

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

JPM No.: **SIM-106**

TPO No.: IV.C.CV-04

TASK No.: R-CV-003, Perform Boron Dilution of RCS

REV: 04 NRC REV 0

K&A No.: 004A4.07

K&A IMP: 3.9/3.7

TRAINEE: _____

RO SRO SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) **2, 5-9**

PM TIME: _____

CRITICAL TIME: **NA**

APPROX COMPLETION TIME **23** MINUTES

EVALUATION METHOD:

LOCATION:

PERFORM
 SIMULATE

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP CV-5, Rev. 19, 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°F.
3. BwCB Figure 12, Rev. 2, Boron Dilution Rate Nomograph.
4. BwAR 1-9-B6, Rev. 5E3 "PW FLOW DEVIATION".

MATERIALS:

1. 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 a dilution of the RCS.
3. Respond to a PW Flow Deviation alarm.

TASK CONDITIONS:

1. You are the Unit 1 NSO. Unit 1 is in Mode 3 at 557°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 60 minutes, using the normal dilution flowpath.

RECORD START TIME _____

| Performance Step | Standard | Circle Applicable SAT UNSAT N/A <u>Comments:</u> |
|---|---|--|
| <p>1. Refer to BwOP CV-5.</p> <p>(CUE: After examinee locates procedure, provide a copy. All Prerequisites have been met.)</p> <p>(CUE: If asked, operator has permission to turn on Back up heaters.</p> <p>(CUE: Chemistry has been informed.)</p> | <ul style="list-style-type: none"> • Locate and Open BwOP CV-5. ○ May turn on PZR Backup heaters. ○ May lower setpoint on 1CV112A controller to divert at lower value. • Reviews precautions and limitations. • Notifies chemistry to evaluate the effects of the dilution on RCS chemistry. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>*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. F.1.O.1), 2), 3) a)</p> <p>(Note: Current RCS Boron was given as a Task Condition.)</p> | <p>DETERMINE the required amount of PW to accomplish a 50 ppm dilution of the RCS as follows:</p> <ul style="list-style-type: none"> • Determine current RCS boron concentration to be 1515 ppm. • Using BwCB-1/2 Table 3-1 for 557°F, determine total number of gallons of PW to be added to be 2295-2326. (2303) | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>3. Determine the desired PW Flowrate to be 38.25-38.8 gpm. (F.2)</p> | <p>DETERMINE the desired Primary Water Flowrate as follows:</p> <ul style="list-style-type: none"> • Divide the total number of gallons determined in the previous step by 60 minutes. Range should be 38.3-38.8 gpm. (38.4) | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>4. Adjust the Setpoint on 1FK-111, PW/Total Flow Control Pot to be 2.39-2.43. (F.3)</p> <p>(Note: PW flow divided by 16)</p> | <p>ADJUST the setpoint on 1FK-111, PW/Total Flow Control Pot to the desired flowrate:</p> <ul style="list-style-type: none"> • Divide the gpm flowrate by 16 to determine the setpoint on the pot. • Adjust the setpoint to 2.39-2.43 (2.4). | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

| Performance Step | Standard | Circle Applicable |
|--|---|-----------------------------------|
| *5. Set the Primary Water Predet counter for the total number of gallons to be added. (2295-2326) (F.4) | Set the PW Predet counter, 1FY-0111, for the total number of gallons to be added as follows: <ul style="list-style-type: none"> HOLD the RESET pushbutton in the DEPRESSED position while OPENING the window. RELEASE the RESET pushbutton. SET the thumbwheels to between 1836-1861 (1842). HOLD the RESET pushbutton in the DEPRESSED position while CLOSING the window. RELEASE the RESET pushbutton. | SAT UNSAT N/A Comments: |
| *6. Align the Makeup Control System Switches. (F.5, F.6) | Align the Makeup Control Switches as follows: <ul style="list-style-type: none"> PLACE the MAKE-UP CONT Switch to STOP. PLACE the Make-up MODE SELECT switch in the DIL position. | SAT UNSAT N/A Comments: |
| *7. Start the dilution of the RCS. (F.7) | Start the Dilution as follows: <ul style="list-style-type: none"> PLACE the MAKE-UP CONT Switch to the START position. | SAT UNSAT N/A Comments: |
| **BEGIN ALTERNATE PATH** | | |
| <p>*8. Verify that the following occurs. (F.8)/Respond to PW Flow Deviation Alarm.</p> <p>**NOTE: PW FLOW DEVIATION 1-9-B6 may not be present due to examinee placing the MAKE UP CONTROL SWITCH TO STOP (alarm takes 30 seconds to come in) when 1CV111B fails to open. IF this is the case, after examinee informs US of the problem refer to the note and cue below.</p> <p>NOTE: After examinee has informed US or Reactivity manager of problem and when ready, inform Sim operator to delete override on 1CV111A. if the MU control switch is in start, 1CV111A will auto open, 1CV111B will remain closed.</p> <p>(CUE: As US inform examinee that a local operator has found IA to 1CV111A isolated and has restored IA. It is desired to restore the dilution lineup and continue dilution of the RCS. A CR will be written.</p> | <ul style="list-style-type: none"> ○ VERIFY 1CV111B OPENS. ● VERIFIES that 1CV111A FAILS TO OPEN. ● Informs US or Reactivity manager of problem. ○ VERIFY 0PW02PA/B is in OPERATION. ○ Notices improper PW/Total Flow on 1FR-110, Rx Make-up Flow recorder. ○ Examinee may place MAKE UP CONT Switch to STOP immediately. <p>**Locate and Open BwAR 1-9-B6 and performs the following:</p> <ul style="list-style-type: none"> ○ Verifies 1CV110B CLOSES after 30 secs. ● Verifies 1CV111B CLOSES after 30 secs. ○ VERIFY/START PW Make-up pump. ○ Determines reason is due to 1CV111A failing to open. ○ DISPATCH operator to check condition of 1CV111A. ○ Informs US of BwAR actions | SAT UNSAT N/A Comments: |

| Performance Step | Standard | Circle Applicable |
|---|--|--|
| *9. Restore dilution line-up and restart the dilution of the RCS. | <p>RESTORE Dilution line-up as follows:</p> <ul style="list-style-type: none"> • Must place the MU CONTROL SWITCH to STOP (NOTE: This may have been done previously) • VERIFY/PLACE the MAKE-UP CONT Switch to the START position. • VERIFY 1CV111B OPENS. • VERIFY 1CV111A MODULATES OPEN. ○ VERIFY 0PW02PA/B is in OPERATION. • VERIFY proper PW/Total Flow on 1FR-110, Rx Make-up Flow recorder. ○ PW Flow Deviation annunciator may alarm due to the low flow rate. If this occurs operator should follow BwAR response and continue the dilution manually. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

After approximately 20 gallons of Primary Water have been added:
 (CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 NSO. Unit 1 is in Mode 3 at 557°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 60 minutes, using the normal dilution flowpath.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM 106

REQUIRED SIMULATOR MODE(S): Mode 3, 557°F, NOP. (IC 10)

MALFUNCTION #'S: N/A

Preload:

1. On SDG CV 4: IOR ZDI1CV111A CLS

COMMENTS:

- 1) Set 1FK-110 for 1515 ppm, 6.5 turns.
- 2) Report as local operator IA appears to be isolated to 1CV111A. Delete override at examiner's cue. Report IA restored to 1CV111A; (On Summary: delete override ZDI1CV111A).

Exam Material

Task Title: **Raise SI Accumulator Level with 1B SI pump (NOP)**

JPM Number: **SIM-203**

TPO No.: IV.C.SI-02

Task No.: R-SI-001, Fill the SI accumulators

REV 04 NRC REV 0

K&A No.: 006A1.13

K&A Imp.: 3.5/3.7

TRAINEE: _____

RO SRO SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

Time Start: _____

FAILED _____

Time Finish: _____

JPM Time: _____

Critical Elements: (*) **4, 6, 8, 9**

Approx. Completion Time: **30 minutes**

Critical Time: **30 Minutes**

Evaluation Method:

Location:

PERFORM

_____ IN PLANT

_____ SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-5-C1, Rev. 8E2, ACCUM 1C LEVEL HIGH/LOW
2. BwOP SI-5, Rev. 22, Raising SI Accumulator Level with SI Pumps
3. BwOP SI-9 Rev .9, Lowering SI Accumulator Pressure
4. TS 3.5.1

MATERIALS:

1. Marked up copy of 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. No personnel are in Unit 1 Containment.
5. **This is a time critical JPM.**

INITIATING CUES:

1. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, has been lit for 30 minutes.
2. A valve misalignment on the 1C SI Accumulator has resulted in a lowered 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 30 minutes ago.
4. The US has directed you to raise the 1C accumulator level to > 38% but within the Technical Specification limit by using the 1B SI pump (due to Sys. Engineering request for opportunity to gather data). NLOs have been briefed and are standing by as needed. **(CUE: Provide examinee with marked up copy of BwOP SI-5 and SI-9, inform examinee that the time critical portion will begin when he states that he understands this cue.)**

RECORD START TIME: _____

Notes: Critical JPM time is from START TIME until Accumulator is > 31%. Step Numbers are in parenthesis.

| PERFORMANCE STEP | STANDARD | Circle applicable |
|--|---|---|
| **BEGIN TIME CRITICAL PORTION** | | |
| 1. Refer to BwAR 1-5-C1, "ACCUM 1C LEVEL HIGH LOW" NOTE: Examinee may skip reviewing BwAR since this alarm came in 30 minutes ago and actions are being taken to correct this alarm. (CUE: If asked as US, confirm that the LCOAR (1BwOL 3.5.1) has been entered, and AAR (1BwOS SI-1a) is being reviewed.) | Locate and Open BwAR 1-5-C1 and perform the following: <ul style="list-style-type: none"> ○ Monitor 1LI-954 and 955 to determine level is low. ○ Monitor 1PI-964 and 965 to determine pressure is stable. | SAT UNSAT N/A <u>Comments:</u> |
| 2. Refer to BwOP SI-5, "Raising SI Accumulator Level With SI Pumps" and BwOP SI-9 Lowering SI Accumulator Pressure, Prerequisites, precautions and Limitations. (CUE: When BwOP SI-5 prerequisites are reviewed inform examinee: all prerequisites are met.) Do NOT provide this cue for BwOP SI-9. (CUE: U1 RWST recirc pump and purification loop are not running.) (CUE: If asked, U1 RWST was sampled yesterday, Boron Concentration 2350 ppm, no dilution has occurred. | Locate and Open BwOP SI-5, and check the following: Reviews Prerequisites. Reviews Precautions. Limitations and: <ul style="list-style-type: none"> • Asks status of U1 RWST Recirc pp and RWST purification loop. ○ May ask when the RWST was last sampled and if any dilutions have occurred. | SAT UNSAT N/A <u>Comments:</u> |
| 3. Verify valve alignment. (F.1, 2, 3, 4) (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 • 1SI8813 (SVAG) | SAT UNSAT N/A <u>Comments:</u> |
| *4. Align 1B SI Pump to Accumulator fill header. (F. 5) | At 1PM06J, OPEN: <ul style="list-style-type: none"> • 1SI8888 | SAT UNSAT N/A <u>Comments:</u> |
| 5. Verify SI to Radwaste flowpath isolated. (F.6) | At 1PM11J, Verify/CLOSE: <ul style="list-style-type: none"> • 1SI8964 | SAT UNSAT N/A <u>Comments:</u> |
| *6. Align Accumulator for fill. (F.7) | At 1PM06J, OPEN: <ul style="list-style-type: none"> • 1SI8871 | SAT UNSAT N/A <u>Comments:</u> |
| 7. Verify valve alignment. (F.9.a. 1), 2)) | At 1PM06J, Verify/OPEN: <ul style="list-style-type: none"> • 1SI8821A • 1SI8821B | SAT UNSAT N/A <u>Comments:</u> |

| PERFORMANCE STEP | STANDARD | Circle applicable |
|---|--|--|
| *8. Start the 1B SI Pump. (F.9.a. 3)) (CUE: If asked, a NLO is standing by the 1B SI pump, report that all personnel are clear of the 1B SI pump and it is ready for a start) | <ul style="list-style-type: none"> ○ Makes announcement. ○ Contacts local operators to ensure 1B SI pump is ready for start. ● 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> |
| *9. Fill the 1C SI Accumulator. (F.9.a. 4)) (Note: Time Accumulator level > 31%: _____) Verify this time is less than 30 minutes after the JPM start time. (CUE: When 1C Low Level alarm clears: Inform examinee that for the purposes of this JPM, level is at the desired point.) | <ul style="list-style-type: none"> ● At 1PM06J. OPEN 1SI8878C. ○ Monitor Accumulator Level. ● Critical Time < 30 min from Start time to time level > 31%. | SAT UNSAT N/A <u>Comments:</u> |
| **END TIME CRITICAL PORTION** | | |
| 10. Stop filling 1C SI Accumulator. (F.9.a. 5)) | At 1PM06J, CLOSE: ● 1SI8878C | SAT UNSAT N/A <u>Comments:</u> |
| 11. Stop 1B SI pump (F.9.a. 6)) | <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> |
| 12. Depressurize the fill header to less than 50 psig. (F.9.a. 7), 8)) | Depressurize the fill header to less than 50 psig by: <ul style="list-style-type: none"> ● Opening 1SI8964. ● Monitoring 1B SI pump discharge header pressure (1PI-919/923). ● When pressure is less than 50 psig, CLOSE 1SI8964. | SAT UNSAT N/A <u>Comments:</u> |
| 14. Isolate SI Pump from Accumulator. (F.11, 12) | At 1PM06J, close Fill/Test line Isolation valves: <ul style="list-style-type: none"> ● 1SI8871 ● 1SI8888 | SAT UNSAT N/A <u>Comments:</u> |
| 15. Inform US that it may be necessary to initiate 1BwOS SI-1A, and to contact chemistry for Accumulator samples, and exit LCOAR for level. (F.13, F.14) (CUE: IF asked, US will evaluate necessity to perform 1BwOS SI-1a) (CUE: IF asked, inform candidate that 1C accumulator venting is not desired. (CUE: IF asked, US will evaluate the necessity to sample the 1C accumulator. | Inform US of the following potential requirements: <ul style="list-style-type: none"> ○ 1BwOS SI-1a ○ Chemistry to sample the 1C SI accumulator for boron. | SAT UNSAT N/A <u>Comments:</u> |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

Exam Material

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. No personnel are in Unit 1 Containment.
5. **This is a time critical JPM.**

INITIATING CUES:

1. Annunciator 1-5-C1, ACCUM 1C LEVEL HIGH/LOW, has been lit for 30 minutes.
2. A valve misalignment on the 1C SI Accumulator has resulted in a lowered 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 30 minutes ago.
4. The US has directed you to raise the 1C accumulator level to > 38% but within the Technical Specification limit by using the 1B SI pump (due to Sys. Engineering request for opportunity to gather data). NLOs have been briefed and are standing by as needed.

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-203

REQUIRED SIMULATOR MODE(S): 1, 2, 3 >1000 psig – RCS pressure.

MALFUNCTION #'S: N/A

COMMENTS:

- 1) Insert and monitor the following monitored parameters:
SIMACC[3] mass of water in 1C SI Accumulator.
SIMN2ACC[3] nitrogen in 1C SI Accumulator.

- 2) Either:
Lower level of 1C SI Accumulator per BwOP SI-6 to just below the tech spec limit of 31%. Note the mass.

Or

Modify SIMACC[3] to 5.7275 to lower level to 30%.

- 3) Adjust pressure as necessary to be within the tech spec limit, above the low pressure alarm setpoint, but not so high as to cause the high pressure alarm to come in when level is subsequently raised to >54%. This can be accomplished if SIMN2ACC[3] is modified to 1275.

- 4) If called as an NLO for SI pump operations, report (as requested):
 - Pre-start checks, ready.
 - Running satisfactorily.
 - Pump S/D.

Task Title: **Perform RCS Seal Injection Flow Monthly Surveillance**

JPM Number: **SIM-P403**
TPO No.: IV.C.RC-10
Task No.: RC-014, Perform RCP seal performance monthly surv.

Rev 04 NRC REV 0
K&A No.:003A4.01
K&A Imp.: 3.3/3.2

TRAINEE: _____

RO SRO SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.
FAILED _____

Time Start: _____

Time Finish: _____

JPM Time: _____

Critical Elements: (*) **4, 6, 7**

Approx. Completion Time: **35 minutes**

Critical Time: N/A

Evaluation Method:

Location:

PERFORM

_____ IN PLANT

_____ SIMULATE

SIMULATOR

GENERAL REFERENCES:

- 1BwOSR 3.5.5.1 Rev. 4, Unit One RCS Seal Injection Flow Monthly Surveillance

MATERIALS:

1. Marked Copy of 1BwOSR 3.5.5.1 Rev. 4, Unit One RCS Seal Injection Flow Monthly Surveillance with cover sheet.
2. Calculator

TASK STANDARDS:

1. Complete Surveillance 1BwOSR 3.5.5.1, Unit One RCS Seal Injection Flow Monthly Surveillance, identifying seal injection flow does not meet acceptance criteria for the 1A CV pump.

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.

INITIATING CUES:

1. The US has directed you to perform 1BwOSR 3.5.5.1, Unit One RCS Seal Injection Flow Monthly Surveillance to determine acceptability for the running U-1 CV pump. **(CUE: hand examinee marked up copy of 1BwOSR 3.5.5.1 with cover sheet.)**

RECORD START TIME: _____

Note: Step numbers are in parenthesis.

| PERFORMANCE STEP | STANDARD | Circle applicable |
|--|--|---|
| <p>1. Verifies precautions, prerequisites, limitations and actions are satisfactorily addressed (F.1.1).</p> <p>(CUE: IF asked 1CV8369A/B/C/D are set for full RCS pressure.)</p> | <p>Reviews prerequisites, precautions, limitations, and actions are satisfactorily addressed:</p> <ul style="list-style-type: none"> • Verifies Cover sheet is signed by US. • Signs cover sheet. • RCS pressure is ≥ 2215 and ≤ 2255 psig. • 1CV8369A-D set for full RCS pressure. • Only 1 CV pump is running. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>2. Record Initial Conditions. (F.1.2, 1.3)</p> <p>Note: Verify all underlined data is recorded. If asked about the 1B CV pump, reply it is being readied for work and will be taken OOS shortly.</p> <p>NOTE: Record calculated average PZR pressure to (at least) the nearest whole number: _____ psig</p> | <p>The following initial conditions are recorded:</p> <ul style="list-style-type: none"> ○ Unit mode: 1 ○ CV pump in operation: 1A ○ 1CV121 controller 1FK121 position: AUTO • PZR pressure channels determined from points P-0480-0483. • Average PZR pressure calculated from all operable channels. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>3. Place 1FK121 in Manual (F.2.1)</p> | <ul style="list-style-type: none"> • Place 1FK121 in Manual | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| **BEGIN ALTERNATE PATH** | | |
| <p>*4. Attempt to adjust 1CV182 as necessary to maintain total seal injection flow within the tech spec limits. (F.2.2, 2.3)</p> <p>NOTE: Examinee should not fill out steps F. 2.3 through 2.6 (due the inability to obtain correct flows/dp) and proceed directly to step F. 2.7. Filling out steps 2.3 through 2.5 is NOT failure criteria since these steps help if determine step 2.2.</p> | <ul style="list-style-type: none"> • Determines Charging header pressure – RCS Pressure. • Calculates total seal injection flow by adding seal injection flows. • Attempts to adjust 1CV182 as necessary to obtain total seal injection flow to all 4 RCP's within limits of tech spec figure 3.5.5.-1. • Determines acceptance criteria cannot be met. ○ Proceeds to step F. 2.7. (Preferred) ○ Record/Observe the RCP Seal injection flows: RCP 1A (1FI-145A) 6-13 gpm RCP 1B (1FI-144A) 6-13 gpm RCP 1C (1FI-143A) 6-13 gpm RCP 1D (1FI-142A) 6-13 gpm Total Seal Injection flow | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>5. Determine the charging header and RCS differential pressure. (F. 2.4, 2.5)</p> <p>NOTE: determine values for underlined data.</p> | <p>Determine the following:</p> <ul style="list-style-type: none"> • 1CV121 position (<u>% open</u>) • Charging header pressure (<u>from 1PI-120A</u>) • Average of indicating PZR pressure (<u>from step F.1.3, 2215-2255 psig</u>) • Calculates Differential pressure: (<u>subtract Avg PZR pressure from Charging header pressure</u>) | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

| PERFORMANCE STEP | STANDARD | Circle applicable |
|---|---|---|
| <p>*6. Determine actual Seal Injection flow is not within the allowable value of the tech spec figure 3.5.5-1. (F. 2.6, 2.7)</p> | <ul style="list-style-type: none"> ○ Plots coordinates on graph (Attachment A). ● Determine actual seal injection flows are unacceptable attachment A. ● Does not initial step 2.6. ● Immediately informs the SM or designee (per limitation E.2) that acceptance criteria has not been met. (Seal Injection flow is NOT within the limits of TS figure 3.5.5-1). ● Continues to step F.4.0. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>*7 Adjustment of RCS seal injection flow for 1A CV pump operation. (F. 4.0-4.7) (CUE: When examinee continues to step F.4.0 inform examinee that four NLOs are standing by with keys in the Unit 1 Curved Wall area and have been briefed on the evolution.)</p> <p>NOTE tracking may accomplished by performing the following:</p> <p>Record final seal injection flows: 1A RCP: _____ 1B RCP: _____ 1C RCP: _____ 1D RCP: _____ TOTAL: _____</p> <p>Record final Charging header pressure: _____</p> <p>Record RCS average pressure: _____. (Examinee may re-obtain this value.)</p> <p>Subtract RCS pressure from Charging header pressure: _____</p> <p>Examinee plot point should be within ¼".</p> | <ul style="list-style-type: none"> ● Verifies 1FK121 in manual, and adjusts 1CV121 to 100%. ○ Coordinates with NLOs to adjust 1CV8369A/B/C/D while adjusting 1CV182 to within the limits of Tech Spec Figure 3.5.5-1. ○ Verify 1CV182 at 60%. ○ Records individual RCP Seal Inj Flows. ○ Records the following: <ul style="list-style-type: none"> ○ 1CV121 position (100% open). ● Charging header pressure (from 1PI-120A). ● Average of indicating PZR pressure (from step F.1.3, 2215-2255 psig). ● Calculates Differential pressure: (subtract Avg PZR pressure from Charging header pressure) ○ Determines actual seal injection flows are acceptable by plotting the values of the total seal injection flow and differential pressure on attachment A. ● Verifies seal injection flow is within acceptable region of TS figure 3.5.5-1. ○ Proceeds to section 6.0. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

CUE: Another NSO will complete the restoration, THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

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.

INITIATING CUES:

1. The US has directed you to perform 1BwOSR 3.5.5.1, Unit One RCS Seal Injection Flow Monthly Surveillance to determine acceptability for the running U-1 CV pump.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM No: SIM-P403

REQUIRED SIMULATOR MODE(S): 100% power steady state

MALFUNCTION #'S: NONE

COMMENTS:

1. Setup needs to include an adjustment to the 1CV8369A-D valves to cause the results of the surveillance to be unacceptable: RF CV44-47 to 38, 39, 38, 38% (SDG CV7A-7D). Place 1CV182 POT to ~ 80%.
2. Ensure 1CV182 POT is adjusted back to ~ 80%, and 1CV121 is returned to AUTO and RF CV44-47 to 38, 39, 38, 38% (SDG CV7A-7D) are set prior to re-running this JPM.
3. Ensure HMI terminals do not have the PZR Pressure computer points pre-displayed on their screens.
4. When called as NLO adjust RFCV44-47 as directed. Valves should be approximately 26% when complete.

TASK TITLE: Respond to Generator Field Forcing

JPM No.: SIM-409
TPO No.: 4D.OA-48
TASK No.: R-OA-048, Respond to 345 kV grid or voltage regulator instability

REV: 04 NRC REV 0
K&A No.: 045A4.02
K&A IMP: 2.7/2.6

TRAINEE: _____ RO SRO SRO Cert (Circle One)

EVALUATOR: _____ DATE: _____

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

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2 JPM TIME: _____

CRITICAL TIME: N/A APPROX COMPLETION TIME: 10 MINUTES

EVALUATION METHOD: LOCATION:

PERFORM IN PLANT
 SIMULATE SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-19-B6 rev 5E1
2. BwAR 1-19-E3 Rev 5E1
3. 1BwGP 100-3A7 Rev 5
4. 1BwGP 100-3A6 Rev 4

MATERIALS:

1. None

TASK STANDARDS:

1. Respond to U1 Generator Field Forcing alarm
2. Places Volt reg in manual and reduces excitation below trip setpoint before an automatic trip occurs.

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. Both Units are at full power. No abnormalities.

INITIATING CUES:

1. After familiarizing yourself with plant conditions, respond to plant conditions on the 1PM01J through 1PM04J panels.

RECORD START TIME: _____

| Performance Step | Standard | Circle Applicable |
|--|---|--|
| <p>(Note: After the examinee has familiarized themself with current conditions, cue the simulator operator to fail the generator voltage regulator.</p> <p>1. Diagnose the generator voltage regulator failure. (CUE: As Unit Supervisor: "Understand Unit 1 Generator Field Forcing is in Alarm.")</p> | <ul style="list-style-type: none"> • Notes annunciator 1-19-B6 in alarm. • Announces Alarm, (Informs US). ○ Generator amps high, Exciter amps high. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>*2. Refers to BwAR 1-19-B6. (CUE: Confirm all actions as they are performed, agree to any miss-actions.)</p> <p>NOTE: TGTMS alarm may come in while examinee is taking actions. Examinee should continue with 1-19-B6 actions at least until exciter field current is reduced below 100 amps.</p> <p>If main generator trips, examinee fails JPM.</p> | <ul style="list-style-type: none"> ○ Checks Exciter Field Current is >100 amps • SHIFTS the Main Generator voltage regulator to OFF. ("Test" position is acceptable.) • USES the base adjuster to REDUCE the exciter field current to LESS THAN 100 amps. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>3. Performs subsequent operator actions. (CUE: Bulk power and OAD will be informed.)</p> <p>(CUE: Inform examinee another NSO will perform the TGTMS alarm response.)</p> <p>(CUE: After examinee reads step in BwAR and IF necessary: inform examinee that the US requests that they review the BwGP figures. Ensure examinee uses appropriate graph for "Regulator: OUT OF SERVICE"</p> | <ul style="list-style-type: none"> ○ Informs US that Bulk power and OAD should be informed of voltage regulator failure. ○ Announces TGTMS alarm. ○ Refers to figures 1BwGP 100-3A6 and 1BwGP 100-3A7 • Verifies gen loading within limits of figure 1BwGP 100-3A7 or recommends action to place generator within limits. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

(CUE:) THIS COMPLETES THIS JPM.
RECORD STOP TIME: _____
COMMENTS:

Exam Material

TASK CONDITIONS:

1. You are the Unit 1 Admin NSO.
2. Both Units are at full power. No abnormalities.

INITIATING CUES:

1. After familiarizing yourself with plant conditions, respond to plant conditions on the 1PM01J through 1PM04J panels.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-S409

REQUIRED SIMULATOR MODE(S): At power

MALFUNCTION #'S:

1. IMF EG03 100%

COMMENTS:

Insert the malfunction when signaled by the evaluator.

Exam Material

TASK TITLE: **Start C/S pump using Attachment B**

JPM No.: **SIM-505**

TPO No.: 4D.CS-01

TASK No.: R-CS-001, Manually initiate Containment Spray.

REV: 04 NRC REV 0

K&A No.: 026A3.01

K&A IMP: 4.3/4.5

TRAINEE: _____

RO SRO SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 1-2

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME: 15 MINUTES

EVALUATION METHOD:

LOCATION:

PERFORM
 SIMULATE

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwEP 0 Rev. 102, Reactor Trip or Safety Injection

MATERIALS:

- None, (simulator reference should be available).

TASK STANDARDS:

- Upon completion of step 14 of 1BwEP-0, one CS pump is running.

TASK CONDITIONS:

- You are the Admin NSO.
- A Unit 1 RCS LOCA has occurred.

INITIATING CUES:

- The US has directed you to perform step 14 of 1BwEP-0.
- Report to the US when step 14 is complete.

RECORD START TIME: _____

Note: Step numbers are in parenthesis.

| Performance Step | Standard | Circle Applicable |
|--|---|---|
| <p>*1. Refer to Step 14 of 1BwEP-0.</p> <p>(14a)</p> <p>(14b)</p> <p>(14c)</p> <p>(14c RNO)</p> | <ul style="list-style-type: none"> • Verifies CNMT pressure (1PR-937 1PI-CS934 thru 1PI-CS937) - HAS RISEN TO GREATER THAN 20 PSIG. • Verifies all RCPs stopped. • Checks all group 6 monitor lights are NOT all LIT. • Manually actuates CS and Phase B Isolation. • Verifies all Group 6 CS monitor lights are NOT all lit and goes to Attachment B Step 1(page 36). | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>*2. Refer to Attachment B Step 1 of 1BwEP-0, Check CS Valve Alignment.</p> <p>(1a)</p> <p>(1b)</p> <p>(1b RNO)</p> <p>(1c)</p> <p>(1c RNO 1))</p> <p>(1c RNO 2)) 1A CS pump will auto start when 1CS019A is opened.</p> <p>(1c RNO 3)</p> <p>(1d)</p> | <ul style="list-style-type: none"> ○ Check CS pump RWST suction valves OPEN: 1CS001A, 1CS001B ○ Checks CS pump header isol valves open (1CS007A is NOT OPEN). • OPENS 1CS007A. ○ Checks CS Eductor spray valves are NOT both open. • Places CS test switch to test for the 1A CS pump • OPENS 1CS019A ○ Places test switch in normal. ○ Checks 1CS010A/B both open. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>3. Check CS pumps Running (Attachment B 2a.)</p> <p>(3)</p> | <ul style="list-style-type: none"> • Checks 1A CS pump is running. • Returns to step 14d. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>4. Completes step 14 of main body.</p> <p>(F.14d)</p> <p>(F.14e)</p> <p>(F.14f)</p> | <ul style="list-style-type: none"> • Verifies all group 6 Phase B monitor lights are lit. • Checks CS eductor suction flow on the 1A CS pump is greater than 15gpm. • Check CS eductor additive flow on the 1A CS pump is greater than 5gpm. • Informs US that step 14 is complete. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

Exam Material

TASK CONDITIONS:

1. You are the Admin NSO.
2. A Unit 1 RCS LOCA has occurred.

INITIATING CUES:

1. The US has directed you to perform step 14 of 1BwEP-0.
2. Report to the US when step 14 is complete.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-505

REQUIRED SIMULATOR MODE(S): IC-21

MALFUNCTION #'S:

IRF RP37 OUT

IOR ZDI1CS01PB PTL

IOR ZLO1CS01PB1 ON

IMF TH04A 540000

Turn off all RCPs.

When containment pressure peaks and begins to turn, take a snapshot. Freeze simulator.

Place Keep 1BwEP-0 up to step 14.

Go to RUN when directed by evaluator.

COMMENTS:

Exam Material

TASK TITLE: **Synchronize a SAT to a Bus Being Fed by an Emergency Diesel Generator**

JPM No.: **SIM-601**

TPO No.: IV.D.AP-03

TASK No.: R-AP-013, Sync. SAT to bus fed by EDG

REV: 04 NRC REV 0

K&A No.: 064A4.09

K&A IMP: 3.2/3.3

TRAINEE: _____

RO SRO SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

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

JPM TIME: _____ MINUTES

CRITICAL TIME: **NA**

APPROX COMPLETION TIME: **25** MINUTES

EVALUATION METHOD:

LOCATION:

PERFORM
 SIMULATE

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP AP-32, Rev. 2, Synchronizing a SAT to a Bus Being Fed by a DG.

MATERIALS:

1. Marked up copy of BwOP AP-32.

TASK STANDARDS:

1. Correctly synchronize SAT 142-2 to a bus being fed by the 1B DG.

TASK CONDITIONS:

1. You are an assist NSO.
2. Both Units are at full power.
3. The 1B D/G was manually started per BwOP DG-11, and is currently supplying bus 142.
4. Breaker 1424 is closed to prevent equipment sequencing onto bus 142.

INITIATING CUES:

1. The US has directed you to synchronize SAT 142-2 back to the 1B D/G per BwOP AP-32, beginning at step F.4. (CUE: **Hand examinee marked up copy of BwOP AP-32.**)

RECORD START TIME: _____

Note: Step numbers are in parenthesis.

| Performance Step | Standard | Circle Applicable |
|---|---|-----------------------------------|
| 1. Refer to BwOP AP-32. (CUE: All Prerequisites have been met.) | Open BwOP AP-32. | SAT UNSAT N/A <u>Comments:</u> |
| 2. Verify 1B D/G is operating properly. (F.4) | VERIFY 1B D/G is operating properly as follows: <ul style="list-style-type: none"> • 1B D/G frequency is approximately 60 hz. • 1B D/G voltage is approximately 4160 volts. | SAT UNSAT N/A <u>Comments:</u> |
| *3. Prepare 1B D/G for parallel operation with SAT 142-2. (F.5) (F.6) (F.7) (F.8) | Prepare 1B D/G for parallel operations as follows: <ul style="list-style-type: none"> • TURN ACB 1422 Synchroscope Switch ON. • USING the 1B D/G voltage adjust control, adjust the "RUNNING" voltage slightly HIGHER than the "INCOMING" voltage (0-4 volts). ○ VERIFY the same voltage on 'AB', 'BC', and 'CA' with the 1B D/G Voltmeter selector switch. • USING the 1B D/G governor adjust control, ADJUST generator speed such that the synchroscope is rotating slowly in the SLOW direction. | SAT UNSAT N/A <u>Comments:</u> |

Exam

Material

| Performance Step | | Standard | Circle Applicable |
|------------------|--|---|--|
| *4. | Parallel the 1B D/G to SAT 142-2 . (F.9) (F.10) (F.11) | Parallel the 1B D/G to SAT 142-2 as follows: <ul style="list-style-type: none"> • When the synchroscope is slightly before the 12 O'clock position, CLOSE ACB 1422. ○ VERIFY the synchroscope has LOCKED IN at the 12 O'clock position. ○ TURN the synchroscope switch for ACB 1422 to OFF. | SAT UNSAT N/A <u>Comments:</u> |
| 5. | Restore breaker positions. (F.12, F.14) (CUE: When asked, ACB 2424 is in after trip.) | Restore breaker positions as follows: <ul style="list-style-type: none"> • OPEN ACB 1424. • PLACE ACB 2424 in AFTER TRIP. | SAT UNSAT N/A <u>Comments:</u> |
| 6. | Unload 1B D/G per BwOP DG-12. (F.14) (CUE: The US will direct another NSO to unload the 1B D/G.) | Refer to BwOP DG-12 to unload 1B D/G. | SAT UNSAT N/A <u>Comments:</u> |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

TASK CONDITIONS:

1. You are an assist NSO.
2. Both Units are at full power.
3. The 1B D/G was manually started per BwOP DG-11, and is currently supplying bus 142.
4. Breaker 1424 is closed to prevent equipment sequencing onto bus 142.

INITIATING CUES:

1. The US has directed you to synchronize SAT 142-2 back to the 1B D/G per BwOP AP-32 beginning at step F.4.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-601

REQUIRED SIMULATOR MODE(S): Any 'At Power' IC.

MALFUNCTION #'S: N/A

COMMENTS:

- 1) Swap to 1B SX pump to put load on Bus 142.
- 2) Place the surv test switch in surv test.
- 3) Start 1B D/G and sync to grid. Leave Synroscope Key Switch in 1423 but OFF.
- 4) Load 1B D/G until SAT feed amps = 0.
- 5) Close ACB 1424.
- 6) Open 1422.
- 7) Ensure the Governor Adjuster and the Voltage Adjuster are not "set" at values that happen to be exactly what the examinee needs (i.e. the intent is to force the examinee to manipulate the controls). 60.2 Hz

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

JPM No.: SIM-801
TPO No.: IV.D.OA-51

REV: 04 NRC REV 0
K&A No.: (008A3.03)
(2.4.46)
K&A IMP: 3.0/3.1
3.5/3.6

TASK No.: R-OA-061, Resp to a loss of CC to RCP oil/thermal barrier coolers

TRAINEE: _____

RO **SRO** SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 5, 6

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 15 MINUTES

EVALUATION METHOD:

PERFORM
 SIMULATE

LOCATION:

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BWOA PRI-6, Rev. 101, Component Cooling Malfunction
- 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 1CC9438 after attempting to 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.

RECORD START TIME _____

Note: Examinee may take the control switch for 1CC685 to CLOSE at any time (see step 6), when it is noted that the valve did not automatically close on high flow. Examinee should refer to BwARs as appropriate and continue on with this JPM as written. In addition, examinee may take 1CC9438 to CLOSE when 1CC685 does not CLOSE. If the occurs provide CUE: The US directs you are to perform actions of 1BWOA PRI-6 to ensure appropriate actions have been taken.

Note: Examinee may refer to BwAR 1-7-E4 which 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.

| Performance Step | Standard | Circle Applicable |
|--|---|--|
| <p>1. Refer to BwAR 1-7-E4, which refers to 1BWOA PRI-6, Component Cooling Malfunction.</p> <p>(CUE: If asked, All Operator Action Summary elements have been reviewed and NONE currently require action.)</p> <p>(CUE: SM has been notified of Emergency-Plan evaluation.</p> | <ul style="list-style-type: none"> Refer to, Locate and Open 1BWOA PRI-6. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>2. Check surge tank level > 13% and increasing.</p> | <p>Checks Surge tank level:</p> <ul style="list-style-type: none"> 1LIT-670/676 Determines level > 13% Determines level is increasing Goes to Attachment B, step 1 RNO. Goes to Step 5. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>3. Checks for leakage from RCP Thermal Barrier. (ATT B step 5a)</p> | <p>Checks for leakage from RCP Thermal Barrier:</p> <ul style="list-style-type: none"> Annunciator 1-7-E4 LIT. Seal Injection Flows any abnormally high. Determines 1B RCP has abnormally high seal flows. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>4. Check seal injection flow between 8 and 13 gpm per pump (ATT B step 5b)</p> | <ul style="list-style-type: none"> Adjusts 1CV121 and 1CV182 to obtain between 8 and 13 gpm seal injection flow per RCP (as possible) | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

| Performance Step | Standard | Circle Applicable |
|---|---|---|
| **BEGIN ALTERNATE PATH** | | |
| <p>*5. Check 1CC685 Closed. (ATT B step 5c)</p> | <p>Determines corrective action to be taken:</p> <ul style="list-style-type: none"> • Checks position indication for 1CC685 • Determines 1CC685 is OPEN. • Takes control switch for 1CC685 to CLOSE. • Manually Closes 1CC9438. | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>*6. Restore CC to unaffected RCPs by locally closing RCP Thermal Barrier CC outlet valve to isolate affected RCP. (ATT B step 5d)</p> <p>(CUE: When step 5d is reached: Shift Manager desires CC to unaffected RCPs be restored. An NLO has been briefed and is standing by in U1 CNMT.)</p> <p>NOTE: if examinee closed 1CC9438 early, examinee will have to use alternate means (computer trends) to identify which RCP has the problem (Preferred). (Non Preferred) IF asked, as Unit Supervisor/Shift Manager provide CUE to allow examinee to cycle 1CC9438 to determine the leaking pump.</p> <p>NOTE: Sim operator will act as NLO in containment and provide the cue below after it is asked for.</p> <p>(CUE: Local operator reports 1CC9496B Closed)</p> | <ul style="list-style-type: none"> • Directs local operator to close 1CC9496B. • After 1CC9496B closure: <ul style="list-style-type: none"> • Reopen 1CC9438. • Returns to main body step 6. | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>7. Check CC Surge Tank Status (Step 6)</p> <p>(CUE: If necessary: A NLO will Drain the Unit 1 CC Surge tank</p> | <ul style="list-style-type: none"> • Checks surge tank level stable, requests NLO drain Unit 1 CC Surge Tank | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>8. Refer To Tech Specs (Step 7)</p> <p>(CUE: If Asked: The US requests you determine which TS are applicable.</p> | <ul style="list-style-type: none"> • Determines TS 3.7.7 is not applicable. • Determines TS 3.6.3 Cond A is applicable. | <p>SAT UNSAT N/A <u>Comments:</u></p> |

When examinee reports which TS are applicable, (CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

Exam Material

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.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-801

REQUIRED SIMULATOR MODE(S): 100% steady state.

MALFUNCTION #'S: See Comments
Malf CC09 231 gpm.
Malf CC07B 40 gpm.

COMMENTS:

- 1) Override 1CC685, ZDI1CC685 OPEN (SDG CC7).
- 2) Insert IMF CC09 231 gpm
- 3) Insert IMF CC07B 40 gpm. Note: Adjust severity of malf CC07B to ensure actuation of HIGH FLOW alarm, 1-7-E4, but minimize RCS leak rate.

Exam Material

TASK TITLE: Perform Unit 2 ESFAS Instrumentation Slave Relay Surveillance (K611)

JPM No.: IP-202

REV: 04 NRC REV 0

TPO No.: IV.C.RP-04

K&A No.: (013A3.01)

TASK No.: R-EF-006, Perf. ESF logic and performance Test.

K&A IMP: 3.7/3.9

TRAINEE: _____

RO **SRO** SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 5-7, 11

JPM TIME: _____ MINUTES

CRITICAL TIME: NA

APPROX COMPLETION TIME 45 MINUTES

EVALUATION METHOD:

PERFORM
X SIMULATE

LOCATION:

X IN PLANT
SIMULATOR

GENERAL REFERENCES:

1. 2BwOSR 3.3.2.8-611A, Rev. 2, Unit One ESFAS Instrumentation Slave Relay Surveillance (Train A Automatic Safety Injection - K611).
2. ITS 3.3.2 Table 3.3.2-1, Function 1.b.

MATERIALS:

Keys to cabinets 2PA09J and 2PA11J; Laser Pointer; Digital VOM; Copy of 2BwOSR 3.3.2.8-611A.

TASK STANDARDS:

1. Properly perform slave relay surveillance of Train A SI K611.

TASK CONDITIONS:

1. You are an extra NSO available for Aux Electric room work.
2. Unit 2 is at full power.
3. An NLO is standing by at the 2A EDG.
4. An additional RO dedicated to this surveillance is standing by in the MCR.
5. 2BwOSR 3.8.1.2-1, start timing, will NOT be performed in conjunction with the start of the DG.

INITIATING CUES:

1. The US has directed you to continue performance of 2BwOSR 3.3.2.8-611A, ESFAS Instrumentation Slave Relay Surveillance (Train A Automatic Safety Injection K611) at step F.2. (CUE: Hand examinee marked up copy of the surveillance with cover sheet.)
2. Section F.1 has been completed.
3. A VOM will need to be re-obtained, re-record the VOM info in step 1.2.

RECORD START TIME _____

Notes: Low Voltage gloves may be obtained by the examinee, these are not required. If gloves are obtained, the examinee should check the test date on the gloves prior to use. A laser pointer may be used to point to specific terminals inside the cabinet or examiner may prompt examinee to read the wire numbers for the specific points to ensure the appropriate points are identified (Wire numbers are identified in this JPM for each point). Procedure step numbers are in parenthesis.

| PERFORMANCE STEP | STANDARD | Circle applicable |
|--|--|---|
| 1. Reviews 2BwOSR 3.3.2.8-611A (CUE: All Prerequisites have been met.) | VERIFY all applicable PREREQUISITES, PRECAUTIONS, LIMITATIONS and ACTIONS are met. | SAT UNSAT N/A <u>Comments:</u> |
| 2. Obtains a VOM and re-record the Instrument ID # and Cal date. (F.1.2) (Cal sticker is on back of VOM behind stand) | Obtain a VOM and RECORD the following: • Instrument ID # • Cal Date | SAT UNSAT N/A <u>Comments:</u> |
| 3. Obtain Keys | • Informs U2 US and NSO. • Obtains keys from MCR for 2PA09J and 2PA11J. | SAT UNSAT N/A <u>Comments:</u> |
| 4. Record date and time. (F.2.1) | • Records date and time. | SAT UNSAT N/A <u>Comments:</u> |
| *5. At 2PA11J, place test switch S834 to PUSH TO TEST and HOLD. (F.2.2) (CUES: After examine simulates S834 is in push test position and is holding, state: Red Light 081 is Energized. (F.2.3) S834 has been depressed and released and has spring returned to Normal. (F.2.4) NSO reports 2A EDG has started. (F.2.5) NLO reports 2A EDG Unit Available for Emergency light is extinguished.) (F.2.6) | At 2PA11J perform the following: ○ Examinee should contact control room to warn of impending alarm when the next step is performed. • PLACE Test Switch S834 to PUSH TO TEST and HOLD. • VERIFY Red Light 081 is ENERGIZED. • MOMENTARILY DEPRESS Test Switch S834 and RELEASE. ○ Contact the control room NSO and VERIFY 2DG01KA (2A EDG) STARTED. ○ Contact the NLO at the 2A EDG and VERIFY the UNIT AVAILABLE FOR EMERGENCY light is EXTINGUISHED at 2PL07J. | SAT UNSAT N/A <u>Comments:</u> |

Notes: If the examinee does not have the OHM scale/function selected on the VOM, provide the cues without the units. If the wrong contacts are measured, provide a cue that the VOM indicates 0.

| PERFORMANCE STEP | STANDARD | Circle applicable |
|---|--|--|
| <p>*6. At 2PA09J, VERIFY the following Contacts Closed. (2.7)</p> <p>(CUE: Contact 1-2 =1 volt. (F.2.7a)</p> <p>Contact 9-10 =1 ohm. (F.2.7b)</p> <p>Contact 13-14 =1 ohm. (F.2.7c)</p> <p>Contact 15-16 =1 ohm. (F.2.7d)</p> | <p>At 2PA09J, VERIFY the following contacts CLOSED by measuring less than 10 ohms across the Terminals of Slave Relay K611:</p> <ul style="list-style-type: none"> • Contact 1-2, Terminals 1 and 2. (wire numbers 13452 and 13453) • Contact 9-10, Terminals 9 and 10. (13458 and 13459) • Contact 13-14, Terminals 13 and 14. (13462, 13463) • Contact 15-16, Terminals 15-16. (13464 and 13465) | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>*7. Restore testing alignment to normal. (3.0)</p> <p>(CUE: S821 has been placed in RESET and Released. (3.1)</p> <p>S834 is in Normal. (F.3.2)</p> <p>Red Light 081 is De-energized. (F.3.3)</p> <p>IV is obtained.)</p> | <p>At 2PA11J perform the following to restore testing alignment to normal:</p> <ul style="list-style-type: none"> • PLACE Reset Switch S821 to RESET and RELEASE. • VERIFY Test Switch S834 is in NORMAL. • VERIFY Red Light 081 is DE-ENERGIZED. • Obtain Independent Verification. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>8. Place 2A EDG in Man Test Mode at 2PM01J.</p> <p>(CUE: Control NSO reports he has placed 2A EDG in the MAN TEST MODE.) (F.3.4)</p> | <p>Direct the control room NSO to perform the following:</p> <ul style="list-style-type: none"> • PLACE the DG 2A Emer MODE Speed/Volt Control MODE Switch to the MAN TEST MODE position and RELEASE at 2PM01J. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>9. Record the Time and Date and verify the time elapsed between now and step F.2.1 is \leq 4 hrs. (F.3.5, 3.6)</p> | <p>Perform the following:</p> <ul style="list-style-type: none"> • RECORD the time and date. • Determine the time difference between now and the time of performing step F.2.1. • VERIFY the elapsed time difference is \leq 4 hours. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

| PERFORMANCE STEP | STANDARD | Circle applicable |
|--|---|---|
| 10. Parallel and Load the 2A EDG. (CUE: Per BwOP DG-11. As Control room NSO, 2A EDG is loaded.) (F.3.7) | <ul style="list-style-type: none"> Direct the control room NSO to parallel and load the 2A EDG per BwOP DG-11. | SAT UNSAT N/A <u>Comments:</u> |

Note: If the following step is performed with the VOM selected to Ohms or AMPs, then the following actions will result:

- Terminals 9 and 10, 2A DG breaker TRIPS.
- Terminals 13 and 14, Aux Bldg Supply Fan OVA01CC TRIPS.
- Terminals 15 and 16, Aux Bldg Exhaust Fan OVA02CC TRIPS.

If the wrong contacts are selected for measurement then the provide the cue that the VOM indicates 0.

| PERFORMANCE STEP | STANDARD | Circle applicable |
|---|---|---|
| *11. Measure voltages across terminals of slave relay K611. (F.3.8) (CUE: VOLTS DC is selected. Terminals 9 and 10 = 124 VDC. (F.3.8a) Terminals 13 and 14 = 124 VDC. (F.3.8b) Terminals 15 and 16 = 124 VDC.) (F.3.8c) | Perform the following to measure > 100 VDC across terminals of slave relay K611: <ul style="list-style-type: none"> SELECT VOLTS DC on the VOM before taking readings. Terminals 9 and 10. (13458 and 13459) Terminals 13 and 14. (13462 and 13463) Terminals 15 and 16. (13434 and 13465) | SAT UNSAT N/A <u>Comments:</u> |
| 12. Shutdown the 2A EDG. (CUE: Control room NSO reports the 2A EDG is shutdown.) (F.3.9) | <ul style="list-style-type: none"> Direct the control room NSO to Shutdown the 2A EDG per BwOP DG-12. | SAT UNSAT N/A <u>Comments:</u> |
| 13. Inform the Shift Manager or designee that the test is complete and the equipment will be restored to the "AS FOUND" condition unless directed otherwise. (F.3.10) (CUE: US states that the CR NSO will restore equipment to "As Found" conditions) | <ul style="list-style-type: none"> Informs SM or US that the test is complete and the equipment will be restored to the "AS FOUND" condition unless directed otherwise. | SAT UNSAT N/A <u>Comments:</u> |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

Exam Material

TASK CONDITIONS:

1. You are an extra NSO available for Aux Electric room work.
2. Unit 2 is at full power.
3. An NLO is standing by at the 2A EDG.
4. An additional RO dedicated to this surveillance is standing by in the MCR.
5. 2BwOSR 3.8.1.2-1, start timing, will NOT be performed in conjunction with the start of the DG.

INITIATING CUES:

1. The US has directed you to continue performance of 2BwOSR 3.3.2.8-611A, ESFAS Instrumentation Slave Relay Surveillance (Train A Automatic Safety Injection K611) at step F.2 that was started on the previous shift.
2. Section F.1 has been completed.
3. A VOM will need to be re-obtained, re-record the VOM info in step 1.2.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: IP-202

REQUIRED SIMULATOR MODE(S): N/A, IN PLANT

MALFUNCTION #'S: N/A

COMMENTS:

Exam Material

TASK TITLE: **Align Fire Protection Cooling to the 2A Centrifugal Charging Pump**

JPM No.: **IP-S407**
TPO No.: IV.D.OA-69
TASK No.: R-CV-23, Perform lineups of CVCS

REV: 04 NRC REV 0
K&A No.: APE062AK3.03
K&A IMP: 4.0/4.2

TRAINEE: _____ RO **(SRO)** SRO Cert (Circle One)

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: 15 MINUTES

EVALUATION METHOD: LOCATION:
 _____ PERFORM **X** IN PLANT
 X SIMULATE _____ SIMULATOR

GENERAL REFERENCES:

1. 2BwOA PRI-8, Rev 102, Essential Service Water Malfunction

MATERIALS:

1. 2BwOA PRI-8, Rev 102, Essential Service Water Malfunction

TASK STANDARDS:

1. Perform the actions necessary to align FP cooling to the 2A CV Pump

TASK CONDITIONS:

1. You are an NLO.
2. Unit 2 is experiencing a loss of Essential Service Water.
3. The 2A CV pump is in standby.

INITIATING CUES:

1. The U2 Unit Supervisor has directed you to align Fire Protection Cooling to the 2A Centrifugal Charging Pump (ONLY) per 2BwOA PRI-8, Attachment C.
2. Report back to the US when FP is aligned to the 2A CV pump (step 1g of 2BwOA PRI-8 is complete). **(CUE: Provide selected pages of 2BwOA PRI-8).**

RECORD START TIME: _____

| Performance Step | Standard | Circle Applicable |
|--|--|---|
| <p>1. Refer to 2BWOA PRI-8, Essential Service Water Malfunction. (CUE: IF necessary, 2A CV pump is the selected pump) (1.a.)</p> | <ul style="list-style-type: none"> • Refers 2BWOA PRI-8, Attachment C. ○ Asks if 2A CV pump is selected for alignment. | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>*2. Connect and align fire hose. (1.b.) (CUE: FP Supply Hose Connected) (CUE: If asked inform trainee that FP will only be aligned to the 2A CV pump.) (1.c.) (CUE: OFP840 is OPEN) (1.d.) (CUE: Hose is not pinched by room door. No kinks in hose) (1.e.)</p> | <p>Connect and align fire hose.</p> <ul style="list-style-type: none"> • CONNECT fire hose (located in 2A CV Pump room) to CV Pump 2A lube oil cooler AND FP connection outside 2A CV Pump room (364' V18). • OPEN FP hose supply isolation valve OFP840 (364' V18). • VERIFY Fire hose is charged and not kinked or pinched. | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>*3. Align FP cooling to oil cooler. (CUE: 2SX259A is OPEN) (1.f.) (CUE: 2SX258A is CLOSED) (1.g.)</p> | <p>Align FP to CHG PUMP Lube Oil Cooler:</p> <ul style="list-style-type: none"> • OPEN CENT CHG Pump oil cooler FP Supply valve 2SX259A. • CLOSE CENT CHG Pump oil cooler SX Supply valve 2SX258A. | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>4. CHECK CENT CHG Pump 2A Operation. (CUE: Acknowledge report that the 2A CV Pump is ready to start) (2.a.)</p> | <p>INFORM the Unit NSO that the 2A CV Pump is ready to start.</p> | <p>SAT UNSAT N/A <u>Comments:</u></p> |

(CUE: THIS COMPLETES THIS JPM.)

RECORD STOP TIME: _____

COMMENTS:

TASK CONDITIONS:

1. You are an NLO.
2. Unit 2 is experiencing a loss of Essential Service Water.
3. The 2A CV pump is in standby.

INITIATING CUES:

1. The U2 Unit Supervisor has directed you to align Fire Protection Cooling to the 2A Centrifugal Charging Pump (ONLY) per 2BWOA PRI-8, Attachment C.
2. Report back to the US when FP is aligned to the 2A CV pump (step 1g of 2BWOA PRI-8 is complete).

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: IP-S407

REQUIRED SIMULATOR MODE(S): N/A, IN PLANT

MALFUNCTION #'S: N/A

COMMENTS:

Exam Material

TASK TITLE: Respond to a Loss of an Instrument Bus (Instrument Bus Inverter Startup)

JPM No.: IP-603

REV: 04 NRC REV 0

TPO No.: IV.D.OA-22

K&A No.: APE057AA1.01

TASK No.: R-OA-006, Respond to a loss of vital AC electrical Instrument Bus

K&A IMP: 3.7/3.7

TRAINEE: _____

RO

SRO

SRO Cert (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

CRITICAL ELEMENTS: (*) 2, 3

JPM TIME: _____

CRITICAL TIME: NA

APPROX COMPLETION TIME: 17 MINUTES

EVALUATION METHOD:

LOCATION:

____ PERFORM
X SIMULATE

X IN PLANT
____ SIMULATOR

GENERAL REFERENCES:

1. BwOP IP-1 Rev. 13
2. 2BwOA ELEC-2 Rev. 100

MATERIALS:

1. Copy of BwOP IP-1

TASK STANDARDS:

1. Correctly perform the required actions of BwOP IP-1, Instrument Bus Inverter Startup.

TASK CONDITIONS:

1. You are a Non Licensed Operator.
2. Unit 2 is in MODE 3.
3. Unit 2 had experienced a loss of Instrument Bus 211 due to Inverter 2IP05E failure. Instrument Bus 211 was energized from the CVT 2IP01E last shift.
4. Maintenance has repaired the Inverter.

INITIATING CUES:

1. The US has directed you to startup Instrument Bus Inverter 2IP05E per BwOP IP-1 and restore it as the power supply to the bus and then shutdown the CVT. An NLO is standing by at MCC 231X2, and an NSO is standing by at Instrument Bus 211. (CUE: Hand examinee marked up copy of BwOP IP-1.)

RECORD START TIME: _____

| Performance Step | Standard | Circle Applicable |
|--|---|---|
| <p>1. Refer to BwOP IP-1. (CUE: ALL Prerequisites have been met.)</p> | <p>Locate and open BwOP IP-1. • Reviews prerequisites, precautions, and limitations.</p> | <p>SAT UNSAT N/A <u>Comments:</u></p> |
| <p>*2. Energize Inverter 2IP05E. (NOTE: Examinee should use phone to contact NLO and NSO). If radio is tried in the room, CUE: MCR says to use phone. (CUE: NLO performs a first check, then reports Feed Breaker 231X2 cub C2 is CLOSED.) (1.a.) (CUE: 125 VDC Panel 211 BF1, ckt 1 is CLOSED) (1.b.) (CUE: Battery Input Bkr 2CB is in the CLOSED (ON) position.) (1.c.) (CUE: Pre-charge 1PB is DEPRESSED and 20 secs have elapsed.) (1.d.) (CUE: DC Input Bkr 3CB is in the CLOSED (ON) position.) (1.e.) (CUE: Pre-charge 1PB button is released.) (1.f.) (CUE: When appropriate meter checked, Output voltage indicates 120 volts.) (1.g.) (CUE: AC Output Bkr 4CB is in the CLOSED (ON) position.) (1.g.)</p> | <p>Energize Inverter 2IP05E as follows: • DIRECT NLO to CLOSE Inverter 2IP05E AC feed breaker at 231X2 cub C2. • CLOSE Inverter 2IP05E MMC feed breaker at 125 VDC distribution panel 211 BF1, ckt 1. • CLOSE 'Battery Input Bkr 2CB' on the inverter. • DEPRESS the 'Pre-charge 1PB' button, and HOLD for at least 15 seconds before performing the next step. • CLOSE 'DC Input Bkr 3CB' on the inverter. ○ RELEASE the 'Pre-charge 1PB' button. • CLOSE 'AC Output Bkr 4CB' AFTER AC Voltmeter indicates output voltage >110V.</p> | <p>SAT UNSAT N/A <u>Comments:</u></p> |

| Performance Step | Standard | Circle Applicable |
|---|---|--|
| <p>*3. Transfer Instrument Bus 211 power source to the Inverter 2IP05E.</p> <p>(CUE: If asked, Control room directs you to coordinate with the NSO standing by at Instrument Bus 211.)</p> <p>(CUE: NSO reports reserve Inst Bus 211 AC feed bkr is in OFF) (1.h.)</p> <p>(CUE: NSO reports interlock bar will allow closure of the Inst bus 211 Normal AC feed bkr.) (1.i.)</p> <p>(CUE: NSO reports Inst bus 211 Normal AC feed bkr is ON.) (1.j.)</p> <p>(CUE: Rectifier AC Input Bkr 1CB is in the CLOSED position.) (1.k.)</p> | <p>Inform the Control Room that you are ready to transfer Instrument Bus 211 power source to Inverter 2IP05E.</p> <p>CHECK that the NSO at Instrument bus 211 has performed the following:</p> <ul style="list-style-type: none"> • Reserve AC feed breaker on Instrument Bus 211 is in the OFF position. • Interlock bar has been moved to allow the closure of the Inst bus 211 Normal AC feed breaker. • Normal AC feed breaker is in the ON position. <p>ENERGIZE Instrument Bus 211 from Inverter 2IP05E as follows:</p> <ul style="list-style-type: none"> o CLOSE 'Rectifier AC Input Bkr 1CB' on Inverter 2IP05E. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |
| <p>4. CVT shutdown</p> <p>(CUE: Instrument Bus 211 Transformer Input Bkr is in the OFF position.) (1.1.)</p> <p>(CUE: Inverter Cooling Fan, 2IP09E, control switch is in the ON position.) (1.m.)</p> | <p>DE-ENERGIZE the CVT as follows:</p> <ul style="list-style-type: none"> • PLACE Instrument Bus 211 Transformer Input Breaker at 2IP01E in OFF position. • START 2IP09E, Inverter Cooling Fan at 2IP05E inverter. | <p>SAT UNSAT N/A</p> <p><u>Comments:</u></p> |

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

TASK CONDITIONS:

1. You are a Non Licensed Operator.
2. Unit 2 is in MODE 3.
3. Unit 2 had experienced a loss of Instrument Bus 211 due to Inverter 2IP05E failure. Instrument Bus 211 was energized from the CVT 2IP01E last shift.
4. Maintenance has repaired the Inverter.

INITIATING CUES:

1. The US has directed you to startup Instrument Bus Inverter 2IP05E per BwOP IP-1 and restore it as the power supply to the bus and then shutdown the CVT. An NLO is standing by at MCC 231X2, and an NSO is standing by at Instrument Bus 211.

Exam Material

SIMULATOR SETUP INSTRUCTIONS

JPM NO: IP-603

REQUIRED SIMULATOR MODE(S): N/A, IN PLANT

MALFUNCTION #'S: N/A

COMMENTS:

Exam Material