# FINAL AS-ADMINISTERED WALKTHROUGH JPMS

# FOR THE BRAIDWOOD INITIAL EXAMINATION - OCTOBER 2001

JOB PERFORMANCE MEASURE

TASK TITLE: **Perform 50 PPM Boron Dilution with a Failure of 1CV111A**

JPM No.: **N-26** REV: 9

TPO No.: IV.C.CV-04 K&A No.: (004A4.07)

TASK No.: CV-003 K&A IMP: 3.9/3.7

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: **(*) 2-9** JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **30** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. BwOP CV-5, Rev. 13, Operation of the Reactor Makeup System in the Dilute/ Alternate Dilute/ Batch Dilution Mode.
2. BwCB Table 3-1, Rev. 3, pg 60, Boration/Dilution Tables for 557 deg F.
3. BwCB Figure 12, Rev. 2, Boron Dilution Rate Nomograph.
4. BwAR 1-9-B6, Rev. 5E3 "PW FLOW DEVIATION".

MATERIALS:

Calculator, and copies of reference procedures.

TASK STANDARDS:

1. Determine the amount and flow rate of PW necessary to lower boron concentration by 50 ppm over 1.0 hrs.
2. Initiate and secure a boron dilution of the RCS.
3. Respond to a PW Flow Deviation alarm.
4. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are the Unit 1 NSO. Unit 1 is in Mode 3 at 557 deg F with all plant systems and controls normal.
2. Recently calculated ECC =CB D @ 100 steps and Boron = 1465 ppm.
3. Recent Boron sample = 1515 ppm.
4. Cold Xenon Free boron = 1300 ppm; SDM Calculated for Xenon free = 1000 ppm.

INITIATING CUES:

1. US has directed you to dilute the RCS 50 ppm to the critical boron concentration over the next 1.0 hrs, using the normal automatic dilution flowpath.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

**RECORD START TIME** _____

**Note: Peer Checks may be asked for by the examinee, when this occurs, acknowledge the fact that a peer check has been requested and as the "peer checker" agree with everything the examinee does (i.e. do not coach through peer checking).**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to BwOP CV-5.<br><br>**(CUE: After examinee locates procedure, provide a copy. All Prerequisites, have been met.)** | Locate and Open BwOP CV-5. | ☐ | ☐ | ☐ |
| *2. | Determine the required number of gallons of Primary Water to add to accomplish a 50 ppm dilution from 1515 ppm to 1465 ppm RCS boron concentration.<br><br>**(Note: Current RCS Boron was given as a Task Condition.)** | DETERMINE the required amount of PW to accomplish a 50 ppm dilution of the RCS as follows:<br><br>o Determine current RCS boron concentration to be 1515 ppm.<br><br>• Using BwCB-1/2 Table 3-1 for 557 deg F, determine total number of gallons of PW to be added to be 2295-2326. | ☐ | ☐ | ☐ |
| *3. | Determine the desired PW Flowrate to be 38.25-38.8 gpm. | DETERMINE the desired Primary Water Flowrate as follows:<br><br>• Divide the total number of gallons determined in the previous step by 60 minutes. (38.25-38.8 gpm.) | ☐ | ☐ | ☐ |
| *4. | Adjust the Setpoint on 1FK-111, PW/Total Flow Control Pot to be 2.39-2.43.<br><br>**(Note: 16 gallons to the turn.)** | ADJUST the setpoint on 1FK-111, PW/Total Flow Control Pot to the desired flowrate:<br><br>• Divide the gpm flowrate by 16 to determine the setpoint on the pot.<br>• Adjust the setpoint to 2.39-2.43. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *5. Set the Primary Water Predet counter for the total number of gallons to be added. | Set the PW Predet counter, 1FY-0111, for the total number of gallons to be added as follows:<br>• HOLD the RESET pushbutton in the DEPRESSED position while OPENING the window.<br>• RELEASE the RESET pushbutton.<br>• SET the thumbwheels to between 2295 and 2326.<br>• HOLD the RESET pushbutton in the DEPRESSED position while CLOSING the window.<br>• RELEASE the RESET pushbutton. | ☐ | ☐ | ☐ |
| *6. Align the Makeup Control System Switches. | Align the Makeup Control Switches as follows:<br>• PLACE the MAKE-UP CONT Switch to STOP.<br>• PLACE the Make-up MODE SELECT switch in the DIL position. | ☐ | ☐ | ☐ |
| *7. Start the dilution of the RCS.<br>**(Note: The examinee may choose to divert letdown flow manually to the HUT and inform the RWO of his intent to divert flow and to monitor HUT levels. If so, provide acknowledgements.)** | Start the Dilution as follows:<br>• PLACE the MAKE-UP CONT Switch to the START position.<br>o VERIFY 1CV111B OPENS.<br>o VERIFY 1CV111A MODULATES OPEN.<br>o VERIFY 0PW02PA/B is in OPERATION.<br>o VERIFY proper PW/Total Flow on 1FR-110, Rx Make-up Flow recorder. | ☐ | ☐ | ☐ |

**Note: After the examinee has completed JPM step 7, cue the simulator operator to close 1CV111A per the instructions in the setup comments.**

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *8. Respond to PW Flow Deviation Alarm.<br><br>**(CUE: When examinee locates BwAR provide a copy.)**<br><br>**(CUE: As local operator, report IA to 1CV111A is isolated. As US acknowledge the report, and after the examinee recommends unisolating IA, direct recommencing the dilution after restoring IA.)** | Locate and Open BwAR 1-9-B6 and perform the following:<br>o 1CV110B CLOSES after 30 secs.<br>o 1CV111B CLOSES after 30 secs.<br>o VERIFY/START PW Make-up pump.<br>• DETERMINE reason for deviation to be closure of 1CV111A.<br>• DISPATCH operator to check condition of 1CV111A.<br>• Report findings to US. | ☐ | ☐ | ☐ |
| *9. Restore dilution line-up and restart the dilution of the RCS.<br><br>**(CUE: Cue the simulator operator to fix the air problem, then report as local operator that IA has been restored to 1CV111A.**<br><br>**After flow has been restored, conclude the JPM.)** | RESTORE Dilution line-up as follows:<br>• Direct local operator to restore IA.<br>• VERIFY/PLACE the MAKE-UP CONT Switch to the START position.<br>o VERIFY 1CV111B OPENS.<br>o VERIFY 1CV111A MODULATES OPEN.<br>o VERIFY 0PW02PA/B is in OPERATION.<br>o VERIFY proper PW/Total Flow on 1FR-110, Rx Make-up Flow recorder. | ☐ | ☐ | ☐ |

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Establish Automatic Pzr Level Control with Failed 1CV121**

JPM No.: **N-77** REV: 6

TPO No.: IV.C.GP-06 K&A No.: (011A4.04)

TASK No.: GP-053 K&A IMP: 3.2/2.9

TRAINEE: _____

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2,4 JPM TIME: _____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **8** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. 1BwGP 100-1, Rev. 15, Plant Heatup.

MATERIALS:

Copy of Step 62 of 1BwGP 100-1.

TASK STANDARDS:

1. Recognize and respond to a failure of the 1CV121 Controller while attempting to establish automatic Pzr Level control.
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. The Unit is at 100% power.
3. An hour ago, Pzr Level Channel 1LT-459 was restored from test.
4. Actual Level and Demanded Level have been matched for 16 minutes.

INITIATING CUES:

1. The US has directed you restore automatic pressurizer level control per the applicable portions of step 62 of 1BwGP 100-1.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

**RECORD START TIME** _____

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to 1BwGP 100-1 step 62.<br><br>**(CUE: After examinee locates procedure, provide a copy. All Prerequisites have been met.)** | Locate and Open 1BwGP 100-1 to step 62. | ☐ | ☐ | ☐ |
| *2. | Place Pressurizer Level control in Automatic. | Perform the following to establish automatic pressurizer level control:<br><br>o VERIFY/PLACE 1CV121 in MANUAL to match PZR actual level to demanded level.<br><br>o MAINTAIN PZR actual and demanded level equal for 10-15 minutes.<br><br>o VERIFY/PLACE 1LK-459, Master Pzr Level Controller in MANUAL.<br><br>• PLACE 1FK-121 (1CV121), in AUTO. | ☐ | ☐ | ☐ |
| 3. | Identify 1FK-121 (1CV121) failure. | Identify 1CV121 demand signal increasing to 100% and 1CV121 throttling to full open. | ☐ | ☐ | ☐ |
| *4. | Mitigate the pressurizer level transient caused by an increase in charging flow. | Perform the following to mitigate the failure of 1CV121:<br><br>• PLACE 1FK-121 (1CV121) in MANUAL.<br><br>• REDUCE demanded signal to throttle charging flow to maintain a stable pressurizer level at program value. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| 5. Inform US of 1CV121 controller failure. | Inform US of 1CV121 failure. | ☐ | ☐ | ☐ |

**(CUE: As US, acknowledge failure of 1CV121 and that you will inform maintenance.)**

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Decrease SI Accumulator Pressure**

JPM No.: **N-04** REV: 8

TPO No.: IV.C.SI-04 K&A No.:(006A4.02)

TASK No.: SI-003 K&A IMP: 4.0/3.8

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) **3, 5** JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **12** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. Bwar 1-5-B2, Rev. 6E3, ACCUM PRESS 1B HIGH LOW
2. BwOP SI-9, Rev. 8E7, Lowering SI Accumulator Pressure
3. ITS 3.5.1

MATERIALS:

None

TASK STANDARDS:

1. Return accumulator pressure to within the Tech Spec limits.
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. No personnel are currently inside Unit 1 Containment.

INITIATING CUES:

1. Annunciator 1-5-B2, "ACCUM 1B PRESS HIGH LOW", has just annunciated. The Unit Supervisor has directed you to correct the alarm condition. An Operator has been dispatched to check the nitrogen line-up per BwOP NT-9.
2. The cause for the abnormal pressure condition has been identified and corrected.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| **RECORD START TIME** _____ | | | | |
| 1. Refer to BwAR 1-5-B2. | Locate and Open BwAR for 1-5-B2. | ☐ | ☐ | ☐ |
| 2. Determine 1B SI Accumulator Pressure is High. | Determine 1B SI Accumulator Pressure is High:<br>• Monitor 1PI-962 and 963 (1B Pressure).<br>• Monitor 1LI-952 and 953 (1B Level).<br>o Check SER points 0602 and 2067 in alarm. | ☐ | ☐ | ☐ |
| *3. Enter LCOAR 1BwOL 3.5.1.<br>**(CUE: US enters LCOAR 1BwOL 3.5.1 and directs you to lower pressure to 625 psig.)** | Inform the US to enter LCOAR 1BwOL 3.5.1 due to High pressure in the 1B SI Accumulator. | ☐ | ☐ | ☐ |
| 4. Refer to BwOP SI-9 "Lowering SI Accumulator Pressure."<br>**(Note: After examinee locates correct procedure, provide a copy. Since there are no "Personnel in Containment" signs posted, there is no one in containment. Precautions listed under BwOP SI-9, D.2 are not applicable. Performing step F.2 is unacceptable due to RCS pressure > 1000 psig which requires all accumulators operable. If examinee opens more than one 1SI8875 valve at the same time, conclude the JPM, and mark as FAILED.)** | Locate and Open BwOP SI-9. After reviewing the Prerequisites, Precautions, and Limitations and Actions, determine step F.1 applies. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *5. Lower 1B SI Accumulator Pressure.<br><br>**(CUE: If asked as local operator about the status of the nitrogen line-up, report the line-up is correct. If the examinee suspects check valve back leakage and reports this to the US, acknowledge it.)** | Perform the following to lower 1B SI Accumulator Pressure to 625 psig.<br>o Verify/Close 1AOV-SI8880, N2 Supply Isol Vlv.<br>o Verify/Close 1SIHCV943, Vent cont Vlv.<br>• Open 1AOV-SI8875B, SI Accumulator 1B Vent Vlv.<br>• Throttle Open 1SIHCV943, Vent Cont Vlv.<br>o Monitor SI Accumulator 1B pressure indicators.<br>• Close 1AOV-SI8875B, SI Accumulator 1B Vent Vlv when pressure 620-630 psig.<br>o Close 1SIHCV943, Vent Control Valve. | ☐ | ☐ | ☐ |
| 6. Exit LCOAR 1BwOL 3.5.1.<br><br>**(CUE: US acknowledges pressure restored and exits LCOAR.** | Inform US that pressure is within the Tech Spec limit, the alarm cleared, and the LCOAR (1BwOL 3.5.1) may be exited. | ☐ | ☐ | ☐ |

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Perform start of 1A CS Pump for Surveillance Test**

JPM No.: **N-123a** REV: 2

TPO No.: IV.C.CS-01 K&A No.: (026A4.01)

TASK No.: CS-010 K&A IMP: 4.5/4.3

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2, 3, 5, 6 JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **13** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. 1BwVSR 5.5.8.CS.1 Rev. 3, ASME surveillance Requirements for 1A Containment Spray Pump and Check Valves 1CS003A, 1CS011A
2. BwOP CS-5, Rev. 11, Containment Spray system Recirculation to the RWST

MATERIALS:

Partially completed copy of 1BwVSR 5.5.8.CS.1 (completed through step F.1.4.)

TASK STANDARDS:

1. Perform start of 1A CS pump.
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. The Unit is at 100% power.
3. Unit 2 is at 100% power.
4. Local operator standing by at 1A CS pump to assist in any in-plant operations.

INITIATING CUES:

1. The US has directed you to start 1A CS pump in accordance with BwOP CS-5 to support 1BwVSR 5.5.8.CS.1 step F.1.5. (1A CS pump ASME surveillance)
2. Engineering is standing by with a stop watch.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

**Note: Provide a copy of surveillance 1BwVSR 5.5.8.CS.1 completed through step F.1.4 to the examinee.**

**RECORD START TIME** _____

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to 1BwVSR 5.5.8.CS.1.<br><br>**(CUE: After locating BwOP CS-5, provide a copy. All Prerequisites have been met. If asked as local operator, 1A CS pump is ready for a start.)** | Refer to 1BwVSR 5.5.8.CS.1, and Locate and Open BwOP CS-5. | ☐ | ☐ | ☐ |
| *2. | Verify valve alignment per BwOP CS-5.<br><br>**(CUE: As US acknowledge entry into LCOARs 1BwOL 3.6.6 and 3.6.7)** | Enter LCOARs 1BwOL 3.6.6 and 3.6.7.<br><br>VERIFY/CLOSE:<br>o 1MOV CS009A<br><br>VERIFY/OPEN:<br>o 1MOV CS001A<br><br>VERIFY/CLOSE:<br>o 1MOV CS019A<br>o 1MOV CS007A | ☐ | ☐ | ☐ |
| | **(CUE: As local operator, unlock and close 1CS040A; and Unlock and open 1SI001A.)** | Direct local operator to:<br>UNLOCK and CLOSE:<br>• 1CS040A<br><br>UNLOCK and OPEN:<br>• 1SI001A | | | |
| *3. | Prepare to start 1A CS pump on recirc to the RWST.<br><br>**(CUE: Engineering is ready with stop watch.** | Place 1A CS pump TEST Switch in the TEST position. | ☐ | ☐ | ☐ |
| 4. | Attempt start 1A CS pump. | Take the control switch for 1A CS pump to START. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *5. Identify failure of 1A CS pump to start.<br><br>(CUE: As US acknowledge the pump failure and cue simulator operator to release override of control switch.<br><br>Then, as US, cue examinee to evaluate the failure as to whether it should count as a start with respect to starting duties.<br>After this evaluation, as US, direct the examinee to make another attempt.) | • Identify 1A CS pump failure to start and inform US.<br><br>o Failure does NOT count as start for starting duty purposes. (No current flow, no trip light). | ☐ | ☐ | ☐ |
| *6. Start 1A CS pump on recirc.<br><br>(Cue: As US acknowledge report.) | START 1A CS pump by performing the following:<br>• Start switch to start, then normal after start.<br>o Report successful start to US. | ☐ | ☐ | ☐ |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Operate a Rad Monitor (Disable Incore Seal Table Monitor Audible Alarm)**

JPM No.: **N-69C** REV: 1

TPO No.: IV.C.AR-03 K&A No.: (073A4.02)

TASK No.: AR-001 K&A IMP: 3.7/3.7

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2, 3 JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **8** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. BwOP IC-9, Rev. 0, Movable Incore Detector Operation.

MATERIALS:

Copy of BwOP IC-9.

TASK STANDARDS:

1. Disable the audible alarm of the Incore Seal Table Radiation Monitor.
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are an extra NSO.
2. Both units are at power with all systems normal.
3. System Engineering Dept. (SED) is performing 1BwVS TRM 3.3.a.1, and needs the Incore Seal Table Rad Monitor audible alarm disabled.

INITIATING CUES:

1. The US has directed you to disable the audible alarm of the Incore Seal Table Rad Monitor for Unit 1 per step 1 of BwOP IC-9, Movable Incore Detector Operation.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| **RECORD START TIME** _____ | | | | |
| 1. Refer to BwOP IC-9 or BwVS TRM 3.3.a.1.<br><br>**(CUE: After examinee locates correct procedure, provide a copy. All Prerequisites have been met.)** | Locate and open the following:<br>• BwOP IC-9, Step 1. | ☐ | ☐ | ☐ |

**Note: Provide cues only if JPM NOT performed in the simulator.**

| | | | | |
|---|---|---|---|---|
| *2. Select 1AR014JJ skid on RM-11.<br><br>**(CUE: RM-11 is in Supervisor mode.** | Select 1AR014J skid at the RM-11 keyboard as follows:<br>• PLACE the RM-11 in Supervisor mode by depressing the Supervisor/Normal button and verifying the Supervisor half backlights. | ☐ | ☐ | ☐ |
| **Grid 4 is on screen.** | • DEPRESS grid 4 pushbutton. | | | |
| **Channel 4303 is entered.** | • DEPRESS, in order, 4, 3, 0, 3. | | | |
| **1AR014J has white cursor surrounding it.)** | • DEPRESS SEL. | | | |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *3. Disable the audible alarm for the Incore Seal Table Rad Monitor. | Disable the audible alarm for the Incore Seal Table Rad Monitor as follows: | ☐ | ☐ | ☐ |
| (CUE: **Channel Item button pushed.** | • With channel 4303 selected, push the CHANNEL ITEM button. | | | |
| **16 inserted, Select button pushed.** | • On the keypad, insert 16 and push the SELECT button. | | | |
| **As US and Unit NSO acknowledge notification of expected RM-11 alarm.** | o Notify US and Unit NSO of expected alarm on the RM-11 due to next step. | | | |
| **0 inserted, Enter button pushed.** | • On the keypad insert 0 and push the ENTER button. | | | |
| (Note: **If the examinee asks why the RM-11 did not provide an audible alarm, inform the examinee that the alarm has been disabled in order to conduct JPMs without distracting other examinees.)** | | | | |
| **RM-11 in Normal mode.** | • PLACE the RM-11 in the Normal mode. | | | |
| **As US/NSO acknowledge report of audible alarm disabled.** | • Inform US/NSO audible Alarm for Incore Seal Table Rad Monitor is disabled. | | | |

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Use Containment Mini-purge to Reduce Containment Pressure.**

JPM No.: **N-161** REV: 0

TPO No.: III.C.VP-09-A K&A No.: (029A1.03)

TASK No.: VQ-006 K&A IMP: 3.0 / 3.3

TRAINEE: _____

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 3, 4 JPM TIME: _____ MINUTES

CRITICAL TIME: **N/A** APPROX COMPLETION TIME **30** MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. BwOP VQ-6, Containment Mini-purge system Operation, Rev. 12.

MATERIALS: Copy of BwOP VQ-6.

TASK STANDARDS:

1. Reduce containment pressure to < 0.3 psig, without exceeding the Tech Spec limit of -0.1 psig, by utilizing the mini-purge system.
2. Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. All plant systems and controls are normal for the current plant conditions.

INITIATING CUES:

1. Containment pressure is +0.5 psig, and Hydrogen concentration is increasing.
2. It is desired to reduce containment pressure to < +0.3 psig, and then sample for hydrogen in preparation for a containment entry next shift.
3. The US has directed you to use the Containment Mini-purge system to reduce containment pressure to NOT LESS THAN -0.1 psig per BwOP VQ-6 utilizing the mini purge exhaust fan.
4. Radiation Protection has been notified and is aware of the purpose of the venting. BwRP 6110-13T1 has been approved by the Shift Manager.

**NOTE: Hand partially competed (through D.2.b) copy of BwRP 6110-13T1 to examinee.**

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

**RECORD START TIME** _____

**Note: Once examinee locates BwOP VQ-6, provide a copy and cue examinee that all prerequisites, precautions and limitations and actions have been met.**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to BwOP VQ-6, "Containment Mini-purge System Operation."<br><br>**(CUE: If asked as US, confirm that the system E and M line-ups are appropriately aligned, RP will not be changing 1PR01J filters, the cavity is not flooded up, and the requirements of spec 3.6.3 are met.)** | Locate and Open BwOP VQ-6 and perform the following:<br>• Review Prerequisites<br>• Review Precautions<br>• Review Limitations and Actions<br>• Determine steps 1-3, 8 and 9 are applicable to this evolution. | ☐ | ☐ | ☐ |
| 2. | Verify the requirements of BwRP 6110-13T1 are met."<br><br>**(CUE: Initiating Cues provided SM approved BwRP 6110-13T1. If called to check fume hood fan, report it is running. The exh fan may be checked on the MCB.)** | Verify the requirements of BwRP 6110-13T1 are met:<br>• SM has approved BwRP 6110-13T1.<br>• Either 0VA02CA/B (VA Exh Fan )A/B Trn 0A) or 0VL02CA/B (Fume Hood Exh Fan 0A/B) is in operation. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *3. Perform damper alignment.<br><br>(CUE: **If asked to verify these valves locally, the ones outside containment are all OPEN.**<br><br>**If asked for a local check of the fan, report they are ready to start, and after starting report conditions normal.**<br><br>**If asked as Unit supervisor if the mini purge exhaust fan is to be used, reply yes.**<br><br>**As SM, acknowledge the commencement of the release.**<br>**If asked for a purge flow rate report 3700 cfm.)** | Perform the following to align the dampers and start the venting of containment:<br>• OPEN 1AOV-VQ005A, Mini-Flow Prg Exh Inside Isol Vlv.<br>• OPEN 1AOV-VQ005B, Mini-Flow Prg Exh Outside Isol Vlv.<br>• OPEN 1AOV-VQ05C, Mini-Flow Prg Exh Outside Isol Vlv.<br>• RECORD time valves were opened on BwRP 6110-13T1. (D.2.d)<br>• START 1VQ05C, Cnmt Mini-Flow Prg Exh Fan.<br>• RECORD start time of fan on BwRP 6110-13T1. (D.2.e)<br>o Record purge flowrate on BwRP 6110-13T1. (D.2.f)<br>o Monitor Containment pressure. | ☐ | ☐ | ☐ |
| *4. Stop the Containment venting after pressure is < +0.3 psig, but before it is < -0.1 psig. | Secure the Mini-Flow Purge Exhaust Fan as follows:<br>• STOP 1VQ05C, Cnmt Min-Flow Prg Exh Fan.<br>• RECORD fan stop time on BwRP 6110-13T1. (D.2.g)<br>• CLOSE 1AOV-VQ005A, min-Flow Prg Exh Inside Isol vlv.<br>• CLOSE 1AOV-VQ005B, min-Flow Prg Exh Outside Isol Vlv.<br>• CLOSE 1AOV-VQ005C, Min-Flow Prg Exh Outside Isol Vlv.<br>• RECORD valve closure time on BwRP 6110-13T1. (D.2.h)<br>o RECORD Containment final pressure on BwRP 6110-13T1. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| 5. Report Containment venting complete and ready to re-sample for Hydrogen to SM.<br><br>**(CUE: Acknowledge reports.)** | Report the following to the SM:<br><br>• Containment Vent complete.<br>• Ready to sample again for hydrogen. | ☐ | ☐ | ☐ |

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Respond to increasing level in the RCDT.**

JPM No.: **N-162** REV: 0

TPO No.: III.C.RY-11 K&A No.: (068A2.04)

TASK No.: RY-008 K&A IMP: 3.3 / 3.3

TRAINEE: _____

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 3, 4 JPM TIME: _____ MINUTES

CRITICAL TIME: **N/A** APPROX COMPLETION TIME 6 MINUTES

EVALUATION METHOD:
__X__ PERFORM
_____ SIMULATE

LOCATION:
_____ IN PLANT
__X__ SIMULATOR

GENERAL REFERENCES:

1. BwAR 0RE01J-1-A1, Rev. 6, REACTOR COOLANT DRAIN TANK LEVEL UNIT 1 HIGH LOW
2. BwAR 1-9-E5, Rev. 5E1, BA/GW/RE LOCAL PANEL TROUBLE
3. BwOP RE-1, Rev 9. REACTOR COOLANT DRAIN TANK PUMP OPERATION

MATERIALS: Copy of BwAR 0RE01J-1-A1, BwAR 1-9-E5, 1BwOA RCP-1, and BwOP RE-1.

TASK STANDARDS:

1. Return Unit 1 RCDT level to within limits.
2. Demonstrates the use of good Core Work Practices.

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. All plant systems and controls are normal for the current plant conditions.

INITIATING CUES:

1. Annunciator 1-9-E5 has been lit for 10 minutes. Report from the Rad Waste Panel Operator indicates a high level in the U-1 RCDT.
2. 1BwOA RCP-1 has been entered for a seal problem on 1B RCP. The applicable steps from 1-14 have been completed.
3. The US has directed you to align both RCDT pumps for automatic operation in accordance with BwOP RE-1 to lower RCDT level to normal at a maximum rate.

| PERFORMANCE CHECKLIST | STANDARD | SAT | UNSAT | N/A |
|---|---|---|---|---|

**RECORD START TIME** _____

| | | | | |
|---|---|---|---|---|
| 1. Refer to BwOP RE-1.<br><br>**(CUE: After locating BwOP RE-1, provide a copy.**<br><br>**If asked, the Prerequisites are all met.)**<br><br>**(CUE: If asked as RWO, confirm level in U-1 RCDT is 92% and slowing increasing.)** | Locate and Open BwOP RE-1. | ☐ | ☐ | ☐ |
| 2. Align RCDT pumps for Automatic Operation.<br><br>**(CUE: Local operator reports local control switch for 1RE-9170 is in Auto.** | Perform the following to align 1A and 1B RCDT pumps for automatic operation:<br><br>• Dispatch operator to PLACE 1AOV-RE9170 Local Control Switch in AUTO.<br><br>• VERIFY/OPEN 1AOV-RE9170, RCDT pump discharge Cnmt Outboard Isol Vlv at 1PM11J. | ☐ | ☐ | ☐ |
| *3. Align RCDT pumps for Automatic Operation.<br><br>**(CUE: Local operator reports local control switch for 1RE1003 is in AUTO.)** | Perform the following:<br><br>o Dispatch operator to PLACE 1AOV-RE1003 Local Control Switch in AUTO.<br><br>• OPEN 1AOV-RE1003 at 1PM11J. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARD | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *4. Align RCDT pumps for Automatic Operation. | Perform the following to align 1A and 1B RCDT pumps for automatic operation: | ☐ | ☐ | ☐ |
| (CUE: Local operator reports the transfer switches for 1A and 1B RCDT pumps are in remote at 0RE01J. | o Dispatch operator to PLACE 1A and 1B RCDT pump transfer switches in REMOTE at 0RE01J. | | | |
| Local operator reports the local control switches, RE01PA/B, for 1A and 1B RCDT pumps are in AUTO at 0RE01J. | o Dispatch operator to PLACE 1A and 1B RCDT pump local control switches in AUTO at 0RE01J. | | | |
| | • PLACE 1A and 1B RCDT pump control switches in AUTO at 1PM05J. | | | |
| 5. Check RCDT pumps for Automatic Operation. | Perform the following to check 1A and 1B RCDT pumps for automatic operation: | ☐ | ☐ | ☐ |
| | • VERIFY both RCDT pumps start at 1PM05J. | | | |
| (CUE: As RWO acknowledge RCDT being pumped down and level is decreasing. | • Contact RWO to verify RCDT level decreasing. | | | |
| As US acknowledge RCDT being pumped down.) Local operator reports local control switch for 1RE-9170 is in Auto. | | | | |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Local Operation of a S/G PORV**

JPM No.: **N-83** REV: 8

TPO No.: IV.C.MS-06 K&A No.: (041A4.06)

TASK No.: MS-002 K&A IMP: 2.9/3.1

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: **(*) 2, 4-7** JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **35** MINUTES

EVALUATION METHOD:

_____ PERFORM
__X__ SIMULATE

LOCATION:

__X__ IN PLANT
_____ SIMULATOR

GENERAL REFERENCES:

1. BwOP MS-6, Rev. 8; Local Operation of the Steam Generator Power Operated Relief Valves.

MATERIALS:

1. FZ Key to unlock Hand Pump Extender Tool Box, and sound powered phones.
2. Copy of BwOP MS-6.
3. Turn out gear per BwOP MS-6 (Ice vest or steam suit or FP turnout gear).

TASK STANDARDS:

1. Correctly open 2A S/G PORV (2MS018A).
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are an equipment operator.
2. The Unit NSO is unable to operate the 2A S/G PORV (2MS018A) from the control room or remote shutdown panel.

INITIATING CUES:

1. You have been directed to open 2A S/G PORV (2MS018A) 25% locally per BwOP MS-6. An equipment operator is standing by at MCC 231X2B.
2. It is expected to be very hot, with the potential for escaping steam at the Porv.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

RECORD START TIME _____

**Note: Proper safety precautions must be adhered to. The examinee must be able to locate the turnout gear, but does not have to don it (at the examiner's discretion.) It is also necessary to wear the proper hearing protection when locally operating the S/G Porvs. Failure of the examinee to recognize PPE requirements shall result in JPM failure. An exit route should be pre-planned.**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to BwOP MS-6 and gather necessary materials and make preparations.<br><br>**(CUE: After examinee locates procedure, provide a copy. After examinee locates turnout gear and sound powered phone with cord, provide a cue that there is a phone at the local site.)** | Locate and OPEN BwOP MS-6 and locate the following equipment:<br>• FZ Key for hand pump extender tool box.<br>o FP Turnout Gear.<br>• Sound powered phone and cord.<br>• Hearing Protection. | ☐ | ☐ | ☐ |

**Examiner's Note: The procedure provides options for de-energizing the hydraulic pump for the porv. When encountered, cue the examinee that the Shift Manager wants the breaker open for the pump.**

| | | | | | |
|---|---|---|---|---|---|
| *2. | De-energize the hydraulic pump for the 2A S/G PORV, 2MS018A.<br><br>**(CUE: SM directs step 2.a. be performed. The EA reports that he has opened the breaker.)** | De-energize the hydraulic pump for 2MS018A as follows:<br>• Contact the EA at MCC231X2B and have him OPEN the breaker at compartment B1-A. | ☐ | ☐ | ☐ |
| 3. | Establish communications with the control room.<br><br>**(CUE: Communications have been established.)** | Establish communications with the control room. | ☐ | ☐ | ☐ |
| *4. | Align valves for local operation.<br><br>**(Note: These valves are on top of the PORV.)**<br><br>**(CUE: 2MS185A is OPEN. 2MS186A is OPEN. 2MS187A is OPEN.)** | Align valves for local operation by OPENING:<br>• 2MS185A<br>• 2MS186A<br>• 2MS187A | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *5. Equalize pressure.<br><br>(Note: The gages are located above the hand pump. The phillips head screw holding a washer does not have to be manipulated. It is there to prevent backing the allen screws out too far.)<br><br>(CUE: Setscrews are loosened.)<br><br>Pressures are equalized on all 3 gages.<br><br>Setscrews are tightened.) | Perform the following at the handpump:<br><br>• Loosen the two setscrews on the hand pump.<br>• When pressure is equalized on 1PI-MS195, 196 and 197, tighten setscrews. | ☐ | ☐ | ☐ |
| *6. Position valve handle to OPEN position.<br><br>(Note: Examinee must indicate that the handle must point to the OPEN label on the side of the pump.)<br><br>(CUE: Handle is in open position.) | Turn 3 position valve handle from the NEUTRAL position to the OPEN position. | ☐ | ☐ | ☐ |

**Note: The next step will simulate opening the PORV. The PPE requirements apply. An exit route needs to be pre-planned/mentioned by the examinee prior to initiating the next step. The door to the switchyard will open from the inside without using the card reader and will be the most likely pre-planned escape route.**

| | | | | |
|---|---|---|---|---|
| *7. Operate the hand pump to open 2MS018A to 25% open position.<br><br>(CUE: 2MS018A is open to the 25% open position. Another EA will take over now.) | Operate the hand pump to OPEN 2MS018A to the 25 % OPEN position as directed by the control room.<br><br>• Escape route pre-planned before porv opened. | ☐ | ☐ | ☐ |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Determine the Status of a DC Bus**

JPM No.: **N-31** REV: 5

TPO No.: IV.D.OA-23 K&A No.: (058AA1.03)

TASK No.: OA-007 K&A IMP: 3.1/3.3

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: **(*) 5-7,9-11** JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **20** MINUTES

EVALUATION METHOD:

_____ PERFORM
__X__ SIMULATE

LOCATION:

__X__ IN PLANT
_____ SIMULATOR

GENERAL REFERENCES:

1. 2BwOA ELEC-1, Rev. 55A, Loss of DC Bus Unit 2.

MATERIALS:

1. 2BwOA ELEC-1, Loss of DC Bus, Steps 15 and 16.
2. Multi-meter, Screwdriver, Fuse Puller, Low Voltage Gloves.
3. Pictures of the insides of the DC bus. Laser pointer.

TASK STANDARDS:

1. De-energize DC Bus and Verify DC Bus voltage is zero.
2. Check DC Bus resistance.
3. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are the the U-2 Equipment Operator.
2. 2BwOA ELEC-1, Loss of DC Bus is in progress and Step 14 has just been completed.
3. Unit 1 is at 100% power.

INITIATING CUES:

1. The SM has directed you to perform 2BwOA ELEC-1 for DC Bus 211 starting at step 15 to determine the status of DC Bus 211. EMD personnel are available to perform meggering.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|

**RECORD START TIME** _____

**Note: After the examinee has located the procedure, provide a copy. Prompt the use of a laser pointer to show the location of actions that would break the plane of any electrical cabinet or panel. LV gloves must be obtained by the examinee.**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Refer to 2BwOA ELEC-1, Loss of DC Bus. | Locate and Open 2BwOA ELEC-1, Loss of DC Bus. | ☐ | ☐ | ☐ |
| 2. | Locally verify battery main feed breaker not opened inadvertently.<br>**(CUE: Bkr is tripped open, no one is in the area. Bkr appears damaged.)** | CHECK 125 VDC Feed from Battery 211 (Cub AF2) not opened inadvertently. | ☐ | ☐ | ☐ |
| 3. | Obtain equipment. | Obtain equipment:<br>• Multi-meter<br>• Fuse Puller<br>• Screwdriver<br>• Low Voltage gloves (prior to cabinet entry). | ☐ | ☐ | ☐ |
| 4. | Verify DC Bus feed breakers open. | VERIFY the following breakers OPEN:<br>• Bus Tie Breaker to 125V DC Bus 111 (Cub DF1).<br>• 125V DC Feed from Battery 211 (Cub AF2). | ☐ | ☐ | ☐ |
| *5. | Open all load breakers.<br>**(CUE: After examinee simulates moving the switches to open, cue that they are open.)** | OPEN the following load breakers:<br>• DC Bus 211 (BF1)<br>• DC Bus 211 (BR1)<br>• DC Bus 213 (EF1)<br>• DC Bus 213 (ER1) | ☐ | ☐ | ☐ |

**Note: Pictures of the inside of the panels are available for use to avoid opening panels with exposed circuits for JPM steps 6 and 7.**

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *6. Using the appropriate PPE, remove the MCB voltmeter fuses.<br><br>(CUE: **As fuses are located, they are removed.** | Using LV gloves and the fuse puller REMOVE the MCB voltmeter fuses from cub CF1:<br>• FU3<br>• FU4 | ☐ | ☐ | ☐ |
| *7. Check DC Bus 211 voltage zero.<br><br>(CUE: **Multi-meter selected to proper setting, indicates zero volts.** | CHECK DC Bus 211 Voltage zero:<br>• Positive Lead on L1 (Cub CF1).<br>• Negative Lead on L2 (Cub CF1). | ☐ | ☐ | ☐ |
| 8. Inform EMD that bus can be meggered.<br><br>(CUE: **EMD reports resistance between L1 and L2 is > 500k ohms; resistance between L1 and ground is > 250k ohms; and resistance between L2 and ground is > 250k ohms.)** | Request EMD to megger DC Bus 211 at the following points:<br>• Resistance between L1 and L2.<br>• Resistance between L1 and ground.<br>• Resistance between L2 and ground. | ☐ | ☐ | ☐ |

**Note: Prior to reinstalling fuses, examinee may check them with the VOM. The VOM should be on Resistance (ohms), cue for good fuse is 0, bad fuse is infinite.**

| | | | | |
|---|---|---|---|---|
| *9. Using proper PPE, reinstall MCB voltmeter fuses for DC bus 211.<br><br>(CUE: **Fuses are reinstalled.)** | Using LV gloves, reinstall MCB Voltmeter fuses (Cub CF1):<br>• FU3<br>• FU4 | ☐ | ☐ | ☐ |
| *10. Check power available to DC Bus 211. | Check power available to DC Bus 211 as follows: | | | |
| (CUE: **Battery voltage is zero.** | • Place voltmeter switch (Cub CF1) to BAT<br>• Read battery voltage on BUS/CHGR VOLTMETER (2EI-DC009) > 110 volts. | ☐ | ☐ | ☐ |
| **Battery Charger voltage is zero.** | • Check Battery charger voltage (2EI-DC030) > 110 volts. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| *11. Determine Bus 211 must be energized from Bus 111.<br><br>(CUE: **As US acknowledge recommendation to cross tie bus 211 to 111. Another EO will perform the crosstie.**) | Determine bus 211 must be energized from bus 111 and report to US:<br><br>• Bus megger SAT.<br>• No power available from battery, or charger.<br>• Recommend cross tie. | ☐ | ☐ | ☐ |

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS:

JOB PERFORMANCE MEASURE

TASK TITLE: **Local Emergency Start of the 2B Aux FW Pump from 2AF03J**

JPM No.: **N-56A** REV: 1

TPO No.: IV.C.AF-02 K&A No.: (013A4.01)

TASK No.: AF-002 K&A IMP: 4.5/4.8

TRAINEE:_____

EVALUATOR:_____ DATE:_____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 8 JPM TIME:_____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME **28** MINUTES

EVALUATION METHOD:

_____ PERFORM
__X__ SIMULATE

LOCATION:

__X__ IN PLANT
_____ SIMULATOR

GENERAL REFERENCES:

1. BwOP AF-7, Rev. 16, Auxiliary Feedwater Pump B (Diesel) Startup on Recirc.
2. BwOP AF-7T1 Rev. 0E1, Diesel Driven Auxiliary Feedwater Pump Operating Log.

MATERIALS:

Copy of BwOP AF-7, and BwOP AF-7T1.

TASK STANDARDS:

1. Perform a local emergency start of 2B AFW pump.
2. Demonstrates the use of good Core Work Practices (CWP).

TASK CONDITIONS:

1. You are a Unit 2 Safe Shutdown Operator.
2. Unit 2 has just tripped in conjunction with an electrical fire in Unit 2 Remote Shutdown Panel.
3. 2A AFW pump is OOS for maintenance.
4. 2B AFW pump did not auto start, nor will it manually start with either the MCR switch or the Remote Shutdown Panel switch.

INITIATING CUES:

1. The US has directed you to perform a local emergency start of the 2B AFW pump using BwOP AF-7. All Prerequisites have been met, and steps 1-9 are complete.

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| **RECORD START TIME** _____ | | | | |
| 1. Refer to BwOP AF-7.<br><br>**(CUE: After examinee locates procedure, provide a copy.)** | Locate and Open BwOP AF-7. | ☐ | ☐ | ☐ |
| 2. Perform actions at 2AF01J.<br><br>**(CUE: Reset pushbutton has been depressed.**<br><br>**Select Switch is in Auto.**<br><br>**Ready to Start light is lit.**<br><br>**Governor switch is off.)** | Perform the following at 2AF01J:<br>• PUSH the Reset Pushbutton to clear circuit.<br>• VERIFY the Select Switch is in AUTO position.<br>• VERIFY "Ready to Start" light is LIT.<br>• VERIFY Diesel Governor Switch is in OFF position. | ☐ | ☐ | ☐ |
| 3. Verify the Air Box Trip is reset.<br><br>**(CUE: Air Box Trip annunciator is not lit.**<br><br>**Air Box Trip lever is in normal position.)** | VERIFY the Air Box Trip is Reset as follows:<br>o CHECK "AIR BOX TRIP" annunciator NOT LIT.<br>o Air Box Trip Lever (on back side of engine) in Normal position. | ☐ | ☐ | ☐ |
| 4. Start Lube Oil systems.<br><br>**(CUE: Gear box lube oil pump control switch is in start.**<br><br>**Aux lube oil pump control switch is in start.**<br><br>**After examinee locates inlet and outlet pressure gages, indicate that the inlet is 28 psig, and the outlet is 26 psig.)** | START Lube Oil Auxiliary Systems as follows at the local control panel:<br>• Aux FW Pp 2B Gear Box Lube Oil Pp, 2AF01PB-C.<br>• Aux FW Pp 2B Lube Oil Pp, 2AF01PB-A.<br>• VERIFY Lube Oil Filter Differential Pressure is < 4 psid. | ☐ | ☐ | ☐ |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| 5. Align AFW system discharge flowpath.<br><br>(CUE: **As US, direct that neither step 15 nor 16 need be performed.)** | ALIGN 2B AFW pump discharge flowpath in accordance with US direction:<br>• Contact US to determine if CLOSURE of B Train 2MOV-AF013s or 2AOV-AF004B will be necessary. | ☐ | ☐ | ☐ |
| 6. Attempt start 2B AFW pump locally.<br><br>(CUE: **Engine start switch is in Manual and the 'Ready to Start light' is not lit.**<br><br>**Start pushbutton is being depressed and held. Engine start noises are NOT heard/NOT cranking.**<br><br>**Alternate battery bank is selected.**<br>**Reset PB is pushed.**<br>**Start PB depressed and held, but no cranking noises heard.**<br>**If asked as US, acknowledge failure to start and re-emphasize I need that AFW pump running ASAP and to continue attempts to get AFW restored.** | Attempt START 2B AFW Pump locally at 2AF01J as follows:<br>• PLACE the Engine Start Control Switch to MANUAL.<br><br>• DEPRESS and HOLD the START pushbutton.<br><br>• SELECT Alternate Battery bank.<br>• PUSH the RESET pushbutton.<br>• DEPRESS and HOLD the START pushbutton. | ☐ | ☐ | ☐ |

**Note: From initiating cues and task conditions, the examinee should determine he should skip the rest of step 17, all of step 18 and 19, and go to step 20 of BwOP AF-7.**

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| 7. Prepare to start 2B AFW pump from 2AF03J (at 364' M-16 or M-18). | Prepare to start 2B AFW pump from 2AF03J as follows: | ☐ | ☐ | ☐ |
| (Note: **Examinee may decide to not dispatch an operator to the 2B AFW pump since the examinee is already there.)** | o DISPATCH an operator to inspect 2AF01PB (2B AFW pump).<br>o Report incoming alarm at 2-3-B6, "AF PUMP AUTO START at 2PM06J to the MCR. | | | |
| (CUE: **As local operator, acknowledge being dispatched to 2B AFW pump.**<br>**As U2 NSO acknowledge incoming alarm.)** | | | | |

**Note: If an operator was dispatched to the 2B AFW pump in the previous step, then prior to attempting the start of the 2B AFW pump from the 364' elevation, the examinee should alert this operator to the upcoming start attempt.**

| | | | | |
|---|---|---|---|---|
| *8. Start 2B AFW pump. | Start 2B AFW pump by performing the following: | ☐ | ☐ | ☐ |
| (CUE: **After simulating rotating the switch, provide cue that the switch is in the selected position.** | o PLACE 2HS-AF157 in the START Position.<br>OR<br>o PLACE 2HS-AF157 in the START WITH BYPASS Position.<br>THEN | | | |
| **Running light is lit.)** | • VERIFY the RUNNING Light at 2HS-AF157 is Lit. | | | |

**Note: The examinee may ask the operator he dispatched to check the recirc flow. If this happens, then cue the examinee that the operator was called away to perform another task.**

| | | | | |
|---|---|---|---|---|
| 9. Verify AFW pump recirc flow ≥ 85 gpm. | VERIFY Recirc Flow is ≥ 85 GPM on 2FI-AF096. | ☐ | ☐ | ☐ |
| (CUE: **After locating gage, indicate flow at 87 gpm.)** | | | | |

| PERFORMANCE CHECKLIST | STANDARDS | SAT | UNSAT | N/A |
|---|---|---|---|---|
| 10. Verify cooling flow adequate. | VERIFY SX Cooling flow adequate as follows: | ☐ | ☐ | ☐ |

**(CUE: After valves are located, cue that the position indicator is making contact with the limit switch.**

- VERIFY 2AOV-SX173 OPEN.
- VERIFY 2AOV-SX178 OPEN.

**After locating Engine Oil temp,indicate 160.**

- MONITOR Engine Oil Temperature $\leq$ 220 deg F.

**After locating Oil Clr Outlet Temp, indicate 110.**

- MONITOR Oil Cooler Outlet Temperature 40-128 deg F.

**After locating Gear Changer Oil Clr Outlet Temp, indicate 110.**

- MONITOR Gear Changer Oil Cooler Outlet Temperature 40-130 deg F.

**Provide copy of BwOP AF-7T1 for initiation, then after time, date, and number of cranks logged, inform the examinee that another operator is now on the scene and will monitor operation and take readings on the logsheet.)**

- INITIATE BwOP AF-7T1 with today's date, current time, and number of cranks if known before start.

**The # of cranks would only be known if the examinee had another operator at the engine when the start occurred. If the operator did, then cue that the # of cranks was 1.**

**(CUE:) THIS COMPLETES THIS JPM.**

**RECORD STOP TIME** _____

COMMENTS: