

***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM JPSF-025NRC***

**START AND LOAD "A" EMERGENCY DIESEL GENERATOR**

***APPROVAL:***

***APPROVAL DATE:***

***REV NO: 6***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

064-003-01-01            LOAD THE DIESEL GENERATOR

**TASK STANDARD:**

Examinee trips diesel due to overload. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

SIMULATOR

**PREFERRED EVALUATION METHOD**

PERFORM

**REFERENCES:**

SSCB-IV-7  
SOP-306

DIESEL GENERATOR POWER FACTOR, CURRENT VS. LOAD  
EMERGENCY DIESEL GENERATOR

**TOOLS:**

Calculator  
SOP-306, EMERGENCY DIESEL GENERATOR

**EVALUATION TIME**

25

**TIME CRITICAL**

No

**10CFR55:** 45(a)8

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:

UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The plant is operating at 100% power with normal AC power available to all buses. It is A2 Maintenance Work Week. Relay testing is in progress on 1DA which has necessitated the removal of 1DA from NORMAL and EMERGENCY feed. Station and Operations Management have given approval for this work due to recent OE concerning maintenance of these relays. "A" D/G is to be started and loaded onto bus 1DA. Bus 1DA will then be divorced from its NORMAL and EMERGENCY power sources until completion of testing. All pre-start check steps have been completed.

***INITIATING CUES:*** CRS directs starting and loading of "A" D/G per SOP-306, Section IV.A, Steps 2.2.j thru 2.5.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### ***OPERATOR INSTRUCTIONS:***

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The plant is operating at 100% power with normal AC power available to all buses. It is A2 Maintenance Work Week. Relay testing is in progress on 1DA which has necessitated the removal of 1DA from NORMAL and EMERGENCY feed. Station and Operations Management have given approval for this work due to recent OE concerning maintenance of these relays. "A" D/G is to be started and loaded onto bus 1DA. Bus 1DA will then be divorced from its NORMAL and EMERGENCY power sources until completion of testing. All pre-start check steps have been completed.

***INITIATING CUES:*** CRS directs starting and loading of "A" D/G per SOP-306, Section IV.A, Steps 2.2.j thru 2.5.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

<b>CR SEQ</b>	<b>STEP:</b> 1	<b>STEP STANDARD:</b>
No Yes	Depress the GEN RELAYS RESET Pushbutton	DG A GEN RELAYS RESET Pushbutton is Depressed

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b> 2	<b>STEP STANDARD:</b>
No Yes	Momentarily place the EXCITER Switch to RESET	DG A EXCITER SWITCH taken to RESET

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b> 3	<b>STEP STANDARD:</b>
No Yes	Ensure DG A AUTOSTART NOT READY (XCP-636 1-2) Annunciator is clear	DG A AUTO START NOT READY alarm is clear

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    7  
No Yes    Verify D/G starts and accelerates to 58.9 - 61.1 Hertz and 6800-7600 volts.

**STEP STANDARD:**  
DG A VOLTS indicates 6800-7600 volts and FREQUENCY indicates 58.9 - 61.1 Hertz.

**CUES:**    **SAT**  
CUE: For purposes of time compression, examiner should inform examinee that 10 **UNSAT** minutes has elapsed since the D/G was started. This in reference to Note 2.4 in the procedure. .

**COMMENTS:**

**CR SEQ**    **STEP:**    8  
No No    Ensure VOLT REG switch is in AUTO.

**STEP STANDARD:**  
VOLT REG switch for the 'A' D/G indicates AUTO.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    9  
Ye Yes    Place the DG A SYNC SEL switch in DSL.

**STEP STANDARD:**  
DG A SYNC SEL switch indicates DSL.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
No No    Monitor voltage on 1DA SYNC VOLTS and SYNC VOLTS.

**STEP STANDARD:**  
Locates 1DA SYNC VOLTS and SYNC VOLTS meters and monitors voltage.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    11  
Ye No    Adjust SYNC VOLTS to slightly higher than 1DA SYNC VOLTS using VOLT REG RAISE LOWER.

**STEP STANDARD:**  
VOLT REG RAISE LOWER switch used to adjust DG 'A' SYNC VOLTS slightly higher than 1DA SYNC VOLTS. Only critical if adjustment is necessary.

**CUES:**

NOTE: Only critical if adjustment is necessary.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    12  
Ye No    Adjust Diesel Generator "A" frequency to cause synchroscope to rotate slowly in the FAST direction using SPEED switch.

**STEP STANDARD:**  
DG 'A' SPEED switch used to adjust D/G speed so that SYNCHROSCOPE rotates slowly in the FAST direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    13  
Ye Yes    When synchroscope is in proper position,  
close BUS 1DA DG FEED breaker.

**STEP STANDARD:**  
When synchroscope is between 11  
o'clock and 12 o'clock, closes BUS 1DA  
DG FEED breaker.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    14  
No Yes    Verify breaker 1DA DG FEED breaker closed.

**STEP STANDARD:**  
Bus 1DA DG FEED breaker indicates red  
light ON, green light OFF.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    15  
No Yes    Using the SPEED Switch, adjust load as  
necessary while monitoring KILOWATTS  
Meter, AMPS Meter and KILOVARS Meter

**STEP STANDARD:**  
DG A SPEED Switch is used to adjust  
KILOWATTS Meter, AMPS Meter and  
KILOVARS Meter as necessary. Should  
raise load to between 850 and 1000 KW.

**CUES:**

CUE: For purposes of time compression, examiner should inform examinee that 10 minutes has elapsed after raising load to between 850 and 1000 KW..

**COMMENTS:**

**SAT**

**UNSAT**

**CR SEQ STEP:** 16  
No No Place D/G 'A' SYNC SEL switch in OFF.

**STEP STANDARD:**  
DG A SYNC SEL switch indicates OFF.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 17  
No Yes Using the VOLT REG RAISE-LOWER Switch,  
adjust KILOVARS

**STEP STANDARD:**  
DG A VOLT REG RAISE-LOWER Switch is  
used to adjust KILOVARS

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 18  
No Yes Utilizing Enclosure C, estimate the present load  
on 1DA.

**STEP STANDARD:**  
Uses Enclosure C to estimate current 1DA  
KW loading (approximately 2850 plus or  
minus 50 KW).

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    19  
No Yes    Using the SPEED Switch, adjust DG A load until the estimated XSW1DA load is being carried by DG A.

**STEP STANDARD:**

Operator attempts to increase load and will be unable to control KW since the D/G will malfunction. Indicated KW will increase to approximately 5000 KW with the operator unable to control D/G load.

**CUES:**

**SAT**

CUE: For purposes of time compression, examiner should inform examinee that 10 **UNSAT** minutes has elapsed. The A D/G load will increase due to the inserted malfunction once load increase is started. .

**COMMENTS:**

**CR SEQ**    **STEP:**    20  
Ye Yes    Operator trips the "A" DG

**STEP STANDARD:**

"A" DG is tripped

**CUES:**

**SAT**

CUE: Examiner ends the JPM at this point

**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

**JPM NO:** JPSF-025NRC

**DESCRIPTION:** START AND LOAD "A" EMERGENCY DIESEL GENERATOR

**IC SET:** 10 (100%)

**INSTRUCTIONS:**

1. When student is ready; RUN
2. Insert malfunction when examinee raises from 950 KW to 2250 KW (514 RPM-518 RPM over 10 minutes.)

**COMMENTS:**

JPM Initial Condition of "Cylinder Monitoring" was intentionally used to prevent requiring STP-125.002 attachments from having to be available. Also to prevent having to have a stopwatch available. This is too much effort to test the same skills as in SOP-306.

***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM JPSF-059***

***ALTERNATE ISOLATION OF RUPTURED S/G ('C' MSIV)***

***APPROVAL:***

***APPROVAL DATE:***

***REV NO: 11***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

**TASK STANDARD:**

The 'C' S/G is completely isolated from the 'A' and 'B' S/G's per EOP-4.0, steps 3.a - 3h, and step 3.i alternate actions. The use of applicable Human Performance Tools (3-way communications, self-checking, peer checking, phonetic alphabet, etc.) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

SIMULATOR

**PREFERRED EVALUATION METHOD**

PERFORM

**REFERENCES:** EOP-4.0

STEAM GENERATOR TUBE RUPTURE

**TOOLS:** EOP-4.0

**EVALUATION TIME**

20

**TIME CRITICAL**

NO

**10CFR55:** 45(A)6

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:

UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The 'C' Steam Generator has experienced a tube rupture. The crew has taken actions through step 2 of EOP-4.0.

***INITIATING CUES:*** The CRS has directed the isolation of the RUPTURED S/G per EOP-4.0, step 3.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## *JPM BRIEFING SHEET*

### *OPERATOR INSTRUCTIONS:*

### *SAFETY CONSIDERATIONS:*

*INITIAL CONDITION:* The 'C' Steam Generator has experienced a tube rupture. The crew has taken actions through step 2 of EOP-4.0.

*INITIATING CUES:* The CRS has directed the isolation of the RUPTURED S/G per EOP-4.0, step 3.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**



**STEPS**

**CR SEQ**    **STEP:**    1  
No Yes    Place 'C' Steamline power relief in manual and closed.

**STEP STANDARD:**  
'C' Steamline PWR RELIEF SETPT controller indicates manual and 0.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    2  
No Yes    Adjust 'C' Steamline power relief setpoint controller to 8.85.

**STEP STANDARD:**  
'C' Steamline PWR RELIEF SETPT controller indicates 8.85 (1150 psig).

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    3  
No Yes    Align 'C' Steamline power relief for power relief operation.

**STEP STANDARD:**  
'C' Steamline Power Relief mode switch indicates PWR REL and the setpoint controller indicates AUTO.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    4  
No No    Place both steam dump interlock switches to bypass interlock.

**STEP STANDARD:**  
Both STM DUMP INTERLOCK switches indicate BYP INTLK when RCS Tavg <552°F.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
No Yes    Verify the 'C' steamline power relief indicates closed.

**STEP STANDARD:**  
PCV-2020 indicates red light OFF, green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
Ye Yes    Isolate the TDEFP steam supply from 'C' S/G.

**STEP STANDARD:**  
PVG-2030 STM SPLY TO TD EFP TRN A (B) indicates closed. AO deenergizes XVG-2802B at XMC-1DB2Y and closes XVG-2802B locally.

**CUES:**

**SAT**  
**UNSAT**

NOTE: Operator may have already closed XVG-2802B from MCB IAW OAP-103.4. Annunciators 622 2-3 and 623 2-3 are expected alarms for TFEFP Suto Start Defeated.

**COMMENTS:**

**CR SEQ STEP:** 7  
No Yes Isolate blowdown from the ruptured S/G.

**STEP STANDARD:**  
PVG-503C indicates red light OFF, green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 8  
No Yes Isolates main steam drains from 'C' S/G.

**STEP STANDARD:**  
PVT-2843C and PVT-2877B indicate red light OFF, green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 9  
No Yes Attempts to close PVM-2801C.

**STEP STANDARD:**  
Notes MSIV 'C' still indicates red light ON, green light OFF.

**CUES:**

Operator may send someone out to locally close "C" MSIV while proceeding.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 10  
Ye Yes Close MSIVs for 'A' and 'B' S/G's.

**STEP STANDARD:**  
PVM-2801A&B, MS ISOLATION VALVE,  
indicates red light OFF and green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 11  
Ye Yes Verify MS Isolation Bypass valves closed.

**STEP STANDARD:**  
Verifies PVM-2869A (B) (C) have closed  
indication (red light off and green light lit).

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 12  
Ye Yes Isolate main steam to aux steam.

**STEP STANDARD:**  
Closes PCV-2058, MS TO AUX STM,  
indicates red light OFF and green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    13  
Ye Yes    Isolate sealing steam.

**STEP STANDARD:**  
Closes MVG-1701, STEAM SEAL FEED VLV, indicates red light OFF and green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    14  
Ye Yes    Close main turbine stop valve before seat drains.

**STEP STANDARD:**  
Closes MVG-2896A-D, SV-1 (2,3,4) BSD, indicates red light OFF and green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    15  
Ye Yes    Isolate steam to deaerator.

**STEP STANDARD:**  
Places IPV-2231, MS/PEGGING STM TO DEAERATOR, controller in MAN and output of 0%.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 16  
No Yes Isolate steam to MSRs.

**STEP STANDARD:**  
As MSR DCS, MVG-2811 and XVG-2807 indicate closed.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 17  
Ye Yes Ensure steam dumps closed.

**STEP STANDARD:**  
Places STM DUMP CNTRL controller in MAN and output of 0% and STM DUMP MODE SELECT switch to STM PRESS.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 18  
Ye Yes Ensure main steam drains are closed.

**STEP STANDARD:**  
The following valve switches are in AUTO with red light OFF and green light ON: PVT-2870, TO MSR A&B DRN, PVT-2851A-D, MS LINES TO TURB DRN, PVT-2713A-D, STEAM DUMP DRN BYP, PVT-2838A,B, HDR DRNS. Notes PVT-2875, To MSR A&B DRN indicates mid-position.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    19  
Ye Yes    Direct Turbine Building operator to complete ATT. 1, including alternate isolation for PVT-2875.

**STEP STANDARD:**  
Turbine Building operator acknowledges and completes ATT. 1, including local valve XVT-2872.

**CUES:**  
Both operator acknowledges as TB operator, to perform ATT. 1 of EOP-4.0 including alternate isolation for PVT-2875 if directed.

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## JPM SETUP SHEET

**JPM NO:** JPSF-059

**DESCRIPTION:** ALTERNATE ISOLATION OF RUPTURED S/G ('C' MSIV)

**IC SET:** 10 or 328

### **INSTRUCTIONS:**

1. Activate

MAL-RCS002C SEVERITY=450 RAMP=30 (SGTR ON 'C' S/G)

2. RUN 180 seconds

3. Manual SI and perform actions of EOP-1.0 & EOP-4.0 up through step 2.

4. Throttle EFW flow to 'C' S/G when > 30% level.

5. FREEZE

6. Activate

MAL-MSS006C SELECT= FAIL TO CLOSE ('C' MSIV FAIL TO CLOSE)

OVR-MS077B SELECT=ON (2875 INDICATION FAILS TO MIDPOSITION)

(2872 is not modeled but the booth operator can tell the control room it is closed because the drain is not open)

7. RUN 5 seconds and acknowledge annunciators

8. When student is ready:

RUN

9. Local Operator Actions when instructed:

Steam Drain Valves:

VLV-MS042P SEVERITY=0 (2875(2872)

LOA-FWM027 SEVERITY=-15 (IPV-2232 - Sparging Steam to DA)

Trigger #2

LOA-MSS033 SELECT=RACK OUT (RACK OUT BKR FOR MVG-2802B (STM SUPPLY TO TDEFP))

### **COMMENTS:**



***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM JPSF-012NRC***

***DROPPED ROD RECOVERY***

***APPROVAL: APPROVAL DATE:***

***REV NO: 0***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

000-003-05-01          RESPOND TO DROPPED CONTROL ROD

**TASK STANDARD:**

Manual reactor trip inserted after second control rod drops. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

SIMULATOR

**PREFERRED EVALUATION METHOD**

PERFORM

**REFERENCES:**      AOP-403.6          DROPPED CONTROL ROD

**TOOLS:**          AOP-403.6 (TO RECORD AFFECTED BANK HEIGHTS and to provide engineering numbers for limitations on rod withdrawal rates)

**EVALUATION TIME**          15          **TIME CRITICAL**    No          **10CFR55:** 45(A)5

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:                  UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant was operating at 75% power with all controls in automatic when control rod "F2" dropped due to a blown fuse. The blown fuse was replaced in the 1AC power cabinet. Actions of AOP-403.6 have been completed through Step 10.

***INITIATING CUES:*** CRS has directed NROATC to recover control rod "F-2" per AOP-403.6, starting with Step 11.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### ***OPERATOR INSTRUCTIONS:***

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant was operating at 75% power with all controls in automatic when control rod "F2" dropped due to a blown fuse. The blown fuse was replaced in the 1AC power cabinet. Actions of AOP-403.6 have been completed through Step 10.

***INITIATING CUES:*** CRS has directed NROATC to recover control rod "F-2" per AOP-403.6, starting with Step 11.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ**    **STEP:**    1  
No Yes    Record Step Counter readings for both groups  
of the affected bank.

**STEP STANDARD:**  
Step counter reading for both groups in  
Control Bank "A" have been recorded as  
230 steps.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    2  
No Yes    Record P/A Converter Reading.

**STEP STANDARD:**  
P/A converter reading has been recorded.

**CUES:**

Booth operator gives examinee P/A converter reading of 230 steps.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    3  
Ye Yes    Rotate ROD CNTRL BANK SEL switch  
clockwise to the affected bank position.

**STEP STANDARD:**  
ROD CNTRL BANK SEL Switch has been  
rotated clockwise to the CBA position.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    4  
No Yes    Manually reset Demand Step Counter for the affected group to zero.

**STEP STANDARD:**  
The step counter for Bank A GROUP 1 has been reset to zero.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
Ye Yes    Place all Lift Coil Disconnect Switches for the affected bank, except switches for the dropped rod, to the ROD DISCONNECTED position.

**STEP STANDARD:**  
All lift coil disconnect switches for Control Bank "A" rods, except Rod "F-2", have been placed in the ROD DISCONNECTED position.

**CUES:**

As the CRS, examiner should prompt the examinee to disconnect the affected bank. Explain that the BOP operator will watch the MCB while he accomplishes this task.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
Ye Yes    Withdraw the dropped rod: Drive the affected bank out.

**STEP STANDARD:**  
Rod F2 is moving in the outward direction.

**CUES:**

If rod withdrawal rate is requested "use not greater than 50 step increments not to exceed 80% power." Rod Control System Fail Urgent Alarm will alarm. If examinee asks whether to depress the ROD CNTRL ALARM RESET switch, as the CRS, direct him to depress the switch after the rod has been realigned.

**SAT**

**UNSAT**

Fill in on procedure ahead of time.

**COMMENTS:**

**CR SEQ**    **STEP:**    7  
No Yes    Verify dropped rod movement on the digital rod position indicator.

**STEP STANDARD:**  
DRPI indicator for rod "F-2" in Bank "A" is verified to be moving out in 6 step increments.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    8  
No Yes    When dropped rod moves 6 steps, then verify ONE ROD ON BOTTOM annunciator clears.

**STEP STANDARD:**  
ONE ROD ON BOTTOM annunciator is observed to be flashing (in the reset condition).

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    9  
No Yes    Adjust turbine load to maintain Tavg within  $\pm 5^\circ\text{F}$  of Tref.

**STEP STANDARD:**  
Tavg - Tref within  $\pm 5^\circ\text{F}$ .

**CUES:**

No turbine manipulations are required since TAVG will remain within  $5^\circ\text{F}$  of Tref. **UNSAT**

**COMMENTS:**





**CR SEQ**    **STEP:**    13  
Ye Yes    Observes that Rod P-6 drops into the core while rod F-2 remains stuck at approximately 30 steps

**STEP STANDARD:**  
Evaluates as 2 dropped rods.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    14  
Ye Yes    Inserts a manual reactor trip.

**STEP STANDARD:**  
Places the manual reactor trip switch to the TRIP position. Both Reactor Trip breakers indicate green light ON, red light OFF. All rod bottom lights are lit.

**CUES:**

The examinee should insert a manual reactor trip upon observing control rod P6 drop. Continuing to withdraw original dropped rod more than 12 steps after the second rod is dropped constitutes failure.

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

**JPM NO:** JPSF-012NRC

**DESCRIPTION:** DROPPED ROD RECOVERY

**IC SET:** 11 (75%)

**INSTRUCTIONS:**

1. RUN

2. Activate:

MAL-CRF004F2      SELECT=STATIONARY      (Control rod F2 drops)

3. Clear MAL-CRF004F2 after rod drops.

4. Control Tav<sub>g</sub>-Tref deviation within  $\pm 1.5^\circ\text{F}$  with rods in AUTO

5. Place rod control in MANUAL

6. FREEZE

7. When student is ready:

RUN

8. When control rod F2 is withdrawn to approximately 30 steps, insert: Trig #1  
MAL-CRF007F2      SELECT=UNTRIPPABLE      (Rod F2 sticks)

When Rod Control is placed in Manual - Trig #2.  
MAL-CRF004P6      SELECT=STATIONARY      (Control rod P6 drops)

**COMMENTS:**

Report P/A Converter reading is 230 steps. If a rate of rod withdrawal is requested from engineering, "use not more than 50 step increments not to exceed 80% power."

d

# ***V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE***

***JPM            JPS-020NRC***

**SECURE NORMAL LETDOWN AND PLACE EXCESS  
LETDOWN IN SERVICE**

***APPROVAL:***

***APPROVAL DATE:***

***REV NO: 1***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

004-016-01-01

ESTABLISH EXCESS LETDOWN TO VOLUME CONTROL TANK(VCT) OR REACTOR COOLANT DRAIN TANK(RCDT)

**TASK STANDARD:**

Excess letdown flow is established with final excess letdown HX outlet temperature < 165°F.

**PREFERRED EVALUATION LOCATION**

**PREFERRED EVALUATION METHOD**

SIMULATOR

PERFORM

**REFERENCES:** SOP-102

CHEMICAL AND VOLUME CONTROL SYSTEM

**TOOLS:**

**EVALUATION TIME**

15

**TIME CRITICAL**

No

**10CFR55:** 45(A)7

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:

UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant is at 75% power with all controls in AUTO. A letdown line leak has occurred.

***INITIATING CUES:*** The Control Room Supervisor directs removing Normal letdown from service per SOP-102, IV.N and establishing excess letdown to the RCDDT per SOP-102, IV.C.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### ***OPERATOR INSTRUCTIONS:***

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant is at 75% power with all controls in AUTO. A letdown line leak has occurred.

***INITIATING CUES:*** The Control Room Supervisor directs removing Normal letdown from service per SOP-102, IV.N and establishing excess letdown to the RCDDT per SOP-102, IV.C.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

<b>CR SEQ</b>	<b>STEP:</b> 1	<b>STEP STANDARD:</b>
Ye Yes	Ensure the following Orifice Isolation Valves are closed: PVT-8149A, LTDN ORIFICE A ISOL (45 gpm), PVT-8149B, LTDN ORIFICE B ISOL (60 gpm). PVT-8149C, LTDN ORIFICE C ISOL (60 gpm).	8149A, 8149B, & 8149C (green light on & red light off) (624 4-4 alarms for RML-1 Trouble. This is expected alarm for letdown isolation

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b> 2	<b>STEP STANDARD:</b>
No Yes	Close PVT-8152, LTDN LINE ISOL.	8152 (green light on & red light off

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b> 3	<b>STEP STANDARD:</b>
No Yes	Place FCV-122, CHG FLOW, in MAN and close.	122 indicates closed

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    4  
No Yes    If necessary, close the following Charging  
Line Isolation Valves:  
a. MVG-8107, CHG LINE ISOL.  
b. MVG-8108, CHG LINE ISOL.

**STEP STANDARD:**  
not performed

**CUES:**    **SAT**  
Cue operator that closing these valves is not necessary. Verifies CCW in service **UNSAT**  
per SOP-110.

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
No No    Checks Core Thermal power.

**STEP STANDARD:**  
Core power determined to be less than  
2898 Mwt.

**CUES:**    **SAT**  
cue the operator that the initial conditions for Establishing Excess Letdown have **UNSAT**  
been met

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
No Yes    Ensure HCV-137 closed.

**STEP STANDARD:**  
HCV-137, XS LTDN HX, controller  
indicates 0% demand.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ STEP: 7**

Ye No Place excess letdown to RCDT.

**STEP STANDARD:**

PVM-8143, XS LTDN TO VCT OR RCDT, indicates RCDT position.

**CUES:**

Examiners (as CRS) directs operator to send excess letdown to the RCDT.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP: 8**

No No Ensure MVG-9583 is open.

**STEP STANDARD:**

MVG-9583, FROM XS LTDN HX, indicates red light ON, green light OFF.

**CUES:**

NOTE: step 2.3 N/A because there is no Phase A isolation signal and step 2.4 is N/A because Excess letdown is being aligned to the RCDT.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP: 9**

Ye Yes Opens PVT-8153 and PVT-8154, XS LTDN ISOL.

**STEP STANDARD:**

PVT-8153 and 8154, XS LTDN ISOL, indicates red light ON, green light OFF.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
No No       Directs the building operator to locally monitor  
RCDT level and pump operation at XPN0007

**STEP STANDARD:**  
communicates direction to building operator

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    11  
Ye Yes       Establishes excess letdown flow.

**STEP STANDARD:**  
Slowly increases demand on HCV-137 XS  
LTDN HX CNTRL with final TI-139, XS  
LETDOWN HX OUT TEMP < 165°F and XS  
LTDN TEMP HI annunciator not in alarm.

**CUES:**

NOTE: Receipt of the XS LTDN/RCDT HX CCW OUT TEMP HI annunciator is not grounds for failure of the JPM, but temperature must be reduced below 165°F before completing the JPM satisfactorilly.

**COMMENTS:**

**CR SEQ**    **STEP:**    12  
No Yes       Checks proper RCP #1 seal leakoff flow.

**STEP STANDARD:**  
Checks FR-154A & B RCP SL LKOFF HI &  
LO RANGE normal (0.2 - 5.0 gpm).

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

***JPM NO:*** JPS-020NRC

***DESCRIPTION:*** SECURE NORMAL LETDOWN AND PLACE EXCESS LETDOWN IN SERVICE

***IC SET:*** 11 (75%)

***INSTRUCTIONS:***

1. RUN
2. Initialte 5 GPM letdown line leak
3. FREEZE
4. When student is ready:

RUN

***COMMENTS:***

***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM JPS-068***

**SHIFT COMPONENT COOLING WATER TRAINS**

***APPROVAL:***

***APPROVAL DATE:***

***REV NO: 7***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

008-021-01-01 SWITCH COMPONENT COOLING WATER TRAINS

**TASK STANDARD:**

The 'B' CCW pump is supplying non-essential loads in slow speed. CCW flow to non-essentials is not interrupted. "C" CCW is aligned to "B" Train. 'B' charging pump is running. 'A' Train CCW is aligned to essential loads. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

SIMULATOR

**PREFERRED EVALUATION METHOD**

PERFORM

**REFERENCES:**

SOP-102  
SOP-118

CHEMICAL AND VOLUME CONTROL SYSTEM  
COMPONENT COOLING SYSTEM

**TOOLS:**

**EVALUATION TIME** 25 **TIME CRITICAL** No **10CFR55:** 45(a)8

**CANDIDATE:**

TIME START:  
TIME FINISH:

**PERFORMANCE RATING:**

SAT: UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The plant is in Mode 1. "A" Train CCW is the active loop with "A" CCW pump running in slow speed. "B" Chilled Water Pump and Chiller have been started in preparation for starting "B" Charging Pump.

***INITIATING CUES:*** CRS directs NROATC to perform an active CCW loop switchover to "B" Train for "A" Train maintenance per SOP-118.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### ***OPERATOR INSTRUCTIONS:***

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The plant is in Mode 1. "A" Train CCW is the active loop with "A" CCW pump running in slow speed. "B" Chilled Water Pump and Chiller have been started in preparation for starting "B" Charging Pump.

***INITIATING CUES:*** CRS directs NROATC to perform an active CCW loop switchover to "B" Train for "A" Train maintenance per SOP-118.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

<b>CR SEQ</b>	<b>STEP:</b>	<b>1</b>	<b>STEP STANDARD:</b>
No No	Places XPP-001C, PUMP C, TRAIN A and TRAIN B ('C' CCW pump) in PULL-TO-LOCK.		Places 'C' CCW pump Train A and Train B switch in PULL-TO-LOCK.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b>	<b>2</b>	<b>STEP STANDARD:</b>
No No	Align XPP-001C, PUMP C, to Train B per Attachment VB with the exception of racking in XSWIDB-II, CC PUMP C XPP0001C-CC.		Directs AO to align 'C' CCW pump to the 'B' loop. AO completes Attachment VB of SOP-118.

**CUES:**

**SAT**

**UNSAT**

Booth operator initiates batch file CCCW2B. After amber "B SELECTED" light comes on for the 'C' CCW pump Transfer Switch on 'B' Train; as the Auxiliary Operator, booth operator reports Attachment VB is complete, except for racking in the 'C' pump breaker on 'B' Train.

**COMMENTS:**

<b>CR SEQ</b>	<b>STEP:</b>	<b>3</b>	<b>STEP STANDARD:</b>
No No	Ensure MVB-9503B, CC TO RHR HX B, (CCW to the 'B' RHR heat exchanger) is open.		Verifies MVB-9503B, CC TO RHR HX B open with indication of red light ON and green light OFF.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    4  
Ye Yes    Start one of the following in slow speed:  
            XPP-0001B, PUMP B

**STEP STANDARD:**  
Starts 'B' CCW Pump running in slow speed with red indicating light ON and green light OFF. Notes that starting amps decay to normal running current.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
Ye No    Start MVB-9503B, CC TO RHR HX B, stroking  
            in the closed direction.

**STEP STANDARD:**  
Places control switch for MVB-9503B in CLOSE. Observes valve in mid-position.

**CUES:**

Per CAUTION 2.3.c and 2.3.d (SOP-118, III.B): Failure to complete Step 2.3.d in a timely manner after reducing RHR Heat Exchanger Flow will result in a loss of flow through the running CCW Pump or excessive flow perturbations in the CCW non-essential loop.

NOTE TO EVALUATOR: Steps 5 - 8 of this JPM will be performed concurrently in rapid succession.

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
Ye Yes    When flow, as indicated on FI-7044, HX B FLOW GPM, is between 5000 gpm and 4000 gpm, perform the following in rapid succession:  
  
1) Open MVB-9687B/9525B, LP B NON-ESSEN LOAD ISOL.  
2) Open MVB-9524B/9526B, LP B NON-ESSEN LOAD ISOL.

**STEP STANDARD:**  
(Align non-essential loads to 'B' train CCW.) Places control for MVB-9524B/9526B AND MVB-9687B/9525B, LP B NON-ESSEN LOAD ISOL to OPEN, with indication of red light ON and green light OFF.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    7  
Ye Yes    When flow, as indicated on FI-7044, HX B FLOW GPM, is between 5000 gpm and 4000 gpm, perform the following in rapid succession:  
  
1) Close MVB-9524A/9526A, LP A NON-ESSEN LOAD ISOL.  
2) Close MVB-9687A/9525A, LP A NON-ESSEN LOAD ISOL.

**STEP STANDARD:**  
(Isolate non-essential loads from 'A' train CCW.) Places control switches for MVB-9524A/9526A AND MVB-9687A/9525A, LP A NON-ESSEN LOAD ISOL to CLOSE, with indication of red light OFF and green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    8  
Ye No    When flow, as indicated on FI-7044, HX B FLOW GPM, is between 5000 gpm and 4000 gpm, perform the following in rapid succession:

- 1) Open MVB-9503A, CC TO RHR HX A.

**STEP STANDARD:**

(Align CCW TO 'A' RHR heat exchanger.)  
Places control switch for MVB-9503A, CC TO RHR HX A to OPEN with indication of red light ON and green light OFF.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    9  
No No    Rack in XSW1DB11, CC PUMP C XPP0001C-CC CCW PUMP C to complete Attachment VB ("C" CCW Pump breaker on 'B' train).

**STEP STANDARD:**

Racked up in slow speed. Green light ON.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
No No    Place XPP-0001C, PUMP C, TRAIN B in After-Stop.

**STEP STANDARD:**

Places 'C' CCW pump, Train "B" switch in After-Stop.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    14  
No Yes    If XSW1DB 15, CHARGING INJ PUMP  
XPP0043B-CS, is racked down, then initiate  
Attachment VD.

**STEP STANDARD:**  
No action required as this breaker is  
racked up. Operator notes green light on  
'B' Charging Pump breaker.

**CUES:**    **SAT**  
Step 2.1 of SOP-102 is N/A because it has been out of service for 10 days.    **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    15  
No Yes    Ensure XPP-43B-PP1, CHG PP B AUX OIL PP,  
is running.

**STEP STANDARD:**  
Observes that red light for XPP-43B-PP1 is  
ON and green light is OFF.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    16  
No Yes    Ensure Train B Component Cooling is  
operating per SOP-118.

**STEP STANDARD:**  
Since this action was just previously  
accomplished, operator should simply  
check off this step.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    17  
No Yes    Ensure Train B Chill Water is operating per SOP-501.

**STEP STANDARD:**  
Operator should verify that 'B' chilled water pump and chiller are operating.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    18  
No Yes    Verify IPI00152A, CHARGING PUMP B SUCTION PRESS IND, indicates pump suction pressure is greater than 15 psig (AB-388).

**STEP STANDARD:**  
Directs AB Lower Level to report suction pressure on IPI00152A.

**CUES:**

When requested, Booth Operator reports that charging header suction pressure is 55 psig. **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    19  
No Yes    Start XPP-0043B, PUMP B.

**STEP STANDARD:**  
Places control switch for XPP-0043B in START and allows switch to spring-return to After-Start (mid-position). Notes breaker red light ON and green light OFF. Also observes starting current decays to normal running current.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    22  
Ye Yes    Stop the Charging Pump being removed from service.

**STEP STANDARD:**  
Places the control switch for 'A' Charging Pump breaker to STOP and allows it to spring-return to After-Stop (mid-position).  
Notes that running current drops to ZERO.

Places the "CCW/CHG Pump warning tag" on the control switch for 'A' Charging Pump breaker.

**CUES:**    **SAT**  
NOTE TO EVALUATOR: Transfer of "CCW/CHG Pump warning tag is NOT critical.    **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    23  
No Yes    Verify PI-121, CHG PRESS PSIG, is between 2650 psig and 2850 psig.

**STEP STANDARD:**  
Observes that discharge pressure on PI-121 is around 2700 psig.

**CUES:**    **SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    24  
No Yes    Monitor the following for proper pump operation: 1) LR-459, PZR% LEVEL & LEVEL SP. 2) FI-130A, RCP A INJ FLO GPM. 3) FI-127A, RCP B INJ FLO GPM. 4) FI-124A, RCP C INJ FLO GPM.

**STEP STANDARD:**  
Observes Pressurizer Level is about 60%, and all three seal injection flow rates are approximately 8.2 gpm.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    25  
No Yes    Align Component Cooling as required by SOP-118.

**STEP STANDARD:**  
Operator returns to SOP-118 to complete swapover of active loop.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    26  
Ye No    Secure the running Train A Component Cooling Water Pump in the off going active loop:  
1) XPP-0001A, PUMP A

**STEP STANDARD:**  
Places control switch for XPP-0001A, in STOP and allows it to spring-return to After-Stop (mid-position). Places "CHARGING PUMP IN SERVICE" tag on the control switch for 'B' CCW Pump breaker.

**CUES:**

NOTE TO EVALUATOR: Transfer of "CHARGING PUMP IN SERVICE" tag is NOT critical.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**

**STEP: 27**

No Yes

Ensure XPP-58A(B)(C), CCBP A(B)(C) are aligned as follows:

- 1) One pump is in AUTO and operating.
- 2) One pump is in AUTO and not operating.
- 3) One pump is OFF.

**STEP STANDARD:**

Checks status of XPP-58A(B)(C) Notes that CCBP A is running with the control switch in AUTO and the red light ON and green light OFF. Notes that the control switch for CCBP B is in AUTO and the red light is OFF and green light ON. Notes that the control switch for CCBP C is in OFF and the red light is OFF and green light ON.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

**JPM NO:** JPS-068

**DESCRIPTION:** SHIFT COMPONENT COOLING WATER TRAINS

**IC SET:** 10 or 324

**INSTRUCTIONS:**

1. RUN
2. Start 'B' Chilled Water Pump and 'B' HVAC Chiller
3. When student is ready: RUN
4. When AO requested by student to complete Attachment VIB of SOP-118, enter the following:

RUN BATCH FILE CCCW2B

LOA-CCW045 SELECT=RACK IN (RACK UP 'C' CCW PUMP BREAKER ON "B" TRAIN)

**COMMENTS:**

# ***V.C. SUMMER NUCLEAR STATION JOB PERFORMANCE MEASURE***

***JPM            JPSF-083***

**RESPOND TO LOSS OF SECONDARY HEAT SINK**

***APPROVAL:            APPROVAL DATE:***

***REV NO: 7***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

311-006-06-01                    RESPONSE TO LOSS OF SECONDARY HEAT SINK

**TASK STANDARD:**

Condensate flow has been established to at least one S/G via the FRV bypass valves by dumping steam via the condenser steam dumps (Power Reliefs if C-9 not available).

**PREFERRED EVALUATION LOCATION**

**PREFERRED EVALUATION METHOD**

SIMULATOR

PERFORM

**REFERENCES:**    EOP-15.0

RESPONSE TO LOSS OF SECONDARY HEAT SINK

**TOOLS:**        EOP-15.0

**EVALUATION TIME**

20

**TIME CRITICAL**

No

**10CFR55:** 45(A)7

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:

UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

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### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant has experienced a trip from 100% due to a feedwater isolation with no EFW available. EOP-15.0 (Loss of Secondary Heat Sink) has been entered and steps 1-7 have been completed.

***INITIATING CUES:*** The CRS directs operator to respond to loss of secondary heat sink per EOP-15.0, starting with Step 8.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## *JPM BRIEFING SHEET*

### *OPERATOR INSTRUCTIONS:*

### *SAFETY CONSIDERATIONS:*

*INITIAL CONDITION:* Plant has experienced a trip from 100% due to a feedwater isolation with no EFW available. EOP-15.0 (Loss of Secondary Heat Sink) has been entered and steps 1-7 have been completed.

*INITIATING CUES:* The CRS directs operator to respond to loss of secondary heat sink per EOP-15.0, starting with Step 8.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ STEP:** 1  
No Yes Ensure one condensate pump is running

**STEP STANDARD:**

'A' Condensate pump indicates red light ON, green light OFF. 'B' and 'C' Condensate pumps indicate red light OFF, green light ON.

**CUES:**

Cue operator to keep 'A' Condensate pump running.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 2  
No Yes Ensure two FWBP's are running

**STEP STANDARD:**

'A' and 'B' FWBPs indicate red light ON, green light OFF. 'C' and 'D' FWBP indicate red light OFF, green light ON.

**CUES:**

Cue operator to keep 'A' & 'B' FWBPs running.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 3  
No Yes Ensure FW FCV's are closed.

**STEP STANDARD:**

FCV-478, 488, and 498 indicate red light OFF, green light ON.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**



**CR SEQ**    **STEP:**    4  
No Yes    Place FW bypass controllers in manual and close.

**STEP STANDARD:**  
FCV-3321,3331,3341 controller red MAN light is lit and demand is 0.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
Ye Yes    Bypass FWIV signal.

**STEP STANDARD:**  
Directs CB Operator to perform step 8e of EOP-15.0.

**CUES:**

NOTE: Booth Operator (as CB Operator) will bypass FWIVs and bypasses.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
No Yes    Verify no steam line isolation signal.

**STEP STANDARD:**  
RB PRESS HI-2 STM LINE ISOL (XCP-612 2-1) is not lit.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 7  
Ye Yes Close the 'A' and 'C' MSIV's.

**STEP STANDARD:**  
PVM-2801A & C indicate red light OFF,  
green light ON.

**CUES:** **SAT**  
Prompt the student that the 'B' S/G will be used to establish a heat sink. NOTE: A **UNSAT**  
Safety Injection signal may be generated during this step.

**COMMENTS:**

**CR SEQ STEP:** 8  
Ye No Open the 'B' MS Isolation Bypass Valve.

**STEP STANDARD:**  
Both MAIN STEAM ISOL VALVES RESET  
TRAIN A(B) momentarily depressed.  
PVM-2869B indicates red light ON, green  
light OFF.

**CUES:** **SAT**  
NOTE: This step is only performed and therefore only critical if the 'B' MSIV closes **UNSAT**  
on a Isolation signal during the previous step.

**COMMENTS:**

**CR SEQ STEP:** 9  
No Yes Place FW switches in automatic.

**STEP STANDARD:**  
PVG-1611A(B)(C) and FCV-  
3321,3331,3341 Train A and B switches  
indicate AUTO.

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 10  
Ye Yes Reset SI.

**STEP STANDARD:**

Momentarily places both SI RESET TRAIN A(B) switches to the RESET position.

**CUES:**

**SAT**

NOTE: If SI signal has NOT been generated by this time, student must wait >60 seconds to reset if the SI signal is generated later in procedure. **UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 11  
No Yes Verify the condenser is available.

**STEP STANDARD:**

C-9 status light is bright.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 12  
No Yes Open MFP turbine drain valves.

**STEP STANDARD:**

MOV-1-5A indicates red light ON, green light OFF.

**CUES:**

**SAT**

Cue student that the 'A' MFP will be used to establish a heat sink. NOTE: Student only required to open drain valve for the 'A' MFP. **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    13  
No Yes    Reset the 'A' MFP.

**STEP STANDARD:**  
FWP A TRIP/RESET switch momentarily taken to reset. Student notes 'A' MFP will not reset.

**CUES:**    *SAT*  
NOTE: MFP will not reset due to the 'B' Train FW isolation signal. Attempting to start another MFP would not constitute a failure.    *UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:**    14  
Ye No    Bypass the steam dump interlock when Tav<sub>g</sub> is <552°F (P12 interlock bright).

**STEP STANDARD:**  
Both STM DUMP INTERLOCK Switches taken to the BYP INTLK position.

**CUES:**    *SAT*  
NOTE: Only performed/critical if Tav<sub>g</sub> decreases below 552°F.    *UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:**    15  
Ye Yes    Establish flowpath to the 'B' S/G (Opens FVC-3331.

**STEP STANDARD:**  
FCV-3331 controller indicates full open.

**CUES:**    *SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:**    16

Ye Yes    Depressurize the 'B' S/G via the steam dumps and establish FW flow to the 'B' S/G.

**STEP STANDARD:**

STM DUMP MODE SELECT Switch indicates STM PRESS. STM DUMP CNTRL Controller adjusted to full open Bank 1 steam dumps. Flow indicated to "B" SG on FI-486/487.

**CUES:**

**SAT**

NOTE: If C-9 is not available, the student may perform alternate steps to dump steam via the Power Reliefs.    **UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## JPM SETUP SHEET

**JPM NO:** JPSF-083

**DESCRIPTION:** RESPOND TO LOSS OF SECONDARY HEAT SINK

**IC SET:** 10 or 325

**INSTRUCTIONS:**

1. Activate

MAL-FWM003A, 003B, 003C (EFW Pump Trip)  
MAL-PCS013B SELECT= INADVERTANT INIT (Inadvertent FW isolation ('B' Train))

2. RUN

3. Perform Immediate Actions of EOP-1.0 after reactor trip.

4. When S/G NR levels <20%:

Manually secure all three RCPs.  
FREEZE

5. When examinee is ready:

RUN

7. When requested to bypass the FW isolation signals, enter the following:

LOA-FWM040 SELECT= BYPASS  
LOA-FWM041 SELECT= BYPASS  
LOA-FWM042 SELECT= BYPASS

**COMMENTS:**

***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM            JPSF-062***

***RESPOND TO RHR PUMP VORTEXING***

***APPROVAL:            APPROVAL DATE:***

***REV NO: 4***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

000-161-05-01                    RESPOND TO RESIDUAL HEAT REMOVAL PUMP VORTEXING

**TASK STANDARD:**

'B' RHR Pump is secured.  
Transition to AOP-115.5 is recommended.  
The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

**PREFERRED EVALUATION METHOD**

SIMULATOR

PERFORM

**REFERENCES:**

**TOOLS:**        AOP-115.1

**EVALUATION TIME**                    15                    **TIME CRITICAL**    No                    **10CFR55:** 41(b)10

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:                    UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**



## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** The plant is in Mode 5 with the RCS at mid-loop conditions. The 'B' RHR loop is in service. The Mansell Level Monitoring system computer is set up in the simulator.

***INITIATING CUES:*** As the NROATC, respond to plant alarms.

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## *JPM BRIEFING SHEET*

### *OPERATOR INSTRUCTIONS:*

### *SAFETY CONSIDERATIONS:*

*INITIAL CONDITION:* The plant is in Mode 5 with the RCS at mid-loop conditions. The 'B' RHR loop is in service. The Mansell Level Monitoring system computer is set up in the simulator.

*INITIATING CUES:* As the NROATC, respond to plant alarms.

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ**    **STEP:**    1  
No No        Responds to the following annunciator:  
XCP 610 2-2, RHR LP B FLO LO

**STEP STANDARD:**  
Notes indications of B RHR pump cavitation/vortexing and Implements AOP-115.1.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    2  
Ye Yes        Close RHR outlet valve.

**STEP STANDARD:**  
HCV-603B controller setpoint indicates 0.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    3  
Ye Yes        Throttle FCV-605B to stabilize RHR flow.

**STEP STANDARD:**  
FCV-605B controller taken to manual and reduced until RHR pump amps and flow are stable.

**CUES:**

NOTE: The student should reduce RHR flow until vortexing indications stop.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    4  
No Yes    Monitor the following;

**STEP STANDARD:**  
Monitor flow on FI-605B, FLOW GPM; RHR  
PUMP 'B' AMPS; RCS heatup rate.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
No No    Monitor RCS heatup on TR-413, HOT LEG °F  
WIDE RNG.

**STEP STANDARD:**  
no significant heatup on TR-413

**CUES:**

Cue examinee that another operator will perform STP-103.001

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
No No    Verify RCS Hot Leg level elevation is  
GREATER THAN OR EQUAL TO ' 430' 8 1/2"

**STEP STANDARD:**  
Level verified approximately 430' 10" on  
Mansell and Mid loop monitors

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    7  
Ye No    Control Charging and Letdown flow to restore  
RCS Hot Leg level elevation to GREATER  
THAN 430' 10" (15.5 inches).

**STEP STANDARD:**  
Opens FCV-122 to increase charging flow  
until level starts to increase

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    8  
No Yes    Responds to annunciators XCP-607 3-4 (LD  
AB SUMP/FD LEVEL HI) and XCP-610 2-2  
(RHR LP B FLO LO)

**STEP STANDARD:**  
Notes indications of level decreasing and  
pump vortexing again

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    9  
Ye Yes    Throttle flow as necessary to stabilize RHR  
Pump amps with flow GREATER THEN  
500gpm.

**STEP STANDARD:**  
Throttle RHR flow to attempt to stabilize  
RHR Pump amps.

**CUES:**

NOTE: RHR Pump amps are still unstable and flow is <500 gpm.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
Ye Yes    Stop the operating RHR Pump.

**STEP STANDARD:**  
The operating RHR Pump is stopped.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    11  
No Yes    Go to AOP-115.5, Loss Of RHR With The RCS  
Not Intact (Mode 5).

**STEP STANDARD:**  
Recommend transition to AOP-115.5.

**CUES:**

Cue: This completes this JPM.

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## JPM SETUP SHEET

**JPM NO:** JPSF-062

**DESCRIPTION:** RESPOND TO RHR PUMP VORTEXING

**IC SET:** 20

### **INSTRUCTIONS:**

1. Place danger tags on the following components to simulate half-pipe lineup:

RB Spray pumps  
Accumulator Isolation Valves  
Reactor Coolant Pumps  
Pressurizer Heaters  
Reactor Trip Breakers

2. Set up the Mansell Level Monitoring computer in the simulator

3. If the Half-Pipe concern status board is used, the following information may be posted:

Boration flow path:

'B' Charging pump, 115 B suction, 8801A injection from RWST

B/U 'A' Charging Pump, MVG- 8104 suction, MVG-8884 injection from BAT

Comments: Maintain 6"-10" above mid-loop

Applicable procedures:

AOP-115.1 - RHR Pump Vortexing

AOP-115.5 - Loss of RHR with RCS Not Intact

4. Activate

OVR-AA028      SELECT=ON      (Override Radiation Monitoring Panel Annunciators)

5. RUN

6. Insert MAL-RHR005B Severity = 1500

7. When RHR pump cavitation starts and RHR LOOP A FLO LO annunciator is in alarm, delete MAL-RHR005B

8. Run for 5 minutes to get good trend on mid loop monitors.

FREEZE

9. Select RCS Trend from ZZMENU on MCB1 IPCS screen.

10. Energize the Audio Count Rate Circuit.

11. Do not take simulator to run until student says he/she is ready to begin JPM.

10. When student has begun to recover level, reinsert MAL-RHR005B SEVERITY = 1500 (RHR bypass

line leak), SET = Trigger #1.

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11. If necessary, Increase MAL-RHR005B severity until flow is stabilized at <500 gpm or cannot be stabilized to force them into AOP-115.5.

***COMMENTS:***



***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM            JPS-072NRC***

***RESPOND TO SOURCE RANGE CHANNEL FAILURE***

***APPROVAL:            APPROVAL DATE:***

***REV NO: 1***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

000-032-05-01            RESPOND TO SOURCE RANGE INSTRUMENTATION CHANNEL FAILURE

**TASK STANDARD:**

N-32 (the failed channel) is in a BYPASS condition, fuel movement has been stopped, and all fuel is stored in a safe location.

**PREFERRED EVALUATION LOCATION**

SIMULATOR

**PREFERRED EVALUATION METHOD**

PERFORM

**REFERENCES:**    AOP-401.9            SOURCE RANGE CHANNEL FAILURE

**TOOLS:**        Supply examinee with AOP-401.9 and ARPs for 620 4-1 and 620 4-3 as they are earned

**EVALUATION TIME**            10            **TIME CRITICAL**    No            **10CFR55:** 45(A)4

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:                    UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

### ***SAFETY CONSIDERATIONS:***

***INITIAL CONDITION:*** Plant is in mode 6 with refueling in progress and RCS temperature at 120°F. Fuel movement is in progress with assembly J-9 being moved. This JPM will be simulated in the control room.

***INITIATING CUES:*** CRS directs operator to respond as expected to MCB Annunciators for the indicated plant conditions

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## *JPM BRIEFING SHEET*

### *OPERATOR INSTRUCTIONS:*

### *SAFETY CONSIDERATIONS:*

*INITIAL CONDITION:* Plant is in mode 6 with refueling in progress and RCS temperature at 120°F. Fuel movement is in progress with assembly J-9 being moved. This JPM will be simulated in the control room.

*INITIATING CUES:* CRS directs operator to respond as expected to MCB Annunciators for the indicated plant conditions

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ STEP:** 1  
Ye Yes Stop all core alterations.

**STEP STANDARD:**  
Stops fuel movement in progress. Notify RE on headset and RB coordinator.

**CUES:** **SAT**  
CUE: N 32 Meter to zero. Instrument Power N32 off. Non operate light, level trip **UNSAT**  
light, high flux shutdown light, bistable trip spare light. Annunciators 620 4-1 and  
620 4-3 are received

**COMMENTS:**

**CR SEQ STEP:** 2  
No Yes Stop all positive reactivity additions

**STEP STANDARD:**  
Any dilution or cooldown in progress stopped.

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 3  
Ye Yes Check at least 1 Source Range channel operable

**STEP STANDARD:**  
Verifies normal/expected indication on N-31 at MCB or NIS panels.

**CUES:** **SAT**  
CUE: Instrumental Power light on control power light on. N31 reads about 20 cps. **UNSAT**

**COMMENTS:**



**CR SEQ STEP:** 7  
No Yes Verify N-32 is bypassed.

**STEP STANDARD:**  
IR & SR TRIP BYP annunciator (XCP-620 4-5) is in alarm.

**CUES:**  
CUE: IR & SR TRIP BYP annunciator (XCP-620 4-5) is in alarm.  
**COMMENTS:**

**SAT**  
**UNSAT**

**CR SEQ STEP:** 8  
No Yes Block the HIGH FLUX AT SHUTDOWN for N-32.

**STEP STANDARD:**  
Verifies HIGH FLUX AT SHUTDOWN switch for N-32 positioned to BLOCK. Verifies SR HIGH FLUX AT SHUTDN Block (XCP-620-4-4) annunciator is lit.

**CUES:**  
**COMMENTS:**

**SAT**  
**UNSAT**

**CR SEQ STEP:** 9  
No No Monitors an operable NI channel.

**STEP STANDARD:**  
Monitors N-31 and notes that it is reading as expected for current plant conditions.

**CUES:**  
CUE: N31 reads about 20 CPS  
**COMMENTS:**

**SAT**  
**UNSAT**





## **JPM SETUP SHEET**

**JPM NO:** JPS-072NRC

**DESCRIPTION:** RESPOND TO SOURCE RANGE CHANNEL FAILURE

**IC SET:**

**INSTRUCTIONS:**

1. RUN

2. Initial conditions plant is in mode 6 and moving fuel.

5. FREEZE

6. When student is ready

7. RUN

8. Activate OVR-NI053 SELECT=OFF (Blown Instrument Power Fuse on N32.) (MAL???)

THESE SETUP INSTRUCTIONS ARE N/A FOR SIMULATING IN THE MAIN CONTROL ROOM.

**COMMENTS:**

***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM***

***JPP-055NRC***

LOCALLY START THE TURBINE DRIVEN EMERGENCY  
FEEDWATER PUMP AND THROTTLE EMERGENCY  
FEEDWATER FLOW AS DIRECTED

***APPROVAL:***

***APPROVAL DATE:***

***REV NO: 0***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

061-001-05-04

LOCAL EMERGENCY START OF TURBINE DRIVEN EMERGENCY  
FEEDWATER PUMP

Turbine Driven Emergency Feedwater Pump is started locally per FEP-4.0, ENCLOSURE F and speed increased to > 4,000 rpm. Flow control valves IFV-3536, IFV-3546, & IFV-3556 are throttled to maintain SG WR levels between 50% and 60%. Enclosure F steps 2 - 4 must be completed within 30 minutes of implementation. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

***PREFERRED EVALUATION LOCATION***

***PREFERRED EVALUATION METHOD***

PLANT

SIMULATE

***REFERENCES:***

AOP-600.1

CONTROL ROOM EVACUATION

FEP-4.0

CONTROL ROOM EVACUATION DUE TO FIRE

***TOOLS:***

FEP-4.0, ENCLOSURE F

***EVALUATION TIME***

25

***TIME CRITICAL*** NO

***10CFR55:*** 45(a)7

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT:

UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

***COMMENTS:***

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

***SAFETY CONSIDERATIONS:*** Burn Hazard

***INITIAL CONDITION:*** The Control Room has been evacuated due to a fire. Control of the plant has been established from the CREP panel. The Shift Engineer is not available to start the TDEFP.

***INITIATING CUES:*** Control Room Supervisor directs the ABUL operator to locally start the TDEFP and to locally throttle EFW flow to maintain SG WR levels between 50% and 60% per FEP-4.0 ENCLOSURE F, Steps 2. thru 4

**THIS IS A TIME CRITICAL JPM!**

***AT NO TIME ARE YOU TO OPERATE  
ANY PLANT EQUIPMENT!***

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### **OPERATOR INSTRUCTIONS:**

***SAFETY CONSIDERATIONS:*** Burn Hazard

***INITIAL CONDITION:*** The Control Room has been evacuated due to a fire. Control of the plant has been established from the CREP panel. The Shift Engineer is not available to start the TDEFP.

***INITIATING CUES:*** Control Room Supervisor directs the ABUL operator to locally start the TDEFP and to locally throttle EFW flow to maintain SG WR levels between 50% and 60% per FEP-4.0 ENCLOSURE F, Steps 2. thru 4

***AT NO TIME ARE YOU TO OPERATE ANY  
PLANT EQUIPMENT!***

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ**    **STEP:**    1  
Ye Yes    Open XVG-2802B-MS HEADER C EF PUMP  
TURBINE SUPPLY VLV (IB-435 East Pen.).

**STEP STANDARD:**  
Visually checks XVG-2802B-MS HEADER  
C EF PUMP TURBINE SUPPLY VLV open,  
(IB-436 East Pen).

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    2  
No No    Take the emergency stairs to the IB-412  
Turbine Driven Emergency Feedwater Pump  
Room.

**STEP STANDARD:**  
Identifies emergency stairs to the IB-412  
Turbine Driven Emergency Feedwater  
Pump Room.

**CUES:**

**SAT**

Cue operator to indicate where the emergency stairs to the IB-412 Turbine Driven  
Emergency Feedwater Pump Room are located then proceed to the TDEPP room via  
the normal route through the RCA.    **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    3  
Ye Yes    If necessary, reset the throttle valve, XVT-  
02865-MS, EF PUMP TURB MAIN STEAM  
THROTTLE VALVE.

**STEP STANDARD:**  
Visually checks XVT02865-MS, EF PUMP  
TURB MAIN STEAM THROTTLE VALVE,  
reset by observing upper limit switch and  
trip hook engaged.(IB-412).

**CUES:**

**SAT**

Cue operator that XVT02865-MS, EF PUMP TURB MAIN STEAM THROTTLE VALVE  
is reset.    **UNSAT**

**COMMENTS:**







**CR SEQ STEP:** 9

No Yes Vent air from the regulator for FCV-3536-EF, (IB-423).

**STEP STANDARD:**

Operator opens the regulator vent.

**CUES:**

Cue operator that he hears and feels air blowing.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 10

Ye Yes Throttle FCV-3536-EF.

**STEP STANDARD:**

Removes locking device. Rotates the handwheel for FCV-3536-EF in the clockwise direction to maintain 50% - 60% WR level in A SG. Informs CRS at CREP he has throttled IFV-3536 and awaits further direction

**CUES:**

NOTE TO EXAMINER: Ask operator how he/she would establish communications with the CRS at the CREP panel. Cue operator that he feels light resistance in the clockwise direction.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 11

No Yes Isolates Instrument Air to FCV-3546-EF. (IB-423)

**STEP STANDARD:**

Checks FCV-3546 stem position(IB-423). Student rotates IFV-3546-AV1-EF in the clockwise direction.

**CUES:**

Cues the operator that IFV-3546 is full open. Then (while closing of AV1 valve) cues operator that the handle turns in the clockwise direction then stops.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    12  
No Yes    Vent air from the regulator for FCV-3546-EF, (IB-423).    **STEP STANDARD:**  
Operator opens the regulator vent.

**CUES:**    **SAT**  
Cue operator that he hears and feels air blowing.    **UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    13  
Ye Yes    Throttle FCV-3546-EF.    **STEP STANDARD:**  
Removes locking device. Rotates the handwheel for FCV-3546-EF in the clockwise direction to maintain 50% - 60% WR level in B SG. Informs CRS at CREP he has throttled IFV-3546 and awaits further instruction

**CUES:**    **SAT**  
Cue operator that he feels light resistance in the clockwise direction.    **UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    14  
No Yes    Isolates Instrument Air to FCV-3556-EF. (IB-423)    **STEP STANDARD:**  
Checks FCV-3556 stem position(IB-423). Student rotates IFV-3556-AV1-EF in the clockwise direction.

**CUES:**    **SAT**  
Cues the operator that IFV-3556 is full open. Then (while closing of AV1 valve)    **UNSAT**  
cues operator that the handle turns in the clockwise direction then stops.  
**COMMENTS:**

**CR SEQ**    **STEP:**    15  
No Yes    Vent air from the regulator for FCV-3556-EF,  
(IB-423).

**STEP STANDARD:**  
Operator opens the regulator vent.

**CUES:**  
Cue operator that he hears and feels air blowing.  
**COMMENTS:**

**SAT**  
**UNSAT**

**CR SEQ**    **STEP:**    16  
Ye Yes    Throttle FCV-3556-EF.

**STEP STANDARD:**  
Removes locking device. Rotates the  
handwheel for FCV-3556-EF in the  
clockwise direction to maintain 50% - 60%  
WR level in C SG. Informs CRS at CREP  
he has throttled IFV-3556 and awaits  
further instructions

**CUES:**  
Cue operator that he feels light resistance in the clockwise direction.  
**COMMENTS:**

**SAT**  
**UNSAT**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

***JPM NO:*** JPP-055NRC

***DESCRIPTION:*** LOCALLY START THE TURBINE DRIVEN EMERGENCY FEEDWATER PUMP AND THROTTLE EMERGENCY FEEDWATER FLOW AS DIRECTED

***IC SET:***

***INSTRUCTIONS:***

***COMMENTS:***

**V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE**

**JPM      JPPF-**

**ESTABLISH CHILLED WATER ALTERNATE COOLING TO  
CHARGING PUMPS**

**APPROVAL:**

**APPROVAL DATE:**

**REV NO: 6**

CANDIDATE

EXAMINER:

**THIS JPM IS APPROVED**

**TASK:**

004-003-04-04

ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING PUMPS

**TASK STANDARD:**

Chilled Water alternate cooling is provided to the "B" Charging Pump per AOP-118.1. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations. This JPM is related to PRA event OACC "Operator action to establish alternate cooling to CS pumps".

**PREFERRED EVALUATION LOCATION**

**PREFERRED EVALUATION METHOD**

PLANT

SIMULATE

**REFERENCES:** AOP-118.1

TOTAL LOSS OF COMPONENT COOLING WATER

**TOOLS:** AOP-118.1 Attachment 1 and 1B  
FLASHLIGHT

**EVALUATION TIME** 20 **TIME CRITICAL** NO **10CFR55:** 45(a)6

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT: UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

***SAFETY CONSIDERATIONS:*** Be sure to read radiation posting signs prior to entering charging pump rooms.

***INITIAL CONDITION:*** A total loss of Component Cooling Water has occurred. CRS has implemented AOP-118.1.

***INITIATING CUES:*** The CRS directs you, the ABL, to establish alternate cooling to the "B" Charging Pump from the Chilled Water System per AOP-118.1 Attachment 1 and 1B.

***AT NO TIME ARE YOU TO OPERATE  
ANY PLANT EQUIPMENT!***

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### **OPERATOR INSTRUCTIONS:**

***SAFETY CONSIDERATIONS:*** Be sure to read radiation posting signs prior to entering charging pump rooms.

***INITIAL CONDITION:*** A total loss of Component Cooling Water has occurred. CRS has implemented AOP-118.1.

***INITIATING CUES:*** The CRS directs you, the ABLL, to establish alternate cooling to the "B" Charging Pump from the Chilled Water System per AOP-118.1 Attachment 1 and 1B.

***AT NO TIME ARE YOU TO OPERATE ANY  
PLANT EQUIPMENT!***

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**



**STEPS**

**CR SEQ STEP:** 1  
No Yes Obtain alternate cooling supply hoses and fittings.

**STEP STANDARD:**  
Hoses and fittings obtained from Dedicated Gang Box (AB-400).

**CUES:** **SAT**  
HAVE OPERATOR POINT OUT THE HOSES AND DISCUSS HOW THE LINES WOULD **UNSAT**  
BE CONNECTED, VERSUS REMOVING THE EQUIPMENT OUT OF THE GANG BOX.

**COMMENTS:**

**CR SEQ STEP:** 2  
Ye Yes Connect the supply hose.

**STEP STANDARD:**  
Hose connected using Chicago fittings to IPX09062B-HR-VU, HIGH ROOT TO IPX9062B, AND XVT19647B-CC, CHG PP B OIL CLR ALT CLG WTR SUPPLY VLV.

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 3  
Ye Yes Connect the return hose.

**STEP STANDARD:**  
Hose connected using Chicago fittings to IPX09098B-HR-VU, HIGH ROOT TO IPX9098B, AND XVT19648B-CC, CHG PP B OIL CLR ALT CLG WTR RETURN VLV.

**CUES:** **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 4  
No Yes Check XVG09657B-CC (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Removes the locking device, attempts to turn XVG09657B-CC in the clockwise direction and records valve position on the attachment.

**CUES:** Steps 4-21 involve valves that are standard Gate valves. XVG09657B-CC turns freely in the clockwise direction. Prompt examinee that

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 5  
Ye Yes Close XVG09657B-CC.

**STEP STANDARD:**  
Closes XVG09657B-CC, CHG PP B OIL CLR CCW INLET VLV, by rotating the valve handwheel fully in the clockwise direction.

**CUES:**

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 6  
No Yes Check XVT19647B-CC (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Attempts to turn XVT19647B-CC in the clockwise direction and records valve position on the attachment.

**CUES:** Prompt examinee that XVT19647B-CC does not move in the clockwise direction.

**SAT**

**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 7  
Ye Yes Open XVT19647B-CC.

**STEP STANDARD:**  
Opens XVT19647B-CC, CHG PP B OIL CLR ALT CLG WTR SUPPLY VLV, by rotating the valve handwheel fully in the counter-clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 8  
No Yes Check XVT09685B-CC (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Removes the locking device and attempts to turn XVT09685B-CC in the clockwise direction.

**CUES:**

Prompt examinee that XVT09685B-CC turns freely in the clockwise direction.  
Student may choose to determine throttled position of the valve. 3.0 turns open.

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ STEP:** 9  
Ye Yes Close XVT09685B-CC.

**STEP STANDARD:**  
Closes XVT09685B-CC, CHG PP B OIL CLR CCW OUTLET VALVE, by rotating the valve handwheel fully in the clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
No Yes    Check XVT19648B-CC (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Attempts to turn XVT19648B-CC in the clockwise direction.

**CUES:**    **SAT**  
Prompt examinee that XVT19648B-CC does not move in the clockwise direction.    **UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    11  
Ye Yes    Open XVT19648B-CC.

**STEP STANDARD:**  
Opens XVT19648B-CC, CHG PP B OIL CLR ALT CLG WTR RETURN VLV, by rotating the valve handwheel in the fully counter-clockwise direction.

**CUES:**    **SAT**  
**UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    12  
No Yes    Check IPX09062B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Attempts to turn IPX09062B-HR-VU in the clockwise direction.

**CUES:**    **SAT**  
Prompt examinee that IPX09062B-HR-VU does not move in the clockwise direction.    **UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    13  
Ye Yes    Open IPX09062B-HR-VU, (AB-400).

**STEP STANDARD:**  
Opens IPX09062B-HR-VU, HIGH ROOT TO IPX9062B, by rotating the valve handwheel in the fully counter-clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    14  
No Yes    Check IPX09098B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Attempts to turn IPX09098B-HR-VU, HIGH ROOT TO IPX9062B, in the clockwise direction.

**CUES:**

Prompt examinee that IPX09098B-HR-VU does not move in the clockwise direction.    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    15  
Ye Yes    Open IPX09098B-HR-VU (AB-400).

**STEP STANDARD:**  
Opens IPX09098B-HR-VU, by rotating the valve handwheel in the fully counter-clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    16  
No Yes    Check XVT09530B-CC (AB-388) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Removes the locking device and attempts to turn XVT09530B-CC in the clockwise direction.

**CUES:**    **SAT**  
Prompt examinee that XVT09530B-CC turns freely in the clockwise direction.    **UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    17  
Ye Yes    Close XVT09530B-CC.

**STEP STANDARD:**  
Closes XVT09530B-CC, CCW SPLY TO CHG PP B OIL CLR BYP VALVE, by rotating the valve handwheel in the fully clockwise direction.

**CUES:**    **SAT**  
**UNSAT**  
**COMMENTS:**

**CR SEQ**    **STEP:**    18  
No Yes    Check XVT19654B-CC (AB-388) valve position and record on attachment.

**STEP STANDARD:**  
Removes the locking device and attempts to turn XVT19654B-CC in the clockwise direction.

**CUES:**    **SAT**  
Prompt examinee that XVT19654B-CC turns freely in the clockwise direction.    **UNSAT**  
Student may choose to determine throttled position of the valve. 2.25 turns open.  
**COMMENTS:**

**CR SEQ**    **STEP:**    19  
Ye Yes    Open XVT19654B-CC.

**STEP STANDARD:**  
Opens XVT19654B-CC, CHG/SI PUMP B OIL CLR CLG WTR INLET VLV, by rotating the valve handwheel in the fully counter-clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    20  
No Yes    Check XVT19655B-CC (AB-388) valve position and record "AS FOUND" on attachment.

**STEP STANDARD:**  
Removes the locking device and attempts to turn XVT19655B-CC in the clockwise direction.

**CUES:**

Prompt examinee that XVT19655B-CC turns freely in the clockwise direction.    **SAT**  
Student may choose to determine "AS FOUND" throttled position. 2.0 turns open.    **UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    21  
Ye Yes    Open XVT19655B-CC.

**STEP STANDARD:**  
Opens XVT19655B-CC, CHG/SI PUMP B GB OIL CLR CLG WTR IN VLV, by rotating the valve handwheel fully in the counter-clockwise direction.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.

## **JPM SETUP SHEET**

***JPM NO:*** JPPF-166BNRC

***DESCRIPTION:*** ESTABLISH CHILLED WATER ALTERNATE COOLING TO CHARGING PUMPS

***IC SET:***

***INSTRUCTIONS:***

***COMMENTS:***



***V.C. SUMMER NUCLEAR STATION  
JOB PERFORMANCE MEASURE***

***JPM            JPP-052***

***STARTUP A BATTERY CHARGER***

***APPROVAL: DOW    APPROVAL DATE: 7/12/2005***

***REV NO: 8***

CANDIDATE

EXAMINER:

***THIS JPM IS APPROVED***

**TASK:**

063-007-01-04 PLACE A BATTERY CHARGER IN SERVICE

**TASK STANDARD:**

Bus 1HB is supplied from the swing charger XBC-1A/1B. The use of applicable Human Performance Tools (3-way communications, self checking, peer checking, phonetic alphabet, etc) and industrial safety practices meets expectations.

**PREFERRED EVALUATION LOCATION**

**PREFERRED EVALUATION METHOD**

PLANT

SIMULATE

**REFERENCES:** SOP-311 125 VDC SYSTEM

**TOOLS:** SOP-311 SECTION IV.D (PG. 6)  
SOP-311 SECTION IV.Q (PGS 27 - 29)

**EVALUATION TIME** 15 **TIME CRITICAL** No **10CFR55:** 45(a)8

**CANDIDATE:**

TIME START:

TIME FINISH:

**PERFORMANCE RATING:**

SAT: UNSAT:

QUESTION GRADE:

PERFORMANCE

**EXAMINER:**

SIGNATURE

DATE

**COMMENTS:**

## ***INSTRUCTIONS TO OPERATOR***

### **READ TO OPERATOR:**

WHEN I TELL YOU TO BEGIN, YOU ARE TO PERFORM THE ACTIONS AS DIRECTED IN THE INITIATING CUES. I WILL DESCRIBE THE GENERAL CONDITIONS UNDER WHICH THIS TASK IS TO BE PERFORMED AND PROVIDE THE NECESSARY TOOLS WITH WHICH TO PERFORM THIS TASK. BEFORE STARTING, I WILL EXPLAIN THE INITIAL CONDITIONS, WHICH STEPS TO SIMULATE OR DISCUSS, AND PROVIDE INITIATING CUES. WHEN YOU COMPLETE THE TASK SUCCESSFULLY, THE OBJECTIVE FOR THIS JOB PERFORMANCE MEASURE WILL BE SATISFIED.

***SAFETY CONSIDERATIONS:*** PPE

***INITIAL CONDITION:*** Battery charger 1B is to be removed from service for scheduled maintenance. DPN-1HB must be transferred to swing charger XBC-1A-1B. DC OUTPUT and AC INPUT breakers on the swing charger are open. The swing battery charger "B" Train supply breaker from XMC-1DB2Y is closed and all breakers on XET-4003-ED are open, with the keys in Train 'A' AC & DC.

***INITIATING CUES:*** Control room directs startup of the swing charger XBC-1A/1B, connection to bus 1HB, and removal of 1B charger from service in accordance with SOP-311.

***AT NO TIME ARE YOU TO OPERATE  
ANY PLANT EQUIPMENT!***

***HAND JPM BRIEFING SHEET TO OPERATOR AT THIS TIME!***

## ***JPM BRIEFING SHEET***

### **OPERATOR INSTRUCTIONS:**

***SAFETY CONSIDERATIONS:*** PPE

***INITIAL CONDITION:*** Battery charger 1B is to be removed from service for scheduled maintenance. DPN-1HB must be transferred to swing charger XBC-1A-1B. DC OUTPUT and AC INPUT breakers on the swing charger are open. The swing battery charger "B" Train supply breaker from XMC-1DB2Y is closed and all breakers on XET-4003-ED are open, with the keys in Train 'A' AC & DC.

***INITIATING CUES:*** Control room directs startup of the swing charger XBC-1A/1B, connection to bus 1HB, and removal of 1B charger from service in accordance with SOP-311.

***AT NO TIME ARE YOU TO OPERATE ANY  
PLANT EQUIPMENT!***

**HAND THIS PAPER BACK TO YOUR  
EVALUATOR WHEN YOU FEEL THAT YOU  
HAVE SATISFACTORILY COMPLETED THE  
ASSIGNED TASK.**

**STEPS**

**CR SEQ STEP:** 1  
Ye Yes Align swing charger (IB-412-Swing Charger Room) to "B" Train.

**STEP STANDARD:**  
Closes TRAIN B-AC breaker and Train B-DC breaker for battery charger 1A-1B on XET-4003-ED using key interlocks.

**CUES:** *SAT*  
The keys swap in a criss-cross pattern (Train "A" AC to Train "B" DC and Train "A" DC goes to Train "B" AC). If the operator tries to swap AC to AC or DC to DC inform him that the key will not turn. *UNSAT*

**COMMENTS:**

**CR SEQ STEP:** 2  
Ye Yes Verifies charger set up for float voltage.

**STEP STANDARD:**  
Places FLOAT/EQUALIZER Switch in the FLOAT position ON XBC1A-1B.

**CUES:** *SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ STEP:** 3  
No Yes Checks the feeder breaker from the swing charger to "B" Train open.

**STEP STANDARD:**  
Checks DPN-1HB-ED BKR 13, BATTERY CHARGER 1A-1B FEED TO DPN 1HB is in the OFF position.

**CUES:** *SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:**    4  
Ye Yes    Starts up the swing charger.

**STEP STANDARD:**  
Closes the DC OUTPUT (CB2) and AC INPUT (CB1) breakers on battery charger XBC1A-1B in the ON position.

**CUES:**

**SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    5  
No Yes    Checks output voltage.

**STEP STANDARD:**  
Checks DC OUTPUT VOLTMETER stabilizes at 131-137 volts.

**CUES:**

When operator points to DC OUTPUT VOLTMETER and indicates expected voltage, inform the operator that voltage is 133 volts.    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:**    6  
No Yes    Verifies capacitors charged.

**STEP STANDARD:**  
Waits approximately 5 (to 10) seconds, then checks red indicator lights on capacitor cabinet XPN5294-ED lit.

**CUES:**

When operator shows location of indicator lights, inform him that light are on.    **SAT**  
**UNSAT**

**COMMENTS:**

**CR SEQ**    **STEP:** 7  
Ye Yes    Puts swing charger on 1HB.

**STEP STANDARD:**  
Places DPN-1HB-ED 13, BATTERY CHARGER 1A-1B FEED to DPN-1HB in the ON position.

**CUES:**  
In 1B Battery Charger Room.

*SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:** 8  
Ye Yes    Removes XBC1B from service.

**STEP STANDARD:**  
Places breaker DPN-1HB-ED 11, BATTERY CHARGER 1B FEED TO DPN1HB in the OFF position.

**CUES:**  
When requested, inform examinee of the following initial conditions:  
The FLOAT/EQUALIZER switch is in the FLOAT position.  
The battery charger timer for XBC-1B is set at 0 hours and 0 minutes.  
(Section IV.D Step 2.2)

*SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:** 9  
No Yes    Opens XBC1B DC OUTPUT and AC INPUT breakers.

**STEP STANDARD:**  
Places DC OUTPUT and AC INPUT breakers on XBC1B in the OFF position.

**CUES:**  
When requested, inform examinee that the "BATT CHGR TRBL" alarm was received on the main control board.

*SAT*  
*UNSAT*

**COMMENTS:**

**CR SEQ**    **STEP:**    10  
Ye Yes    Verifies swing charger picks up load and  
             establishes a float charge on the battery.

**STEP STANDARD:**  
Verifies Ammeter moves upscale and DC  
VOLTMETER indicates 133-135 volts on  
XBC1A-1B.

**CUES:**  
Cue operator that Swing Charger ammeter indicates 35 amps and voltmeter  
indicates 134 VDC when requested.

**SAT**  
**UNSAT**

**COMMENTS:**

Examiner ends JPM at this point.



## **JPM SETUP SHEET**

***JPM NO:*** JPP-052

***DESCRIPTION:*** STARTUP A BATTERY CHARGER

***IC SET:***

***INSTRUCTIONS:***

***COMMENTS:***