

Perform Movable Control Assemblies Surveillance

TASK TITLE: **Perform Movable Control Assemblies Surveillance**

JPM No.: **SIM-102**
Task No.: R-RD-004
Objective: 4C.GP-04

Rev: **2014 NRC**
K&A No.: 00100A4.03
K&A IMP: 4.0/3.7

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **3, 5, 6, 7, 8**

APPROX COMPLETION TIME:
30 MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwOSR 3.1.4.2, UNIT ONE MOVABLE CONTROL ASSEMBLIES SURVEILLANCE, Rev 24.

MATERIALS:

- 1BwOSR 3.1.4.2, UNIT ONE MOVABLE CONTROL ASSEMBLIES SURVEILLANCE.

TASK STANDARDS:

- Perform rod movement verification of shutdown bank C rods.

TASK CONDITIONS:

- You are the Unit 1 NSO.
- Unit 1 is at 100% power.
- Maintenance was performed last shift to repair shutdown bank C rod control.

INITIATING CUES:

- The Unit 1 Unit Supervisor has directed you to perform 1BwOSR 3.1.4.2, Unit One Movable Control Assemblies Surveillance, for shutdown bank C rods.

CUE: Hand examinee copy of 1BwOSR 3.1.4.2.

- All Prerequisites, Precautions, Limitations & Actions of 1BwOSR 3.1.4.2 have been met.
- Another NSO will monitor the remainder of the Main Control Board panels and address alarms as necessary.
- Inform the Unit 1 Unit Supervisor when you have completed 1BwOSR 3.1.4.2 for shutdown bank C rods.

Perform Movable Control Assemblies Surveillance

RECORD START TIME: _____

NOTE: As examiner, role play as peer checker and concur with any recommendations from the examinee.

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	<p>Refer to 1BwOSR 3.1.4.2.</p> <ul style="list-style-type: none"> VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed (step F.2.1). <p>CUE: All Prerequisites, Precautions, Limitations and Actions have been met.</p>	<p>Refer to 1BwOSR 3.1.4.2.</p> <ul style="list-style-type: none"> VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Transfer Rod Control to Manual and Verify Tave is matched to Tref (step F.2.2).</p>	<p>Perform the following at 1PM05J:</p> <ul style="list-style-type: none"> Place the Rod Bank Select switch to the MAN position. Verify Tave matched to Tref. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*3.	<p>Select Shutdown Bank C with Rod Bank Select Switch.</p>	<ul style="list-style-type: none"> Place rod bank select switch in SBC. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
4.	<p>Record initial rod data.</p>	<p>Record initial group step counter readings (ARO park 228) and DRPI readings (228) for SBC on Table 1 (Page D-2).</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*5.	<p>Insert SBC one step</p> <p>CUE: As Unit Supervisor, acknowledge reports of annunciator due to rod motion as they occur (for 1-10-A7 ROD DEV POWER RNG TILT provide cue that the SER point 2153 Computer Rod Deviation Sequence is printed).</p> <p>(Failure: if examinee moves any other bank)</p>	<p>Place rod motion control switch to in and insert SBC to (ARO park 228 -1 = 227) steps on group step counter.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*6.	<p>Withdraw SBC to step 231</p> <p>Informational Note: 1BwGP 100-8 p. 35 limits outward rod motion to 3 continuous steps at a time.</p>	<ul style="list-style-type: none"> Place rod motion control switch to out and withdraw SBC to 231 steps on group step counter. Verify DRPI indicates ≥ 222. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

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	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*7	<p>Insert SBC 10-15 steps</p> <p>(Failure criteria: DRPI 210 light lit)</p>	<ul style="list-style-type: none"> • Place rod motion control switch to in and insert SBC 10-15 steps as indicated on the group step counter (far enough to cause a DRPI change of ≥ 10 steps). ○ Record the group step counter reading and the DRPI readings for SBC on Table 1 (Page D-2). ○ Verify each rod in SBC indicates movement ≥ 10 steps and record by checking the appropriate box. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*8	<p>Withdraw SBC to original position</p> <p>Note: If asked, COLR limit is > 224 steps.</p> <p>CUE: If examinee checks table 4-1 in curve book, inform examinee that the park position is 228 steps in table 4-1.</p>	<ul style="list-style-type: none"> • Place rod motion control switch to out and withdraw SBC to ARO park 228 steps on group step counter. ○ Record the final group step counter reading (ARO park 228) and DRPI readings (228) for SBC on Table 1 (Page D-2). ○ Verify SBC DRPI ≥ 222 steps. ○ Verify that all rods of SBC are at the initial position recorded on Table 1 (Page D-2). ○ Verify the SBC is within the limits specified in the COLR. ○ Complete Table 1 for the SBC within the insertion limits of the COLR by checking the appropriate box. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

Perform Movable Control Assemblies Surveillance

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
9.	<p>Rod Control Restoration. (step F.4).</p> <p>CUE: If asked, the Bank Overlap Counter has not changed since commencing this surveillance.</p> <p>NOTE: If examinee desires to N/A step F.4.1, give concurrence to do so.</p> <p>NOTE: If asked to perform independent verifications in the following steps, provide the following cue as asked:</p> <p>CUE: Verification has been provided.</p> <p>NOTE: If asked for desired alignment of rod control systems, provide the following cue:</p> <p>CUE: Unit Supervisor desires automatic rod control.</p> <p>CUE: All ductwork has been reinstalled.</p>	<p>Restore Rod Control as follows:</p> <ul style="list-style-type: none"> • Verify controlling Control Bank is in its original position. • Place the Rod Bank Select Switch to MANUAL. • Verify Low Power Interlock C-5 NOT LIT. • Obtain Independent Verification of C-5 NOT LIT. • Verify Tave/Tref deviation ≤ 1 °F. • Verify the following Annunciators are clear: <ul style="list-style-type: none"> • 1-10-A6, ROD BANK LO-2 INSERTION LIMIT. • 1-10-A7, ROD DEV POWER RNG TILT. • 1-10-B6, ROD BANK LOW INSERTION LIMIT. • Obtain Independent Verification that the above annunciators are clear. • Place the Rod Bank Select Switch to AUTO. • Obtain Independent Verification of Rod Bank Select Switch in AUTO. • Verify all required RD cabinet ductwork has been reinstalled. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
10.	<p>Acknowledge completion of surveillance, and terminate the JPM.</p>	<p>Inform the Unit 1 Unit Supervisor that you have completed 1BwOSR 3.1.4.2 for shutdown bank C rods.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Raise SI Accumulator level using a SI pump (NOP)

TASK TITLE: **Raise SI Accumulator level using a SI pump (NOP)**

JPM Number: **SIM-205**
TPO No.: 4C.SI-02
Task No.: R-SI-001, Fill the SI accumulators

Rev: **2014 NRC**
K&A No.: 006000A1.13
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: **(* 4, 6, 8, 9, 18, 19, 20, (** 14, 16**

Approx Completion Time: **23 MINUTES**

Critical Time: **55 minutes**

EVALUATION METHOD:

PERFORM
 SIMULATE

LOCATION:

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-5-C1, Rev. 13, ACCUM 1C LEVEL HIGH/LOW
2. BwOP SI-5, Rev. 29, Raising SI Accumulator Level with SI Pumps
3. TS 3.5.1

MATERIALS:

1. BwOP SI-5

TASK STANDARDS:

1. Restore Accumulator Level to within Tech. Spec. Limits.

TASK CONDITIONS:

1. You are the Unit 1 Extra NSO.
2. Both Units are at power.
3. All systems and controls are normal for the present conditions.
4. **This is a time critical JPM.**

INITIATING CUES:

1. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, has been lit for 10 minutes.
2. A valve misalignment on the 1C SI Accumulator has resulted in a low level. The valve misalignment has been corrected and an investigation is under way for the cause.
3. The 1C SI Accumulator has been declared inoperable, and the LCOAR was entered 5 minutes ago.
4. The US has directed you to raise the 1C accumulator level to >38% but within the Technical Specification limit. EOs have been briefed and are standing by as needed at the 1A SI pump.
5. Inform the US when 1C accumulator level has been restored.

Raise SI Accumulator level using a SI pump (NOP)

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	<p>Refer to BwAR 1-5-C1, "ACCUM 1C LEVEL HIGH LOW".</p> <p>CUE: If asked as US, confirm that the LCOAR (1BwOL 3.5.1) has been entered, and AAR (1BwOS SI-1a) is being reviewed.</p>	<p>Locate and Open BwAR 1-5-C1 and perform the following:</p> <ul style="list-style-type: none"> Monitor 1LI-954 and 955 to determine level is low. (L0954, 0953) Monitor 1PI-964 and 965 to determine pressure is stable. (P0964, 965) 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Refer to BwOP SI-5, "Raising SI Accumulator Level With SI Pumps."</p> <p>CUE: When student locates correct procedure, provide a copy if necessary. All Prerequisites, Precautions, Limitations and Actions are met.</p> <p>CUE: If asked: RWST recirc pump and purification loop are not running.</p> <p>CUE: If asked: RWST boron is 2315 ppm and has not been diluted since last sampled.</p>	<p>Locate and open BwOP SI-5, and check the Prerequisites, Precautions, Limitations and Actions.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

* **NOTE** *

* **1SI8806 and 1SI8813 are SVAG valves and are maintained deenergized;** *

* **their position may be verified by the Group 1 or 4 Readiness Lights,** *

* **SVAG Valve Status Lights or locally.** *

* *

3.	<p>Verify valve alignment.</p> <p>CUE: If asked to verify these valves locally, they are all OPEN.</p>	<p>At 1PM06J, Verify/OPEN:</p> <ul style="list-style-type: none"> 1SI8806 (SVAG) 1SI8923A 1SI8814 (deenergized) 1SI8813 (SVAG) 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*4.	<p>Align SI Pump to Accumulator fill header.</p>	<p>At 1PM06J, OPEN:</p> <ul style="list-style-type: none"> 1SI8888 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
5.	<p>Verify SI to Radwaste flowpath isolated.</p>	<p>At 1PM11J, Verify/CLOSE:</p> <ul style="list-style-type: none"> 1SI8964 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

Raise SI Accumulator level using a SI pump (NOP)

*6.	Align Accumulator for fill.	At 1PM06J, OPEN: <ul style="list-style-type: none"> • 1SI8871 	SAT UNSAT N/A <u>Comments:</u>
7.	Verify valve alignment.	At 1PM06J, Verify/OPEN: <ul style="list-style-type: none"> • 1SI8821A • 1SI8821B 	SAT UNSAT N/A <u>Comments:</u>
*8.	<p>Start the 1A SI Pump.</p> <p>NOTE: Student may elect to have an EO do a pre-start check of 1A SI pump prior to starting. If so, provide the following CUE:</p> <p>CUE: EO reports that the 1A SI Pump is ready for a start.</p>	<ul style="list-style-type: none"> • Take C/S to Start for the 1A SI Pump. ○ Check 1A SI Pump Run Light LIT. • Check pump amps. 	SAT UNSAT N/A <u>Comments:</u>
****NOTE: Alternate Path Begins Here****			
*9	<p>@ Stop the 1A SI pump.</p> <p>Note: The < 30 seconds standard represents a reasonable amount of time for the SI pump to run with high amps before tripping, the SI pump will auto trip at 30 seconds. If the 1A SI pump trips the examinee fails.</p> <p>CUE: After the examinee informs the US of the 1A SI pump being secured, the US can ask “What is your next course of action” or “What do you recommend”.</p> <p>CUE: When asked, the SI Accumulator is still required to be filled.</p> <p>CUE: When asked, the US concurs with using the 1B SI pump.</p>	<ul style="list-style-type: none"> • Takes C/S to Stop for the 1A SI Pump within 30 seconds of starting the 1A SI Pump. ○ Check 1A SI Pump Stop Light LIT. 	SAT UNSAT N/A <u>Comments:</u>
<p>EVALUATOR NOTE: Examinee could leave the valves lined up and go directly to step 17 of this JPM for the 1B SI Pump or the student could complete the procedure securing the lineup completely and then re-perform lineup the steps from the beginning using the 1B SI Pump, then steps 10-16 apply.</p>			
10.	Depressurize the fill header to less than 50 psig.	Depressurize the fill header to less than 50 psig by: <ul style="list-style-type: none"> • Open 1SI8964 • When SI pump discharge pressure is less than 50 psig, CLOSE 1SI8964. 	SAT UNSAT N/A <u>Comments:</u>

Raise SI Accumulator level using a SI pump (NOP)

11.	Verify 1A SI pump discharge to cold leg line up.	At 1PM06J Verify/OPEN: <ul style="list-style-type: none"> • 1SI8821A 	SAT UNSAT N/A <u>Comments:</u>
12.	Isolate 1A SI pump from Accumulator.	At 1PM06J, close Fill/Test line Isolation valves: <ul style="list-style-type: none"> • 1SI8871 • 1SI8888 	SAT UNSAT N/A <u>Comments:</u>
13.	Verify valve alignment for the 1B SI pump. CUE: If asked to verify these valves locally, they are all OPEN.	At 1PM06J, Verify/OPEN: <ul style="list-style-type: none"> • 1SI8806 (SVAG) • 1SI8923B • 1SI8920 (deenergized) • 1SI8813 (SVAG) 	SAT UNSAT N/A <u>Comments:</u>
**14.	Align SI Pump to Accumulator fill header. (May already be aligned)	At 1PM06J, OPEN: <ul style="list-style-type: none"> • 1SI8888 	SAT UNSAT N/A <u>Comments:</u>
15.	Verify SI to Radwaste flowpath isolated.	At 1PM11J, Verify/CLOSE: <ul style="list-style-type: none"> • 1SI8964 	SAT UNSAT N/A <u>Comments:</u>
**16.	Align Accumulator for fill. (May already be aligned)	At 1PM06J, OPEN: <ul style="list-style-type: none"> • 1SI8871 	SAT UNSAT N/A <u>Comments:</u>
17.	Verify valve alignment.	At 1PM06J, Verify/OPEN: <ul style="list-style-type: none"> • 1SI8821A • 1SI8821B 	SAT UNSAT N/A <u>Comments:</u>
*18.	Start the 1B SI Pump. NOTE: Student may elect to have an EO do a pre-start check of 1B SI pump prior to starting. If so, provide the following CUE: CUE: EO reports that the 1B SI Pump is ready for a start.	At 1PM06J: <ul style="list-style-type: none"> • Take C/S to Start for the 1B SI Pump. • Check 1B SI Pump Run Light LIT. • Check pump amps. 	SAT UNSAT N/A <u>Comments:</u>
*19.	Fill the 1C SI Accumulator.	At 1PM06J: <ul style="list-style-type: none"> • OPEN 1SI8878C ○ Monitor Accumulator Level. • Critical Time < 55 min from Start time to time level > 31%. 	SAT UNSAT N/A <u>Comments:</u>
NOTE: Time Accumulator level >31%. _____			

Raise SI Accumulator level using a SI pump (NOP)

*20.	Stop filling the 1C SI Accumulator CUE: Examiner can cue level is 48% when the alarm is clear for 1-5-C1, "ACCUM 1C LEVEL HIGH LOW".	At 1PM06J, CLOSE: <ul style="list-style-type: none"> • 1SI8878C when Accumulator Level reaches >38% but before exceeding 63%. 	SAT UNSAT N/A <u>Comments:</u>
21.	Stop 1B SI pump.	At 1PM06J: <ul style="list-style-type: none"> • Take C/S to Stop for the 1B SI Pump. • Check 1B SI Pump Stop Light LIT. 	SAT UNSAT N/A <u>Comments:</u>
22.	Depressurize the fill header to less than 50 psig.	At 1PM06J depressurize the fill header to less than 50 psig by: <ul style="list-style-type: none"> • Open 1SI8964 • When SI pump discharge pressure is less than 50 psig, CLOSE 1SI8964. 	SAT UNSAT N/A <u>Comments:</u>
23.	Isolate SI Pump from Accumulator.	At 1PM06J, close Fill/Test line Isolation valves: <ul style="list-style-type: none"> • 1SI8871 • 1SI8888 	SAT UNSAT N/A <u>Comments:</u>
24.	Inform US that it may be necessary to initiate 1BwOS SI-1A, and to contact chemistry for Accumulator samples, and exit LCOAR for level. CUE: US will evaluate need to perform 1BwOS SI-1a, will inform chemistry, and exit LCOAR.	Inform US of the following potential requirements: <ul style="list-style-type: none"> • 1BwOS SI-1a • Chemistry to sample the Accumulators for boron. • Exit LCOAR from Accumulator level. 	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Transfer to Cold Leg Recirculation

TASK TITLE: **Transfer to Cold Leg Recirculation**

JPM No.: **SIM-302**
TPO No.: 4D.EP-14
TASK No.: R-EP-015, Transfer ECCS to cold leg recirc

REV: **2014 NRC**
K&A No.: 011000EA1.11
K&A IMP: 4.2/4.2

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **2, 3, 6, 9**

APPROX COMPLETION TIME: **17 MINUTES**

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwEP ES-1.3, Rev. 202, Transfer to Cold Leg Recirculation.

MATERIALS:

- 1BwEP ES-1.3, Transfer to Cold Leg Recirculation.

TASK STANDARDS:

- Properly align components to establish Cold Leg Recirculation.

TASK CONDITIONS:

- You are an extra NSO.
- A Large Break LOCA has occurred.
- The Unit 1 RCS is depressurized.
- 1BwEP-1, Loss of Reactor or Secondary Coolant, is in progress.
- The Unit 1 RWST has reached the LO-2 Level setpoint.
- The 1A RH pump failed to manually and automatically start. 1A RH pump control switch is in PULL OUT.

INITIATING CUES:

- You have been directed to establish Cold Leg Recirculation per 1BwEP ES-1.3. The SM is evaluating EALs, and the Status Trees are being monitored.

Transfer to Cold Leg Recirculation

RECORD START TIME: _____

Note: If simulator is in Freeze, cue the Sim Operator to RUN when ready.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1BwEP ES-1.3. CUE: Hand examinee a copy of the procedure.	Locate and Open 1BwEP ES-1.3.	SAT UNSAT N/A Comments:
*2.	Establish CC flow to the RH Heat Exchangers.	Establish CC flow to the RH HXs as follows: <ul style="list-style-type: none"> ○ Check open 1CC9473A/B. ○ Check two CC pumps running. ○ OPEN 1CC9412A. ● OPEN 1CC9412B. ○ VERIFY CC to RH HX flows (1FI-0689/0688) > 5000 gpm. 	SAT UNSAT N/A Comments:
****Alternate Path Begins Here****			
*3.	Align RH pumps suction to Cnmt Sumps. CUE: If asked, operator is dispatched to 1A RH pump and breaker.	Align RH pumps suction to Cnmt Sumps as follows: <ul style="list-style-type: none"> ○ VERIFY Cnmt Floor water level \geq 8 inches on 1LI-PC006/007. ● Place both C/S for SVAG valves in close. ○ DETERMINE 1A RH pump is not running. ○ DETERMINE 1SI8811B did not open and GO TO Attachment A. 	SAT UNSAT N/A Comments:
4.	Determine RH Train A does not need to be aligned to the cnmt sump. CUE: If asked as operator dispatched to 1A RH pump breaker, report overcurrent trip.	DETERMINE RH Train A does NOT need to be aligned to the cnmt sump as follows: <ul style="list-style-type: none"> ● CHECK 1SI8811A Closed (determine it is OPEN). ● CLOSE 1SI8812A. ● Go to step 4 for the B RH Train 	SAT UNSAT N/A Comments:
5.	Determine RH Train B needs to be aligned to the Cnmt sump.	DETERMINE RH Train B needs to be aligned to the Cnmt Sump as follows: <ul style="list-style-type: none"> ● CHECK 1SI8811B CLOSED. ● CHECK 1B RH pump running. ● CHECK 1SI8811B Energized. 	SAT UNSAT N/A Comments:

Transfer to Cold Leg Recirculation

*6.	Manually align RH Train B to the Cnmt Sump.	<p>Manually align RH Train B to the Cnmt Sump as follows:</p> <ul style="list-style-type: none"> • PLACE 1B RH pump in PULL OUT. • CLOSE 1SI8812B. • PLACE 1B CS pump in PULL OUT. • CLOSE 1CS001B. • OPEN 1SI8811B. • RESTART 1B RH pump. • REOPEN 1CS001B. • RESTART 1B CS pump. 	SAT UNSAT N/A <u>Comments:</u>
7.	CHECK at least one Cnmt Sump Recirc Flow path established.	<p>DETERMINE 1B RH Train suction aligned to Cnmt Sump as follows:</p> <ul style="list-style-type: none"> • 1B RH pump RUNNING. • 1SI8811B OPEN. • VERIFY 1SI8812A CLOSED. • VERIFY 1SI8812B CLOSED. 	SAT UNSAT N/A <u>Comments:</u>
8.	Check SI and CV pumps in ECCS injection mode.	<p>CHECK SI and CV pumps in ECCS injection mode as follows:</p> <ul style="list-style-type: none"> ○ Any SI pump running or ○ 1SI8801A or B OPEN. 	SAT UNSAT N/A <u>Comments:</u>
*9.	Align SI and CV pumps for Cold Leg Recirculation.	<p>Align SI and CV pumps for Cold Leg Recirculation as follows:</p> <ul style="list-style-type: none"> ○ VERIFY/CLOSE 1CV8111 and 1CV8114. ○ VERIFY/CLOSE 1CV8110 and 1CV8116. • CLOSE 1SI8814 and 1SI8920 or CLOSE 1SI8813 • CLOSE 1RH8716A and B. • OPEN 1SI8807A or 1SI8807B. ○ OPEN 1SI8924. ○ Determine 1A RH pump NOT running. • DO NOT OPEN 1CV8804A. ○ CHECK 1B RH pump running. • OPEN 1SI8804B. 	SAT UNSAT N/A <u>Comments:</u>
10.	<p>Start ECCS pumps as necessary.</p> <p>NOTE: Failure criteria is if the examinee fails to establish cold leg recirculation before 9% RWST level.</p>	<p>VERIFY necessary ECCS pumps are running:</p> <ul style="list-style-type: none"> ○ CV pumps. ○ SI pumps. 	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

CD/CB Pump Trip

TASK TITLE: **CD/CB Pump Trip**

JPM No.: **SIM-416S**
Task No.: R-CD-003
Objective No.: 4C.CD-03

REV: **2014 NRC**
K&A No.: 056000A2.04
K&A IMP: 2.6/2.8

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **3, 4**

APPROX COMPLETION TIME: 10
MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwOA SEC-1, SECONDARY PUMP TRIP, Rev. 104.
- BwAR 1-17-A9, CD/CB PUMP TRIP, Rev. 6.

MATERIALS:

- 1BwOA SEC-1, SECONDARY PUMP TRIP.
- BwAR 1-17-A9, CD/CB PUMP TRIP.

TASK STANDARDS:

- Manually start the aux lube oil pump for the 1C CD/CB pump.
- Manually start the 1C CD/CB pump before the reactor trips.

TASK CONDITIONS:

- You are the Unit NSO.
- The Unit is at ~ 100% power.
- All controls are in automatic.

INITIATING CUES:

- After familiarizing yourself with current unit status, respond to changing conditions on 1PM03J and 1PM04J.

CD/CB Pump Trip

RECORD START TIME: _____

EVALUATOR NOTE: Record start time after student has had time to become familiar with conditions on 1PM03/4J. EVALUATOR NOTE: Cue the simulator operator when to trip the 1D CD/CB Pump.			
	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BWOA SEC-1, SECONDARY PUMP TRIP AND/OR BWAR 1-17-A9, CD/CB PUMP TRIP. CUE: When examinee locates correct procedure, provide copy. CUE: If informed, acknowledge 1D CD/CB pump trip as US.	Refer to 1BWOA SEC-1, SECONDARY PUMP TRIP AND/OR BWAR 1-17-A9, CD/CB PUMP TRIP. <ul style="list-style-type: none"> • Inform US of 1D CD/CB pump trip. 	SAT UNSAT N/A <u>Comments:</u>
2.	Check Turbine Load.	Perform the following at 1PM01J or DEHC. <ul style="list-style-type: none"> • Determine Main Turbine Load is greater than 700 MW. 	SAT UNSAT N/A <u>Comments:</u>
*3.	Start the aux oil pump for the standby CD/CB pump. CUE: If informed, acknowledge starting the 1C CD/CB aux oil pump as US.	Perform the following at 1PM03J: <ul style="list-style-type: none"> ○ Check 1C CD/CB pump running. • Start the aux lube oil pump for the 1C CD/CB pump. 	SAT UNSAT N/A <u>Comments:</u>
*4.	Start the standby CD/CB pump. CUE: If informed, acknowledge starting the 1C CD/CB pump as US. Note: Examinee fails the JPM if the reactor trips before the 1C CD/CB pump can be started.	Perform the following at 1PM03J: <ul style="list-style-type: none"> • Start the 1C CD/CB pump. 	SAT UNSAT N/A <u>Comments:</u>
5.	Check CD/CB flow restored.	Perform the following at 1PM03J and 1PM04J: <ul style="list-style-type: none"> • Determines at least three CD/CB pumps running. • Determine FW flow is greater than or equal to steam flow. 	SAT UNSAT N/A <u>Comments:</u>

CD/CB Pump Trip

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
6.	Check FW Pumps not cavitating. Note: Another NSO will complete this procedure.	Perform the following at 1PM03J and 1PM04J: <ul style="list-style-type: none"> • Close recirc valve 1CB113D. • Determine FW pump discharge flow is not oscillating. 	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Perform Start of 1A CS Pump for Post Maintenance Run

TASK TITLE: **Perform start of 1A CS Pump for Post Maintenance run**

JPM No.: **SIM-510**
TPO No.: 4C.CS-01
TASK No.: R-CS-010, Perform the recirc spray
subsystem pump test

REV: **2014 NRC**
K&A No.: 026000A4.01
K&A IMP: 4.5/4.3

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **2, 4, 5**

APPROX COMPLETION TIME: **10 MINUTES**

CRITICAL TIME: **N/A**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP CS-5, Rev. 20, Containment Spray System Recirculation to the RWST

MATERIALS:

1. BwOP CS-5

TASK STANDARDS:

1. Perform start of 1A CS pump.

TASK CONDITIONS:

1. You are the Assist NSO.
2. All conditions are normal for the current mode.
3. An EO is briefed and standing by at the 1A CS pump to assist in any in-plant operations.

INITIATING CUES:

1. The US has directed you to start the 1A CS pump in accordance with BwOP CS-5 to support a 5 minute post maintenance run for operability.

Perform Start of 1A CS Pump for Post Maintenance Run

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwOP CS-5. CUE: After student locates correct procedure, provide a copy. All Prerequisites, Precautions, Limitations and Actions have been met.	Locate and open BwOP CS-5.	SAT UNSAT N/A Comments:
*2.	Verify valve/equipment alignment per BwOP CS-5. CUE: If asked, as US acknowledge 1CS001A was closed and is investigation and to continue on with the procedure. CUE: As US, inform operator that LCOARs 1BwOL 3.6.6 and 3.6.7 are already entered. CUE: RWST purification pump is secured. CUE: RWST heating pump is secured.	Verify valve alignment: <ul style="list-style-type: none"> ○ VERIFY/CLOSE 1MOV-CS009A. ● OPEN 1MOV-CS001A. ○ VERIFY/CLOSE 1MOV-CS019A. ○ VERIFY/CLOSE 1MOV-CS007A. ○ VERIFY/STOP RWST purification per BwOP FC-8. ○ VERIFY/STOP RWST heating pump per BwOP SI-10. 	SAT UNSAT N/A Comments:
3.	Verify valve alignment per BwOP CS-5. CUE: 1CS040A is unlocked and closed CUE: 1SI001A is unlocked and open.	Direct local operator to: <ul style="list-style-type: none"> ● UNLOCK and CLOSE 1CS040A. ● UNLOCK and OPEN 1SI001A. 	SAT UNSAT N/A Comments:
*4.	Prepare to start 1A CS pump on recirc to the RWST. CUE: If asked, EO standing by to start the 1A CS pump.	Place 1A CS pump TEST Switch in the TEST position.	SAT UNSAT N/A Comments:
*5.	Start 1A CS pump.	Take the control switch for 1A CS pump to CLOSE.	SAT UNSAT N/A Comments:

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Synchronize 1A DG to Bus 141 and Respond to Gov. Adj. and Overspeed Trip Failures

TASK TITLE: **Synchronize 1A DG to Bus 141 and respond to Gov. Adj. and overspeed trip failures**

JPM No.: **SIM-608A**
TPO No.: 4C.DG-06
TASK No.: R-DG-015, Operate the EDG

REV: **NRC 2014**
K&A No.: 064000A3.05
K&A IMP: 2.8/2.9

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**

APPROX. COMPLETION TIME: **18 MINUTES**

CRITICAL TIME: NA

ALTERNATE PATH: YES

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwOSR 3.8.1.2-1, Rev. 36, Unit One 1A Diesel Generator Operability Surveillance

MATERIALS:

- 1BwOSR 3.8.1.2-1 (sections 1.0, 2.0, 4.0 completed).

TASK STANDARDS:

- Synchronize 1A Diesel Generator to bus 141 and respond to a failure of the Governor Adjust switch to prevent overspeeding the 1A DG..

TASK CONDITIONS:

- You are the extra NSO.
- All conditions are normal for current mode on Unit 1.
- 1BwOSR 3.8.1.2-1, Unit One 1A Diesel Generator Operability Surveillance, is in progress. The 1A Diesel Generator was SLOW started from the control room and 1BwOSR 3.8.1.2-1 is complete through step F.4.13.

INITIATING CUES:

- Using the partially completed procedure provided, you have been directed by the Unit Supervisor to complete Section F.5 of 1BwOSR 3.8.1.2-1.

Synchronize 1A DG to Bus 141 and Respond to Gov. Adj. and Overspeed Trip Failures

RECORD START TIME: _____

Note: Provide the partially completed copies of 1BwOSR 3.8.1.2-1 and BwOP DG-11T1 to the student. The examiner should have a stopwatch to time the examinee response in JPM step 4.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1BwOSR 3.8.1.2-1, 1A DG Operability Surveillance (step F.5).	Refer to copy of 1BwOSR 3.8.1.2-1 provided.	SAT UNSAT N/A <u>Comments:</u>
*2.	<p>Parallel and load the 1A Diesel Generator.</p> <p>CUE: If asked, this surveillance is NOT being performed in conjunction with the 24-hour load run of surveillance 1BwOSR 3.8.1.14-1.</p>	<p>Perform the following at 1PM01J:</p> <ul style="list-style-type: none"> ○ VERIFY DG Frequency ~60 Hz and Voltage ~4160 Volts. ○ VERIFY Approximately the same voltage exists across each phase using the DIESEL GEN VOLTMETER SELECT Switch. ● Turn Sync Selector Switch to ON for ACB 1413. ● Adjust Incoming (DG) voltage slightly higher (0-4.0 volts) than running voltage using the Volt Adj. Control. ● Adjust Generator Speed such that the synchroscope is rotating SLOWLY in the FAST direction using the Gov. Adj. Control. ● When the synchroscope is <u>slightly</u> before the 12 o'clock position, CLOSE ACB 1413. ○ Verify synchroscope "Locks in" at 12 o'clock position. ○ Immediately attempt to load the DG to 500 KW by going to RAISE on the <u>Gov Adj.</u> Control. 	SAT UNSAT N/A <u>Comments:</u>
****Alternate Path Begins Here****			

Synchronize 1A DG to Bus 141 and Respond to Gov. Adj. and Overspeed Trip Failures

*3.	<p>Open 1A D/G output breaker.</p> <p>NOTE: The governor is failed high and will continuously raise load speed on the 1A DG.</p>	<p>Determine that the 1A DG governor is failed high and opens the 1A DG output breaker:</p> <ul style="list-style-type: none"> • OPEN ACB 1413 ○ Inform US of problem encountered. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
	<p>NOTE: After breaker 1413 is opened, the 1A DG frequency will continue to rise. Annunciator 1-21-D8 DG 1A DIFF LOCKOUT/OVERSPEED will alarm.</p>		
*4.	<p>Respond to Annunciator 1-21-D8.</p> <p>CUE: When annunciator 1-21-D8 comes in or asked to locally depress the emergency stop pushbutton, report as the EO that you left the 1A DG room due to a rising unusual sound.</p> <p>Allow examinee up to 60 seconds to respond to the annunciator/stop the EDG. Use stopwatch to time the response from the time the annunciator 1-21-D8 alarms. If examinee does not trip the 1A DG 60 seconds after annunciator 1-21-D8 comes in, the examinee fails the critical task.</p>	<p>Pulls BwAR 1-21-D8:</p> <ul style="list-style-type: none"> ○ DETERMINE cause of alarm. ○ Verify ACB 1413 DG 1A Feed to 4 KV Bus 141, TRIPPED (previously opened). • TRIP Diesel Generator 1A. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Operate a Rad Monitor (Return to Service a VCT Cubicle Monitor)

TASK TITLE: **Operate a Rad Monitor (Return to service a VCT Cubicle Monitor)**

JPM No.: **SIM-711**
TPO No.: 4C.AR-03
TASK No.: R-AR-001, Operate the RM-11 Rad
Monitoring System

REV: **2014 NRC**
K&A No.: 072000A4.02
K&A IMP: 3.1/3.1

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **2, 3**

APPROX COMPLETION TIME: **9 MINUTES**

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP AR/PR-19, Rev. 4, ROUTINE SKID MOUNTED PROCESS RADIATION MONITOR OPERATIONS.

MATERIALS:

1. BwOP AR/PR-19, ROUTINE SKID MOUNTED PROCESS RADIATION MONITOR OPERATIONS.

TASK STANDARDS:

1. Change the Channel Service Status from "Out of Service" to "In Service" on the VCT Cubicle Rad Monitor, 1AR013J.

TASK CONDITIONS:

1. You are an extra NSO.
2. Both units are at full power with all systems normal for current plant conditions.
3. 1AR013J, VCT Cubicle Rad Monitor, was taken from "In Service" to "Out of Service" per BwOP AR/PR-19, ROUTINE SKID MOUNTED PROCESS RADIATION MONITOR OPERATIONS.

INITIATING CUES:

1. The US has directed you to restore the VCT Cubicle Rad Monitor, 1AR013J, to "In Service" per BwOP AR/PR-19, ROUTINE SKID MOUNTED PROCESS RADIATION MONITOR OPERATIONS.

Operate a Rad Monitor (Return to Service a VCT Cubicle Monitor)

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	<p>Refer to BwOP AR/PR-19.</p> <p>CUE: After the student locates correct procedure, provide a copy. All Prerequisites, Precautions, Limitations and Actions have been met.</p>	<p>Locate and open the following:</p> <ul style="list-style-type: none"> • BwOP AR/PR-19, Step F.11 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*2.	<p>Select 1AR013J skid on RM-11.</p> <p>Channel 4113 is entered. 1AR013J has white cursor surrounding it.</p>	<p>Select 1AR013J skid at the RM-11 keyboard as follows:</p> <ul style="list-style-type: none"> • PLACE the RM-11 in Supervisor mode. • SELECT grid 4 on the RM-11. • DEPRESS, in order, 4, 1, 1, 3. • DEPRESS SEL. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*3.	<p>Restore the VCT Cubicle Monitor, 1AR013J, to "In Service"</p> <p>Channel Item button pushed.</p> <p>16 inserted, Select pushbutton pushed.</p> <p>CUE: As US and Unit NSOs, acknowledge notification of expected RM-11 alarm.</p> <p>1 inserted, Enter button pushed.</p> <p>RM-11 in Normal mode.</p> <p>CUE: As US/NSO acknowledges report of VCT Cubicle Monitor is returned to service.</p>	<p>Return the VCT Cubicle Monitor to "In service" as follows:</p> <ul style="list-style-type: none"> • Push the CHANNEL ITEM button. • On the keypad, TYPE 16 and push the SELECT pushbutton. <ul style="list-style-type: none"> ○ Notify US and both Unit NSOs of expected alarm on the RM-11 due to next step. • On the keypad, TYPE 1 and PUSH the ENTER pushbutton. <ul style="list-style-type: none"> ○ PLACE the RM-11 to NORMAL mode. ○ Inform US/NSO VCT Cubicle Monitor is returned to service. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Respond to RCP Thermal Barrier Leak with CC Valve Failure

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

JPM No.: **SIM-801**
TPO No.: IV.D.OA-51
TASK No.: R-OA-061, Resp to a loss of CC to RCP oil/
thermal barrier coolers

REV: **NRC 2014**
K&A No.: 008000A4.01
K&A IMP: 3.3/3.1

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **5, 6**

APPROX COMPLETION TIME 10
MINUTES

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. 1BwOA PRI-6, Rev. 107, Component Cooling Malfunction
2. BwAR 1-7-E4, Rev. 51E2, RCP THERM BARR CC WTR FLOW HIGH LOW

MATERIALS:

None

TASK STANDARDS:

1. Determine RCS Thermal Barrier is leaking, and close 1CC685.
2. Isolate affected RCP thermal barrier, and restore CC cooling to unaffected thermal barriers

TASK CONDITIONS:

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

INITIATING CUES:

1. Respond to the annunciator alarm.

Respond to RCP Thermal Barrier Leak with CC Valve Failure

RECORD START TIME: _____

Note: Student may take the control switch for 1CC685 to CLOSE at any time (see step 5), when it is noted that the valve did not automatically close on high flow.

Note: Student may refer to BwAR 1-7-E4 which directs response per 1BWOA PRI-6 (below) and 1BWOA PRI-1. If student notes reference to 1BWOA PRI-1, provide the following CUE: Another Operator will initiate actions of 1BWOA PRI-1, you are to perform actions of 1BWOA PRI-6.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwAR 1-7-E4, which refers to 1BWOA PRI-6, Component Cooling Malfunction. CUE: If asked, All Operator Action Summary elements have been reviewed and NONE currently require action.	Refer to, Locate and Open 1BWOA PRI-6. ○ CLOSE 1CC685 (per BwAR automatic action) (will not close).	SAT UNSAT N/A Comments:
2.	Check surge tank level > 13% and rising.	Checks surge tank level: • 1LI-670/676. • Determines level > 13%. • Determines level is rising. • Goes to Attachment B, step 1 RNO. • Determines level is rising and goes to Step 5. ○ Responds to Alarm 1-2-A5, CC SURGE TANK LEVEL HIGH LOW.	SAT UNSAT N/A Comments:
3.	Checks for leakage from RCP Thermal Barrier.	Checks for leakage from RCP Thermal Barrier: • Annunciator 1-7-E4 LIT OR • Seal Injection Flows any abnormally high. • Determines 1B RCP has abnormally high seal injection flow.	SAT UNSAT N/A Comments:
4.	Check seal injection flow between 8 and 13 gpm per pump.	○ Attempts to adjust 1CV121 and 1CV182 to obtain between 8 and 13 gpm seal injection flow per RCP (as possible).	SAT UNSAT N/A Comments:
ALTERNATE PATH STARTS HERE			

Respond to RCP Thermal Barrier Leak with CC Valve Failure

*5.	<p>Check 1CC685 Closed.</p> <p>If notified 1CC685 will not close, CUE: SRO will evaluate for Tech Specs.</p>	<p>Determines corrective action to be taken:</p> <ul style="list-style-type: none"> ○ Checks 1CC685 CLOSED. ○ Takes control switch for 1CC685 to CLOSE. ● Manually closes 1CC9438. ○ Notifies SRO that 1CC685 is inoperable. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
	PERFORMANCE STEP	STANDARD	Circle applicable
*6.	<p>Restore CC to unaffected RCPs by locally closing RCP Thermal Barrier CC outlet valve to isolate affected RCP.</p> <p>CUE: If asked about re-opening the containment penetration possibly violating Tech Spec 3.6.3 action, report as SM that the penetration can be re-opened while a plant evaluation is being made.</p> <p>CUE: SM desires affected RCP to be isolated.</p> <p>CUE: Local operator reports 1CC9496B Closed.</p>	<ul style="list-style-type: none"> ● Dispatch operator to enter Cnmt and locally close 1CC9496B. ● After 1CC9496B is locally closed, reopen 1CC9438. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS: