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 NOT 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	*PREFERRED EVALUATION METHOD*
SIMULATOR	PERFORM

REFERENCES:	SSCB-IV-7	DIESEL GENERATOR POWER FACTOR, CURRENT VS. LOAD
	SOP-306	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

CR	*SEQ*	*STEP:* 1	*STEP STANDARD:*
No	Yes	Depress the GEN RELAYS RESET Pushbutton	DG A GEN RELAYS RESET Pushbutton is Depressed

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
No	Yes	Momentarily place the EXCITER Switch to RESET	DG A EXCITER SWITCH taken to RESET

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
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:* 4	*STEP STANDARD:*
No	No	Verify Annunciator XCP-636 1-2, DG A AUTOSTART NOT READY, is clear.	Verifies Annunciator XCP-636 1-2, DG A AUTOSTART NOT READY, is clear.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 5	*STEP STANDARD:*
No	No	The READY FOR AUTO START light is illuminated at the D/G Local Control Panel	Calls the IB operator and verifies the "READY FOR AUTO START" light is lit at the "A" D/G Local Control Panel.

CUES:

SAT

CUE: When requested, as the IB operator, inform the operator that the "READY FOR AUTO START" light is lit at the "A" D/G Local Control Panel.

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 6	*STEP STANDARD:*
Ye	Yes	Place "A" Diesel Generator TEST switch to START.	Momentarily rotates "A" Diesel Generator TEST switch to the START position.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 7	*STEP STANDARD:*
No	Yes	Verify D/G starts and accelerates to 58.9 - 61.1 Hertz and 6800-7600 volts.	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 minutes has elapsed since the D/G was started. This in reference to Note 2.4 in the procedure. . *UNSAT*

COMMENTS:

CR	*SEQ*	*STEP:* 8	*STEP STANDARD:*
No	No	Ensure VOLT REG switch is in AUTO.	VOLT REG switch for the 'A' D/G indicates AUTO.

CUES: *SAT*

UNSAT

COMMENTS:

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

CUES: *SAT*

UNSAT

COMMENTS:

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

CUES:

SAT

UNSAT

COMMENTS:

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

SAT

NOTE: Only critical if adjustment is necessary.

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 12	*STEP STANDARD:*
Ye	No	Adjust Diesel Generator "A" frequency to cause synchroscope to rotate slowly in the FAST direction using SPEED switch.	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	STEP STANDARD:
Ye	Yes	When synchroscope is in proper position, close BUS 1DA DG FEED breaker.	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	STEP STANDARD:
No	Yes	Verify breaker 1DA DG FEED breaker closed.	Bus 1DA DG FEED breaker indicates red light ON, green light OFF.

CUES:

SAT

UNSAT

COMMENTS:

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

SAT

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

UNSAT

COMMENTS:

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

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 17	STEP STANDARD:
No	Yes	Using the VOLT REG RAISE-LOWER Switch, adjust KILOVARS	DG A VOLT REG RAISE-LOWER Switch is used to adjust KILOVARS

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 18	STEP STANDARD:
No	Yes	Utilizing Enclosure C, estimate the present load on 1DA.	Uses Enclosure C to estimate current 1DA KW loading (approximately 2850 plus or minus 50 KW).

CUES:

SAT

UNSAT

COMMENTS:

TRAIN A EQUIPMENT KW RATINGS

EQUIPMENT	KW RATING
Component Cooling Water Pump -- Slow (Y) Fast (N)	A = 205
Service Water Pump	A = 531
Service Water Booster Pump	(No)
Charging Pump	A = 686
RHR Pump	(No)
Emergency Feedwater Pump	(No)
RB Spray Pump	(No)
Spent Fuel Cooling Pump	50
UPS Inverter	106
Pzr Backup Heaters	(No)

EQUIPMENT	KW RATING
RBCUs -- Slow (N) Fast (Y = 1)	187
AB Charcoal Exhaust Fan	(2) = 204
FHB Exhaust Fan	46
HVAC Chilled Water Pump	A = 40
HVAC Chiller	280
XMC 1DA2X	180
XMC1DA2Y	142
XMC1DA2Z	107
XMC1EA1X	77
TOTAL	≈2850 KW

CHG A

Note 1: The actual KW Rating may be varied by adjusting the number of heaters in service.

CR	*SEQ*	*STEP:* 19	*STEP STANDARD:*
No	Yes	Using the SPEED Switch, adjust DG A load until the estimated XSW1DA load is being carried by DG A.	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 minutes has elapsed. The A D/G load will increase due to the inserted malfunction once load increase is started. . *UNSAT*

COMMENTS:

CR	*SEQ*	*STEP:* 20	*STEP STANDARD:*
Ye	Yes	Operator trips the "A" DG	"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 NOT 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	*PREFERRED EVALUATION METHOD*
SIMULATOR	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	*STEP STANDARD:*
No	Yes	Place 'C' Steamline power relief in manual and closed.	'C' Steamline PWR RELIEF SETPT controller indicates manual and 0.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
No	Yes	Adjust 'C' Steamline power relief setpoint controller to 8.85.	'C' Steamline PWR RELIEF SETPT controller indicates 8.85 (1150 psig).

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
No	Yes	Align 'C' Steamline power relief for power relief operation.	"C' Steamline Power Relief mode switch indicates PWR REL and the setpoint controller indicates AUTO.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 4	STEP STANDARD:
No	No	Place both steam dump interlock switches to bypass interlock.	Both STM DUMP INTERLOCK switches indicate BYP INTLK when RCS Tavg <552"F.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
No	Yes	Verify the 'C' steamline power relief indicates closed.	PCV-2020 indicates red light OFF, green light ON.

CUES:

SAT

UNSAT

COMMENTS:

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

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.

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 7 *STEP STANDARD:*

No Yes Isolate blowdown from the ruptured S/G. PVG-503C indicates red light OFF, green light ON.

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 8 *STEP STANDARD:*

No Yes Isolates main steam drains from 'C' S/G. PVT-2843C and PVT-2877B indicate red light OFF, green light ON.

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 9 *STEP STANDARD:*

No Yes Attempts to close PVM-2801C. Notes MSIV 'C' still indicates red light ON, green light OFF.

CUES: *SAT*

Operator may send someone out to locally close "C" MSIV while proceeding. *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	*STEP STANDARD:*
Ye	Yes	Direct Turbine Building operator to complete ATT. 1, including alternate isolation for PVT-2875.	Turbine Building operator acknowledges and completes ATT. 1, including local valve XVT-2872.

CUES:

Booth 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 NOT 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 *PREFERRED EVALUATION METHOD*

SIMULATOR 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	*STEP STANDARD:*
No	Yes	Record Step Counter readings for both groups of the affected bank.	Step counter reading for both groups in Control Bank "A" have been recorded as 230 steps.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
No	Yes	Record P/A Converter Reading.	P/A converter reading has been recorded.

CUES:

SAT

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

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
Ye	Yes	Rotate ROD CNTRL BANK SEL switch clockwise to the affected bank position.	ROD CNTRL BANK SEL Switch has been rotated clockwise to the CBA position.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 4	STEP STANDARD:
No	Yes	Manually reset Demand Step Counter for the affected group to zero.	The step counter for Bank A GROUP 1 has been reset to zero.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
Ye	Yes	Place all Lift Coil Disconnect Switches for the affected bank, except switches for the dropped rod, to the ROD DISCONNECTED position.	All lift coil disconnect switches for Control Bank "A" rods, except Rod "F-2", have been placed in the ROD DISCONNECTED position.

CUES:

SAT

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.

UNSAT

COMMENTS:

CR	SEQ	STEP: 6	STEP STANDARD:
Ye	Yes	Withdraw the dropped rod: Drive the affected bank out.	Rod F2 is moving in the outward direction.

CUES:

SAT

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.

UNSAT

Fill in on procedure ahead of time.

COMMENTS:

CR	SEQ	STEP: 7	STEP STANDARD:
No	Yes	Verify dropped rod movement on the digital rod position indicator.	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	STEP STANDARD:
No	Yes	When dropped rod moves 6 steps, then verify ONE ROD ON BOTTOM annunciator clears.	ONE ROD ON BOTTOM annunciator is observed to be flashing (in the reset condition).

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 9	STEP STANDARD:
No	Yes	Adjust turbine load to maintain Tavg within ± 5°F of Tref.	Tavg - Tref within ± 5°F.

CUES:

SAT

No turbine manipulations are required since TAVG will remain within 5°F of Tref.

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 10

STEP STANDARD:

No Yes Continue Rod withdrawl to the demand position

Not more than 50 step increments or 80% power as determined in step 6

CUES:

SAT

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 11

STEP STANDARD:

Ye Yes Observes that Rod F-2 stops moving at 30 steps and is apparently stuck

notices that rod F-2 is stuck

CUES:

SAT

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 12

STEP STANDARD:

Ye Yes Places Rod Control Bank SelectorSwitch in manual (IAW immediate operator action from AOP-403.5)

Rod Control Bank Selector Switch is in manual

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 13	STEP STANDARD:
Ye	Yes	Observes that Rod P-6 drops into the core while rod F-2 remains stuck at approximately30 steps	Evaluates as 2 dropped rods.

CUES:

SAT

UNSAT

COMMENTS:

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

SAT

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. *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 Tavg-Tref deviation within ±1.5°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."

DROPPED CONTROL ROD

ACTION/EXPECTED RESPONSE	ALTERNATIVE ACTION
7. Provide Reactor Engineering with the following information: Time rod dropped: T-15 min Dropped rod location: F-2 Initial Reactor power level: 75% Current Reactor power level: 75% Current QPTR: 1.005	
8. Determine and correct the cause of the failure	
NOTE – Step 9 This Step must be completed before continuing with Step 10	
9. Obtain the following information from Reactor Engineering: Power level at which recovery is to be performed: ≤ 80% Rate of control rod movement during recovery: ≤ 50 steps	
10. If necessary, reduce Reactor power to the power level determined in Step 9. REFER TO GOP-4, POWER OPERATION (MODE 1).	

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 NOT 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 RCDT 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 RCDT per SOP-102, IV.C.

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

STEPS

CR	*SEQ*	*STEP:* 1	*STEP STANDARD:*
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:

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

CUES:

SAT

UNSAT

COMMENTS:

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

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 4	STEP STANDARD:
No	Yes	If necessary, close the following Charging Line Isolation Valves: a. MVG-8107, CHG LINE ISOL. b. MVG-8108, CHG LINE ISOL.	not performed

CUES: *SAT*

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

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
No	No	Checks Core Thermal power.	Core power determined to be less than 2898 Mwt.

CUES: *SAT*

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

COMMENTS:

CR	SEQ	STEP: 6	STEP STANDARD:
No	Yes	Ensure HCV-137 closed.	HCV-137, XS LTDN HX, controller indicates 0% demand.

CUES: *SAT*

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 7	*STEP STANDARD:*
Ye	No	Place excess letdown to RCDT.	PVM-8143, XS LTDN TO VCT OR RCDT, indicates RCDT position.

CUES: *SAT*

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

COMMENTS:

CR	*SEQ*	*STEP:* 8	*STEP STANDARD:*
No	No	Ensure MVG-9583 is open.	MVG-9583, FROM XS LTDN HX, indicates red light ON, green light OFF.

CUES: *SAT*

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

COMMENTS:

CR	*SEQ*	*STEP:* 9	*STEP STANDARD:*
Ye	Yes	Opens PVT-8153 and PVT-8154, XS LTDN ISOL.	PVT-8153 and 8154, XS LTDN ISOL, indicates red light ON, green light OFF.

CUES: *SAT*

UNSAT

COMMENTS:

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

CUES:

SAT

UNSAT

COMMENTS:

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

SAT

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. *UNSAT*

COMMENTS:

CR	SEQ	STEP: 12	STEP STANDARD:
No	Yes	Checks proper RCP #1 seal leakoff flow.	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 NOT 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	*PREFERRED EVALUATION METHOD*
SIMULATOR	PERFORM

REFERENCES: SOP-102 CHEMICAL AND VOLUME CONTROL SYSTEM

SOP-118 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

CR	*SEQ*	*STEP:* 1	*STEP STANDARD:*
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:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
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:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
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	*STEP STANDARD:*
Ye	Yes	Start one of the following in slow speed: XPP-0001B, PUMP B	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	*STEP STANDARD:*
Ye	No	Start MVB-9503B, CC TO RHR HX B, stroking in the closed direction.	Places control switch for MVB-9503B in CLOSE. Observes valve in mid-position.

CUES:

SAT

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. *UNSAT*

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

COMMENTS:

CR SEQ *STEP:* 6

STEP STANDARD:

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.

(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

STEP STANDARD:

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.

(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	*STEP STANDARD:*
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.	(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	*STEP STANDARD:*
No	No	Rack in XSW1DB11, CC PUMP C XPP0001C-CC CCW PUMP C to complete Attachment VB ("C" CCW Pump breaker on 'B' train).	Racked up in slow speed. Green light ON.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 10	*STEP STANDARD:*
No	No	Place XPP-0001C, PUMP C, TRAIN B in After-Stop.	Places 'C' CCW pump, Train "B" switch in After-Stop.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 11	STEP STANDARD:
No	No	Locally verify greater than 1 gpm sample flow on RML-2B, CCW Liquid Monitor.	AO reports greater than 1 gpm flow through RML-2B.

CUES:

Booth Operator reports that RML-2B flow is 5.0 gpm.

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 12	STEP STANDARD:
No	No	Ensure the following valves have not automatically closed due to high flow: 1) MVG-9625, CC TO RB 2) MVG-9626, CC TO RB 3) MVG-9583, FROM XS LTDN HX 4) MVT-9593A(B)(C), FROM RCP A(B)(C)THERM BARR	The red light is ON and the green light is off for all the following: MVG-9625, MVG-9626, MVG-9583, MVG-9593A,B,&C.

CUES:

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 13	STEP STANDARD:
Ye	Yes	Transfer the inservice Charging Pump to Train B per SOP-102.	Initiates SOP-102, Section III.F, Shifting Operating Charging Pumps

CUES:

Evaluator may need to cue operator that the Initial Conditions of SOP-102, Section III.F may be considered complete. Cue operator that 10 days have elapsed since previous Charging Pump run.

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 14	STEP STANDARD:
No	Yes	If XSW1DB 15, CHARGING INJ PUMP XPP0043B-CS, is racked down, then initiate Attachment VD.	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	STEP STANDARD:
No	Yes	Ensure XPP-43B-PP1, CHG PP B AUX OIL PP, is running.	Observes that red light for XPP-43B-PP1 is ON and green light is OFF.

CUES: *SAT*

UNSAT

COMMENTS:

CR	SEQ	STEP: 16	STEP STANDARD:
No	Yes	Ensure Train B Component Cooling is operating per SOP-118.	Since this action was just previously accomplished, operator should simply check off this step.

CUES: *SAT*

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 17	*STEP STANDARD:*
No	Yes	Ensure Train B Chill Water is operating per SOP-501.	Operator should verify that 'B' chilled water pump and chiller are operating.

CUES: *SAT*

UNSAT

COMMENTS:

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

CUES: *SAT*

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

COMMENTS:

CR	*SEQ*	*STEP:* 19	*STEP STANDARD:*
No	Yes	Start XPP-0043B, PUMP B.	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: 20	STEP STANDARD:
No	Yes	Verify XPP-43B-PP1, CHG PP B AUX OIL PP, stops automatically when the Charging PUMP Comes up to full speed.	Observes that red light goes OFF for XPP-43B-PP1 and that green light goes ON.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 21	STEP STANDARD:
No	Yes	Monitor the following to verify proper pump operation: 1) Charging Pump B running current is between 30 amps and 50 amps. 2) PI-121, CHG PRESS PSIG, is between 2650 psig and 2850 psig. 3) XVG-9684B-CC, CCW TO CHG PP B, is open.	Notes that running current is around 42 amps, discharge pressure on PI-121 is around 2700 psig, and that status light for XVG-9684B-CC shows green light OFF and red light ON.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 22	*STEP STANDARD:*
Ye	Yes	Stop the Charging Pump being removed from service.	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	*STEP STANDARD:*
No	Yes	Verify PI-121, CHG PRESS PSIG, is between 2650 psig and 2850 psig.	Observes that discharge pressure on PI-121 is around 2700 psig.

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 24 *STEP STANDARD:*

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.

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 *STEP STANDARD:*

No Yes Align Component Cooling as required by SOP-118.

Operator returns to SOP-118 to complete swapover of active loop.

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 26 *STEP STANDARD:*

Ye No Secure the running Train A Component Cooling Water Pump in the off going active loop:

1) XPP-0001A, PUMP A

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: *SAT*

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

COMMENTS:

CR	*SEQ*	*STEP:* 27	*STEP STANDARD:*
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.	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 NOT 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:

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 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 — *STEP STANDARD:*

No Yes — Ensure one condensate pump is running — 'A' Condensate pump indicates red light ON, green light OFF. 'B' and 'C' Condensate pumps indicate red light OFF, green light ON.

CUES: — *SAT*

Cue operator to keep 'A' Condensate pump running. — *UNSAT*

COMMENTS:

CR SEQ *STEP:* 2 — *STEP STANDARD:*

No Yes — Ensure two FWBP's are running — 'A' and 'B' FWBPs indicate red light ON, green light OFF. 'C' and 'D' FWBP indicate red light OFF, green light ON.

CUES: — *SAT*

Cue operator to keep 'A'& 'B' FWBPs running. — *UNSAT*

COMMENTS:

CR SEQ *STEP:* 3 — *STEP STANDARD:*

No Yes — Ensure FW FCV's are closed. — FCV-478, 488, and 498 indicate red light OFF, green light ON.

CUES: — *SAT*

UNSAT

COMMENTS:

CR	SEQ	STEP: 4	STEP STANDARD:
No	Yes	Place FW bypass contollers in manual and close.	FCV-3321,3331,3341 controller red MAN light is lit and demand is 0.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
Ye	Yes	Bypass FWIV signal.	Directs CB Operator to perform step 8e of EOP-15.0.

CUES:

SAT

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

UNSAT

COMMENTS:

CR	SEQ	STEP: 6	STEP STANDARD:
No	Yes	Verify no steam line isolation signal.	RB PRESS HI-2 STM LINE ISOL (XCP-612 2-1) is not lit.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 7	*STEP STANDARD:*
Ye	Yes	Close the 'A' and 'C' MSIV's.	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 Safety Injection signal may be generated during this step. *UNSAT*

COMMENTS:

CR	*SEQ*	*STEP:* 8	*STEP STANDARD:*
Ye	No	Open the 'B' MS Isolation Bypass Valve.	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 on a Isolation signal during the previous step. *UNSAT*

COMMENTS:

CR	*SEQ*	*STEP:* 9	*STEP STANDARD:*
No	Yes	Place FW switches in automatic.	PVG-1611A(B)(C) and FCV-3321,3331,3341 Train A and B switches indicate AUTO.

CUES: *SAT*

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 10	*STEP STANDARD:*
Ye	Yes	Reset SI.	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	*STEP STANDARD:*
No	Yes	Verify the condenser is available.	C-9 status light is bright.

CUES: *SAT*

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 12	*STEP STANDARD:*
No	Yes	Open MFP turbine drain valves.	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	STEP STANDARD:
No	Yes	Reset the 'A' MFP.	FWP A TRIP/RESET switch momentarily taken to reset. Student notes 'A' MFP will not reset.

CUES:

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

COMMENTS:

SAT

UNSAT

CR	SEQ	STEP: 14	STEP STANDARD:
Ye	No	Bypass the steam dump interlock when Tavg is <552°F (P12 interlock bright).	Both STM DUMP INTERLOCK Switches taken to the BYP INTLK position.

CUES:

NOTE: Only performed/critical if Tavg decreases below 552°F.

COMMENTS:

SAT

UNSAT

CR	SEQ	STEP: 15	STEP STANDARD:
Ye	Yes	Establish flowpath to the 'B' S/G (Opens FVC-3331.	FCV-3331 controller indicates full open.

CUES:

COMMENTS:

SAT

UNSAT

CR	*SEQ*	*STEP:* 16	*STEP STANDARD:*
Ye	Yes	Depressurize the 'B' S/G via the steam dumps and establish FW flow to the 'B' S/G.	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 NOT 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	*STEP STANDARD:*
No	No	Responds to the following annunciator: XCP 610 2-2, RHR LP B FLO LO	Notes indications of B RHR pump cavitation/vortexing and Implements AOP-115.1.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
Ye	Yes	Close RHR outlet valve.	HCV-603B controller setpoint indicates 0.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
Ye	Yes	Throttle FCV-605B to stabilize RHR flow.	FCV-605B controller taken to manual and reduced until RHR pump amps and flow are stable.

CUES:

SAT

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

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 4 *STEP STANDARD:*

No Yes Monitor the following; Monitor flow on FI-605B, FLOW GPM; RHR PUMP 'B' AMPS; RCS heatup rate.

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 5 *STEP STANDARD:*

No No Monitor RCS heatup on TR-413, HOT LEG °F WIDE RNG. no significant heatup on TR-413

CUES: *SAT*

Cue examinee that another operator will perform STP-103.001 *UNSAT*

COMMENTS:

CR *SEQ* *STEP:* 6 *STEP STANDARD:*

No No Verify RCS Hot Leg level elevation is GREATER THAN OR EQUAL TO ' 430' 8 1/2" Level verified approximately 430' 10" on Mansell and Mid loop monitors

CUES: *SAT*

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 7

STEP STANDARD:

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

Opens FCV-122 to increase charging flow until level starts to increase

CUES:

SAT

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 8

STEP STANDARD:

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)

Notes indications of level decreasing and pump vortexing again

CUES:

SAT

UNSAT

COMMENTS:

CR *SEQ* *STEP:* 9

STEP STANDARD:

Ye Yes Throttle flow as necessary to stabilize RHR Pump amps with flow GREATER THEN 500gpm.

Throttle RHR flow to attempt to stabilize RHR Pump amps.

CUES:

SAT

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

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 10	*STEP STANDARD:*
Ye	Yes	Stop the operating RHR Pump.	The operating RHR Pump is stopped.

CUES:

SAT

UNSAT

COMMENTS:

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

CUES:

SAT

Cue: This completes this JPM.

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.

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 NOT 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	*PREFERRED EVALUATION METHOD*
SIMULATOR	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	*STEP STANDARD:*
Ye	Yes	Stop all core alterations.	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 light, high flux shutdown light, bistable trip spare light. Annunciators 620 4-1 and 620 4-3 are received

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 2	*STEP STANDARD:*
No	Yes	Stop all positive reactivity additions	Any dilution or cooldown in progress stopped.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 3	*STEP STANDARD:*
Ye	Yes	Check at least 1 Source Range channel operable	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: 4	STEP STANDARD:
Ye	Yes	Check if RB evacuation alarm has actuated.	SR HI FLUX AT SHUTDN annunciator is lit.

CUES:

CUE: RB coordinator reports that the RB evacuation alarm is sounding

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
No	No	Inform plant personnel that the Reactor Building evacuation alarm was spurious, and evacuation of the RB is NOT required.	Personnel & RB coordinator notified. Announcement made that the alarm is invalid..

CUES:

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 6	STEP STANDARD:
Ye	Yes	Bypass level trip for N-32	Set LEVEL TRIP switch for N-32 to BYPASS. Level trip bypass light lit.

CUES:

CUE: Level trip bypass light lit.

SAT
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.

SAT

UNSAT

COMMENTS:

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:

SAT

UNSAT

COMMENTS:

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

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 10	*STEP STANDARD:*
No	Yes	Ensure NR-45 is selected to operable channel	Verifies NR-45 selected to N-31 channel.

CUES:

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 11	*STEP STANDARD:*
No	No	Dispatch I&C to determine the cause of the N32 failure	I&C contacted

CUES:

SAT

UNSAT

COMMENTS:

Examiner ends JPM at this point.

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 NOT 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 PLANT

PREFERRED EVALUATION METHOD 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	*STEP STANDARD:*
Ye	Yes	Open XVG-2802B-MS HEADER C EF PUMP TURBINE SUPPLY VLV (IB-435 East Pen.).	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	*STEP STANDARD:*
No	No	Take the emergency stairs to the IB-412 Turbine Driven Emergency Feedwater Pump Room.	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	*STEP STANDARD:*
Ye	Yes	If necessary, reset the throttle valve, XVT-02865-MS, EF PUMP TURB MAIN STEAM THROTTLE VALVE.	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: 4	STEP STANDARD:
No	No	Ensure XVT02813-MS, EF PUMP TURB STEAM SUPPLY HDR DRAIN VLV, is open	Moves the declutch lever and engages the handwheel. Turns valve handwheel in the close direction and verifies the valve starts to close then fully reopends valve

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 5	STEP STANDARD:
Ye	Yes	Open IFV-2030-MS, EF PUMP TURB STEAM SUPPLY FLOW CONT VLV as follows: 1). Close IFV-2030-AV1-MS, IA ISOLATION VALVE FOR IFV-2030-MS. 2). Vent IFV02030PR1-MS, IA SUPPLY PRESS REG FOR IFV-2030-MS.	1). Shuts IFV-2030-AV1-MS, IA ISOLATION VALVE FOR IFV-2030-MS by turning air isolation valve in the clockwise direction. (IB-412 above air tank). 2). Vents IFV-2030-PR1-MS, IA SUPPLY PRESS REG FOR IFV2030-MS by turning the valve T-Bar in the counterclockwise direction.

CUES:

SAT

Examiner cues operator that IFV-2030 remains closed after closing the IA valve but opens when the regulator is vented off.

UNSAT

COMMENTS:

CR	SEQ	STEP: 6	STEP STANDARD:
Ye	Yes	Verify Turbine speed increases to greater than 4000 RPM on ISI13505, EF PUMP TURBINE TACHOMETER.	Visually verify Turbine Driven Emergency Feed Pump Speed by observing ISI13505, EF PUMP TURBINE TACHOMETER, local Tachometer indication (mounted on the Turbine). Turbine speed indicates >4000 RPM.

CUES:

Cue operator that turbine speed is 4200 rpm.

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 7	STEP STANDARD:
No	Yes	close the following drain valves XVT-2803A-MS, XVT-2804A-MS, and XVT-2804B-MS	2803A, 2804A, & 2804B rotated in the clockwise direction until handwheel movement stops and valve will no longer rotate in the clockwise direction by hand

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 8	STEP STANDARD:
No	Yes	Isolates Instrument Air to FCV-3536-EF. (IB-423)	Checks FCV-3536 stem position(IB-423). Student rotates IFV-3536-AV1-EF in the clockwise direction.

CUES:

Cues the operator that IFV-3536 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:* 9 *STEP STANDARD:*

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

CUES: *SAT*

Cue operator that he hears and feels air blowing. *UNSAT*

COMMENTS:

CR *SEQ* *STEP:* 10 *STEP STANDARD:*

Ye Yes Throttle FCV-3536-EF. 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: *SAT*

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

COMMENTS:

CR *SEQ* *STEP:* 11 *STEP STANDARD:*

No Yes Isolates Instrument Air to FCV-3546-EF. (IB-423) Checks FCV-3546 stem position(IB-423). Student rotates IFV-3546-AV1-EF in the clockwise direction.

CUES: *SAT*

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. *UNSAT*

COMMENTS:

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

CUES:

Cue operator that he hears and feels air blowing.

SAT
UNSAT

COMMENTS:

CR	SEQ	STEP: 13	STEP STANDARD:
Ye	Yes	Throttle FCV-3546-EF.	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:

Cue operator that he feels light resistance in the clockwise direction.

SAT
UNSAT

COMMENTS:

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

CUES:

Cues the operator that IFV-3556 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:* 15	*STEP STANDARD:*
No	Yes	Vent air from the regulator for FCV-3556-EF, (IB-423).	Operator opens the regulator vent.

CUES:

Cue operator that he hears and feels air blowing.

SAT
UNSAT

COMMENTS:

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

SAT
UNSAT

COMMENTS:

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 NOT 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 ABLL, to extablish 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 extablish 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	*STEP STANDARD:*
No	Yes	Obtain alternate cooling supply hoses and fittings.	Hoses and fittings obtained from Dedicated Gang Box (AB-400).

CUES: *SAT*

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

COMMENTS:

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

STEP STANDARD:

No Yes Check XVG09657B-CC (AB-400) valve position and record "AS FOUND" on attachment.

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

CUES:

SAT

Steps 4-21 involve valves that are standard Gate valves. XVG09657B-CC turns freely in the clockwise direction.

Prompt examinee that *UNSAT*

COMMENTS:

CR *SEQ* *STEP:* 5

STEP STANDARD:

Ye Yes Close XVG09657B-CC.

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

STEP STANDARD:

No Yes Check XVT19647B-CC (AB-400) valve position and record "AS FOUND" on attachment.

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

CUES:

SAT

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

SAT

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.

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	*STEP STANDARD:*
No	Yes	Check XVT19648B-CC (AB-400) valve position and record "AS FOUND" on attachment.	Attempts to turn XVT19648B-CC in the clockwise direction.

CUES:

Prompt examinee that XVT19648B-CC does not move in the clockwise direction.

SAT

UNSAT

COMMENTS:

CR	*SEQ*	*STEP:* 11	*STEP STANDARD:*
Ye	Yes	Open XVT19648B-CC.	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	*STEP STANDARD:*
No	Yes	Check IPX09062B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.	Attempts to turn IPX09062B-HR-VU in the clockwise direction.

CUES:

Prompt examinee that IPX09062B-HR-VU does not move in the clockwise direction.

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 13	STEP STANDARD:
Ye	Yes	Open IPX09062B-HR-VU, (AB-400).	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	STEP STANDARD:
No	Yes	Check IPX09098B-HR-VU (AB-400) valve position and record "AS FOUND" on attachment.	Attempts to turn IPX09098B-HR-VU, HIGH ROOT TO IPX9062B, in the clockwise direction.

CUES:

SAT

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

UNSAT

COMMENTS:

CR	SEQ	STEP: 15	STEP STANDARD:
Ye	Yes	Open IPX09098B-HR-VU (AB-400).	Opens IPX09098B-HR-VU, by rotating the valve handwheel in the fully counter-clockwise direction.

CUES:

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 16	STEP STANDARD:
No	Yes	Check XVT09530B-CC (AB-388) valve position and record "AS FOUND" on attachment.	Removes the locking device and attempts to turn XVT09530B-CC in the clockwise direction.

CUES:

Prompt examinee that XVT09530B-CC turns freely in the clockwise direction.

SAT

UNSAT

COMMENTS:

CR	SEQ	STEP: 17	STEP STANDARD:
Ye	Yes	Close XVT09530B-CC.	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	STEP STANDARD:
No	Yes	Check XVT19654B-CC (AB-388) valve position and record on attachment.	Removes the locking device and attempts to turn XVT19654B-CC in the clockwise direction.

CUES:

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

SAT

UNSAT

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:

SAT

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

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

PLANT

PREFERRED EVALUATION METHOD

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	*STEP STANDARD:*
Ye	Yes	Align swing charger (IB-412-Swing Charger Room) to "B" Train.	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	*STEP STANDARD:*
Ye	Yes	Verifies charger set up for float voltage.	Places FLOAT/EQUALIZER Switch in the FLOAT position ON XBC1A-1B.

CUES:

SAT

UNSAT

COMMENTS:

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

SAT

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

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:

SAT

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

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