A DG Operability Monthly Surveillance. (Section F. 5.0)	Refer to copy of 1BwOSR 3.8.1.2-1 provided • Determine it is necessary to parallel and load 1A DG using BwOP DG-11.	SAT UNSAT N/A **Comments:**
2.	Refer to BwOP DG-11 **CUE: All Prerequisites, Precautions, Limitations and Actions are met**	Refer to BwOP DG-11 • Determine step F.9 to be used to parallel and load 1A DG	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
***3.**	**Parallel the 1A Diesel Generator** **CUE: If asked, this surveillance is NOT being performed in conjunction with the 24-hour load run of surveillance 1BwVSR 3.8.1.14-1.**	Perform the following at 1PM01J: o VERIFY DG Frequency ~60Hz and Voltage ~4160V o Adjust DG frequency to 60 Hz using Gov. Adj. Control. o Adjust DG voltage to 4160V using Volt Adj. Control. o VERIFY approximately the same voltage exists across each phase o Check voltage on phases A-B, B-C, and A-C using the DIESEL GEN. VOLTMETER SELECT Switch. • Turn Sync Selector Switch to ON for ACB 1413. • Adjust Incoming (DG) voltage (1EI-AP104B) slightly higher (0-4.0 volts) than running voltage (1EI-AP104A) using the Volt Adj. Control. • Adjust Generator Speed such that the synchroscope (1SI-AP104) is rotating SLOWLY in the FAST direction using the Gov. Adj. Control. • When the synchroscope (1SI-AP104) is slightly before the 12 o'clock position, CLOSE ACB 1413. o Verify synchroscope (1SI-AP104) "Locks in" at 12 o'clock position.	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
	Note: Alternate path begins here		
***4**	**Attempt to load the 1A Diesel Generator**	Perform the following at 1PM01J: • Attempt to load 1A DG by going to RAISE on the Gov Adj. Control • Determine 1A DG OUTPUT KW (1JI-DG002) NOT rising	
Examiners note: The following step does not have to be performed prior to tripping ACB 1413. If the examinee trips ACB 1413 prior to turning the Synchroscope off mark this step as N/A.			
5.	Turn the Synchroscope OFF.	Perform the following at 1PM01J: o Place the Sync Selector Switch for DG 1A Feed to 4KV BUS 141 in OFF position.	SAT UNSAT N/A **Comments:**
***6.**	**Open 1A D/G output breaker.** **CUE: Examinee will be unable to load the 1A DG. Procedure guidance (note prior to step F.9.f) is to open ACB 1413.** **CUE: As US, acknowledge report of 1A DG failure to load.**	Perform the following at 1PM01J: • OPEN ACB 1413 o Inform US of problem encountered.	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the extra NSO.
2. All conditions are normal for current mode on Unit 1.
3. The 1A Diesel Generator was SLOW started from the control room per BwOP DG-11 step F.5, and has been running unloaded for approximately fifteen minutes. Step 9 is ready to be performed.
4. 1BwOSR 3.8.1.2-1 is in progress, and complete through step F.4.0.

INITIATING CUES:

1. Using the partially completed procedures provided, you have been directed by the Unit Supervisor to complete Section F.5.0 of 1BwOSR 3.8.1.2-1.
2. Inform the US when you have completed section F.5.0 of 1BwOSR 3.8.1.2-1.

SIMULATOR SETUP GUIDE:

- 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.
- Complete items on Simulator Ready for Training Checklist
- Place simulator in RUN.
- Place 1A DG Auto Reclose Circuit Arm switch to SURV TEST
- Start 1A DG
- Insert **IRF EG06** to clear 1A DG TROUBLE/FAIL TO START annunciator
- Adjust 1A DG (incoming) voltage lower than running voltage
- Adjust DG frequency to 60.2 Hz
- Place synch switch handle in ACB 1414
- Run **caep SIM-608** from disk and verify the following actuate:
    - trgset 1 "ZDI1HSDG026(3)==1"
    - trg 1 "IOR ZDI1HSDG019 2"
    - trgset 2 "ZDI1HSDG028(3)==1"
    - trg 2 "IOR ZDI1HSDG022 2"
- If running the JPM repetitively, perform the following:
    - Delete Override **DOR ZDI1HSDG022**
    - Delete Override **DOR ZDI1HSDG019**
    - Reset Trigger 1 and 2
    - Adjust DG voltage lower than running voltage.
    - Adjust DG frequency to 60.2 Hz.
    - Place synch switch handle in ACB 1414

COMMENTS:

- Provide copy of 1BwOSR 3.8.1.2-1, rev 15, with sections 1.0, 2.0, 4.0 completed.
- Provide marked up copy of BwOP DG-11, rev 30, with steps F.1, F.4, F.7 and F.8 place-kept and unit and train designators filled in.
- Provide copy of BwOP DG-11T, rev 6, with 1A DG start data completed

TASK TITLE: **Respond to RCP Thermal Barrier Leak with CC Valve Failure**

JPM No.: **SIM-801** REV: **NRC2006301**
TPO No.: 4D.OA-51 K&A No.: 008000A3.03
TASK No.: R-OA-061, Respond to a loss of CC to RCP oil/thermal barrier coolers K&A IMP: 3.0/3.1

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: **(*) 7, 8** APPROX COMPLETION TIME **20** MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. 1BwOA PRI-6, Rev. 101, Component Cooling Malfunction
2. BwAR 1-7-E4, Rev. 51E2, RCP THERM BARR CC WTR FLOW HIGH LOW

MATERIALS:

1. Copy of BwAR 1-7-E4, Rev. 51E2

TASK STANDARDS:

1. Determine 1B RCP Thermal Barrier is leaking.
2. Isolate RCP thermal barrier leakage by closing 1CC9438 prior to overfilling CC surge tank.
3. Isolate 1B RCP thermal barrier and restore CC cooling to unaffected RCP thermal barriers.

TASK CONDITIONS:

1. You are the Assist NSO.
2. Unit 1 is at 100% power.
3. Annunciator 1-7-E4 RCP THERM BARR CC WTR FLOW HIGH LOW has just alarmed.

INITIATING CUES:

1. Perform actions in response to annunciator 1-7-E4.
2. Inform the Unit Supervisor when you have completed actions in response to annunciator 1-7-E4.

RECORD START TIME _____

Examiners note: Examinee may take the control switch for 1CC685 to CLOSE at any time (see JPM step 6), when it is noted that the valve did not automatically close on high flow.			
	PERFORMANCE STEP	**STANDARD**	**Circle applicable**
1.	Refer to BwAR 1-7-E4 **CUE: When examinee locates correct procedure, provide copy.**	Locate and open 1BwAR 1-7-E4 o Refer to SER o Determine RCP thermal barrier CC water flow high in alarm	SAT UNSAT N/A **Comments:**
Examiners note: BwAR 1-7-E4 directs responses per 1BwOA Pri-6 (below) and 1BwOA PRI-1. If examinee notes reference to 1BWOA PRI-1, provide CUE: Another Operator will initiate actions of 1BwOA-PRI-1, you are to perform actions of 1BwOA PRI-6.			
2	Refer to 1BwOA PRI-6, Component Cooling Malfunction **Note: Examinee will use simulator copy of 1BwOA PRI-6 for JPM performance.** **CUE: Acknowledge request for emergency plan evaluation.**	Locate and open 1BwOA PRI-6 • Notify Shift Manager to evaluate for Emergency Plan conditions	SAT UNSAT N/A **Comments:**
Examiners note: RCP thermal barrier leakage will cause a high alarm on 1PR09J, Unit 1 CC Heat Exchanger Radiation Monitor and cause automatic closure of 1CC017, CC Surge Tank Vent Valve. If examinee begins to address the 1PR09J alarm, provide CUE: Another Operator will initiate actions in response to 1PR09J alarm.			
Examiners note: RCP thermal barrier leakage will cause annunciator 1-9-D3, CHG LINE FLOW HIGH/LOW. If examinee begins to address annunciator, provide CUE: Another Operator will perform actions in response to annunciator 1-9-D3.			
3.	Check surge tank level > 13% and increasing	Perform the following at 1PM06J: • Check CC Surge tank level: • 1LIT-670/676 • Determine CC surge tank level > 13% • Determine CC Surge tank level is rising • Go to 1BwOA PRI-6, Attachment B, step 1 • Determine CC Surge tank level is rising • Go to 1BwOA PRI-6, Attachment B, Step 5	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
4.	Check for leakage from RCP Thermal Barrier	Perform the following at 1PM05J/1PM06J: • Check for leakage from RCP Thermal Barrier: o Annunciator 1-7-E4 LIT • Determine annunciator 1-7-E4 LIT OR o Seal Injection Flows any abnormally high • Determine 1B RCP has abnormally high seal flows	SAT UNSAT N/A **Comments:**
5.	Check seal injection flow between 8 and 13 gpm per pump	Perform the following at 1PM05J: • Determine 1B RCP seal injection flow > 13 gpm • Adjust 1CV121 AND 1CV182 to obtain between 8 and 13 gpm seal injection flow per RCP (as possible)	SAT UNSAT N/A **Comments:**
6.	Check 1CC685 Closed	Perform the following at 1PM06J: • Check 1CC685 Closed • Determine 1CC685 is OPEN • Place control switch for 1CC685 to CLOSE	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
	Note: Alternate path begins here		
***7.**	**Isolate RCP thermal barrier leakage** **CUE: As US, acknowledge failure of 1CC685 to close.**	Perform the following at 1PM06J: • Determine 1CC685 did not close • Manually close 1CC9438	
***8.**	**Restore CC to unaffected RCPs by locally closing RCP Thermal Barrier CC outlet valve to isolate affected RCP** **CUE: SM desires affected RCP to be isolated.** **Note: Direct simulator booth operator to close 1CC9469B.** **Note: After simulator booth operator closes 1CC9469B, inform examinee time compression will be used and provide the following cue:** **CUE: As NLO, report 1CC9496B closed.**	Perform the following: Determine 1B RCP is affected RCP • Determine 1CC9569B closure required • Dispatch operator to enter Unit 1 Containment to locally close 1CC9496B • After 1CC9496B closed, reopen 1CC9438	SAT UNSAT N/A **Comments:**
9.	Check CC surge tank status **CUE: As NLO, acknowledge request to restore CC surge tank level.**	Perform the following: • Check CC surge tank level between 50% and 65% o Dispatch NLO to restore CC surge tank level between 50% and 65% in necessary	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable
10.	Refer to Tech Specs **CUE: As US, acknowledge T.S. 3.6.3 entry for 1CC685.** **Note: Tech spec 3.7.7 is NOT applicable**	Refer to Tech Specs • Determine Tech Spec 3.6.3 applies for 1CC685.	SAT UNSAT N/A **Comments:**
11.	Return to procedure and step in effect **CUE: Acknowledge report**	Perform the following: o Inform US 1BwOA PRI-6 actions complete	SAT UNSAT N/A **Comments:**

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Assist NSO.
2. Unit 1 is at 100% power.
3. Annunciator 1-7-E4 RCP THERM BARR CC WTR FLOW HIGH LOW has just alarmed.

INITIATING CUES:

1. Perform actions in response to annunciator 1-7-E4.
2. Inform the Unit Supervisor when you have completed actions in response to annunciator 1-7-E4.

SIMULATOR SETUP GUIDE:

- 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.
- Complete items on Simulator Ready for Training Checklist
- Place simulator in RUN.
- Run **caep SIM-801** from disk and verify the following actuate:
  - IMF CC09 231
  - IMF CC07B 20
  - IOR ZDI1CC685 OPEN
  - TRGSET 1 "ZDI1CC9438(1) == 1"
  - TRG 1 "DMF CC09"
- Verify 1BwOA PRI-6 place keeping marks are removed.
- To close 1CC9496B, perform the following:
  - Insert **IRF CC45 0**
- To drain CC surge tank, perform the following:
  - Insert **IRF CC15 100**(modify RF to 0 when desired level attained)
  - Insert **IRF CC16 100**(modify RF to 0 when desired level attained)
- If running the JPM repetitively, perform the following:
  - MRF CC45 50
  - Reset trigger 1
  - Restore RCP seal injection to normal band
  - Restore CC surge tank level to normal band
  - IMF CC09 231

COMMENTS:

- Provide copy of BwAR 1-7-E4, rev 51E2

TASK TITLE: **Perform Waste Gas Release Channel Checks**

JPM No.: **SIM-901** REV: **NRC2006301**
TPO No.: 4C.GW-01 K&A No.: 071000A4.25
TASK No.: R-GW-001, Perform gaseous release K&A IMP: 3.2/3.2

TRAINEE: _____ SRO

EVALUATOR: _____ DATE: _____

The Trainee: 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, Rev. 26, Gas Decay Tank Release Form

MATERIALS:

1. BwOP GW-500T1, Rev. 26, Gas Decay Tank Release Form completed through step D.17.

TASK STANDARDS:

1. Perform Gas Decay Tank pre-release channel checks in accordance with BwOP GW-500T1.
2. Operate the RM-11 for setpoint adjustment/testing.

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at full power.
3. 0PR02J, Gas Decay Tank Monitor, is operable.

INITIATING CUES:

1. The Unit Supervisor has directed you to perform a portion of the 0F Gas Decay Tank release package, completed through section D.17, and has directed you to complete steps D.18 through D.21. (**Cue: Hand examinee copy of procedure).** All previous sections of the release package have been successfully completed.
2. Inform the Unit Supervisor when you have completed steps D.18 through D.21.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Review BwOP GW-500T1	Review BwOP GW-500T1	SAT UNSAT N/A **Comments:**
2.	Select the High Alarm setpoint for 0PA202. (steps D.18 - 19.a)	Perform the following: • PLACE the RM-11 console in the SUPERVISOR mode o DEPRESS Grid 3 key • KEY in 0202 • DEPRESS the SEL key o VERIFY 0PA202 selected • DEPRESS CHAN ITEM key • KEY in 9 • DEPRESS the SEL key	SAT UNSAT N/A **Comments:**
Examiners 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: o Refer to step C.3.c o VERIFY/ENTER the new High Alarm setpoint from step C.3.c (6.06E-03) 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
4.	Select and enter the Alert Alarm setpoint for 0PA202. (step D.19.c) **CUE: Verification has been provided.**	Perform the following: o DEPRESS Grid 3 key o KEY in 0202 o DEPRESS the SEL key o VERIFY 0PA202 selected o DEPRESS CHAN ITEM key • KEY in 10 • DEPRESS the SEL key o Refer to step C.3.c o VERIFY/ENTER the new Alert Alarm setpoint 3.03E-03 o DEPRESS the ENTER key • VERIFY the new ALERT alarm setpoint is displayed o OBTAIN VERIFICATION	SAT UNSAT N/A **Comments:**

	PERFORMANCE STEP	STANDARD	Circle applicable

*5.	**Perform the following to 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%.
	
	CUE: Verification has been provided.
		Perform the following:
		• Contact the local operator to:
		  • Verify/Place 0GW014 C/S in OPEN
		  • Place 0GW014 controller to 100% open
		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: 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:**
Examiners note: The following procedure step is not required to be performed if 0PA202 is NOT in HIGH ALARM.			
7.	Verify/enter High Alarm setpoint for 0PB102 suggested by Health Physics is section C.3.c. (step D.20.b) **CUE: Verification has been provided.**	Perform the following: o Refer to step C.3.c o VERIFY/ENTER 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) **CUE: Verification has been provided.**	Perform the following: 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/ENTER 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.	**Perform the following to 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%.
	
	CUE: Verification has been provided.
		Perform the following:
		• Contact the local operator to:
		  • Verify/Place 0GW014 C/S in OPEN
		  • Place 0GW014 controller to 100% open
		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	• PLACE the RM-11 console in the NORMAL mode	SAT UNSAT N/A **Comments:**
11.	Inform US pre-release channel checks complete **CUE: Acknowledge report.**	Inform US steps D.18 through D.21 are completed	

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at full power.
3. 0PR02J, Gas Decay Tank Monitor, is operable.

INITIATING CUES:

1. The Unit Supervisor has directed you to perform a portion of the 0F Gas Decay Tank release package, completed through section D.17, and has directed you to complete steps D.18 through D.21. All previous sections of the release package have been successfully completed.
2. Inform the Unit Supervisor when you have completed steps D.18 through D.21.

SIMULATOR SETUP GUIDE:

- 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.
- 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 on the RM-11 console
- **AT CONCLUSION OF JPM(S), RESTORE 0PR02J MONITORED ITEMS ALARM SETPOINTS TO ORIGINAL AS FOUND VALUES**

COMMENTS:

Provide copy of BwOP GW-500T1, Rev. 26