

FACILITY NAME: McGuire Nuclear Plant

Section 5

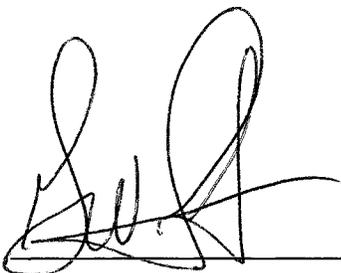
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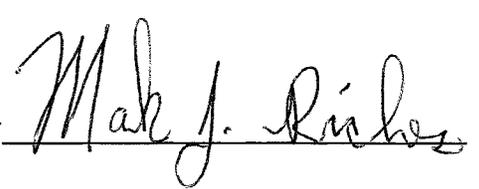
DRAFT SIM/IN-PLANT JPMS

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Draft SIMULATOR / IN-PLANT JPMS

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Submitted By: 

Verified By: 

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SIM JPM A

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Worksheet

Facility: McGuire

Task No.:

Task Title: Emergency Borate the Reactor
Coolant System Using the PD PumpJPM No.: 2009 Systems - Control
Room JPM A

K/A Reference: 004, A4.18, 4.3/4.1

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
 Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions:

- Unit 1 was at 100% power with "A" NV pump tagged for maintenance.
- A lockout occurred on Zone "1B". Due to a relaying failure, busses 1TB and 1TD failed to swap to their alternate power source. The "1B" Diesel Generator started and loaded 1ETB.
- The reactor coolant pumps tripped on under frequency.
- An automatic reactor trip FAILED to occur. EP/1/A/5000/FR-S.1 (Response To Nuclear Power Generator/ATWS) has been implemented and completed through Step 4.
- Letdown has been isolated per AP/1/A/5500/12 Loss of Letdown, Charging or Seal Injection.
- The reactor has just been tripped locally.

Task Standard: The PD Pump is running and both Boric Acid Transfer Pumps running with 30 gpm or greater emergency boration flow indicated.

Required Materials: None

General References: EP/1/A/5000/FR-S.1, Response To Nuclear Power Generation/ATWS
 EP/1A/5000/G-1, Generic Enclosure -17, PD Pump Start

Handouts: EP/1/A/5000/FR-S.1, Response To Nuclear Power Generation/ATWS marked up for place-keeping through Step 4.

Initiating Cue: The CRSRO has directed you to emergency borate the NC System in accordance with Step 5 of EP/1/A/5000/FR-S.1, Response To Nuclear Generator/ATWS.

Time Critical Task: NO

Validation Time: 20 minutes

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to IC # 39, 100% Power, MOL. Go to RUN.
2. Insert:
 - a. MALF-IPE001A Failure of Auto Reactor Trips – Train A
MALF-IPE001B Failure of Auto Reactor Trips – Train B
 - b. MALF-IPE002A Failure of Manual Reactor Trips – Train A
MALF-IPE002B Failure of Manual Reactor Trips – Train B
 - c. MALF-NV029B NV pump trips on over current set to trigger 1 delay of 15 seconds
 - d. MALF-EP003C Zone 1B Lockout set to trigger 1.
 - e. MALF-EP006B Failure of 1TB to auto swap
MALF-EP006D Failure of 1TD to auto swap
 - f. LOA-NV046 Rack out 1A NV pump; Place red tag sticker on 1A NV Pump
3. Actuate Trigger 1.
4. Manually exercise A/B Reactor Trip Switches.
5. Perform steps 1 through 4 of EP/1/A/5000/FR-S.1.
6. Trip the reactor 1 minute after starting the JPM by deleting:
 - MALF-IPE001A, Failure of Auto Reactor Trips – Train A
 - MALF-IPE001B, Failure of Auto Reactor Trips – Train B
7. Ensure Letdown isolated.
8. Allow plant time to stabilize and then Freeze Simulator.

OR

1. Reset Simulator to Temporary Snap IC-122 (December, 2008).
2. Momentarily place Simulator in Run to acknowledge alarms.
3. Leave Simulator in FREEZE until operator is ready to begin.

NOTE: During the performance of this JPM, the simulator operator will need to control CA flow to avoid NCS Cooldown and SI actuation.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout EP/1/A/5000/FR-S.1, Response To Nuclear Power Generation/ATWS marked up for place-keeping through step 4.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
Simulator Instructor NOTE: Leave Simulator in FREEZE until operator is ready to begin.				
1	(Step 5) Initiate emergency boration of the NC System: (Step 5.a) Ensure one NV Pump – ON.	The operator recognizes that there are no NV Pumps operating and proceeds to Step 5.a RNO.		
2	(Step 5.a RNO) Place PD pump in service <u>PER</u> EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 17 (PD Pump Startup).	The operator seeks to find EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 17.		
3	(Enclosure 17, Step 1) Check power available to PD pump – AVAILABLE.	The operator observes that the Green status light is LIT, and determines that power is available to the PD Pump.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	<p>(Steps 2.a-d) Reset the following:</p> <p>S/I Sequencers Phase B Isolation</p> <p>If at any time a B/O signal occurs then start S/I equipment previously on.</p>	<p>The operator observes that the SI reset lights are LIT.</p> <p>The operator observes that the A Train Sequencer reset light is LIT.</p> <p>The operator depresses the B Train Sequencer reset pushbutton and observes that the Sequencer reset light is LIT.</p> <p>The operator observes that the Phase B Isolation reset lights are LIT.</p>		
5	<p>(Step 3) Close the following:</p> <p>Close 1RN-279B (AB Vent Sys Return Isol).</p> <p>Close 1RN-299A (AB Vent Sys Return Isol).</p> <p>Close 1RV-79A (U1 VU AHUS RV Cont Outside Supply Hdr Isol).</p> <p>Close 1RV-101A (U1 VU AHUS RV Cont Inside Return Hdr Isol).</p> <p>Close 1RV-32A (U1 VLVT AHUS RV Cont Outside Supply Hdr Isol).</p>	<p>The operator observes the 1RN-279B Green status light LIT, Red status light OFF.</p> <p>The operator depresses the 1RN-299A CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses and holds the 1RV-79A CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses and holds the 1RV-101A CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses the 1RV-32A CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5 (Cont'd)	<p>Close 1RV-76A (U1 VLVT AHUS RV Cont Inside Return Hdr Isol).</p> <p>Close 1RV-80B (U1 VU AHUS RV Cont Inside Supply Hdr Isol).</p> <p>Close 1RV-102B (U1 VU AHUS RV Cont Outside Return Hdr Isol).</p> <p>Close 1RV-33B (U1 VLVT AHUS RV Cont Inside Supply Hdr Isol).</p> <p>Close 1RV-77B (U1 VLVT AHUS RV Cont Outside Return Hdr Isol).</p>	<p>The operator depresses the 1RV-76A CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses and holds the 1RV-80B CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses and holds the 1RV-102B CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses the 1RV-33B CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>The operator depresses the 1RV-77B CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p> <p>Note:</p> <p>Since these steps are bulleted, the operator need not wait for the valve to completely cycle before taking action with the next valve.</p>		
6	(Step 4) Check any NC pump -ON	The operator observes the NC Pump Safety breakers Green status light LIT, Red status lights OFF, determines that no NC pumps are on and proceeds to the Step 4 RNO.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*7	(Step 4 RNO) Close the following: 1RN-252B (RB Non Ess Sup Cont Outside Isol) 1RN-277B (RB Non Ess Ret Cont Outside Isol)	The operator depresses and holds the 1RN-252B CLOSE pushbutton and observes Green status light LIT, Red status light OFF. The operator depresses and holds the 1RN-277B CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
8	(Step 5) Place the following RF pumps in "MAN" and ensure they are off: A Jockey pump B Jockey pump	The operator depresses the A RF Jockey Pump MAN pushbutton and observes the Green status light is LIT, Red status light OFF. The operator depresses the B RF Jockey Pump MAN pushbutton and observes the Green status light is LIT, Red status light OFF.		
9	(Step 6) Dispatch operator to close 2RL-267 (Unit 2 6900V Swgr Room AHU Supply From RN Inlet Isol) (service bldg, 739+5, U-31, NE corner of service bldg over pit, near KR storage tank).	The operator contacts an NEO and directs that 2RL-267 be closed. Cue: An operator has been dispatched to close 2RL-267.		
10	(Caution prior to Step 7) Both trains RN valves must be aligned in Step 7 unless specified otherwise, even if power is lost.	The operator reads Caution and proceeds to Note prior to Step 7.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Note prior to Step 7) If OAC is unavailable to check any deenergized valve positions, RNO contains required actions if position unknown.	The operator reads Note and proceeds to Step 7.		
12	(Steps 7/7.a) Align RN to "AB Non Essential Header" as follows: Ensure 1A RN pump – ON.	The operator observes that the 1A RN Pump Red Breaker status light is LIT.		
13	(Step 7.b) Check at least one of the following valves - closed: 1RN-41B (Train B To Non Ess Hdr Isol) OR 1RN-43A (Train B To Non Ess Hdr Isol).	The operator observes that the Green status light is LIT, and the Red status light is OFF. The operator observes that the Red status light is LIT, and the Green status light is OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*14	<p>(Step 7.c.1-4) Open the following valves:</p> <p>Open 1RN-40A (Train A to Non Ess Hdr Isol)</p> <p>Open 1RN-42A (AB Non Ess Supply Isol)</p> <p>Open 1RN-63B (AB Non Ess Return Isol)</p> <p>1RN-64A (AB Non Ess Return Isol)</p>	<p>The operator observes the 1RN-40A Red status light LIT, Green status light OFF.</p> <p>The operator observes the 1RN-42A Red status light LIT, Green status light OFF.</p> <p>The operator depresses the 1RN-63B OPEN pushbutton and observes Red status light LIT, Green status light OFF.</p> <p>The operator depresses the 1RN-64A OPEN pushbutton and observes Red status light LIT, Green status light OFF.</p>		
*15	<p>(Step 7.d) Check 1A RN pump flow as follows:</p> <p>If RN pump suction aligned to Low Level Intake, then check 1A RN pump flow - less than 16,000 gpm.</p> <p style="text-align: center;">OR</p> <p>If RN pump suction aligned to SNSWP.....</p>	<p>The operator observes that the 1A RN Pump suction valves are OPEN (Red status lights LIT, Green status lights OFF).</p> <p>The operator observes 1A RN flow (1RNP-5040) to be ≈5500 gpm.</p>		
16	(Step 7.e) GO TO Step 8.	The operator proceeds to Step 8.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17	(Step 8) Check if NV S/I flow path is open as follows: 1NI-9A (NC Cold Leg Inj From NV) - OPEN OR 1NI-10B (NC Cold Leg Inj From NV) - OPEN	The operator observes the Green status light LIT for both valves, determines that neither valve is OPEN, and proceeds to the Step 8 RNO.		
18	(Step 8 RNO a-b) Perform the following: IF 1A AND 1B NV pumps OFF, THEN open 1NV-241 (Seal Inj Flow Control) GO TO step 10.	The operator observes that both NV Pump Green status lights are lit, Red status lights are OFF. The operator adjusts the 1NV-241 controller output to 100% (Both Red and Black Needles to 100%). The operator proceeds to Step 10.		
19	(Step 10) Place "PD pump speed control" in "MAN" and set for minimum speed.	The operator observes the PD Pump Speed Controller in MANUAL (Green and Yellow lights LIT) and observes controller output for minimum speed (0% output).		
*20	(Step 11) Open 1NV-1047A (PD PUMP Recirculation)	The operator depresses the 1NV-1047A OPEN pushbutton and observes Red status light LIT, Green status light OFF.		
*21	(Step 12) Start the PD Pump.	The operator depresses the PD Pump START pushbutton and observes the Red status light LIT, Green status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
22	(Step 13) Ensure 1NV-1047A (PD Pump Recirculation) closes after 2 minutes.	After two minutes, the operator observes that the 1NV-1047 Green status light is LIT, Red status light is OFF.		
23	(Step 14) WHEN 1NV-1047A (PD Pump Recirculation) is closed, THEN raise "PD PUMP SPEED CNTRL" to establish charging flow.	The operator depresses the PD PUMP SPEED CNTRL increase pushbutton (Red), and observes Charging flow is increasing.		
24	(Note prior to Step 15) Cooling water for areas in next step was isolated by Step 6.	The operator reads Note and proceeds to Step 15.		
25	(Step 15) Notify station management to monitor temperature in both units 6900v switchgear room, turbine bldg, and service bldg areas.	<p>The operator notifies the CRSRO.</p> <p>Cue:</p> <p>Station Management has been notified.</p> <p>The operator returns to EP/1/A/5000/FR-S.1, Step 5.b.</p>		
*26	(EP/1/A/5000/FR-S.1/Step 5.b/.b1) Align boration flowpath: Open 1NV-265B (Boric Acid To NV Pumps).	The operator depresses the 1NV-265B OPEN pushbutton and observes Red status light LIT, Green status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*27	(Step 5.b.2) Start both boric acid transfer pumps.	<p>The operator places the A Boric Acid Transfer Pump control switch to START and observes the Red status light LIT, Green status light OFF.</p> <p>The operator observes the B Boric Acid Transfer Pump Red status light LIT, Green status light OFF.</p>		
28	(Step 5.b.3) Check emergency boration flow - GREATER THAN 30 GPM	The operator observes boration flow on 1NVP-5440 to be 60-80 gpm.		
29	<p>(Step 5.c) Check if NV flowpath aligned to NC System</p> <p>1NV-244A (Charging Line Cont Isol Otsd) - OPEN</p> <p>1NV-245B (Charging Line Cont Isol Otsd) - OPEN</p>	<p>The operator observes 1NV-244A Red status light LIT, Green status light OFF.</p> <p>The operator observes 1NV-245B Red status light LIT, Green status light OFF.</p>		
30	(Step 5.d) Ensure charging flow is greater than emergency boration flow.	<p>The operator depresses the RAISE (Red) pushbutton on the PD Pump controller to increase charging flow to greater than boration flow.</p> <p>Examiner Note:</p> <p>As charging flow is raised, boration flow will track parallel with charging flow. PD pump speed will have to be raised to 100% to gain any discernable separation. As long as flow is >60 GPM the step is satisfied.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
31	(Step 5.e) Check Pzr pressure - LESS THAN 2335 PSIG	The operator observes that Pzr Pressure is less than 2335 psig on 1NCP-5161 (or equivalent).		

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM A

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- Unit 1 was at 100% power with "A" NV pump tagged for maintenance.
- A lockout occurred on Zone "1B". Due to a relaying failure, busses 1TB and 1TD failed to swap to their alternate power source. The "1B" Diesel Generator started and loaded 1ETB.
- The reactor coolant pumps tripped on under frequency.
- An automatic reactor trip FAILED to occur. EP/1/A/5000/FR-S.1 (Response To Nuclear Power Generator/ATWS) has been implemented and completed through Step 4.
- Letdown has been isolated per AP/1/A/5500/12 Loss of Letdown, Charging or Seal Injection.
- The reactor has just been tripped locally.

INITIATING CUE:

The CRSRO has directed you to emergency borate the NC System in accordance with Step 5 of EP/1/A/5000/FR-S.1, Response To Nuclear Generator/ATWS.

DRAFT

SIM JPM B

DRAFT

Facility: McGuire Task No.: 215Z13001

Task Title: Align the ND, NI, and NV Systems to Cold Leg Recirculation JPM No.: 2009 Systems - Control Room JPM B

K/A Reference: 006, A4.02, 3.9/3.8

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
 Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions

- You are the Unit 1 Balance of Plant (BOP) Operator
- Unit 1 has experienced a large break LOCA inside containment.
- EP/1/A/5000/E-0 has been completed.
- EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock) and EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure) have been implemented to address existing CSF orange paths.
- EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) is currently in effect and has been completed through Step # 14.

Task Standard: Upon receiving the "FWST Level Lo" annunciator, the operator transitions to EP/1/A/5000/ES-1.3 (Transfer to Cold Leg Recirc) per foldout page of E-1 or Step 15.b RNO. The "A" train of ND and both trains of NI and NV are then aligned to Cold Leg Recirc. All critical tasks evaluated as satisfactory.

Required Materials: None

General References: EP/1/A/5000/E-1, Loss of Reactor or Secondary Coolant
 EP/1/A/5000/ES-1.3, Transfer to Cold Leg Recirc

Handouts: EP/1/A/5000/E-1, Loss of Reactor or Secondary Coolant marked up for place-keeping through Step 14.

Initiating Cue: The CRSRO has directed you to continue in EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant), beginning with Step #15, and perform ES-1.3. Transfer to Cold Leg Recirc when required.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR OPERATIONAL GUIDELINES

1. Reset Simulator to IC-39 100% MOL
2. Insert Malfunction - NC008B, Cold Leg LOCA Loop B
3. Setup Malfunction - NI002E, NI System Valve 1NI-184B Failure, Value = 0
4. Implement EP/E-0, FRP-P.1, FRP-Z.1, transition to EP/E-1 and perform steps 1 through 14. Allow FWST to drain to 200 inches.
5. Freeze the Simulator

OR

1. Reset to IC-123 (December, 2008)
2. Momentarily go to RUN to acknowledge Alarms then place Simulator in FREEZE.
3. Leave Simulator in FREEZE until operator is ready to begin.

Note: Time to Reach 180 Inches in FWST is \approx 45 sec.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout EP/1/A/5000/E-1 marked up for place-keeping through step 14.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
<p>Simulator Instructor NOTE: Leave Simulator in FREEZE until operator is ready to begin.</p> <p>NOTE: Operator uses control board indications to check equipment status. Operator transitions to ES-1.3 when "FWST LEVEL LO" annunciator is received (expected to come in while performing JPM Steps 1-4. When the alarm comes in, N/A any JPM Steps not performed and proceed to JPM Step 5.</p>				
1	(Step 15) Check transfer to Cold Leg Recirc criteria: (Step 15.a) FWST level – LESS THAN 180 INCHES ("FWST LEVEL LO" ALARM)	The operator checks FWST level indications (1FWP-5000, 5001 and 5002) at approximately 200 inches and proceeds to RNO.		
2	(Step 15.a RNO) RETURN TO Step 13.	The operator returns to Step 13.		
3	(Step 13) Initiate evaluation of plant status: (Step 13.a) Check Cold Leg Recirc capability from at least one train as follows: Train A: 1A ND pump - AVAILABLE 1NI-185A (1A ND Pump Suction From Cont Sump Isol) – POWER AVAILABLE OR Train B: 1B ND pump - AVAILABLE 1NI-184B (1B ND Pump Suction From Cont Sump Isol) – POWER AVAILABLE	The operator observes 1A ND Pump Red status light LIT, Green status light OFF. 1NI-185A Green light lit, Red Light Dark The operator observes 1B ND Pump Red status light LIT, Green status light OFF. 1NI-185A Green light lit, Red Light Dark The operator determines that both pumps and valves are available.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	<p>(Step 13./b.1) Check for potential leak in aux bldg as follows: Check aux bldg radiation:</p> <p>All area monitor EMF's - NORMAL</p> <p>EMF-41 (Aux Bldg Ventilation) - NORMAL</p>	<p>The operator observes EMF's for Trip1/Trip2 lights are NOT LIT.</p> <p>The operator observes associated EMF Annunciators are DARK.</p>		
<p>NOTE: Based on the setup, the operator should be transitioned to ES-1.3 by this point.</p>				
5	<p>(ES-1.3/Step 1) Have STA monitor foldout page</p>	<p>The operator looks for STA.</p> <div data-bbox="737 989 1117 1129" style="border: 1px solid black; padding: 5px;"> <p>Cue:</p> <p>The STA will monitor the foldout page</p> </div>		
6	<p>(Step 2) Perform this EP without delay.</p> <p>CSF procedures should not be implemented until directed by this procedure.</p> <p>Double 3-way communication is not required.</p>	<p>The operator reads Step and proceeds to Step 3.</p> <div data-bbox="737 1339 1117 1913" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>The direction to perform without delay, and the relaxation of the communication standard means that the operator will depress valve pushbuttons check ONLY that the valve has started moving and continue on with the procedure.</p> <p>The operator will NOT wait for the valve to fully stroke before continuing with the procedure.</p> </div>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>(Step 3) Check containment sump level by checking at least one of the following alarms –LIT:</p> <p>"CONT SUMP LEVEL GREATER THAN 3 FT" on 1AD-14 – LIT</p> <p>OR</p> <p>"CONT SUMP LEVEL GREATER THAN 3 FT" on 1AD-15 - LIT.</p>	<p>The operator observes that the MCB Annunciator is LIT.</p> <p>The operator observes that the MCB Annunciator is LIT.</p>		
8	<p>(Step 4) Check KC flow to ND heat exchangers - GREATER THAN 5000 GPM.</p>	<p>The operator checks KC to ND heat exchanger flow indications (1KCP-5670/5680) and observes flow is greater than 5000 GPM to each heat exchanger.</p>		
9	<p>(Step 5) Reset the following:</p> <p>(Step 5.a) S/I</p> <p>(Step 5.b) Sequencers</p>	<p>The operator observes S/I RESET light is LIT for both trains.</p> <p>The operator observes Sequencer RESET light is LIT for both trains.</p>		
10	<p>(Step 6) Align ND System for recirc:</p> <p>(Step 6.a) Check 1NI-185A (RB Sump To Train A ND & NS) – OPEN.</p>	<p>The operator observes 1NI-185A Red status light is LIT, Green status light OFF.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Step 6.b) Check 1A ND Pump - ON	The operator observes 1A ND Red status light is LIT, Green status light OFF, as well as pump flow, motor amps, and discharge pressure.		
12	(Step 6.c) Check 1NI-184B (RB Sump To Train B ND & NS) - OPEN	The operator observes that 1NI-184B Green status light is LIT, Red status light OFF.		
13	(Step 6.c RNO) Perform the following: (Step 6.c RNO 1) Place control permissive in "Bypass" and open 1NI-184B	The operator depresses the 1NI-184B BYPASS pushbutton. The operator presses 1NI-184B OPEN pushbutton. The operator observes Green status light LIT and recognizes that valve is CLOSED.		
14	(Step 6.c RNO 2) IF 1NI-184B is opening, THEN wait up to 30 seconds to allow valve to open.	The operator determines that valve is not opening and proceeds to RNO 6.C.3.		
15	(Step 6.c RNO 3) IF 1NI-184B is full open, THEN GO TO Step 6.d.	The operator determines that valve is not opening and proceeds to RNO 6.C.4.		
*16	(Step 6.c RNO 4) IF 1NI-184B is closed OR intermediate, THEN: (Step 6.c RNO 4.a) Stop 1B ND Pump. (Step 6.c RNO 4.b) GO TO Step 6.e.	The operator presses the 1B ND Pump STOP pushbutton and observes Green status light is LIT. The operator proceeds to Step 6.e.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*17	(Step 6.e) Enable power disconnect and close 1FW-27A (FWST Supply To ND).	<p>The operator rotates the 1FW-27A control switch clockwise and presses CLOSE pushbutton.</p> <p>The operator observes Green status light is LIT.</p>		
18	(Step 6.f) Check any ND pump - ON.	The operator observes 1A ND Red status light is LIT, Green status light OFF, as well as pump flow, motor amps, and discharge pressure.		
19	<p>(Step 7) Align NV and NI Systems for recirc:</p> <p>(Step 7.a) Check NC pressure - LESS THAN 1600 PSIG.</p>	The operator observes NC Pressure to \approx containment pressure.		
*20	<p>(Step 7.b) Close the following:</p> <p>1NI-115B (A NI Pump Miniflow)</p> <p>1NI-144B (B NI Pump Miniflow)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Note:</p> <p>It is critical to close <u>either</u> 1NI-147A <u>or</u> both 1NI-115B <u>and</u> 1NI-144B in the following steps (i.e. Either JPM Step 20 <u>or</u> 21 is Critical).</p> </div> <p>The operator presses the 1NI-115B CLOSE pushbutton, observes Green status light LIT.</p> <p>The operator presses the 1NI-144B CLOSE pushbutton, observes Green status light LIT.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*21	(Step 7.c) Enable power disconnect and close 1NI-147A (NI Pumps Miniflow Hdr Isol).	The operator rotates the 1NI-147A power disconnect switch clockwise to ENABLE and presses CLOSE pushbutton. Operator observes Green status light is LIT.		
*22	(Step 7.d) Close the following valves: 1ND-30A (Train A ND To Hot Leg Isol). 1ND-15B (Train B ND To Hot Leg Isol).	The operator presses the 1ND-30A CLOSE pushbutton, observes Green status light LIT. The operator presses the 1ND-15B CLOSE pushbutton, observes Green status light LIT.		
23	(Step 7.e) Check 1NI-334B (NV & NI Pumps Suct X-Over Blk) – OPEN.	The operator observes the 1NI-334B Red status light LIT, Green status light OFF.		
*24	(Step 7.f) Open the following: 1NI-332A (NV & NI Pumps Suction X-Over) 1NI-333B (NV & NI Pumps Suction X-Over)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Note: Opening either 1NI-332A or 1NI-333B satisfies the critical part of this step.</p> </div> <p>The operator presses the 1NI-332A OPEN pushbutton, observes Red status light LIT.</p> <p>The operator presses the 1NI-333B OPEN pushbutton, observes Red status light LIT.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
25 *	<p>(Step 7.g) Align ND discharge to suction of NI and NV pumps as follows:</p> <p>Open 1ND-58A (Train A ND To NV & NI Pumps).</p> <p>Open 1NI-136B (B NI Pump Suction From ND).</p>	<p>Note:</p> <p>1NI-136B will not open due to being interlocked with 1NI-184B.</p> <p>The operator presses the 1ND-58A OPEN pushbutton, observes Red status light LIT.</p> <p>The operator presses the 1NI-136B OPEN pushbutton, observes Green status light LIT.</p>		
*26	<p>(Step 7.h) Isolate FWST from NV and NI pumps:</p> <p>(Step 7.h.1) Enable power disconnect and close 1NI-100B (FWST To NI Pumps).</p>	<p>The operator rotates the 1NI-100B power disconnect switch clockwise to ENABLE and presses CLOSE pushbutton.</p> <p>The operator observes Green status light is LIT.</p>		
*27	<p>(Step 7.h.2) Close the following:</p> <p>1NV-221A (NV Pumps Suct From FWST)</p> <p>1NV-222B (NV Pumps Suct From FWST)</p>	<p>The operator presses the 1NV-221A CLOSE pushbutton, observes Green status light LIT.</p> <p>The operator presses the 1NV-222B CLOSE pushbutton, observes Green status light LIT.</p>		

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM B

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- You are the Unit 1 Balance of Plant (BOP) Operator.
- Unit 1 has experienced a large break LOCA inside containment.
- EP/1/A/5000/E-0 has been completed.
- EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock) and EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure) have been implemented to address existing CSF orange paths.
- EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) is currently in effect and has been completed through Step # 14.

INITIATING CUE:

The CRSRO has directed you to continue in EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant), beginning with Step #15, and perform ES-1.3, Transfer to Cold Leg Recirc when required.

DRAFT

SIM JPM C

DRAFT

PERFORMANCE INFORMATION

Facility: McGuire Task No.:

Task Title: Place LTOP in Service JPM No.: 2009 Systems - Control Room JPM C

K/A Reference: 010, A4.03, 4.0/3.8

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions:

- A Unit 1 NC cooldown and depressurization is in progress in accordance with OP/1/A/6100/SD-4, "Cooldown to 240 Degrees F."
- The 1A and 1B NCPs are operating.
- NC System pressure is 340 psig and NC System temperature is 306-312°F.
- NC Pressure control via normal spray and PZR heaters.
- Enclosure 4.1 of OP/1/A/6100/SO-10, "Controlling Procedure for LTOP Operation," has been completed through Step 3.13.

Task Standard: Manually decrease NC System Pressure to 320-330 psig and place LTOP in service. All critical tasks evaluated as satisfactory.

Required Materials: None

General References: OP/1/A/6100/SD-4, Cooldown to 240 Degrees F
 OP/1/A/6100/SO-10, Controlling Procedure for LTOP Operation
 OP/1/A/6100/022, Unit 1 Data Book

PERFORMANCE INFORMATION

Handouts: OP/1/A/6100/SO-10, Controlling Procedure for LTOP Operation, Enclosure 4.1, Placing LTOP System in Service per OP/1/A/6100/SD-4 (Cooldown to 240 degrees F) marked up for place-keeping through step 3.13.1.

Initiating Cue: The CRSRO has directed you to place the LTOP System in operation in accordance with Step 3.13 of Enclosure 4.1 of OP/1/A/6100/SO-10, "Controlling Procedure for LTOP Operation," and monitor for proper operation.

Time Critical Task: NO

Validation Time: 10 minutes

PERFORMANCE INFORMATION

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-41, Mode 4, 325 PSIG, 299 Deg Trn B ND is service.
2. Place in RUN
3. Secure 1C and 1D NCP's
4. Place LTOP PORV switches is OFF
5. Insert LOA NC043 and LOA NC044
6. Adjust NC System Pressure to 340 psig.
7. Adjust NC System Temperature to 306°F.
8. Ensure that Simulator reflects that Enclosure 4.1 of OP/1/A/6100/SO-10 is completed through Step 3.13.1
9. Freeze the Simulator

OR

1. Reset to IC-124 (December, 2008)
2. Momentarily go to RUN to acknowledge Alarms then place Simulator in FREEZE.
3. Ensure that the "AFD" Computer screen displays the "C/D Tab" panel and that the "OATC" screen displays the "NCLTOP" panel.
4. Leave Simulator in FREEZE until operator is ready to begin.

NOTE: During the performance of this JPM, the simulator operator will need to control CF flow to the SGs.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout OP/1/A/6100/SO-10, with Enclosure 4.1 marked up for place-keeping through step 3.13.1.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
Simulator Instructor NOTE: Leave Simulator in FREEZE until operator is ready to begin.				
1	(Step 3.13.2) Ensure in service: M1A1359 (NC NR Pressure for 1NC-32B actuation). M1A1365 (NC NR Pressure for 1NC-34A actuation).	The operator calls up both points on OAC.		
2	(Step 3.13.3) Monitor: M1A1359 (NC NR Pressure for 1NC-32B actuation). M1A1365 (NC NR Pressure for 1NC-34A actuation).	The operator monitors both points and observes NC NR Pressure to be 340 psig.		
*3	(Step 3.13.4) Decrease NC System Pressure to 320 – 330 PSIG	The operator adjusts Spray Valve(s) in the OPEN direction using the Red Pushbutton, and lowers NC System Pressure to < 330 psig. When NC System Pressure < 330 psig, the operator adjusts Spray Valve(s) in the CLOSED direction in order to maintain pressure 320-330 psig.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	<p>(Step 3.13.5) Ensure the following for A Cold Leg Accumulator:</p> <p>Pressure greater than 200 psig.</p> <p>Level less than 38.7% (7342 gallons maximum).</p>	<p>The operator observes 1NIP-5050 and 1NIP-5040, and determines A CLA pressure to be \approx625 psig.</p> <p>The operator observes 1NIP-5051 and 1NIP-5041, and determines A CLA Level to be \approx25%.</p>		
5	<p>(Step 3.13.6) Ensure the following for B Cold Leg Accumulator:</p> <p>Pressure greater than 200 psig.</p> <p>Level less than 38.7% (7342 gallons maximum).</p>	<p>The operator observes 1NIP-5070 and 1NIP-5060 and determines B CLA pressure to be \approx620 psig.</p> <p>The operator observes 1NIP-5071 and 1NIP-5061 and determines B CLA Level to be \approx24%.</p>		
*6	<p>(Step 3.13.7) Ensure open:</p> <p>1NC-31B (Pzr PORV Isol).</p> <p>1NC-33A (Pzr PORV Isol).</p>	<p>The operator observes Red status light LIT, Green status light OFF for 1NC-33B.</p> <p>The operator observes Red status light LIT, Green status light OFF for 1NC-33A.</p>		
7	<p>(Note prior to Step 3.13.8) For NC Loop in which an NC Pump is operating, NR pressure may indicate up to 20 psig higher than NR pressure for NC Loop in which an NC Pump is NOT operating.</p>	<p>The operator reads the Note, and proceeds to Step 3.13.8.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*8	(Step 3.13.8) When M1A1359 indicates 320-330 psig, perform the following: (Step 3.13.8.1) Select "LOW PRESS" on "PORV Overpress Protection Select 1NC-32B."	The operator observes M1A1359 is between 320-330 psig, and selects LOW PRESS on PORV Overpress Protection Select 1NC-32B.		
9	(Step 3.13.8.2) Check lit 1AD-6, F10 (PORV NC-32B Emerg CLA N ₂ Enabled)	The operator observes that 1AD-6, F-10 is LIT.		
10	(Step 3.13.8.3) Ensure open 1NI-431B (Emerg N ₂ from CLA to 1NC-32B & 36B).	The operator observes that Red status light is LIT, Green status light OFF for 1NI-431B.		
11	(Step 3.13.8.4) Place Info Sticker on control switch for 1NI-431B stating: "Do NOT operate, N ₂ aligned to 1NC-32B for LTOP."	<p>Cue:</p> <p>Another operator will fill out and place an Info Sticker for 1NI-431B</p> <p>The operator acknowledges and proceeds to Step 3.13.8.5.</p> <p>Note:</p> <p>If operator is reluctant to proceed examiner should sign off step.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
12	(Step 3.13.8.5) Ensure 1NC-32B (Pzr PORV) in "Auto."	The operator observes that Control Switch for 1NC-32B is in AUTO.		
13*	(Step 3.13.9) When M1A1365 indicates 320-330 psig, perform the following: (Step 3.13.9.1) Select "LOW PRESS" on "PORV Overpress Protection Select 1NC-34A."	The operator observes M1A1365 is between 320-330 psig, and selects LOW PRESS on PORV Overpress Protection Select 1NC-34A.		
14	(Step 3.13.9.2) Check lit 1AD-6, F9 (PORV NC-34A Emerg CLA N ₂ Enabled)	The operator observes that 1AD-6, F-9 is LIT.		
15	(Step 3.13.9.3) Ensure open 1NI-430A (Emerg N ₂ from CLA to 1NC-34A).	The operator observes that Red status light is LIT, Green status light OFF for 1NI-430A.		
16	(Step 3.13.9.4) Place Info Sticker on control switch for 1NI-430A stating: "Do NOT operate, N ₂ aligned to 1NC-34A for LTOP."	<p>Cue: Another operator will fill out and place an Info Sticker for 1NI-430A</p> <p>The operator acknowledges and proceeds to Step 3.13.9.5.</p> <p>Note: If operator is reluctant to proceed examiner should sign off step.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17	(Step 3.13.9.5) Ensure 1NC-34A (Pzr PORV) in "Auto."	The operator observes that Control Switch for 1NC-34A is in AUTO.		

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- A Unit 1 NC cooldown and depressurization is in progress in accordance with OP/1/A/6100/SD-4, "Cooldown to 240 Degrees F."
- The 1A and 1B NCPs are operating.
- NC System pressure is 340 psig and NC System temperature is 306-312°F.
- NC Pressure control via normal spray and PZR heaters.
- Enclosure 4.1 of OP/1/A/6100/SO-10, "Controlling Procedure for LTOP Operation," has been completed through Step 3.13.

INITIATING CUE:

The CRSRO has directed you to place the LTOP System in operation in accordance with Step 3.13 of Enclosure 4.1 of OP/1/A/6100/SO-10, "Controlling Procedure for LTOP Operation," and monitor for proper operation.

SIM JPM D

PERFORMANCE INFORMATION

Facility: McGuire

Task No.:

Task Title: Establish Feedwater Flow to the S/G's Following a Reactor TripJPM No.: 2009 Systems - Control Room JPM D

K/A Reference: 059, A4.11, 3.1/3.3

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____

Actual Performance: X Classroom _____ Simulator X Plant _____**READ TO THE EXAMINEE**

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.

Initial Conditions:

- A U-1 Reactor Trip has occurred from 100% Power.
- EP/1/A/5000/ES-0.1, Reactor Trip Response, is in progress and completed through subsequent step 1.
- Total feed flow to S/G's is < 450 GPM and CA Pumps 1A and 1B are not running. U-1 TD CA pump has tripped and is unavailable.
- CF Isolation has not occurred.

Task Standard: 1A CF Pump is in service and capable of providing feedwater flow to all four S/G's.

Required Materials: None

General References: EP/1/A/5000/ES-0.1, Reactor Trip Response
EP/1/A/5000/ES-0.1, Reactor Trip Response, Enclosure 4, Re-establishing CF Flow.

Handouts: EP/1/A/5000/ES-0.1, Reactor Trip Response, Enclosure 4, Re-establishing CF Flow.

PERFORMANCE INFORMATION

- Initiating Cue:
- The CRSRO directs you to place the 1A CF Pump in service, and establish CF to the S/G's in accordance with Enclosure 4 of EP/1/A/5000/ES-0.1.
 - If, as expected, a Red Path occurs on Heat Sink, continue with the assigned task, and the remaining crewmembers will implement EP/1/A/5000/FR-H.1, "Response to Loss of Secondary Heat Sink."

Time Critical Task: NO

Validation Time: 20 minutes

PERFORMANCE INFORMATION

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to IC-12, 15%, BOL
2. Insert MAL CA004A Failure of CA Pump A to Start BOTH
Insert MAL CA004B Failure of CA Pump B to Start BOTH
Insert MAL CA003A CA Turbine Fails to Start
Insert MAL CA003B CA Turbine Fails to Start
3. Manually trip the Reactor.
4. Allow simulator to run until negative power mismatch and negative temp. mismatch clear.
5. Place TD CA Pump start switch to "START"
6. Freeze the simulator.

Simulator runner should monitor balance of plant. Adjust charging and letdown as necessary to minimize alarms.

OR

1. Reset Simulator to Temporary Snap IC-125 (December, 2008).
2. Momentarily place Simulator in Run to acknowledge alarms.

NOTE: 1NV-238 was placed in manual during setup and will need to be adjusted and returned to Auto within approx 10 minutes of start of JPM.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout EP/1/A/5000/ES-0.1, Reactor Trip Response, Enclosure 4, Reestablishing CF Flow.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	<p>(Step 1) Ensure the following in manual and close manual loaders for all:</p> <p>S/G CF control valves</p> <p>S/G CF control bypass valves</p>	<p>The operator places the S/G CF control valve controllers (4) in MANUAL by depressing the Amber pushbutton.</p> <p>On each controller the operator depresses the CLOSE pushbutton (Green) and observes that the controller outputs move to 0.</p> <p>The operator observes the Amber light LIT for each of the S/G CF control bypass valve controllers (4).</p> <p>On each controller the operator observes the Green light LIT and controller outputs at 0.</p>		
*2	<p>(Step 2) Close the following CF Control isolation valves:</p> <p>1CF-31 (A S/G CF Cntrl Inlet Isol)</p>	<p>The operator depresses the 1CF-31 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*2 (Cont'd)	1CF-33 (A S/G CF Cntrl Outlet Isol)	The operator depresses the 1CF-33 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-22 (B S/G CF Cntrl Inlet Isol)	The operator depresses the 1CF-22 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-24 (B S/G CF Cntrl Outlet Isol)	The operator depresses the 1CF-24 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-19 (C S/G CF Cntrl Inlet Isol)	The operator depresses the 1CF-19 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-21 (C S/G CF Cntrl Outlet Isol)	The operator depresses the 1CF-21 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-16 (D S/G CF Cntrl Inlet Isol)	The operator depresses the 1CF-16 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		
	1CF-18 (D S/G CF Cntrl Outlet Isol)	The operator depresses the 1CF-18 CLOSE pushbutton and observes Green status light LIT, Red status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2 (Cont'd)		<p>Note:</p> <p>Closing either the Inlet OR the Outlet for each S/G CF Cntrl valve satisfies the critical element of this step.</p>		
3	<p>(Step 3) Check the following alarms - DARK:</p> <p>"INNER DOGHOUSE LEVEL HI" (1AD-5, G-6)</p> <p>"OUTER DOGHOUSE LEVEL HI" (1AD-5, H-6)</p>	The operator observes that both MCB Annunciator windows are DARK.		
4	<p>(Step 4) Check all S/G N/R levels - HAVE REMAINED LESS THAN 83% (P-14 setpoint).</p>	<p>The operator observes all four SG NR levels and determines that all SG levels are less than 83%.</p> <p>Cue: If asked, S/G levels have remained <83%.</p>		
5	<p>(Note prior to Step 5) The following step must be completed even if a Feedwater Isolation signal has not occurred.</p>	The operator reads the Note and proceeds to Step 5.		
*6	<p>(Step 5) Depress and release the Feedwater Isolation reset pushbuttons.</p>	<p>The operator depresses the <u>Train A FWI Reset</u> pushbutton, and observes that the Reset light is LIT.</p> <p>The operator depresses the <u>Train B FWI Reset</u> pushbutton, and observes that the Reset light is LIT.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>(Step 6) Ensure the following are open on S/Gs to be fed:</p> <p>1CF-35AB (A S/G CF Cont Outside Isol)</p> <p>1CF-30AB (B S/G CF Cont Outside Isol)</p> <p>1CF-28AB (C S/G CF Cont Outside Isol)</p> <p>1CF-26AB (D S/G CF Cont Outside Isol)</p>	<p>The operator observes the 1CF-35AB Red status light LIT, Green status light OFF.</p> <p>The operator observes the 1CF-30AB Red status light LIT, Green status light OFF.</p> <p>The operator observes the 1CF-28AB Red status light LIT, Green status light OFF.</p> <p>The operator observes the 1CF-26AB Red status light LIT, Green status light OFF.</p>		
8	<p>(Step 7) Check both CF pumps - RESET</p>	<p>The operator observes that the Reset light on "A" CF Pump is LIT, and the Trip light on "B" CF pump is LIT and proceeds to Step 7 RNO.</p>		
9	<p>(Step 7 RNO a) Perform the following: IF only one CF pump is tripped, THEN GO TO Step 10.</p>	<p>The operator determines only "B" CF pump is tripped and proceeds to step 10.</p>		
10	<p>(Steps 10/10.a) Perform the following:</p> <p>Check "RESET" light on "1A OR 1B CF PUMP RECIRC VALVE CLOSURE CIRCUIT" - DARK</p>	<p>The operator determines RESET light is LIT and proceeds to the Step 10.a RNO.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Step 10.a RNO) GO TO Step 11.	The operator proceeds to Step 11.		
12	(Step 11) Ensure AS is supplied by either Unit 2 or the Aux Electric Boiler PER Step 24 in body of procedure.	After the cue, the operator proceeds to Step 12. Cue: The CRSRO reports AS is supplied by Unit 2		
13	(Step 12) Check 1HM-95 (U1 Aux Steam Supply to CF Pumps turbine Isol) – OPEN	The operator observes the 1HM-95 Red status light LIT, Green status light OFF.		
14	(Step 13) Check CF flow - HAS BEEN LOST FOR OVER ONE HOUR.	After the cue, the operator proceeds to Step 13 RNO. Cue: CF flow was lost 20 minutes ago.		
15	(Step 13 RNO) GO TO Step 15.	The operator proceeds to Step 15.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*16	(Step 15) On CF pump to be placed in service, raise speed demand "DEM" to establish "CF HEADER PRESSURE" 50-100 psig above S/G pressure.	<p>The operator observes CF Header Pressure (1CFP-5140) to be \approx800 psig, and Steam Header Pressure (1SMP-5200) to be \approx1100 psig, and determines the current differential pressure to be \approx300 psig.</p> <p>Note:</p> <p>The operator may use the OAC (Unit 1 Overview Screen or equivalent) to monitor the ΔP.</p> <p>The operator selects "1A" CF pump and depresses the "INC" and/or "DEC" pushbuttons as needed to establish CF header pressure 75 psig greater than S/G pressure.</p> <p>Note:</p> <p>The Operator can exceed 100 psid during attempts to obtain 50-100 psid. The standard is to be between 50 – 100 psid when leaving this step.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*17	<p>(Step 16) Establish desired feed flow to S/Gs by performing the following:</p> <p>Slowly throttle open S/G CF control bypass valves</p> <p>Raise CF pump speed demand "DEM" to raise discharge pressure as required.</p>	<p>The operator depresses the OPEN pushbutton (Red) and observes each S/G CF control bypass valve controller output rising.</p> <p>The operator depresses the DEM pushbutton on the 1A CF pump speed controller until discharge pressure is adequate to provide flow.</p>		
18	<p>(Step 17) WHEN the following conditions are established, THEN S/G CF control bypass valves may be placed in auto as desired:</p> <p>D/P between "CF HEADER PRESSURE" and S/G pressure between 50 and 100 psig.</p> <p>S/G levels at 39%.</p>	<p>The operator continues to feed the S/Gs.</p> <p>Cue:</p> <p>Another operator will monitor S/G levels and complete this enclosure.</p>		

Terminating Cue:

Evaluation on this JPM is complete.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM D

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- A U-1 Reactor Trip has occurred from 100% Power
- EP/1/A/5000/ES-0.1, Reactor Trip Response, is in progress and completed through subsequent step 11.
- Total feed flow to S/G's is < 450 GPM and CA Pumps 1A and 1B are not running. U-1 TD CA pump has tripped and is unavailable
- CF Isolation has not occurred.

INITIATING CUE:

- The CRSRO directs you to place the 1A CF Pump in service, and establish CF to the S/G's in accordance with Enclosure 4 of EP/1/A/5000/ES-0.1.
- If, as expected, a Red Path occurs on Heat Sink, continue with the assigned task, and the remaining crewmembers will implement EP/1/A/5000/FR-H.1, "Response to Loss of Secondary Heat Sink."

DRAFT

SIM JPM E

DRAFT

PERFORMANCE INFORMATION

Facility: McGuire Task No.:

Task Title: Manually Align Phase B HVAC Equipment JPM No.: 2009 Systems - Control Room JPM E

K/A Reference: 028, A4.01, 4.0/4.0

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions:

- You are the Unit 2 BOP.
- Unit 1 has experienced a Large Break LOCA.
- The crew is implementing EP/1/A/5000/E-0, Reactor Trip or Safety Injection.

Task Standard: The operator manually starts both Trains of the VE and VX Systems.

Required Materials: None

General References: EP/1/A/5000/E-0, Reactor Trip or Safety Injection
Enclosure 2, Phase B HVAC Equipment, of EP/1/A/5000/E-0, Reactor Trip or Safety Injection.

Handouts: Enclosure 2, Phase B HVAC Equipment, of EP/1/A/5000/E-0, Reactor Trip or Safety Injection.

Initiating Cue: The CRSRO has directed you to check Phase B HVAC equipment in accordance with Enclosure 2, "Phase B HVAC Equipment," of EP/1/A/5000/E-0, "Reactor Trip or Safety Injection."

PERFORMANCE INFORMATION

Time Critical Task: NO

Validation Time: 5 minutes

PERFORMANCE INFORMATION

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to IC # 39, 100% Power, MOL. Go to RUN.
2. Insert:
 - a. MALF-NC008A Large Break LOCA on Trigger 1.
 - b. MALF-ISE004A (Both) Failure of Train A of Phase B Containment Isolation
MALF-ISE004B (Both) Failure of Train B of Phase B Containment Isolation
3. Actuate Trigger 1
4. Perform steps 1 through 13 of EP/1/A/5000/E-0 (Including manually actions to overcome failure of Containment Phase B Isolation).
5. Freeze Simulator.

OR

1. Reset Simulator to Temporary Snap IC-126 (December, 2008).
2. Momentarily go to RUN to acknowledge Alarms then place Simulator in FREEZE.
3. Leave Simulator in FREEZE until operator is ready to begin.

NOTE: FWST level is depleting rapidly and could interfere with the performance of this JPM.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout EP/1/A/5000/E-0, Enclosure 2, Phase B HVAC Equipment.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
Simulator Instructor NOTE: Leave Simulator in FREEZE until operator is ready to begin.				
1	(Steps 1/1.a) Check VE System in operation as follows: VE Fans – ON.	<p>The operator observes the 1A VE Fan Green status light LIT, and Red status light OFF and determines that the fan is OFF.</p> <p>The operator observes the 1B VE Fan Green status light LIT, and Red status light OFF and determines that the fan is OFF.</p>		
*2	<p>(Steps 1.a RNO a.1-2) Start fans as follows:</p> <p>Select "ON".</p> <p>Return switch to "AUTO".</p>	<p>The operator places the 1A VE Fan control switch to ON, and observes the Red status light LIT, Green status light OFF.</p> <p>The operator returns the 1A VE Fan control switch to AUTO.</p> <p>The operator places the 1B VE Fan control switch to ON, and observes the Red status light LIT, Green status light OFF.</p> <p>The operator returns the 1B VE Fan control switch to AUTO.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	(Step 1.b) Ensure all damper mode select switches in "AUTO": 1AVS-D-7 Mode Select 1AVS-D-8 Mode Select 1AVS-D-2 Mode Select 1AVS-D-3 Mode Select.	The operator observes that the 1AVS-D-7 Mode Select Switch is in AUTO. The operator observes that the 1AVS-D-8 Mode Select Switch is in AUTO. The operator observes that the 1AVS-D-2 Mode Select Switch is in AUTO. The operator observes that the 1AVS-D-3 Mode Select Switch is in AUTO.		
4	(Step 1.c) Annulus pressure being maintained - NEGATIVE.	The operator observes 1VEP-5100 and 1VEP-5110 are indicating -3" water column and determines that the Annulus pressure is negative.		
5	(Steps 2/2.a) Check VX System in operation as follows: Time since Phase B actuation - GREATER THAN 10 MINUTES.	After the cue, the operator recognizes that the time since Phase B actuation is greater than 10 minutes and proceeds to Step 2.b. Cue: Phase B Isolation on Unit 1 actuated 12 minutes ago.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	<p>(Step 2.b) Check the following - OPEN:</p> <p>1RAF-D-4 (1B Cont Air Ret Fan To Lwr Cont Test A)</p> <p>1VX-2B (1B H2 Skimmer Fan Isol Test A)</p> <p>1RAF-D-2 (1A Cont Air Ret Fan To Lwr Cont Test A)</p> <p>1VX-1A (1A H2 Skimmer Fan Isol Test A).</p>	<p>The operator observes that the 1RAF-D-4 Green status light is LIT, Red status light is OFF.</p> <p>The operator observes that the 1VX-2B Green status light is LIT, Red status light is OFF.</p> <p>The operator observes that the 1RAF-D-2 Green status light is LIT, Red status light is OFF.</p> <p>The operator observes that the 1VX-1A Green status light is LIT, Red status light is OFF.</p>		
*7	(Step 2.b RNO) open dampers.	<p>The operator presses and holds the 1RAF-D-4 OPEN pushbutton and observes the Red status light is LIT, Green status light is OFF.</p> <p>The operator presses and holds the 1VX-2B OPEN pushbutton and observes the Red status light is LIT, Green status light is OFF.</p> <p>The operator presses and holds the 1RAF-D-2 OPEN pushbutton and observes the Red status light is LIT, Green status light is OFF.</p> <p>The operator presses and holds the 1VX-1A OPEN pushbutton and observes the Red status light is LIT, Green status light is OFF.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
8	(Step 2.c) Check Containment Air Return fans - ON.	<p>The operator observes the 1A CAR Fan Green status light LIT, and Red status light OFF.</p> <p>The operator observes the 1B CAR Fan Green status light LIT, and Red status light OFF.</p>		
*9	(Step 2.c RNO) start fans.	<p>The operator depresses the START pushbutton for the 1A CAR Fan, and observes the Red status light LIT, Green status light OFF.</p> <p>The operator depresses the START pushbutton for the 1B CAR Fan, and observes the Red status light LIT, Green status light OFF.</p>		
10	(Step 2.d) Check H ₂ Skimmer fans - ON.	<p>The operator observes the 1A H₂ Skimmer Fan Green status light LIT, and Red status light OFF.</p> <p>The operator observes the 1B H₂ Skimmer Fan Green status light LIT, and Red status light OFF.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*11	(Step 2.d RNO) start fans.	<p>The operator depresses the START pushbutton for the 1A H₂ Skimmer Fan, and observes the Red status light LIT, Green status light OFF.</p> <p>The operator depresses the START pushbutton for the 1B H₂ Skimmer Fan, and observes the Red status light LIT, Green status light OFF.</p>		

Terminating Cue:

Evaluation on this JPM is complete.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM E

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- You are the Unit 2 BOP.
- Unit 1 has experienced a Large Break LOCA.
- The crew is implementing EP/1/A/5000/E-0, Reactor Trip or Safety Injection.

INITIATING CUE:

The CRSRO has directed you to check Phase B HVAC equipment in accordance with Enclosure 2, "Phase B HVAC Equipment," of EP/1/A/5000/E-0, "Reactor Trip or Safety Injection."

DRAFT

SIM JPM F

DRAFT

PERFORMANCE INFORMATION

Facility: McGuire

Task No.:

Task Title: Perform Diesel Generator
Operability TestJPM No.: 2009 Systems - Control
Room JPM F

K/A Reference: 064, A4.06, 3.9/3.9

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____

Actual Performance: X Classroom _____ Simulator X Plant _____**READ TO THE EXAMINEE**

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.

Initial Conditions

- Unit 1 is operating at 100% power.
- A monthly test of the 1B Emergency Diesel Generator is required.
- The A Train is the operating Train.
- The System Engineer wants to start and stop the Diesel from the Control Room.
- PT/1/A/4350/002B Enclosure 13.1 is complete through Step 2.6
- Two NEOs, Bob and Carol are standing by at the 1B D/G to assist. They have a copy of the PT.

Task Standard: The 1B DG is started from the Control Room and prepared for parallel operation with 1ETB. The 1B DG is stopped using its normal stop switch when indications of a sudden loss of crankcase vacuum and a loss of Engine speed are observed.

Required Materials: None

General References: PT/1/A/4350/002B, "Diesel Generator 1B Operability Test."

PERFORMANCE INFORMATION

Handouts: PT/1/A/4350/002B, "Diesel Generator 1B Operability Test," with Enclosure 13.1 marked up for place-keeping through Step 2.6.

Initiating Cue: The CRSRO has directed you to conduct a Slow Start of the 1B Emergency Diesel Generator starting with Step 2.7 of Enclosure 13.1 of PT/1/A/4350/002B, "Diesel Generator 1B Operability Test."

Time Critical Task: NO

Validation Time: 20 minutes

PERFORMANCE INFORMATION

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to IC # 20, 100% Power, MOL. Go to RUN.
2. Ensure that the A Train is the operating Train.
3. Insert DG006B2, over-under excitation value = 95.
4. 1AD-11/D06 = ON, D/G B Panel trouble (Simulates Before & After LOP On).
5. Insert MALF-DG002B, D/G B FAILS TO MINIMUM SPEED, Assign to Trigger #1.

OR

1. Reset Simulator to Temporary Snap IC-127 (December, 2008).
2. Momentarily go to run and acknowledge alarms.

NOTE: During the NLO Actions of JPM Step 10, Simulator Instructor must DELETE 1AD-11/D06 = ON (Simulates Before & After LOP Off)

THEN, assign 1AD-11/D06 = ON to Trigger #1, D/G B Panel trouble (Simulates High Crankcase Pressure).

NOTE: At step 6 once D/G had come up to voltage and freq, DELETED DG006B2. This will allow the student to control voltage.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout PT/1/A/4350/002B, Enclosure 13.1, marked up for place-keeping through Step 2.6.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	(Step 2.7) Place Control Room "1B D/G Mode Select" to applicable position: "LOCAL" to start D/G from local panel OR "C/R" to start D/G from Control Room	The operator places the Control Room "1B D/G Mode Select" to C/R.		
2	(Step 2.8) Notify Unit 1 Control Room that adjusting Main Generator voltage while the D/G is tied to the grid will significantly affect the power factor on the operating D/G.	The operator informs the OATC that adjusting Main Generator voltage while the D/G is tied to the grid will significantly affect the power factor on the operating D/G. Cue: Acknowledge as the U-1 OATC.		
3	(Caution prior to Step 2.9) Steps 2.9-2.12 should be performed in less than two minutes.	The operator reads Caution and proceeds to Step 2.9.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	(Step 2.9) Rotate "Load Limit" control knob on Woodward Governor Actuator counter-clockwise to "SLOW START" position.	<p>The operator contacts the NEO and directs that the "Load Limit" control knob on Woodward Governor Actuator be rotated counter-clockwise to "SLOW START" position.</p> <p>Cue:</p> <p>NEO reports that the Load Limit control knob is in the "SLOW START" position.</p>		
*5	(Step 2.10) Depress "START" on "1B Diesel Generator."	<p>The operator depresses the START pushbutton on the 1B D/G, and observes Red status light LIT, and Green status light OFF.</p> <p>The operator observes status light 1SI-15/B-3 LIT momentarily then OFF, and THEN status light 1SI-15/B-4 LIT.</p>		
6	(Step 2.11) Check D/G starts and reaches 95% speed (57 Hz or local start timer times out).	<p>The operator observes 1B DG Frequency to be ≈ 60.2 Hz.</p> <p>Simulator Operator:</p> <p>DELETE "DG006B2" to allow student to control voltage.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	(Step 2.12) When D/G has started, rotate "Load Limit" control knob on Woodward Governor fully clockwise (MAX FUEL).	<p>The operator contacts the NEO and directs that the "Load Limit" control knob on Woodward Governor Actuator be rotated fully clockwise.</p> <p>Cue: NEO reports that the Load Limit control knob is in the "MAX FUEL" position.</p>		
8	(Step 2.13) Record D/G start date/time:	The operator records the current time and date in the space provided.		
9	(Step 2.14) Evaluate operability of 1B D/G.	<p>The operator requests the CRSRO to evaluate the operability of the 1B D/G inoperable.</p> <p>Cue: Examiner Acknowledge as the CRSRO and Initial Step 2.14 in procedure.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
10	(Steps 2.15-21) Local actions.	<p>The operator observes that Step 2.15-2.21 are local actions and directs the NEO to perform these actions in the procedure and report back to the Control Room.</p> <p>Simulator Operator:</p> <p>DELETE 1AD-11/D06 = ON (Simulates Before & After LOP Off) THEN, assign 1AD-11/D06 = ON to Trigger #1, D/G B Panel trouble (Simulates High Crankcase Pressure).</p> <p>Cue:</p> <p>NEO reports that local actions have been taken and steps 2.15 through 2.21 are signed off in the procedure.</p> <p>Cue:</p> <p>If asked, the NLO reports:</p> <ul style="list-style-type: none"> • Oil level is visible in the Governor sight glass. • Jacket Water pressure is > 24 psig. • Lube Oil pressure is > 36 psig. • The Before & After LOP is OFF and in AUTO. • 1LD-113B (1B D/G Lube Oil Filter Bypass) indicates Closed. • Fuel Oil Pressure is > 32 psig. 		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Step 2.22) Check the following on OAC (Turn-on Code – RNESS1B): 1RN-71B (B KD HX Supply Isol) indicates "OPEN." RN flow indicated through D/G Heat Exchanger.	The operator turns on OAC Code RNESS1B and observes that 1RN-71B is OPEN and that there is ≈ 1500 gpm through the 1B D/G Heat Exchanger.		
12	(Step 2.23) Check the following: Steady-state D/G volts 3740 – 4580 V. Steady-state D/G frequency 58.8 – 61.2 Hz.	The operator observes 1B D/G voltage to be ≈ 3953 V. The operator observes 1B D/G frequency to be ≈ 60.2 Hz.		
13	(Step 2.24) Ensure Control Room "1B D/G Mode Select" to applicable position: "LOCAL" to load D/G from local panel OR "C/R" to load D/G from Control Room	The operator observes the Control Room "1B D/G Mode Select" to C/R.		
14	(Step 2.25) Check "Line Volts" 3960-4360 V.	The operator observes line voltage to be ≈ 4069 V.		
*15	(Step 2.26) Adjust D/G voltage 50-100 V higher than line voltage using "1B D/G Voltage Adjust."	The operator rotates the 1B D/G Voltage Adjust switch to RAISE and adjusts DG voltage to ≈ 4119 - 4169 V.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	(Caution prior to Step 2.27) Failure of the Droop Permissive could result in erratic D/G operation while paralleled to the bus.	The operator reads the Caution and proceeds to Step 2.27.		
17	(Step 2.27) IF OAC available, check OAC point M1D3356 (1B D/G Droop Permissive) indicates "COMPLETE."	The operator observes OAC Point M1D3356 indicates COMPLETE.		
*18	(Step 2.28) Place "1B D/G Synch" to "ON."	The operator places the 1B D/G Synch Switch to ON, and observes synch scope stopped at 5 o'clock.		
*19	(Step 2.29) Using 1B D/G Gov Cntrl, adjust D/G speed to allow synchroscope to move slowly and smoothly in the FAST (clockwise) direction.	The operator uses the Governor Control adjust so that the synchroscope is moving slowly and smoothly in the FAST (clockwise) direction.		
		<p>Simulator Operator:</p> <p>Operate Key #1 to fail D/G to minimum speed.</p> <p>Note: Synchroscope will rapidly change direction, and 1AD-11/D-6 will alarm.</p>		
		<p>Cue:</p> <p>The operator may contact the NEO.</p> <p>If so, report that the DG is making a great deal of noise.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*20	(Precaution 6.7) IF a sudden loss of crankcase vacuum is indicated, together with an unusual knock or sudden decrease of speed, stop engine with normal stop switch to ensure circulation of LD and KD for at least 20 minutes. Engine covers must remain in place during this cooling period, since engine vapors may ignite.	The operator places the 1B D/G normal stop switch to STOP.		

Terminating Cue: Evaluation on this JPM is complete.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM F

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- Unit 1 is operating at 100% power.
- A monthly test of the 1B Emergency Diesel Generator is required.
- The A Train is the operating Train.
- The System Engineer wants to start and stop the Diesel from the Control Room.
- PT/1/A/4350/002B Enclosure 13.1 is complete through Step 2.6.
- Two NEOs, Bob and Carol are standing by at the 1B D/G to assist. They have a copy of the PT.

INITIATING CUE:

The CRSRO has directed you to conduct a Slow Start of the 1B Emergency Diesel Generator starting with Step 2.7 of Enclosure 13.1 of PT/1/A/4350/002B, "Diesel Generator 1B Operability Test."

SIM JPM G

DRAFT

Facility: McGuire

Task No.:

Task Title: Restore Repaired Power Range
Channel to ServiceJPM No.: 2009 Systems - Control
Room JPM G

K/A Reference: 015 A2.01 3.5/3.9

Examinee:

Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
 Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions:

- With Unit 1 at 100% power, Power Range Channel N43 failed high.
- The Control Room crew removed Power Range Channel N43 from service in accordance with AP16, "Malfunction of Nuclear Instrumentation," Case III.
- The instrument has been out of service for 16 hours.
- IAE has indicated that the channel has been repaired and can now be restored to service.

Task Standard: Complete a restoration of a previously failed Power Range Channel and recognize that the instrument has failed again during the restoration. All critical tasks evaluated as satisfactory.

Required Materials: N43 Control Power Fuses

General References: AP/1/A/5500/16, Malfunction of Nuclear Instrumentation

Handouts: AP/1/A/5500/16, Malfunction of Nuclear Instrumentation, Case III, marked up for place-keeping through Step 21.

Initiating Cue: The CRSRO has directed you to restore Power Range Channel N43 to service in accordance with Step 22 of AP16, "Malfunction of Nuclear Instrumentation," Case III, "Power Range Malfunction."

Time Critical Task: NO

Validation Time: 5 minutes

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-39, 100% Power
2. Place in RUN and allow time to stabilize
3. Insert Malfunction ENB13F, Power Range Channel Failure, N43
4. Perform the actions of AP/1/A/5500/16 up through step 21.
5. Run CAEPZZPR43BS
6. Remove Malfunction.
7. Freeze the Simulator.

OR

1. Reset to IC-129.

NOTE: The Simulator Instructor will need to insert Malfunction ENB013F just prior to Step 13 of JPM.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout AP/1/A/5500/16, with Case III marked up for place-keeping through step 21.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	(Step 22) WHEN malfunctioning P/R channel repaired, THEN perform the following: (Step 22.a) Ensure instrument power fuses in "POWER RANGE B" drawer installed.	Operator checks fuses installed in Power Range B Drawer.		
*2	(Step 22.b) Install control power fuses in "POWER RANGE A" drawer.	Operator inserts fuses into Power Range A Drawer. The operator observes the Drawer lights come back on.		
*3	(Step 22.c) Select "RESET" on the "RATE MODE SWITCH".	Operator selects RESET on the Rate Mode Switch and allows spring-return to NORMAL. The operator observes the Positive Rate Trip light extinguishes.		
4	(Step 22.d) Check reactor power – GREATER THAN 25%.	Operator observes other Power Range Channels and determines that the plant is at 100% power.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	(Step 22.e) Check the following bistable - LIT: "P/R HI FLUX LO STPT" (1SI-2).	Operator observes that the P/R HI FLUX LO STPT Bistable light is LIT (1SI2-C12).		
6	(Step 22.f) Check the following bistables - DARK: "P/R HI FLUX HI STPT" (1SI-2) "P/R HI FLUX RATE" (1SI-3).	Operator observes that the P/R HI FLUX HI STPT Bistable light is DARK (1SI2-C13). Operator observes that the P/R HI FLUX HI RATE Bistable light is DARK (1SI3-C1).		
*7	(Step 22.g) Place "COMPARATOR CHANNEL DEFEAT" switch to "NORMAL".	At Comparator and Rate Drawer, Operator places the COMPARATOR CHANNEL DEFEAT switch to NORMAL. The operator observes the Comparator Defeat light extinguishes.		
*8	(Step 22.h) Place "POWER MISMATCH BYPASS" switch to "OPERATE".	At Detector Current Comparator Drawer, Operator places the POWER MISMATCH BYPASS switch to OPERATE.		
*9	(Step 22.i) Place "UPPER SECTION" switch to "NORMAL".	At Detector Current Comparator Drawer, Operator places the UPPER SECTION switch to NORMAL. The operator observes the Channel Defeat light extinguishes.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*10	(Step 22.j) Place "LOWER SECTION" switch to "NORMAL".	At Detector Current Comparator Drawer, Operator places the LOWER SECTION switch to NORMAL. The operator observes the Channel Defeat light extinguishes.		
*11	(Step 22.k) Place "ROD STOP BYPASS" switch to "OPERATE".	At Detector Current Comparator Drawer, Operator places the ROD STOP BYPASS switch to OPERATE.		
*12	(Step 22.l) Place "P/R TO S/G PROGRAM LEVEL CHANNEL DEFEAT" switch to "NORM".	At 1MC2, Operator places the P/R TO S/G PROGRAM LEVEL CHANNEL DEFEAT switch to NORM.		
		<p>Simulator Instructor:</p> <p>Upon completion of Step 22.l insert Malfunction ENB013F, Failure on N43.</p> <p>Note: This will cause AD-2/F3, "P/R HI Voltage Failure." The operator may address ARP1AD-2/F-3 or go directly to AP-16.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*13	(Immediate Action) Go to AP/1/A/5500/16, Malfunction of Nuclear Instrumentation.	Operator addresses the beginning of the procedure for Case III.		
*14	(Step 1) Place control rods in manual.	Operator places Rods in MANUAL.		

Terminating Cue: Evaluation on this JPM is complete.

STOP TIME: _____

JPM CUE SHEET

- INITIAL CONDITIONS:
- With Unit 1 at 100% power, Power Range Channel N43 failed high.
 - The Control Room crew removed Power Range Channel N43 from service in accordance with AP16, "Malfunction of Nuclear Instrumentation," Case III.
 - The instrument has been out of service for 16 hours.
 - IAE has indicated that the channel has been repaired and can now be restored to service.

INITIATING CUE: The CRSRO has directed you to restore Power Range Channel N43 to service in accordance with Step 22 of AP16, "Malfunction of Nuclear Instrumentation," Case III, "Power Range Malfunction."

SIM JPM H

DRAFT

PERFORMANCE INFORMATION

Facility: McGuire Task No.: MO-7319, MO-3331.3

Task Title: Place Standby Component Cooling Train in Operation JPM No.: 2009 Systems - Control Room JPM H

K/A Reference: 008, A4.01, 3.3/3.1

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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.

Initial Conditions:

- Unit 1 is operating at 100% power with "A" train RN and KC in service.
- 1A1 KC pump has tripped on overcurrent and will not restart.
- The crew has completed AP/1/A/5500/21 (Loss of KC or KC System Leakage) through subsequent step 8.

Task Standard: The 'B' Train Component Cooling pumps are started in accordance with AP/1/A/5500/21, Loss of Component Cooling Water.

Required Materials: None

General References: AP/1/A/5500/21, Loss of Component Cooling Water

Handouts: AP/1/A/5500/21, Loss of Component Cooling Water, marked up for place-keeping through Step 8.

Initiating Cue: The CRSRO has directed you to start the standby KC train starting with Step 9 of AP/1/A/5500/21.

Time Critical Task: NO

PERFORMANCE INFORMATION

Validation Time: 15 minutes

PERFORMANCE INFORMATION

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to IC-20, 100% BOC
2. Insert MAL-KC010A (1A1 KC Pump trips due to over current)
3. Set 1KC-149 (A KF Hx Outlet Flow Control) to 400 gpm to prevent runout of 1A2 KC Pump
4. Freeze Simulator

OR

1. Reset Simulator to Temporary Snap IC-130 (December, 2008).
2. Momentarily go to run and acknowledge alarms.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout AP/1/A/5500/21, Loss of Component Cooling Water, marked up for place-keeping through step 8.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Step 9) Start standby KC train as follows: (Step 9.a) Check standby KC train - AVAILABLE TO START.	The operator observes B Train KC components as available. If the operator asks the CRSRO whether or not Train B of KC is available, provide the following cue: Cue: "B" train of KC is available to start.		
2	(Step 9.b) Check standby KC Surge Tank Level - GREATER THAN 2 FT.	The operator observes 1KCP-5640 and determines B Train KC Surge Tank level to be ≈6.6 ft.		
3	(Step 9.c) Start the standby KC train <u>PER</u> one of the following: To start A train, <u>GO TO</u> Enclosure 4 To start B train, <u>GO TO</u> Enclosure 5	The operator proceeds to Enclosure 5.		
4	(Enclosure 5, Step 1) Check 1KC-81B (KC to B ND HX) CLOSED.	The operator observes the 1KC-81B Green status light LIT, Red status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	(Step 2) Check 1KC-56A (KC to A ND HX) CLOSED.	The operator observes the 1KC-56A Green status light LIT, Red status light OFF.		
6	(Step 3) Check 1A Train KC pumps – OFF.	The operator observes the Red status light LIT, and the Green status light OFF for the 1A2 KC Pump and proceeds to the Step 3 RNO.		
7	(Step 3 RNO) GO TO Step 5.	The operator proceeds to Step 5.		
8	(Step 5) Check 1B Train KC pumps – OFF.	The operator observes the Green status light LIT, and the Red status light OFF for the 1B1 and 1B2 KC Pump.		
9	(Notes prior to Step 6) Voiding of 1B train KC may be suspected if any of the following have occurred: 1B train KC pumps were tripped due to cavitation or air entrainment. 1A train KC pumps were tripped due to cavitation or air entrainment while B train was still cross-tied to A train.	The operator reads the Notes and proceeds to Step 6. CUE: There was no indication of air entrainment or cavitation prior to the 1A1 KC Pump trip.		
10	(Step 6) IF voiding of 1B train KC is suspected, THEN	The operator determines that loss of KC is not due to voiding or air entrainment.		
*11	(Step 7) Close the following: (Step 7.a) 1KC-53B (Trn B Aux Bldg Non Ess Sup Isol)	The operator presses the 1KC-53B CLOSE pushbutton and observes the Green status light LIT, Red status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*12	(Step 7) Close the following: (Step 7.b) 1KC-2B (Trn B Aux Bldg Non Ess Ret Isol)	The operator presses the 1KC-2B CLOSE pushbutton and observes the Green status light LIT, Red status light OFF.		
13	(Step 7) Close the following: (Step 7.c) 1KC-228B (Trn B Rx Bldg Non Ess Sup Isol)	The operator observes the 1KC-228B Green status light LIT, Red status light OFF.		
14	(Step 7) Close the following: (Step 7.d) 1KC-18B (Trn B Rx Bldg Non Ess Ret Isol)	The operator observes the 1KC-18B Green status light LIT, Red status light OFF.		
* 15	(Step 8) Start 1B RN pump.	The operator presses the 1B RN Pump START pushbutton and observes the Red status light LIT, Green status light OFF. The operator observes pump motor amps, discharge pressure and flow increase.		
16	(Step 9) Ensure 1RN-187B (B KC HX Inlet Isol) opens.	The operator observes the 1RN-187B Red status light LIT, Green status light OFF.		
* 17	(Step 10) Place control switch for 1KC-54B (Train B Recirc Isol.) in "AUTO" position.	The operator places the 1KC-54B control switch in the vertical (Auto) position.		
18	(Step 11) Ensure 1KC-54B (Train B Recirc Isol) opens.	The operator observes the 1KC-54B Red status light LIT, Green status light OFF.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 19	(Step 12) Start 1B1 KC Pump	The operator presses the 1B1 KC Pump START pushbutton and observes the Red status light LIT, Green status light OFF. The operator observes pump motor amps, discharge pressure and flow increase.		
20	(Step 13) Check 1KC-12 (1B1 KC Pump Discharge) - LOCALLY THROTTLED IN STEP 6.	Operator determines that 1KC-12 was not throttled initially and proceeds to the RNO.		
* 21	(Step 13 RNO a-b) Perform the following: Start 1B2 KC Pump GO TO Step 17.	The operator presses the 1B2 KC Pump START pushbutton and observes the Red status light LIT, Green status light OFF. The operator observes pump motor amps, discharge pressure and flow increase. The operator proceeds to Step 17.		
22	(Step 17) Check ND pumps - ANY ON PRIOR TO ENTERING THIS PROCEDURE.	The operator determines from the Initial Conditions that the ND pumps are not on and proceeds to the RNO.		
23	(Step 17 RNO) GO TO step 20.	The operator proceeds to Step 20.		
24	(Step 20) Check KC leak - HAS OCCURRED.	Operator determines that KC leak has not occurred and proceeds to the RNO.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*27	<p>(Step 20 RNO) Perform the following:</p> <p>(Step 20 RNO c) Close the following valves:</p> <p>1KC-230A (Trn A Rx Bldg Non Ess Sup Isol)</p> <p>1KC-3A (Trn A Rx Bldg Non Ess Ret Isol)</p>	<p>The operator presses the 1KC-230A CLOSE pushbutton and observes the Green status light LIT, Red status light OFF.</p> <p>The operator observes MCB Annunciators 1AD-16/A-1 through A-4 alarm.</p> <p>The operator presses the 1KC-3A CLOSE pushbutton and observes the Green status light LIT, Red status light OFF.</p> <p>The operator observes MCB Annunciators 1AD-16/D-1 through D-4 alarm intermittently.</p>		
*28	<p>(Step 20 RNO) Perform the following:</p> <p>(Step 20 RNO d) Open the following valves</p> <p>1KC-2B (Trn B Aux Bldg Non Ess Ret Isol).</p> <p>1KC-53B (Trn B Aux Bldg Non Ess Sup Isol).</p> <p>(Step 20 RNO e) GO TO</p>	<p>The operator presses the 1KC-2B OPEN pushbutton and observes the Red status light LIT, Green status light OFF.</p> <p>The operator presses the 1KC-53B OPEN pushbutton and observes the Red status light LIT, Green status light OFF.</p> <p>The operator observes Train B flow increase to ≈3500 gpm.</p> <p>The operator proceeds to Step 25.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
	Step 25.			
29	(Step 25) Check 1A ND pump - OFF	The operator observes the 1A ND Pump Green status light LIT, Red status light OFF.		
30	(Step 26) Check 1KC-56A (KC to ND HX) - CLOSED	The operator observes the 1KC-56A Green status light LIT, Red status light OFF.		
*31	(Step 27) Place control switch for 1KC-51A (Train A Recirc Isol) in the "CLOSE" position.	The operator rotates the 1KC-51A control switch counter-clockwise to CLOSE.		
32	(Step 28) Ensure 1KC-51A (Train A Recirc Isol) closes.	The operator observes the 1KC-51A Green status light LIT, Red status light OFF.		
*33	(Step 29) Stop 1A1 and 1A2 pumps.	The operator observes the 1A1 KC Green status light LIT, Red status light OFF. The operator presses the 1A2 KC Pump STOP pushbutton and observes the Green status light LIT, Red status light OFF.		
34	(Step 30) Check KC flow - LESS THAN 4000 GPM PER OPERATING KC PUMP.	The operator observes Train B flow to be 4900 gpm and determines flow to be < 4000 gpm per KC Pump.		
35	(Step 31) Check ND pumps - ANY ON PRIOR TO ENTERING THIS PROCEDURE.	The operator determines ND Train A is not in operation and goes to the RNO.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
36	(Step 31 RNO) GO TO Step 37.	The operator proceeds to Step 37.		
37	(Step 37) Check KC System leak - HAS OCCURRED.	The operator determines KC leak has not occurred and proceeds to the RNO.		
38	(Step 37 RNO) GO TO Step 41 in body of this procedure.	The operator informs the CRSRO that Enclosure 5 has been completed.		
		CUE: Another operator will continue with this procedure.		

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems - Control Room JPM H

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

- INITIAL CONDITIONS:
- Unit 1 is operating at 100% power with "A" train RN and KC in service.
 - 1A1 KC pump has tripped on overcurrent and will not restart.
 - The crew has completed AP/1/A/5500/21 (Loss of KC or KC System Leakage) through subsequent step 8.

INITIATING CUE: The CRSRO has directed you to start the standby KC train starting with Step 9 of AP/1/A/5500/21.

DRAFT

In-Plant JPM I

To be run in conjunction with JPM __

PERFORMANCE INFORMATION

Facility: McGuire Task No.: MO-5022

Task Title: Reset Unit 2 Turbine Driven CA Pump Stop Valve per Generic Enclosure 24 JPM No.: 2009 Systems – In-Plant JPM I

K/A Reference: APE 054, EA2.05, 3.5/3.7

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____

Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

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.

Initial Conditions:

- The Unit 2 reactor has tripped due to a loss of all offsite power.
- 2ETA and 2ETB are deenergized.
- The crew has entered EP/2/A/5000/ECA-0.0, "LOSS OF ALL AC POWER."
- While performing Step 7, the RO notices the "TD CA PUMP STOP VLV NOT OPEN" alarm (2AD-5, F-3) is lit.

Task Standard: The 2SA-3 (Unit 2 TD CA Pump Turb Stop Valve) is reset and open.

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, etc.)

General References: EP/2/A/5000/G-1, Generic Enclosures, Enclosure 24, Resetting TD CA Stop Valve.

Handouts: EP/2/A/5000/G-1, Generic Enclosures, Enclosure 24, Resetting TD CA Stop Valve.

PERFORMANCE INFORMATION

Initiating Cue: The CRSRO dispatches you to reset the U-2 TD CA stop valve PER EP/2/A/5000/G-1, "Generic Enclosures," Enclosure 24, "Resetting TD CA Stop Valve."

Time Critical Task: NO

Validation Time: 10 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout EP/2/A/5000/G-1, Generic Enclosures, Enclosure 24, Resetting TD CA Stop Valve.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	(Step 1) Turn handwheel clockwise to allow mechanical linkage to reconnect.	The operator turns handwheel clockwise. Cue: Handwheel rotated clockwise, stem is in.		
*2	(Step 2) Reconnect mechanical linkage by pulling mechanical linkage toward Valve Trip Mechanism and slowly release while ensuring the following connections: (Step 2.a) At Valve Trip Mechanism: (See Figure below) Trip Hook is fully engaged with Latch-up Lever.	The operator looks at the mechanical Linkage. Cue: The Linkage is NOT connected. The operator pulls the mechanical linkage toward the Valve Trip Mechanism and slowly releases. Cue: The mechanical linkage pulled toward Valve Trip Mechanism and is slowly released. The operator observes the Valve Trip Mechanism figure. Cue: Trip Hook is fully engaged with Latch-up Lever.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*3	(Step 2.b) At Overspeed Trip Mechanism: (See Figure below) Tappet nut lays flat against Overspeed Trip Mechanism housing. Head Lever is vertical.	The operator observes the Overspeed Trip Mechanism figure. Cue: Tappet nut is laying flat against Overspeed Trip Mechanism housing, AND the Head lever is vertical.		
*4	(Step 3) Slowly turn handwheel counterclockwise to open stop valve while it is reset.	The operator rotates the handwheel in the counterclockwise direction. Cue: The handwheel rotates, and then stops.		
*5	(Step 4) WHEN handwheel reaches full open, position valve 1/4 turn from open backseat to prevent thermal binding.	The operator rotates the handwheel in the clockwise direction ¼ turn. Cue: The handwheel rotates until stopped.		

Terminating Cue: Evaluation on this JPM is complete.

STOP TIME: _____

JPM CUE SHEET

- INITIAL CONDITIONS:
- The Unit 2 reactor has tripped due to a loss of all offsite power.
 - 2ETA and 2ETB are deenergized.
 - The crew has entered EP/2/A/5000/ECA-0.0, "LOSS OF ALL AC POWER."
 - While performing Step 7, the RO notices the "TD CA PUMP STOP VLV NOT OPEN" alarm (2AD-5, F-3) is lit.

INITIATING CUE: The CRSRO dispatches you to reset the U-2 TD CA stop valve PER EP/2/A/5000/G-1, "Generic Enclosures," Enclosure 24, "Resetting TD CA Stop Valve."

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

DRAFT

In-Plant JPM J

DRAFT

To be run in conjunction with JPM __

PERFORMANCE INFORMATION

Facility: McGuire Task No.:

Task Title: Aligning Nitrogen To Supply Control Air to D, E and F VI Compressors JPM No.: 2009 Systems – In-Plant JPM J

K/A Reference: APE 065, AK3.08, 3.7/3.9

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____

Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

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.

Initial Conditions	<ul style="list-style-type: none"> • A flexible coupling rupture on the Instrument Air System Header has caused all Instrument Air Compressors previously in service to trip • AP/1/A/5500/22 (Loss of VI) has been implemented • The C/R SRO has dispatched you to locally check the Air Compressors. • You discover that D, E, and F Compressors have all tripped off and report this to the Control Room. • The C/R SRO checks Instrument Air header pressure and discovers that pressure is less than 20 PSIG. • A, B, and C VI Compressors are all out of service for a major modification.
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Task Standard: The operator aligns Nitrogen from backup cylinders to D, E, and F VI compressors with pressure set between 90-100 psig.

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, etc.)

General References: AP/1/A/5500/22, Loss of VI

PERFORMANCE INFORMATION

Handouts: AP/1/A/5500/22, Loss of VI, Enclosure 6, D, E and F VI Compressor Operation With Low Control Air.

Initiating Cue: The CRSRO directs you to perform AP/1/A/5500/22, Loss of VI Enclosure 6, D, E, and F VI Compressor Operation With Low Control Air.

Time Critical Task: NO

Validation Time: 15 minutes

Notes: Several valves that need to be operated during this JPM require the use of a ladder. If asked, cue the operator that they may assume ladders are available; however, they should **not climb** during performance of the JPM.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout AP/1/A/5500/22, Loss of VI, Enclosure 6 after operator identifies enclosure satellite copy in Service Bldg. Basement at Station Lube Oil House.

NOTE: If operator requests copy of enclosure 6, inform them to use satellite copy.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Step 1) Check VI pressure as read on 0VIPT5090 (VI Dryer Outlet Hdr Press) (Unit 2 TB, 739, column 2N-32) – LESS THAN 70 PSIG.	After the cue, the operator observes VI Header Pressure on 0VIPT5090 to be 15 psig. Cue: Gage is indicating 15 psig.		
2	(Step 2) Check KR in service as follows: Any KR pump - RUNNING KR pump discharge pressure - GREATER THAN 50 PSIG.	The operator checks local KR pump indications. Cue: B and C KR pumps are running. Cue: Both gauges read 75 psig.		
3	(Step 3) Check D, E, and F VI compressors - ALL OFF	The operator determines from initial conditions that D, E and F VI compressors are NOT running.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	(Step 20) Check D, E, and F VI compressors - ALL OFF.	The operator determines from initial conditions that D, E and F VI compressors are NOT running.		
8	(Step 21) Observe notes prior to Step 26 and <u>GO TO</u> Step 26.	The operator proceeds to Notes prior to Step 26.		
9	(Notes prior to Step 26) Subsequent steps use nitrogen cylinders as control air for VI compressors. Two nitrogen cylinders are installed in the service bldg, 739, column U-30.	The operator reads the Notes and proceeds to Step 26.		
10	(Step 26) Dispatch maintenance personnel or another operator to bring two additional 225 cubic feet nitrogen cylinders to service bldg, 739, column U-30 in case extra cylinders are needed.	The operator contacts maintenance to obtain additional Nitrogen. Cue: Maintenance has been dispatched.		
*11	(Step 27/27.a) Align nitrogen cylinders (located in service bldg, 739, column U-30) to supply control air to D, E, and F VI compressors as follows: Close "F VI COMPRESSOR VORTEX COOLER ISOLATION" valve (located on top of F VI compressor microcontroller panel).	The operator rotates the "F COOLER ISOLATION" valve handle clockwise 90°. Cue: The handle is perpendicular to pipe flow.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*12	(Step 27.b) Close 1VI-837 (Alternate VI Control Air Supply to D/E/F VI Compressors) (service bldg, 739+8, between col Q-30 and F VI Compressor).	<p>The operator rotates 1VI-837 valve handwheel clockwise.</p> <p>Cue: The handwheel rotates clockwise, and THEN stops.</p>		
*13	(Step 27.c) Close "D VI COMPRESSOR VORTEX COOLER ISOLATION" valve (located on top of D VI compressor microcontroller panel).	<p>The operator rotates the "D COOLER ISOLATION" valve handle clockwise 90°.</p> <p>Cue: The handle is perpendicular to pipe flow.</p>		
*14	(Step 27.d) Close "E VI COMPRESSOR VORTEX COOLER ISOLATION" valve (located on top of E VI compressor microcontroller panel).	<p>The operator rotates the "E COOLER ISOLATION" valve handle clockwise 90°.</p> <p>Cue: The handle is perpendicular to pipe flow.</p>		
*15	(Step 7.e) Unlock and close 1VI-842 (Normal VI Control Air Supply to VI Compressors D, E, and F) (service bldg, 739, U-30, west side of column).	<p>The operator removes the lock and rotates 1VI-842 valve handwheel clockwise.</p> <p>Cue: The handwheel rotates clockwise, and THEN stops.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*16	(Step 7.f) Open 1VI-843 (VI Backup Compressed Nitrogen Cylinders Isol) (service bldg, 739, U-30, west side of column).	<p>The operator rotates 1VI-843 valve handwheel counter-clockwise.</p> <p>Cue:</p> <p>The handwheel rotates counter-clockwise, and THEN stops.</p>		
*17	(Step 7.g) Ensure pressure regulating knob on 1VI-574 (VI Nitrogen Cylinder Pressure Regulator) (service bldg, 739, at column U-30) turned fully counterclockwise.	<p>The operator rotates the 1VI-574 regulator knob fully counter-clockwise.</p> <p>Cue:</p> <p>The knob rotates counter-clockwise, and THEN stops.</p>		
*18	(Step 7.h) Open isolation valve on top of each nitrogen cylinder.	<p>The operator rotates the Nitrogen Cylinder valve handwheel fully counter-clockwise.</p> <p>Cue:</p> <p>The valve handwheel rotates counter-clockwise, and THEN stops.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*19	(Step 7.i) Open the following: 1VI-572 (VI Nitrogen Cylinder Isolation) (service bldg, 739, at column U-30). 1VI-573 (VI Nitrogen Cylinder Isolation) (service bldg, 739, at column U-30).	<p>The operator rotates the "1VI-572" valve handle counter-clockwise 90°.</p> <p>Cue: The handle is in-line with pipe flow.</p> <p>The operator rotates the "1VI-573" valve handle counter-clockwise 90°.</p> <p>Cue: The handle is in-line with pipe flow.</p>		
*20	(Step 7.j) Turn regulating knob on 1VI-574 (VI Nitrogen Cylinder Pressure Regulator) (service bldg, 739, at column U-30) clockwise to obtain 90-100 PSIG outlet pressure.	<p>The operator rotates the 1VI-574 regulator knob clockwise.</p> <p>Cue: The knob rotates clockwise.</p> <p>The operator observes pressure between 90-100 psig and stops rotating the 1VI-574 regulator knob.</p> <p>Cue: The outlet pressure is 98 psig.</p>		
21	(Caution prior to Step 7.k) Compressor trip may occur if 1VI-574 outlet pressure goes below 70 PSIG.	The operator reads the Caution and proceeds to Step 27.k.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
22	(Step 27.k) Periodically ensure 1VI-574 is maintaining 90-100 PSIG outlet pressure.	The operator ensures 1VI-574 is maintaining 90-100 PSIG outlet pressure. Cue: The outlet pressure is 98 psig.		
23	(Step 28) Check D VI compressor - AVAILABLE TO START.	<u>CUE:</u> Another Operator will complete this enclosure.		

Terminating Cue:

Evaluation on this JPM is complete.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2009 Systems – In-Plant JPM J

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- A flexible coupling rupture on the Instrument Air System Header has caused all Instrument Air Compressors previously in service to trip.
- AP/1/A/5500/22 (Loss of VI) has been implemented.
- The C/R SRO has dispatched you to locally check the Air Compressors.
- You discover that D, E, and F Compressors have all tripped off and report this to the Control Room.
- The C/R SRO checks Instrument Air header pressure and discovers that pressure is less than 20 PSIG.
- A, B, and C VI Compressors are all out of service for a major modification.

INITIATING CUE:

The CRSRO directs you to perform AP/1/A/5500/22, Loss of VI, Enclosure 6, D, E, and F VI Compressor Operation With Low Control Air.

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

DRAFT

In-Plant JPM K

DRAFT

To be run in conjunction with JPM __

PERFORMANCE INFORMATION

Facility: McGuire Task No.:

Task Title: Swap Battery Charger EVCA Power Supply from Unit 1 to Unit 2 JPM No.: 2009 Systems – In-Plant JPM K

K/A Reference: APE 058, AK3.02, 4.0/4.2

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____
 Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

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.

Initial Conditions:

- Unit 1 has just experienced a LOOP (Loss of Offsite Power).
- The 1A D/G will not start.
- 1ETA is de-energized.
- AP/1/A/5500/07 (Loss of Electrical Power), Case 1 has been entered.
- While performing Enclosure 7 (DC Bus Alignment), the RO notices that Vital Battery Charger EVCA is de-energized.

Task Standard: The operator aligns power to Battery Charger EVCA from Unit 2 within 20 minutes of dispatch.

Required Materials: PPE (Hardhat, Safety Glasses, Hearing Protection, etc.)

General References: AP/1/A/5500/07, Loss of Electrical Power

Handouts: AP/1/A/5500/07, Loss of Electrical Power, Enclosure 22, Swapping Battery Charger Power Supplies.

PERFORMANCE INFORMATION

Initiating Cue: The CRSRO directs you to swap power supplies to the EVCA Battery Charger from Unit 1 to Unit 2 in accordance with AP/1/A/5500/07 (Loss of Electrical Power), Enclosure 22 (Swapping Battery Charger Power Supplies).

Time Critical Task: YES-20 Minutes

Validation Time: 15 minutes

Notes: Start this JPM from the hallway outside of the Ops kitchen area.
Record the Time Critical Completion Time (in step number 13) when the Charger "DC Output" Breaker is closed in.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)*

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout AP/1/A/5500/7, Loss of Electrical Power, Enclosure 22.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Caution prior to Step 1) This enclosure should be performed without delay to limit time battery is supplying DC bus.			
2	<p>(Step 1) Perform applicable section(s) as specified in Enclosure 7 (DC Bus Alignment):</p> <p>To swap power supplies to EVCA Battery Charger, perform Step 2.</p> <p>To swap power supplies to EVCB Battery Charger, perform Step 3.</p> <p>To swap power supplies to EVCC Battery Charger, perform Step 4.</p> <p>To swap power supplies to EVCD Battery Charger, perform Step 5.</p> <p>To swap power supplies to EVCS Battery Charger, perform one of the following:</p> <p>IF 1EMXH is aligned to EVCS, THEN swap power supplies to 1EMXH PER Step 6.</p> <p>OR</p> <p>IF 2EMXH is aligned to EVCS, THEN swap power supplies to 2EMXH PER Step 7.</p>	The operator determines from initial conditions that Battery Charger EVCA is the desired charger and proceeds to step 2.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>(Step 2/2.a) To swap power supplies to EVCA Battery Charger, perform the following:</p> <p>Determine which unit is desired to supply EVCA:</p> <p>Unit 1</p> <p>OR</p> <p>Unit 2</p>	<p>The operator determines from initial conditions that it is desired to supply Battery Charger EVCA from Unit 2, and places a check mark in front of Unit 2.</p>		
4	<p>(Steps 2.b.1-2) Have Control Room perform the following:</p> <p><u>IF</u> Unit 1 ETA is energized, <u>THEN</u>.....</p> <p><u>IF</u> Unit 2 ETA is energized, <u>THEN</u>:</p> <p>Ensure 2A D/G load sequencer reset.</p> <p>Depress "STOP" for "EVCA Batt Charger" on 2MC-8.</p>	<p>The operator determines from initial conditions that 1ETA is NOT energized and proceeds to step 2.b.2.</p> <p>The operator contacts to Control Room and asks if 2ETA is energized.</p> <p>Cue:</p> <p>2ETA is energized.</p> <p>The operator contacts the Control Room and directs RO to ensure 2A D/G Sequencer is reset and EVCA stop button on 2MC-8 is depressed.</p> <p>Cue:</p> <p>2A D/G sequencer is reset, AND STOP Pushbutton has been depressed.</p>		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*5	(Step 2.c) Open EVCA Battery Charger "DC OUTPUT" breaker	The operator places the EVCA Battery Charger breaker in down direction.		
		Cue: Switch is moved in the down direction and breaker indicates OFF.		
6	(Caution prior to Step 2.d) It may be necessary to apply pressure on the breaker rotary switch in the counterclockwise direction while operating kirk key devices.	The operator reads the Caution and proceeds to Step 2.d		
*7	(Step 2.d) Open the following breakers: ECB1-1B (Normal Inc Supply From MCC 1EMXA)	The operator opens the Normal breaker.		
		Cue: "Normal Supply" breaker handle rotated counter clockwise to the "OFF" position.		
	ECB1-1C (Alt Inc Supply From MCC 2EMXA)	The operator observes the Alternate breaker.		
	Cue: Breaker handle is indicating "OFF".			

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*8	(Step 2.e) Remove kirk key from breaker in step above.	The operator rotates and removes the kirk key from breaker ECB1-1B. Cue: Kirk key rotated and removed.		
9	(Step 2.f) IF Unit 1 to supply EVCA, THEN perform the following.....	The operator determines from initial conditions that it is NOT desired to supply power to EVCA from Unit 1 and proceeds to step 2.g.		
*10	(Step 2.g) IF Unit 2 to supply EVCA, THEN perform the following: Use kirk key and close ECB1-1C (Alt Inc Supply From MCC 2EMXA). Have Unit 2 Control Room operator start Battery Charger EVCA on 2MC-8.	The operator inserts key into the Unit 2 supply breaker and closes it. Cue: Kirk Key inserted. “Alternate Supply” breaker handle rotated clockwise to the “ON” position. The operator contacts the Control Room and requests that they start the Battery Charger EVCA on 2MC-8. Cue: Unit 2 RO has started EVCA Batt. Charger from 2MC-8.		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Step 2.h) IF EVCA battery charger DC volts are greater than or equal to 115 volts, THEN GO TO Step 2.j.	The operator checks EVCA battery charger DC output voltage.		
		Cue: Charger DC output voltage is 132 volts.		
		The operator proceeds to Step 2.j.		
12	(Step 2.j) Ensure EVCA Battery Charger "FLOAT/EQUALIZE" switch in "FLOAT" position.	The operator places the Battery Charger "FLOAT/EQUALIZE" switch in "FLOAT" position.		
		Cue: Switch in "FLOAT" position. The green "FLOAT" light is illuminated.		
*13	(Step 2.k) Close EVCA Battery Charger "DC OUTPUT" breaker	The operator places the EVCA Battery Charger "DC OUTPUT" breaker to the UP position.		
		Cue: Breaker handle has been pulled into the up position.		
		Stop Time for Time Critical Task: -----		

PERFORMANCE INFORMATION

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	(Step 2.l) Notify Control Room that EVCA Battery Charger is running.	The operator contacts the Control Room and informs the RO that the EVCA Battery Charger is running.		
		Cue: The RO acknowledges.		
15	(Step 2.m) IF another battery charger needs to be swapped, THEN perform the applicable step as directed in Step 1.	The operator recognizes that no other battery Chargers need to be re-energized.		
		Cue: No other chargers need to be swapped.		
16	(Step 2.n) Exit this enclosure.	The operator exits the procedure.		

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____

JPM CUE SHEET

- INITIAL CONDITIONS:
- Unit 1 has just experienced a LOOP (Loss of Offsite Power).
 - The 1A D/G will not start.
 - 1ETA is de-energized.
 - AP/1/A/5500/07 (Loss of Electrical Power), Case 1 has been entered.
 - While performing Enclosure 7 (DC Bus Alignment), the RO notices that Vital Battery Charger EVCA is de-energized.

INITIATING CUE: The CRSRO directs you to swap power supplies to the EVCA Battery Charger from Unit 1 to Unit 2 in accordance with AP/1/A/5500/07 (Loss of Electrical Power), Enclosure 22 (Swapping Battery Charger Power Supplies).

NOTE: No plant equipment should be operated during the performance of this JPM. All actions must be SIMULATED.

NOTE: THIS IS A TIME CRITICAL TASK