SIM JPM A

Facility:	McGuire	Task No.:	
Task Title:	Operate the Turbine Driven CA Pump from the Control Room	JPM No.:	2015 Systems - Control Room JPM A (Alternate Path)
K/A Reference:	061 A2.04 3.4/3.8		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:	• Unit 1 is operating at 98% power. • Maintenance has requested Operations to run the TD CA Pump to allow them to check vibration for pump retest. • A normal start of the TD CA Pump is desired, NOT a slow start. • The CRS has declared the TD CA Pump inoperable and logged it in Tech Specs. • All initial conditions have been satisfied, all valves are aligned per the valve checklist, and all R&R's have been evaluated. • An AO (Bob) is standing by locally at the pump to assist in the operation.

Initiating Cue:	The CRS has directed you to run the TD CA Pump per OP/1/A/6250/002 Enclosure 4.4 (Manual Operation of #1 TD CA Pump) from the Control Room and run the pump for at least 10 minutes, and then stop the pump, to support Maintenance.

Task Standard:	The operator will start the #1 TD CA Pump in recirc from the Control Room. During the ten minute run of the pump, a bearing failure will occur, and the operator will stop the pump immediately.
Required Materials:	None
General References:	OP/1/A/6250/002 (Auxiliary Feedwater System), Rev 125 OAC Alarm M1A0649 (U1 CAPT #1 Pump Inboard Bearing Temp) AD-OP-ALL-1000 (Conduct of Operations), Rev 2
Handouts:	Handout 1: Enclosure 4.4 (Manual Operation of #1 TD CA Pump) of OP/1/A/6250/002 (Auxiliary Feedwater System) marked up for place-keeping through Step 3.3.
Time Critical Task:	NO
Validation Time:	15 minutes
NOTE:	The operator should review Section 1.0 and 2.0 of procedure while waiting in Briefing Room prior to performance of JPM.

Critical Step Justification	
Step 5	This step is critical because if these valves are not closed, when the CA Pump is started cold AFW (CA) flow will enter the Steam Generators at power, and potentially cause an overpower condition.
Step 11	This step is critical because if the operator does not take the TD CA Pump Control Switch to START, the pump will NOT start.
Alternate Path Critical Step Justification	
Step 21	This step is critical because if the operator does not take the TD CA Pump Control Switch to STOP, the pump will NOT stop, but continue to operate with a failed bearing.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset the Simulator to IC-39, 100% MOL
2. Reduce power to approximately 98%.
3. Allow plant to stabilize.
4. Freeze the Simulator.
5. Insert XMT-CA_1CATE7650 = 225, Ramp = 180, Delay = 0
   Cd X10_073_1 = 1

OR

1. Reset to IC-230 (January, 2015)

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Step 3.4) Perform the following sections, as applicable: Section 3.5, Starting #1 TD CA pump Section 3.6, Stopping #1 TD CA Pump	The operator proceeds to section 3.5.		
2	(Step 3.5) Starting #1 TD CA Pump (Step 3.5.1) Notify RP of #1 TD CA Pump start.	The operator calls RP, and (after cue) records "George Franklin" in blank provided and places present time and date on page. **Cue:** **George Franklin of RP has been notified.**		
3	(Step 3.5.2) IF in Modes 1 - 3, declare #1 TD CA Pump inoperable.	The operator determines from initial conditions that the TD CA has been declared inoperable. **Cue:** **IF asked by operator, Examiner initial Step 3.5.2 as CRS.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	(Step 3.5.3) IF operating #1 TD CA Pump locally…..	The operator determines from initial conditions that the CA pump is to be run from the control room. The operator places an “NA” in step 3.5.3.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*5	(Step 3.5.4) Close the following: • 1CA-64AB (U1 TD CA Pump Disch to 1A S/G Control) • 1CA-52AB (U1 TD CA Pump Disch to 1B S/G Control) • 1CA-48AB (U1 TD CA Pump Disch to 1C S/G Control) • 1CA-36AB (U1 TD CA Pump Disch to 1D S/G Control)	The operator accesses CA Map on OAC. The operator rotates control knob counterclockwise for 1CA-64 and observes black/blue needle at 0%. The operator observes valve position for 1CA-64 on OAC change from red to green and acknowledges the OAC Alarm. The operator rotates control knob counterclockwise for 1CA-52 and observes black/blue needle at 0%. The operator observes valve position for 1CA-52 on OAC change from red to green and acknowledges the OAC Alarm. The operator rotates control knob counterclockwise for 1CA-48 and observes black/blue needle at 0%. The operator observes valve position for 1CA-48 on OAC change from red to green and acknowledges the OAC Alarm. The operator rotates control knob counterclockwise for 1CA-36 and observes black/blue needle at 0%. The operator observes valve position for 1CA-36 on OAC change from red to green and acknowledges the OAC Alarm.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	(Step 3.5.5) Drain moisture from #1 CA Pump Turbine stop valve as follows: (Step 3.5.5.1) Slowly open the following: • 1SA-39 (Unit 1 TD CA Pump Turb Stop Valve Above Seat Drn) • 1SA-40 (Unit 1 TD CA Pump Turb Stop Valve Below Seat Drn) (Step 3.5.5.2) AFTER 30 seconds elapsed, close the following: • 1SA-39 (Unit 1 TD CA Pump Turb Stop Valve Above Seat Drn) • 1SA-40 (Unit 1 TD CA Pump Turb Stop Valve Below Seat Drn) (Step 3.5.5.3) IF water hammer occurred while draining moisture from #1 CA Pump Turbine Stop Valve, notify Engineering.	The operator contacts the AO to perform this task locally. **Cue:** **AO Bob Jones reports 1SA-39 and 1SA-40 have been opened for 30 seconds and reclosed.** **No indications of water were noted.** The operator places an "NA" in step 3.5.5.3.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	(Step 3.5.6) Check the following open: 1CA-2 (U1 CA Pumps Suct From CA Storage Tank Isol) 1CA-7AC (U1 TD CA Pump Suction Isol)	The operator observes OAC map displays 1CA-2 as red and determines valve to be open (or equivalent). The operator observes OAC map displays 1CA-7AC as red and determines valve to be open (or equivalent).		
8	(CAUTION prior to Step 3.5.7): Starting the TD CA Pump will increase Rx Power due to increased steam flow. Reducing Turbine Generator load may be required to maintain power level. (R.M.)	The operator reads Caution, and proceeds. **CUE:** **Another operator will monitor and adjust Rx Power as required.**		
9	(NOTES prior to Step 3.5.7): It is preferred to perform a normal start of the TD CA Pump. IF a slow start of the TD CA Pump is to be performed, Engineering should be available to provide guidance.	The operator reads Notes and recognizes that a normal start is being performed, and proceeds.		
10	(Step 3.5.7) Start "#1 TD CA Pump" per Step 3.5.7.1 or 3.5.7.2: (NA step NOT performed)	The operator decides to start pump per step 3.5.7.1 and places an “NA” in Step 3.5.7.2.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*11	(Step 3.5.7.1) IF normal start is desired, perform the following: (Step 3.5.7.1. A) Place "#1 TD CA Pump" in "START".	The operator rotates the #1 TD CA Pump control switch clockwise to the START position.		
12	(Step 3.5.7.1. B) Check the following open: • 1SA-48ABC (1C S/G SM Supply to U1 TD CA Pump Turb Isol) • 1SA-49AB (1B S/G SM Supply to U1 TD CA Pump Turb Isol)	The operator observes both 1SA-48ABC and 1SA-49AB Red status lights LIT. The operator observes TD CA Pump speed increases to 3800 rpm. The operator observes that MCB Annunciator 1AD5-F1 alarms momentarily, and notes that this is an expected alarm.		
13	(Step 3.5.7.1. C) Check recirc valve opens by “FLOW” lit.	The operator observes the TD CA Pump miniflow status light is LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	(Step 3.5.7.1. D) IF operating CA Pump to cool piping, allow pump to run for at least 10 minutes. {PIP M-00-4158}	The operator determines TD CA pump run is NOT due to cooling piping. **NOTE:** **M1A0649, U1 CAPT #1 Pump Inboard Bearing Temp, OAC HI, and the HI-HI Alarm will occur (Alternate Path).** The operator will address the OAC Alarm. **NOTE:** **The operator may stop the pump by Placing the "#1 TD CA Pump" in "STOP". If so, terminate the JPM (Section 5.18.3.2.a (1) of AD-OP-ALL-1000).** **Examiner NOTE:** **If > 3 minutes has elapsed without the operator having addressed the Bearing Hi-Hi Temperature alarm, the JPM will be FAILED.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
15	(OAC Alarm M1A0649 Hi-Hi) If CA Pump is being run for testing, remove affected CA Pump from service using OP/1/A/6250/002 (Auxiliary Feedwater System).	The operator proceeds to Section 3.6 of Enclosure 4.4 of OP/1/A/6250/002. **CUE:** **The operator may contact the AO.** **If so, report that the Maintenance Technician reports that Pump Bearing vibration and temperature is excessively high.**		
16	(Enclosure 4.4, Step 3.6) Stopping #1 TD CA Pump (Step 3.6.1) IF stopping pump following EP/AP, …..	The operator recognizes that the pump is NOT being stopped due to an AP or EP, and proceeds.		
17	(Step 3.6.2) IF operating #1 TD CA Pump locally,……	The operator recognizes that the pump is NOT being operated locally, and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
18	(Step 3.6.3) Ensure the following closed: • 1CA-64AB (U1 TD CA Pump Disch to 1A S/G Control) • 1CA-52AB (U1 TD CA Pump Disch to 1B S/G Control) • 1CA-48AB (U1 TD CA Pump Disch to 1C S/G Control) • 1CA-36AB (U1 TD CA Pump Disch to 1D S/G Control)	The operator accesses CA Map on OAC. The operator observes valve position for 1CA-64 on OAC to be green. The operator observes valve position for 1CA-52 on OAC to be green. The operator observes valve position for 1CA-48 on OAC to be green. The operator observes valve position for 1CA-36 on OAC to be green.		
19	(Step 3.6.4) Ensure "RESET" lit on "TD CA Pump Auto Start Reset".	The operator the RESET light is LIT on the TD CA Pump Auto Start Reset.		
20	(Note prior to Step 3.6.5) #1 TD CA Pump should operate at least 10 minutes after pump start to minimize wear on CA Pump Turbine and associated piping. {PIP M-00-4158}	The operator reads the Note and proceeds.		
*21	(Step 3.6.5) Place "#1 TD CA Pump" in "STOP".	The operator rotates the #1 TD CA Pump control switch counter-clockwise to the STOP position.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
22	(Step 3.6.6) Ensure the following closed: • 1SA-48ABC (1C S/G SM Supply To U1 TD CA Pump Turb Isol) • 1SA-49AB (1B S/G SM Supply To U1 TD CA Pump Turb Isol)	The operator observes both 1SA-48ABC and 1SA-49AB Green status lights LIT. **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.: 2015 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 is operating at 98% power.
- Maintenance has requested Operations to run the TD CA Pump to allow them to check vibration for pump retest.
- A normal start of the TD CA Pump is desired, NOT a slow start.
- The CRS has declared the TD CA Pump inoperable and logged it in Tech Specs.
- All initial conditions have been satisfied, all valves are aligned per the valve checklist, and all R&R's have been evaluated.
- An AO (Bob) is standing by locally at the pump to assist in the operation.

INITIATING CUE: The CRS has directed you to run the TD CA Pump per OP/1/A/6250/002 Enclosure 4.4 (Manual Operation of #1 TD CA Pump) from the Control Room and run the pump for at least 10 minutes, and then stop the pump, to support Maintenance.

SIM JPM B

Facility:	McGuire	Task No.:	
Task Title:	Place LTOP in Service and Respond to a Failed PORV	JPM No.:	2015 Systems - Control Room JPM B (Alternate Path)
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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

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). • Enclosure 4.2 (Cooldown to 240°F (Control Room Activities)) is in progress. • The 1B, 1C and 1D NCPs are operating. • NC System pressure is ≈325 psig and NC System temperature is 310-320°F. • NC Pressure control via normal spray and PZR heaters. • NC pressure is being controlled using 1NC-29C, 1B NC Loop Pzr Spray Control, in MANUAL. • Enclosure 4.1 of OP/1/A/6100/SO-10 (Controlling Procedure for LTOP Operation) has been completed through Step 3.13 1. • LTOP vent requirements are to be satisfied by Pzr PORVs 1NC-32B and 1NC-34A.

Initiating Cue:	The CRS has directed you to place the LTOP System in operation beginning with Step 3.13.2 - of Enclosure 4.1 of OP/1/A/6100/SO-10 (Controlling Procedure for LTOP Operation) and monitor for proper operation.
Task Standard:	The operator will place LTOP in service by first placing 1NC-32B in service per procedure; and then respond to a failed open Pzr PORV (1NC-34A) by closing the failed open Pzr PORV Block Valve.
Required Materials:	None
General References:	OP/1/A/6100/SD-4 (Cooldown to 240 Degrees F), Rev 66 OP/1/A/6100/SO-10 (Controlling Procedure for LTOP Operation), Rev 37 AP/1/A/5500/11 (Pressurizer Pressure Anomalies), Rev 68 AD-OP-ALL-1000 (Conduct of Operations), Rev 2 OMP 4-3 (Use of Emergency And Abnormal Procedures And FLEX Support Guidelines), Rev 40
Handouts:	Handout 1: 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.
Time Critical Task:	NO
Validation Time:	7 minutes

Critical Step Justification	
Step 7	This step is critical because placing the PORV Overpress Protection Select Switch in LOW PRESS is necessary to change the Pzr PORV mode of operation from Normal mode to the Low Temperature Overpressure Protection (LTOP) mode.
Alternate Path Critical Step Justification	
Step 17	This step is critical because placing the 1NC-33A Control Switch in the CLSD position is necessary to respond to a failed open Pzr PORV (1NC-34A) by closing the failed open Pzr PORV Block Valve.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-96 (360°F, 980 psig, B/D RCPs running).
2. Place in RUN
3. Start the 1C NCP.
4. Adjust NCS Temperature to 300-320°F, and NCS Pressure to 320-330 psig.
5. Insert MALF-IPE0036 = 2 to bypass P-12, and allow all SD Valves.
6. Continue to adjust NCS to adjust NCS Temperature to 300-320°F, and NCS Pressure to 320-330 psig.
7. Insert LOA NC043 and LOA NC044 (Wide Range)
8. Place LTOP PORV switches in NORMAL
9. Insert LOA-NI014 (1NI A), LOA-NI015 (1NI B), LOA-NV046 (1NV A) and LOA-NV045 (PD Pump) - Breakers Racked Out.
10. When NCS Temperature/Pressure in range place SDS in AUTO (SG Pressure ≈70 psig)
11. Insert LOA-NI022 = RI, LOA-NI023 = RI, LOA-NI019 = RI, LOA-NI024 = RI, LOA-NI025 = RI, LOA-NI026 = RI, LOA-ND015 = RI, LOA-ND016 = RI, LOA-NS007 = RO, and LOA-NS008 = RO.
12. Ensure that Simulator reflects that Enclosure 4.2 of OP/1/A/6100/SD-4 is complete through Step 3.18 and Enclosure 4.1 of OP/1/A/6100/SO-10 is completed through Step 3.13.1.
13. Insert **REM-NC0034A=1 cd X10_162.1EQ1 (Conditional on the LOW PRESS position of the PORV Overpress Protection Select 1NC-34A)**
14. Freeze the Simulator

OR

1. Reset to IC-231 (January, 2015)

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 “BOP” screen displays the “NCLTOP” panel.

4. Place Info Stickers on PORV Controls.

5. Leave Simulator in FREEZE until operator is ready to begin.

NOTE: During the performance of this JPM, the simulator operator may need to control CF flow to the SGs (Monitor Wide Range Levels).

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 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 between 320-330 psig.		
3	(Step 3.13.4) Ensure the following for A Cold Leg Accumulator: Pressure greater than 200 psig. Level less than 38.7% (7342 gallons maximum).	The operator observes 1NIP-5050 and 1NIP-5040, and determines A CLA pressure to be ≈610 psig. The operator observes 1NIP-5051 and 1NIP-5041, and determines A CLA Level to be ≈30%.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	(Step 3.13.5) Ensure the following for B Cold Leg Accumulator: Pressure greater than 200 psig. Level less than 38.7% (7342 gallons maximum).	The operator observes 1NIP-5070 and 1NIP-5060 and determines B CLA pressure to be ≈610 psig. The operator observes 1NIP-5071 and 1NIP-5061 and determines B CLA Level to be ≈26%.		
5	(Step 3.13.6) Ensure open: 1NC-31B (Pzr PORV Isol). 1NC-33A (Pzr PORV Isol).	The operator observes Red status light LIT, Green status light OFF for 1NC-31B. The operator observes Red status light LIT, Green status light OFF for 1NC-33A.		
6	(Note prior to Step 3.13.7) For NC Loop in which an NC Pump is operating, NR pressure may indicate up to 30 psig lower than NR pressure for NC Loop in which an NC Pump is NOT operating.	The operator reads the Note, and proceeds to Step 3.13.7.		
*7	(Step 3.13.7) When M1A1359 indicates 320-330 psig, perform the following: (Step 3.13.7.1) 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.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
8	(Step 3.13.7.2) Ensure open 1NI-431B (Emerg N2 from CLA to 1NC-32B & 36B).	The operator observes that Red status light is LIT, Green status light OFF for 1NI-431B. **NOTE:** If CLOSED, the operator presses the OPEN Pushbutton and Observes Red status light is LIT, Green status light OFF for 1NI-431B.		
9	(Step 3.13.7.2) Check lit 1AD-6, F10 (PORV NC-32B Emerg CLA N_2 Enabled)	The operator observes that 1AD-6, F-10 is LIT.		
10	(Note prior to Step 3.13.7.4) Continue with the rest of the procedure while performing Step 3.13.7.4.	The operator reads the Note, and proceeds to Step 3.13.7.4.		
11	(Step 3.13.7.4) Place Info Sticker on control switch for 1NI-431B stating: "Do **NOT** operate, N_2 aligned to 1NC-32B for LTOP."	**Cue:** **Another operator will fill out and place an Info Sticker for 1NI-431B** The operator acknowledges and proceeds to Step 3.13.7.5.		
12	(Step 3.13.7.5) Ensure 1NC-32B (Pzr PORV) in "AUTO."	The operator observes that Control Switch for 1NC-32B is in AUTO.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	(Step 3.13.8) When M1A1365 indicates 320-330 psig, perform the following: (Step 3.13.8.1) 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 **(Alternate Path)**. **Note:** **When this occurs 1NC-34A will fail full open, causing NCS pressure to lower, and creating the plant conditions need to enter AP/1/A/500/11, Pressurizer Pressure Anomalies.** The operator will carry out the Immediate Actions of AP11. **NOTE:** **The operator may take the immediate actions without addressing AP11 first. (Section 7.5 of OMP 4-3 and Section 5.18.3.2.a (1) of AD-OP-ALL-1000).**		
14	(AP11 Immediate Action Step 1) Check Pzr pressure - HAS GONE DOWN.	The operator observes NCS pressure to be lowering rapidly.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
15	(Immediate Action Step 2) Check Pzr PORVs - CLOSED.	The operator observes the 1NC-34A Red status light is LIT, and determines that the valve is OPEN.		
16	(Immediate Action Step 2 RNO) Perform the following: (Immediate Action Step 2 RNO a) CLOSE PORVs.	The operator rotates the 1NC-34A control Switch to CLOSE.		
17 *	(Immediate Action Step 2 RNO) Perform the following: (Immediate Action Step 2 RNO b) IF PORV will not close, THEN CLOSE PORV isolation valve.	The operator observes that 1NC-34A is still OPEN, and places the 1NC-33A Control Switch in the CLSD position, and observes the 1NC-33A Green status light is LIT, and the Red status light is OFF.		
18	(Immediate Action Step 3) Check Pzr spray valves - CLOSED.	The operator observes that 1NC-29C is OPEN in MANUAL.		
19	(Immediate Action Step 3) CLOSE Pzr spray valve(s).	The operator adjusts the 1NC-29C SLIMS such that the controller out goes to 0%.		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 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: _____

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).
- Enclosure 4.2 (Cooldown to 240°F (Control Room Activities)) is in progress.
- The 1B, 1C and 1D NCPs are operating.
- NC System pressure is ≈325 psig and NC System temperature is 310-320°F.
- NC Pressure control via normal spray and PZR heaters.
- NC pressure is being controlled using 1NC-29C, 1B NC Loop Pzr Spray Control, in MANUAL.
- Enclosure 4.1 of OP/1/A/6100/SO-10 (Controlling Procedure for LTOP Operation) has been completed through Step 3.13 1.
- LTOP vent requirements are to be satisfied by Pzr PORVs 1NC-32B and 1NC-34A.

INITIATING CUE:

The CRS has directed you to place the LTOP System in operation beginning with Step 3.13.2 - of Enclosure 4.1 of OP/1/A/6100/SO-10 (Controlling Procedure for LTOP Operation) and monitor for proper operation.

SIM JPM C

Facility:	McGuire	Task No.:	
Task Title:	Align Alternate Makeup During Inadequate Core Cooling Conditions	JPM No.:	2015 Systems - Control Room JPM C
K/A Reference:	EPE 074 EA1.09 (3.7/3.8)		

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.

Ensure Handout 1 is placed on CRS Desk.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

Initial Conditions:	• Unit 1 has had a LOCA. • All NV, NI and ND Pumps are either OOS, unavailable or have failed. • A Red Path exists on Core Cooling. • The crew has entered EP/1/A/5000/FR-C.1, Response to Inadequate Core Cooling. • You are an available operator in the Control Room. • AO John is standing by to assist with in-plant operations if needed. • The Standby makeup Pump is NOT running.
Initiating Cue:	The CRS has directed you to try to establish flow from all available sources per Enclosure 3 (Alternate Makeup Sources) of FR-C.1, while the crew continues in the body of the procedure.
Task Standard:	The operator will perform Enclosure 3 of FR-C.1 and coordinate with the AO to start the Standby Makeup Pump; and then start the PD Pump in accordance with Generic Enclosure 17.

Required Materials: None

General References: EP/1/A/5000/FR-C.1 (Response to Inadequate Core Cooling), Rev 9
EP/1/A/5000/G-1 (Generic Enclosures), Rev 37

Handouts: Handout 1: EP/1/A/5000/FR-C.1 (Response to Inadequate Core Cooling) marked up for place-keeping through Step 3 RNO e.2.
Handout 2: Enclosure 3 (Alternate Makeup Sources) of FR-C.1.
Handout 3: Generic Enclosure 17 (PD Pump Startup) of G-1.

Time Critical Task: NO

Validation Time: 27 minutes

Critical Step Justification	
Step 2	This step is critical because SI must be reset to permit Phase A CIS to be reset.
Step 3	This step is critical because Phase A CIS must be reset to permit certain CIVs to be opened (Standby Makeup System valves).
Step 4	This step is critical because depressing the 1NV-842AC and 1NV-849AC OPEN pushbutton is necessary to coordinate with the AO to start the Standby Makeup Pump.
Step 5	This step is critical because it is necessary to coordinate with the AO to start the Standby Makeup Pump.
Step 14	This step is critical because the Sequencers must be reset to permit re-opening of the RN Valves.
Step 15	This step is critical because Phase B CIS must be reset to permit certain CIVs to be opened (AB RN Return Header Isolation valves).
Step 26	This step is critical because opening these valves will ensure that RN flow is available to the PD Pump.
Step 33	This step is critical because depressing the PD Pump START pushbutton is required to start the PD Pump (The only Core Cooling Pump).
Step 35	This step is critical because this action will raise charging flow to the NCS to maximum.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset the Simulator to IC-39, 100% MOL

2. Place the 1A NI Pump OOS.

3. Simultaneously insert MALF NC008D = 1 (LB LOCA), MALF EP008B = 1 (1ETB Lockout), MALF NV029A (1A NV Pump Trips on overcurrent), and MALF ND001A (1A ND Pump fails to START).

4. Perform E-0 and Transition to E-1. Transition to FR-C.1 when Core Cooling CSFST turns Red.

5. Ensure power is available to the PD Pump (1MXK).

5. Freeze the Simulator.

OR

1. Reset to IC-232 (January, 2015)

(Denote Critical Steps with an asterisk*)

Ensure Handout 1 is placed on CRS Desk.
Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Enclosure 3, Step 1) Check Standby Makeup pump - KNOWN TO BE RUNNING.	The operator recognizes that the Standby Makeup Pump is NOT running, and proceeds.		
*2	(Step 1 RNO) Start Standby Makeup pump as follows: (Step 1 RNO a) Ensure S/I is reset.	The operator presses the Train A S/I RESET Pushbutton and observes the Yellow S/I RESET light is LIT. The operator presses the Train B S/I RESET Pushbutton and observes the Yellow S/I RESET light is LIT.		
*3	(Step 1 RNO b) Ensure Phase A Isolation is reset.	The operator presses the Train A Phase A RESET Pushbutton and observes the Yellow Phase A RESET light is LIT. The operator presses the Train B Phase A RESET Pushbutton and observes the Yellow Phase A RESET light is LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*4	(Step 1 RNO c) OPEN the following valves: 1NV-842AC (U1 Standby Makeup Pump Suction Isol) 1NV-849AC (U1 Standby Makeup Pump Cont Outside Isol).	The operator depresses the 1NV-842AC OPEN pushbutton and observes Red status light LIT, Green status light OFF. The operator depresses the 1NV-849AC OPEN pushbutton and observes Red status light LIT, Green status light OFF.		
*5	(Step 1 RNO d) WHEN 1NV-842AC AND 1NV-849AC are open, THEN dispatch operator to SSF control panel to depress "ON" on Unit 1 Standby Makeup pump switch.	The operator contacts the AO and directs that they start the Standby Makeup Pump. **Booth Instructor:** **As AO, Acknowledge.** **Insert XSF_019_1, and report that the Standby Makeup Pump is running.**		
6	(Step 2) Check PD pump - RUNNING.	The operator observes that the PD Pump Green status light is LIT, and determines that the PD Pump is NOT running.		
7	(Step 2 RNO) GO TO Step 5.	The operator proceeds to Step 5.		
8	(Step 5) Check PD pump - POWER AVAILABLE.	The operator observes that the Green status light is LIT, and determines that power is available to the PD Pump.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	(Step Note prior to Step 6) The PD pump is capable of taking suction from the VCT, FWST, or an ND pump running in Cold Leg Recirc mode. Since the PD pump and NV pumps share a common suction, the PD pump can be assumed to have an adequate suction source in the following step if NV pumps are currently aligned to an adequate suction source.	The operator reads the Note and proceeds.		
10	(Step 6) Check PD pump - CURRENTLY ALIGNED TO ADEQUATE SUCTION SOURCE.	The operator observes the 1NV-221A Red status light LIT, Green status light OFF; and determines that the suction of the PD Pump is aligned to the FWST.		
11	(Step 7) Start PD pump PER EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 17 (PD Pump Startup).	The operator proceeds to Generic Enclosure 17. **Cue:** **When the operator locates the Generic Enclosure Binder, provide Handout 3 to the operator.**		
12	(Generic Enclosure 17, Step 1) Check power to PD pump - AVAILABLE.	The operator observes that the Green status light is LIT, and determines that power is available to the PD Pump.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	(Step 2) Reset the following: (Step 2.a) S/I.	The operator presses the Train A S/I RESET Pushbutton and observes the Yellow S/I RESET light is LIT. The operator presses the Train B S/I RESET Pushbutton and observes the Yellow S/I RESET light is LIT. **NOTE:** **This Step is CRITICAL if NOT performed earlier.**		
*14	(Step 2) Reset the following: (Step 2.b) Sequencers.	The operator presses the Train A Sequencer RESET Pushbutton and observes the Yellow Sequencer RESET light is LIT. The operator presses the Train B Sequencer RESET Pushbutton and observes the Yellow Sequencer RESET light is LIT.		
*15	(Step 2) Reset the following: (Step 2.c) Phase B Isolation.	The operator presses the Train A Phase B RESET Pushbutton and observes the Yellow Phase B RESET light is LIT. The operator presses the Train B Phase B RESET Pushbutton and observes the Yellow Phase B RESET light is LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	(Step 2.d) IF AT ANY TIME a B/O signal occurs, THEN restart S/I equipment previously on.	The operator reads the Continuous Action Step, and proceeds.		
17	(Step 3) CLOSE the following valves:			
	• CLOSE 1RN-279B (AB Vent Sys Return Isol).	The operator observes that 1RN-279B is Green on the OAC Map (RNHDRTNS).		
	• CLOSE 1RN-299A (AB Vent Sys Return Isol).	The operator observes the 1RN-299A Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-79A (U1 VU AHUS RV Cont Outside Supply Hdr Isol).	The operator observes the 1RV-79A Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-101A (U1 VU AHUS RV Cont Inside Return Hdr Isol).	The operator observes the 1RV-101A Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-32A (U1 VL/VT AHUS RV Cont Outside Supply Hdr Isol).	The operator observes the 1RV-32A Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-76A (U1 VL/VT AHUS RV Cont Inside Return Hdr Isol).	The operator observes the 1RV-76A Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-80B (U1 VU AHUS RV Cont Inside Supply Hdr Isol).	The operator observes the 1RV-80B Green status light LIT, Red status light OFF.		
	• CLOSE 1RV-102B (U1 VU AHUS RV Cont Outside Return Hdr Isol).	The operator observes the 1RV-102B Green status light LIT, Red status light OFF.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17 (CONT'D)	• CLOSE 1RV-33B (U1 VL/VT AHUS RV Cont Inside Supply Hdr Isol). • CLOSE 1RV-77B (U1 VL/VT AHUS RV Cont Outside Return Hdr Isol).	The operator observes that 1RV-33B is Green on the OAC Map (RNHDRTNS). The operator observes that 1RV-77B is Green on the OAC Map (RNHDRTNS). **Note:** **Since these steps are bulleted, the operator need not wait for the valve to completely cycle before taking action with the next valve.**		
18	(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.		
19	(Step 4 RNO) CLOSE the following valves: • 1RN-252B (RB Non Ess Sup Cont Outside Isol). • 1RN-277B (RB Non Ess Ret Cont Outside Isol).	The operator observes the 1RN-252B Green status light LIT, Red status light OFF. The operator observes the 1RN-277B Green status light LIT, Red status light OFF.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
20	(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.		
21	(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 the AO (John) and directs that 2RL-267 be closed. **Booth Instructor:** **When asked, report that 2RL-267 has been closed.**		
22	(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.		
23	(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.		
24	(Step 7) Align RN to "AB NON ESS HEADER" as follows: (Step 7.a) Ensure 1A RN pump - ON.	The operator observes that the 1A RN Pump Red Breaker status light is LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
25	(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 1RN-41B is Green on the OAC Map (RNHDRTNS). The operator observes that the 1RN-43A Red status light is LIT, and the Green status light is OFF (May not be performed if 1RN-41B is observed first).		
*26	(Step 7.c) OPEN the following valves: • OPEN 1RN-40A (Train A To Non Ess Hdr Isol). • OPEN 1RN-42A (AB Non Ess Supply Isol). • OPEN 1RN-63B (AB Non Ess Return Isol).	The operator depresses the 1RN-40A OPEN pushbutton and observes Red status light LIT, Green status light OFF. The operator depresses and HOLDS the 1RN-42A OPEN pushbutton and observes Red status light LIT, Green status light OFF. The operator observes the 1RN-63B Red and Green status lights are OFF. The operator observes that 1RN-63B is Green on the OAC Map (RNHDRTNS) , and proceeds to the RNO. IF valve closed OR position unknown, THEN dispatch operator to OPEN 1RN-63B (aux bldg, 733+10, EE-54, midget hole, northeast corner near RN piping).		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*26 (CONT'D)		**Booth Instructor:** **When asked, insert REM-RN0063B = 1, and report that the valve is OPEN.**		
	• OPEN 1RN-64A (AB Non Ess Return Isol).	The operator depresses the 1RN-64A OPEN pushbutton and observes Red status light LIT, Green status light OFF.		
27	(Step 7.d) GO TO Step 8.	The operator proceeds to Step 8.		
28	(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 1NI-9A Red status light LIT and Green status light is OFF.		
29	(Note prior to Step 9) Charging flow path will be back through 1NV-238 (U1 Charging Hdr Control) and NV S/I flow path.	The operator reads the NOTE, and proceeds.		
30	(Step 9) Place 1NV-238 (U1 Charging Hdr Control) in manual and OPEN.	The operator the 1NV-238 in MANUAL, and observes the output on the SLIMs to be 100%.		
31	(Step 10) Adjust PD pump speed controller output to 0%.	The operator observes the PD Pump Speed Controller in MANUAL and adjusts output on the SLIMs to 0%.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
32	(Step 11) OPEN 1NV-1047A (U1 NV PD Pump Recirc Isol).	The operator depresses the 1NV-1047A OPEN pushbutton and observes Red status light LIT, Green status light OFF.		
*33	(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.		
34	(Step 13) Ensure 1NV-1047A (U1 NV PD Pump Recirc Isol) CLOSES after 2 minutes.	After two minutes, the operator observes that the 1NV-1047 Green status light is LIT, Red status light is OFF.		
*35	(Step 14) WHEN 1NV-1047A (U1 NV PD Pump Recirc Isol) is closed, THEN slowly raise PD pump speed, taking at least 45 seconds to reach desired speed, to establish charging flow.	The operator uses the UP arrow on the PD Pump SLIMs, over at least a 45 second period, and observes Charging flow is increasing.		
36	(Note prior to Step 15) Cooling water for areas in next step was isolated by Step 6.	The operator reads the Note, and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
37	(Step 15) Notify station management to monitor temperature in both units 6900V switchgear rooms, turbine bldg, and service bldg areas.	The operator notifies the CRS. **Cue:** **Station Management has been notified.** The operator returns to Enclosure 3 of FR-C.1, Step 7.		
38	(Enclosure 3, Step 8) Exit this enclosure.	The operator reports that the task is complete.		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 Systems - Control Room JPM C

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- Unit 1 has had a LOCA.
- All NV, NI and ND Pumps are either OOS, unavailable or have failed.
- A Red Path exists on Core Cooling.
- The crew has entered EP/1/A/5000/FR-C.1, Response to Inadequate Core Cooling.
- You are an available operator in the Control Room.
- AO John is standing by to assist with in-plant operations if needed.
- The Standby makeup Pump is NOT running.

INITIATING CUE: The CRS has directed you to try to establish flow from all available sources per Enclosure 3 (Alternate Makeup Sources) of FR-C.1, while the crew continues in the body of the procedure.

SIM JPM D

Facility:	McGuire	Task No.:	
Task Title:	Respond to Failed ESF Actuation	JPM No.:	2015 Systems - Control Room JPM D (Alternate Path)
K/A Reference:	013 A4.01 (4.5/4.8)		

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.

Ensure Handout 1 is placed on CRS Desk.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

Initial Conditions:	• Unit 1 experienced an ATWS and an inadvertent Train A Safety Injection actuation. • The crew is presently performing EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS).
Initiating Cue:	The CRS has directed you to perform Enclosure 3 (Subsequent S/I Actions) of EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS), while the crew continues with the actions of EP/1/A/5000/FR-S.1.
Task Standard:	The operator will complete the required actions of Enclosure 3 including manually actuating the Train B of SI and Phase A CIS, reset the Train B SIS and Sequencer and dispatch an operator to stop the B Diesel Generator using the Emergency Stop Pushbutton.
Required Materials:	None

General References: EP/1/A/5000/E-0 (Reactor Trip or Safety Injection), Rev 34
EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS), Rev 15

Handouts: Handout 1: EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS) marked up for this JPM.
Handout 2: Enclosure 3 (Subsequent S/I Actions) of EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS)

Time Critical Task: NO

Validation Time: 8 minutes

Critical Step Justification	
Step 4	This step is critical because the procedure directs manual actuation of SI under the current plant conditions (A Train actuated, B Train Not actuated).
Step 7	This step is critical because the procedure directs manual actuation of Phase A of CIS under the current plant conditions (A Train actuated, B Train Not actuated).
Alternate Path Critical Step Justification	
Step 20	This step is critical because resetting SI and the Sequencer is necessary to permit subsequently stopping the EDG.
Step 21	This step is critical because under the current plant conditions the 1B DG is operating without cooling water, and must be stopped using the emergency stop pushbutton, which can only be accomplished locally. Consequently, the dispatch of the AO is required.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset the Simulator to IC-39 (100% Power MOL)

2. Insert the following malfunctions to cause an ATWS:

   IPE001A (FAILURE OF AUTO REACTOR TRIPS TRAIN A)
   IPE001B (FAILURE OF AUTO REACTOR TRIPS TRAIN B)
   IPE002A (FAILURE OF MANUAL REACTOR TRIPS TRAIN A)
   IPE002B (FAILURE OF MANUAL REACTOR TRIPS TRAIN B)

3. Insert Malfunction ISE002B (Failure of Train B SI – Auto ONLY)

4. Insert Malfunction ISE003B (Failure of Train B Phase A CIS – Auto ONLY)

5. Insert Malfunction ISE001A (Inadvertent Train A SI Actuation)

6. Insert Malfunction RN007B (RN PUMP B TRIPS DUE TO OVERCURRENT)

7. Allow Accident to continue, complete actions of EP/1/A/5000/E-0 and EP/1/A/5000/FR-S.1 up to Step 7.

Note: At an appropriate time, Manually trip the reactor using LOA- IPE003/004 (RTB = RO)

8. Ensure that only Train A Phase A CIS has actuated.

9. Acknowledge all alarms and Freeze the Simulator

OR

1. Reset to IC-233 (January, 2015)

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: During the performance of this JPM, the Simulator Instructor will need to monitor un-related alarms and silence as needed.

(Denote Critical Steps with an asterisk*)

Ensure Handout 1 is placed on CRS Desk.
Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

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	(Enclosure 3, Step 1) Check 1ETA and 1ETB - ENERGIZED.	The operator observes Bus voltage (or equivalent), and determines that 1ETA and 1ETB are energized.		
2	(Step 2) Check both LOCA Sequencer Actuated status lights (1SI-14) - LIT.	The operator observes the Train A LOCA Sequencer Actuated status light is LIT. The operator observes the Train B LOCA Sequencer Actuated status light is <u>not</u> LIT.		
3	(Step 2RNO) Perform the following: (Step 2RNO.a) IF S/I had previously been initiated and reset,……	The operator recognizes that S/I had not been previously initiated and reset, and proceeds.		
*4	(Step 2RNO.b) Initiate S/I.	The operator presses the B Train SI pushbutton.		
5	(Step 3) Check all Feedwater Isolation status lights (1SI-4) - LIT.	The operator observes that all FWIS status lights are LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	(Step 4) Check Phase A "RESET" lights - DARK.	The operator observes that A Train Phase A RESET light is DARK. The operator observes that B Train Phase A RESET light is LIT.		
*7	(Step 4 RNO) Initiate Phase A Isolation.	The operator presses the B Train B Phase A Containment Isolation pushbutton.		
8	(Step 5) Check ESF Monitor Light Panel on energized train(s): (Step 5.a) Groups 1,2,5 - DARK.	The operator observes that Groups 1, 2 and 5 ESF Monitor Light Panel status lights are DARK.		
9	(Step 5) Check ESF Monitor Light Panel on energized train(s): (Step 5.b) Group 3 – LIT.	The operator observes that Group 3 ESF Monitor Light Panel status lights are LIT.		
10	(Step 5) Check ESF Monitor Light Panel on energized train(s): (Step 5.c) Group 4 - LIT AS REQUIRED.	The operator observes that Group 4 ESF Monitor Light Panel status lights are LIT.		
11	(Step 5) Check ESF Monitor Light Panel on energized train(s): (Step 5.d) Group 6 - LIT.	The operator observes that Group 6 ESF Monitor Light Panel status lights are LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
12	(Step 6) Check proper CA pump status: (Step 6.a) MD CA pumps - ON.	The operator observes the Red status light LIT, and normal running amps for the 1A MD CA Pump. The operator observes the Red status light LIT, and normal running amps for the 1B MD CA Pump.		
13	(Step 6.b) N/R level in at least 3 S/Gs - GREATER THAN 17%.	The operator observes NR level in all Steam Generators to be less than 17%, and proceeds to the Step 6.b RNO.		
14	(Step 6.b RNO) Ensure TD CA pump on.	The operator observes the Unit 1 CA Turbine Speed to be ≈3800 RPM, and determines that the TD CA Pump is running.		
15	(Step 7) Check all KC pumps - ON.	The operator observes the Red status light LIT, and normal running amps for the 1A1 KC Pump. The operator observes the Red status light LIT, and normal running amps for the 1A2 KC Pump. The operator observes the Red status light LIT, and normal running amps for the 1B1 KC Pump. The operator observes the Red status light LIT, and normal running amps for the 1B2 KC Pump.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	(Step 8) Check both RN pumps - ON.	The operator observes the Green Status light LIT (or equivalent), and determines that the 1B RN Pump has tripped **(Alternate Path),** and proceeds to Step 8 RNO.		
17	(Step 8 RNO a) Perform the following: Start pumps(s)	The operator recognizes the pump has tripped and proceeds. OR The operator attempts to reclose the 1B RN Pump Breaker by depressing the 1B RN START Pushbutton and observes that the Green status light is LIT, and Red status light is OFF. The operator recognizes that the pump will not start and proceeds.		
18	(Step 8 RNO b) IF any RN pump off, THEN perform the following: (Step 8 RNO b.1) IF 1A RN pump is off,…….	The operator observes the 1A RN Pump Red status light is LIT, and the Green status light is OFF; and that pump amperage is normal, and proceeds.		
19	(Step 8 RNO b.2) IF affected train is deenergized, AND its D/G is off…….	The operator observes that 1ETB is energized and that the 1B DG is running unloaded, and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*20	(Step 8 RNO b.3) Reset the following on affected train: • S/I • Sequencer	The operator depresses the Train B SI Reset Pushbutton and observes the Yellow status light LIT. The operator depresses the Train B Sequencer Reset Pushbutton and observes the Yellow status light LIT.		
*21	(Step 8 RNO b.4) Dispatch operator to stop affected D/G using emergency stop pushbutton.	The operator contacts the AO and directs that the 1B DG be stopped using the emergency stop pushbutton. **Cue:** **As the AO, acknowledge.**		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 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: _____

INITIAL CONDITIONS:

- Unit 1 experienced an ATWS and an inadvertent Train A Safety Injection actuation.
- The crew is presently performing EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS).

INITIATING CUE:

The CRS has directed you to perform Enclosure 3 (Subsequent S/I Actions) of EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS), while the crew continues with the actions of EP/1/A/5000/FR-S.1.

SIM JPM E

Facility:	McGuire	Task No.:	
Task Title:	Retrieve a Dropped Control Rod	JPM No.:	2015 Systems - Control Room JPM E (Alternate Path)
K/A Reference:	APE 003 AA1.02 (3.6/3.4)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:	• Unit 1 is operating at 30% power with $T_{Avg} = T_{REF}$. • Control Rod H-8 in "D" Control Bank has dropped to the bottom of the core. • The unit is conditioned for 100% power and the rod has been dropped 15 hours. • AP/1/A/5500/14 (Rod Control Malfunction) has been implemented and completed through step 17 of Enclosure 1 (Response to a Dropped Control Rod). • IAE has repaired the cause of the dropped rod and has determined that rod realignment is permissible.
Initiating Cue:	The CRS has directed you to complete Enclosure 1 of AP/1/A/5500/14 (Rod Control Malfunction), beginning at step 26, and recover the dropped rod.

Task Standard:	The operator will start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position; and then manually trip the reactor when a second dropped rod occurs.
Required Materials:	None
General References:	AP/1/A/5500/14 (Rod Control Malfunction), Rev 16 EP/1/A/5000/E-0 (Reactor Trip or Safety Injection), Rev 34
Handouts:	Handout 1: Control Room Copy of AP/1/A/5500/14 marked up for this JPM through Step 17 of Enclosure 1 (Response to a Dropped Control Rod).
Time Critical Task:	NO
Validation Time:	10 minutes

Critical Step Justification	
Step 4	This step is critical because moving the Coil Disconnect Switches for Control Rods D-4, D-12, M-4, and M-12 to the “UP” position is necessary to start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position.
Step 6	This step is critical because rotating the CRD Bank Selector Switch to “CBD” position (pausing at least one second between each position selected) is necessary to start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position.
Step 11	This step is critical because taking the IN/HOLD/OUT lever to “IN,” depressing the acknowledge pushbutton of the "ROD CONTROL URGENT FAILURE" alarm, and releasing the IN/HOLD/OUT lever to “HOLD” after approximately 10 steps are necessary to start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position.
Step 12	This step is critical because opening the Control Bank D Group 2 Step Counter Door and depressing the “RS” pushbutton, or the “DN” pushbutton until the digital display reads “000” is necessary to start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position.
Step 14	This step is critical because Taking the IN/HOLD/OUT lever to “OUT” and releasing the IN/HOLD/OUT lever to “HOLD” when Control Bank D Group 2 Step Counter is at a point greater than 0 Steps are necessary to start to recover Control Rod H-8 such that when the operator is withdrawing Control Rod H-8, it is the only Control Rod in Bank D moving, and approaching indicated Control Bank D position.
Alternate Path Critical Step Justification	
Step 15	This step is critical because observing that Control Rod D-4 has dropped into the core, and that now there are two Control Rods misaligned by greater than 24 steps; and placing the Rx Trip Switch in the TRIP position are necessary to manually trip the reactor when a second dropped rod occurs.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-__, 30% Power (Or < 50 and Steady State)
2. Place in RUN and allow time to stabilize
3. Insert Malfunction IRE006H8, Dropped Rod H-8, value Stationary Gripper
4. Perform the actions of AP/1/A/5500/14 up through subsequent step 17 of Enclosure 1.
5. Stabilize the plant
6. Clear MAL IRE006H8
7. Reset “Rod Control Alarm Reset.” Ensure 1AD-2, Annunciator A-10 goes dark.
8. Insert MAL IRE006D4 (Rod D-4 Drops Into Core), and place on TRIGGER #1.
9. Freeze the Simulator

OR

1. Reset Simulator to Temporary Snap IC-234 (January, 2015).

NOTE: During the performance of the JPM, the Simulator Driver will be required to:

- **Acknowledge spurious alarms unrelated to the task being performed.**
- **Operate TRIGGER #1 at Step 14-15 of JPM.**

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 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 26) Check misaligned rod(s) - LOW WITH RESPECT TO ITS ASSOCIATED BANK.	The operator observes Control Rod H-8 DRPI indication at 0 Steps, and the Control Bank D Step Counters to be at 198 Steps; and determines that the dropped rod is LOW with respect to Control Bank D.		
2	(Step 27) Check DRPI indication for misaligned rod: AT ZERO STEPS OR AT SIX STEPS.	The operator observes Control Rod H-8 DRPI indication at 0 Steps, and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	(Step 28) Record the following in the Reactor Operator Logbook:			
	(Step 28.a) Record step counter readings for all rod groups in affected bank	The operator observes Control Bank D Group 2 Step Counter and records "200."		
	(Step 28.b) Check affected rod location - IN CONTROL BANK	The operator observes DRPI and verifies Control Rod H-8 is in Control Bank.		
	(Step 28.c) Dispatch IAE to obtain Bank Overlap Display in Logic Cabinet (Rod Control Cabinets approximately 5 ft from floor)	The operator dispatches IAE. **Cue:** **IAE reports a Bank Overlap Counter reading of 475.**		
	(Step 28.d) Record bank overlap display.	The operator records Bank Overlap Counter reading of 475.		
*4	(Step 29) Open coil disconnect switches on all lift coils in affected bank except for dropped rod	The operator moves the Coil Disconnect Switches for Control Rods D-4, D-12, M-4, and M-12 to the "UP" position.		
5	(Caution prior to Step 30) Failure to pause between each bank selected may result in dropping rods.	The operator reads caution, and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*6	(Step 30) Transfer rod control to affected bank using "CRD BANK SELECTOR", pausing at least one second between each position selected.	The operator rotates CRD Bank Selector Switch to “CBD” position (pausing at least one second between each position selected).		
7	(Step 31) Check “ROD CONTROL URGENT FAILURE” alarm (1AD-2, A-10) – DARK	The operator observes alarm is DARK.		
8	(Note prior to Step 32) The “ROD CONTROL URGENT FAILURE” (1AD-2, A-10) alarm will not occur if the rod is in Shutdown Bank C, D, or E.	The operator recognizes that since the dropped rod is in the Control Bank, the “ROD CONTROL URGENT FAILURE” (1AD-2, A-10) alarm will occur, and is expected.		
9	(Step 32) WHEN "ROD CONTROL URGENT FAILURE" (1AD-2, A-10) alarm occurs in the next step, THEN acknowledge alarm and continue rod insertion in the "BANK SELECT" position.	The operator reads the Step and proceeds.		
10	(Note prior to Step 33) The demand counter for the group being moved will be the only counter to change.	The operator reads the Note and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*11	(Step 33) Push rod control “IN” approximately 10 steps on step counter while ensuring all unaffected rods do not move	The operator takes the IN/HOLD/OUT lever to “IN.” The operator observes DRPI for unaffected Control Rods (M-4, M-12, D-4 and D-12) and verifies that they do not move. The operator recognizes that "ROD CONTROL URGENT FAILURE" alarm is illuminated and depresses the acknowledge pushbutton. After approximately 10 (≈190) steps on Control Bank D Group 2 Step Counter, the operator releases the IN/HOLD/OUT lever to “HOLD.”		
*12	(Step 34) Place affected rod group demand step counter to zero	The operator opens Control Bank D Group 2 Step Counter Door. The operator depresses “RS” pushbutton, OR The operator depresses “DN” pushbutton until the digital display reads “000.”		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	(Step 35) Adjust boron concentration to maintain constant T-ave during rod withdrawal in next step.	The operator reads Step. **Cue:** **Another operator will adjust Boron concentration to maintain T-ave constant.**		
*14	(Step 34) Withdraw dropped rod to its recorded bank position at a rate less than or equal to 60 steps/hour.	The operator takes IN/HOLD/OUT lever to "OUT." The operator observes Control Bank D Group 2 Step Counter, DRPI and Tave-Tref mismatch. When Control Bank D Group 2 Step Counter is at a point greater than 0 Steps, the operator releases the IN/HOLD/OUT lever to "HOLD."		
Simulator Instructor NOTE: Operate TRIGGER #1.				
*15	(AP-14, Step 1[Immediate Action]) IF two or more rods are either dropped OR misaligned by greater than 24 steps, THEN perform the following: (Step 1.a) Trip reactor. (Step 1.b) GO TO EP/1/A/5000/E-0 (Reactor Trip or Safety Injection).	The operator observes that Control Rod D-4 has dropped into the core, and that now there are two Control Rods misaligned by greater than 24 steps; and places the Rx Trip Switch in the TRIP position. **(Alternate Path)**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	(Step 2 [Immediate Action]) Check Reactor Trip • All rod bottom lights – LIT • Reactor trip and bypass breakers – OPEN • I/R amps – GOING DOWN	**NOTE:** **The remainder of the operator actions will be performed from memory.** The operator observes all Rod Bottom lights are LIT (green). The operator observes Reactor Trip Breaker green status lights are LIT. The operator observes that both I/R SUR indications are trending down		
17	(Step 3 [Immediate Action]) Check Turbine Trip • All throttle valves - CLOSED	The operator observes the Four STAT lights for throttle valves are LIT.		
18	(Step 4) Check 1ETA and 1ETB - ENERGIZED	The operator observes that UV STAT lights for 1ETA and 1ETB are DARK.		
19	(Step 5) Check if S/I is actuated: (Step 5.a) "SAFETY INJECTION ACTUATED" status light (1SI-18) - LIT.	The operator observes that S/I actuate light is DARK.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
20	(Step 5.a RNO) Perform the following: (Step 5.a RNO 1) Check if S/I is required: Pzr pressure less than 1845 OR Containment pressure greater than 1 PSIG	Operator observes that Pzr pressure is greater than 2200 and stable and that Containment pressure is .15 PSIG and stable; and reports that Safety Injection is NOT required. **Cue:** **The CRS acknowledges the report.**		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 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: _____

INITIAL CONDITIONS:

- Unit 1 is operating at 30% power with $T_{Avg} = T_{REF}$.
- Control Rod H-8 in "D" Control Bank has dropped to the bottom of the core.
- The unit is conditioned for 100% power and the rod has been dropped 15 hours.
- AP/1/A/5500/14 (Rod Control Malfunction) has been implemented and completed through step 17 of Enclosure 1 (Response to a Dropped Control Rod).
- IAE has repaired the cause of the dropped rod and has determined that rod realignment is permissible.

INITIATING CUE:

The CRS has directed you to complete Enclosure 1 of AP/1/A/5500/14 (Rod Control Malfunction), beginning at step 26, and recover the dropped rod.

SIM JPM F

Facility:	McGuire	Task No.:	
Task Title:	Respond to High VCT Temperature	JPM No.:	2015 Systems - Control Room JPM F (Alternate Path)
K/A Reference:	APE 026 AA1.02 (3.2/3.3)		

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.

Ensure Handout 1 is placed on CRS Desk.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

Initial Conditions:	• Unit 1 is at 100% power when a leak develops in the KC System. • The crew entered AP/1/A/5500/21 (Loss of KC or KC System Leakage). • The crew has completed the actions through Step 12. • MCB Annunciator 1AD-7, D1, VCT HI TEMP, has just alarmed, and Foldout Page item #5 now applies. • The leak is suspected to be on the aux building non-essential header, and this header is NOT likely to be restored within 15 minutes.
Initiating Cue:	The CRS has directed you to perform the actions of Enclosure 6 of AP/1/A/5500/21 (Loss of KC or KC System Leakage), while the crew continues with AP-21.
Task Standard:	The operator will isolate Letdown, and attempt to start the PD Pump. When the PD Pump fails to start, and the operator will ultimately align the suction of the NV Pumps to the FWST.

Required Materials: None

General References: AP/1/A/5500/21 (Loss of KC or KC System Leakage), Rev 10
OP/1/A/6100/010 H (Annunciator Response For Panel 1AD-7), Rev 65

Handouts: Handout 1: AP/1/A/5500/21 (Loss of KC or KC System Leakage) marked up for place-keeping through Step 12.
Handout 2: Enclosure 6 (VCT High Temperature Actions) of AP/1/A/5500/21 (Loss of KC or KC System Leakage).

Time Critical Task: NO

Validation Time: 9 minutes

Critical Step Justification	
Step 1	This step is critical because rotating the 1NV-35A Control Switch to the CLOSE position is necessary to isolate Letdown and stop VCT heat-up due to the loss of KC flow to the NRHX.
Step 17	This step is critical because the response to this event is normally to start the PD Pump because it does not recirc to the VCT, and remove the NV Pumps from service (The operator does not know that this pump will fail to operate).
Alternate Path Critical Step Justification	
Step 21	This step is critical because opening one of two available suction paths from the FWST to the Charging Pump suction is necessary under the current plant conditions (i.e. PD Pump has failed) to maintain charging flow.
Step 22	This step is critical because closing one of two valves needed to isolate the suction path from the VCT to the Charging Pump suction is necessary under the current plant conditions (i.e. PD Pump has failed) to maintain charging flow.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-39 (100%).
2. Place in RUN
3. Insert MALF-NV006C = TRUE (PD Pump fails to start manually).
4. Insert REM-KC130 = 0.01 until VCT hi temp alarm occurs. This is done to simulate a leak in the Letdown Heat Exchanger KC flow which robs flow from LDHX and causes Letdown temperature to rise.
5. Ensure MCB Annunciator 1AD-7 D1, HI VCT TEMP, has alarmed.
6. Perform actions of AP/1/A/5500/21 through Step 12. Ensure AP/1/A/5500/21 marked up for place-keeping through Step 12 is available at the CRS Desk.
7. Acknowledge the alarms.
8. Freeze the Simulator

OR

1. Reset to IC-235 (January, 2015)
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: Simulator Instructor will need to remain available to respond to alarms that are not related to the task.

(Denote Critical Steps with an asterisk*)

Ensure Handout 1 is placed on CRS Desk.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 2.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
Simulator Instructor NOTE: Leave Simulator in FREEZE until operator is ready to begin.				
Examiner NOTE: The Critical nature of Step 1 is to close 1NV-35A. IF this valve is NOT closed, the Critical nature of the Step can be satisfied by closing either 1NV-1A or 1NV-2A in Step 2.				
1 *	(Step 1) Isolate letdown as follows: (Step 1.a) CLOSE the following valves: • 1NV-458A (U1 75 GPM L/D Orifice Otlt Cont Isol) • 1NV-457A (U1 45 GPM L/D Orifice Otlt Cont Isol) • 1NV-35A (U1 Variable L/D Orifice Otlt Cont Isol).	The operator observes the Green status light LIT, Red status light OFF. The operator observes the Green status light LIT, Red status light OFF. The operator rotates the 1NV-35A Control Switch to the CLOSE position, allowing it to return to AUTO, and observes the Green status light LIT, Red status light OFF. **Cue:** **Another operator will address MCB Annunciators 1AD-7, G2, F2 and J1 as needed.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	(Step 1.b) CLOSE the following valves: • 1NV-1A (U1 NC L/D Isol To Regenerative Hx) • 1NV-2A (U1 NC L/D Isol To Regenerative Hx).	The operator rotates the 1NV-1A Control Switch to the CLOSE position, allowing it to return to AUTO, and observes the Green status light LIT, Red status light OFF. The operator rotates the 1NV-2A Control Switch to the CLOSE position, allowing it to return to AUTO, and observes the Green status light LIT, Red status light OFF.		
3	(Step 1.c) Check ND - IN SERVICE PRIOR TO EVENT.	The operator observes the plant operating at power, recognizes that ND is NOT in operation, and proceeds to the Step 1.c RNO.		
4	(Step 1.c RNO) GO TO Step 2.	The operator proceeds to Step 2.		
5	(Step 2) Check NV pumps suction - ALIGNED TO VCT.	The operator observes the 1NV-141A Red status light LIT, Green status light OFF. The operator observes the 1NV-142B Red status light LIT, Green status light OFF.		
6	(Caution prior to Step 3) VCT high temperature will degrade NC pump seal cooling and NV pump operation.	The operator reads the Caution and proceeds.		
7	(Note prior to Step 3) A loss of KC cooling to KC Aux Building Non-essential Header causes VCT temperature to rise, primarily due to NV pump recirc flow.	The operator reads the Note and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
8	(Step 3) IF restoration of KC cooling to Aux Building Non-essential Header is expected within next 15 minutes, THEN exit this enclosure.	The operator requests this information from the CRS. **Cue:** **IF required, as the CRS, report that the leak is suspected to be on the aux building non-essential header, and this header is NOT likely to be restored within 15 minutes.**		
9	(Step 4) Check excess letdown - ISOLATED.	The operator observes the 1NV-24B Green status light LIT, Red status light OFF. The operator observes the 1NV-25B Green status light LIT, Red status light OFF. The operator determines that Excess letdown is isolated.		
10	(Step 5) IF AT ANY TIME excess letdown must be established, AND KC cooling still lost to KC aux building non-essential header, THEN excess letdown must be aligned to NCDT instead of VCT.	The operator reads the conditional step and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Notes prior to Step 6) PD pump will not heat up VCT since it does not recirc water to VCT. Running PD pump instead of swapping NV to FWST will prevent thermal transient on NC pumps, and allow continued operation of unit. 1A and 1B NV pumps will be stopped to prevent VCT overheating.	The operator reads the Notes and proceeds.		
12	(Step 6) Check the following: PD pump - AVAILABLE TO RUN 1ETA - ENERGIZED 1RN-42A (AB Non Ess Supply Isol) - OPEN.	The operator observes the PD Pump breaker Green status light is LIT. The operator observes the voltage on 1ETA to be ≈ 4167 volts. The operator observes 1RN-42A red status light LIT, Green status light OFF, and recognizes that the PD Pump is available.		
13	(Step 7) Start PD Pump as follows: (Step 7.a) Open the following valves: • 1RN-63B (AB Non Ess Return Isol). • 1RN-64A (AB Non Ess Return Isol).	The operator observes the 1RN-63B Red status light LIT, Green status light OFF. The operator presses the 1RN-64A OPEN pushbutton, and observes the Red status light LIT, Green status light OFF.		
14	(Step 7.b) Ensure Charging flow - LESS THAN 90 GPM.	The operator observes 1NVP5630, and determines that Charging flow is <90 gpm, and lowering.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
15	(Step 7.c) Adjust PD Pump speed controller output to 0%.	The operator observes the PD Pump Speed Control SLIMs MAN light LIT, and the controller output and setpoint indicate 0.		
16	(Step 7.d) OPEN 1NV-1047A (U1 PD Pump Recirc Isol).	The operator presses the 1NV-1047A OPEN pushbutton, and observes the Red status light is LIT, Green status light OFF.		
*17	(Step 7.e) Start the PD pump.	The operator presses the PD Pump START pushbutton, and observes the Green status light LIT, Red status light OFF; and recognizes that the PD Pump has failed to start **(Alternate Path)**. The operator proceeds to the Step 7 RNO.		
18	(Step 7 RNO) GO TO Step 15.	The operator proceeds to Step 15.		
19	(Step 15) Check Reactor - TRIPPED.	The operator observes the plant operating at power, recognizes that the plant is NOT tripped, and proceeds to the Step 15 RNO.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
20	(Step 15 RNO) Perform the following: (Step 15 RNO a) Reduce turbine load as required to maintain T-Ave at T-Ref in subsequent steps. (Step 15 RNO b) REFER TO AP/1/A/5500/04 (Rapid Downpower) as required.	The operator informs the CRS that subsequent steps will place the plant in a downpower due to boration; and requests that the CRS refer to AP-4. **Cue:** **As the CRS, acknowledge the report, and indicate that the OATC will maintain Tavg-Tref, and refer AP-04.**		
*21	(Step 16) Swap NV suction to FWST as follows: (Step 16.a) OPEN the following valves: • 1NV-221A (U1 NV Pump Suct From FWST Isol). • 1NV-222B (U1 NV Pump Suct From FWST Isol).	The operator presses the 1NV-221A OPEN pushbutton, and observes the Red status light LIT, Green status light OFF. OR The operator presses the 1NV-222B OPEN pushbutton, and observes the Red status light LIT, Green status light OFF. The operator will acknowledge an expected alarm on Group 3 of the ESF Monitor Panel (Not Critical).		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*22	(Step 16.b) CLOSE the following valves: • 1NV-141A (U1 VCT Outlet Isol) • 1NV-142B (U1 VCT Outlet Isol).	The operator presses the 1NV-141A CLOSE pushbutton, and observes the Green status light LIT, Red status light OFF. OR The operator presses the 1NV-142B CLOSE pushbutton, and observes the Green status light LIT, Red status light OFF. The operator will acknowledge an expected alarm on Group 4 of the ESF Monitor Panel (Not Critical).		
23	(Step 17) WHEN KC cooling is restored to KC aux building non-essential header, THEN NV suction may be realigned to VCT as follows: OPEN the following valves: • 1NV-141A (U1 VCT Outlet Isol) • 1NV-142B (U1 VCT Outlet Isol). CLOSE the following valves • 1NV-221A (U1 NV Pump Suct From FWST Isol) • 1NV-222B (U1 NV Pump Suct From FWST Isol).	The operator reads the conditional Step and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
24	(Step 18) RETURN TO step in effect in body of this procedure.	The operator informs the CRS that Enclosure 6 is complete.		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 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: _____

INITIAL CONDITIONS:

- Unit 1 is at 100% power when a leak develops in the KC System.
- The crew entered AP/1/A/5500/21 (Loss of KC or KC System Leakage).
- The crew has completed the actions through Step 12.
- MCB Annunciator 1AD-7, D1, VCT HI TEMP, has just alarmed, and Foldout Page item #5 now applies.
- The leak is suspected to be on the aux building non-essential header, and this header is NOT likely to be restored within 15 minutes.

INITIATING CUE: The CRS has directed you to perform the actions of Enclosure 6 of AP/1/A/5500/21 (Loss of KC or KC System Leakage), while the crew continues with AP-21.

SIM JPM G

Facility:	McGuire	Task No.:	
Task Title:	Respond to the 1EMF-35 Trip 2 Alarm	JPM No.:	2015 Systems - Control Room JPM G
K/A Reference:	073 A4.02 (3.7/3.7)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

Initial Conditions:	• Unit 1 is at 100% power. • Annunciator 1RAD2 A1, 1EMF-35 UNIT VENT PART HI RAD, has just alarmed.
Initiating Cue:	Respond to this alarm.
Task Standard:	The operator will place the Aux Building Filtered Exhaust System in operation and the Train B Outside Air Pressure Filter Train in service.
Required Materials:	None
General References:	OP/1/A/6100/010 R (Annunciator Response For Panel 1RAD-2), Rev 39 OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System), Rev 98
Handouts:	Handout 1: Enclosure 4.4 (Control Room Atmosphere Pressurization During Abnormal Conditions) of OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System).

Time Critical Task: NO

Validation Time: 8 minutes

Critical Step Justification	
Step 2	This step is critical because rotating either the 1A VA FILTER UNITS TEST Switch to TEST or the 1B VA FILTER UNITS TEST Switch to TEST is necessary to place the Aux Building Filtered Exhaust System in operation.
Step 10	This step is critical because B Train VC/YC operating and rotating the B Train CR Outside Air Press Fan Control Switch to the ON position is necessary to place the Train B Outside Air Pressure Filter Train in service.
Step 11	This step is critical because is pressing the MAN pushbutton for #2 CRA Otsd Air Fan necessary to place the Train B Outside Air Pressure Filter Train in service.
Step 12	This step is critical because pressing the OFF pushbutton for CRA-OAD-4, and the OFF pushbutton for CRA-OAD-3 is necessary to place the Train B Outside Air Pressure Filter Train in service.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset the Simulator to IC-39, 100% MOL
2. Insert the following malfunctions:

   MAL- EMF-35L (DIGITAL RAD MON EMF-35L FALSE READING), = 200 CPM

   MAL- EMF-37 (DIGITAL RAD MON EMF-37 FALSE READING), = 200 CPM
3. Allow plant to stabilize.
4. Freeze the Simulator.

OR

1. Reset to IC-236 (January, 2015)

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Immediate Action Step 1) Ensure Aux Building Unfiltered Exhaust Fans trip.	The operator observes the 1A VA Unfiltered Exhaust Fan and 1B VA Unfiltered Exhaust Fan Green status lights to be LIT, and the Red status lights to be OFF. **Cue:** **If the operator seeks to find the status of the Unit 2 VA Unfiltered Exhaust Fans, report that BOTH Fans are OFF.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*2	(Immediate Action Step 2) Place Aux Building Ventilation in the FILTER MODE by selecting "TEST" with the "VA Filter Units 1A Test" AND "VA Filter Units 1B Test" switches until the cause of the Hi Rad condition can be determined.	The operator rotates the 1A VA FILTER UNITS TEST Switch to TEST, and observes the 1ABF-D-3 Green status light LIT, and the Red status light OFF. The operator rotates the 1B VA FILTER UNITS TEST Switch to TEST, and observes the 1ABF-D-3 Green status light LIT, and the Red status light OFF. **Examiner NOTE:** **Since either Switch will CLOSE the Bypass Damper, the operation of ONLY ONE Switch is CRITICAL.**		
3	(Supplementary Action Step 1) IF a valid 1EMF-35 (Trip 2) alarm does NOT clear within 5 minutes of the alarm initiation time, perform the following: (Supplementary Action Step 1.A) Ensure at least one train of VC outside air pressure filtration is in service per OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System) Enclosure 4.4 (Control Room Atmosphere Pressurization During Abnormal Conditions).	The operator reads the conditional Step. **CUE:** **5 minutes have elapsed.** The operator attempts to locate OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System). **CUE:** **Provide the operator with HANDOUT 1.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	(OP/0/A/6450/011 Enclosure 4.4, Step 2.1) Control Room atmosphere has been determined to be in need of pressurization to protect Control Room personnel.	The operator recognizes that this Initial Condition has been satisfied during the performance of the Immediate Actions.		
5	(Step 2.2) VC / YC Train A OR B is selected and is in operation per this procedure.	The operator observes that the VC/YC Train B Mode Select Switch is in "B," and that the VC/YC Train A Mode Select Switch is in "OFF," and determines that the Train B is selected and in operation.		
6	(Step 3.1) Evaluate all outstanding R&Rs that may impact performance of this procedure.	The operator requests this information from the CRS. **Cue:** **There are no outstanding R&Rs on this equipment.**		
7	(step 3.2) Perform the following sections as applicable: • Section 3.3, Pressurize Control Room Using Outside Air Pressure Fans • Section 3.4, Securing Pressurization of Control Room	The operator proceeds to Section 3.3.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
8	(Step 3.3) Pressurize Control Room using Outside Air Pressure Fans as follows: (Step 3.3.1) Ensure at least one the following groups of intake valves open: • 1VC-1A (VC Otsd Air Intake Isol from Unit 1) • 1VC-2A (VC Otsd Air Intake Isol from Unit 1) • 1VC-3B (VC Otsd Air Intake Isol from Unit 1) • 1VC-4B (VC Otsd Air Intake Isol from Unit 1) OR • 1VC-9A (VC Otsd Air Intake Isol from Unit 2) • 1VC-10A (VC Otsd Air Intake Isol from Unit 2) • 1VC-11B (VC Otsd Air Intake Isol from Unit 2) • 1VC-12B (VC Otsd Air Intake Isol from Unit 2)	The operator observes the Red status lights LIT for the Unit 1 valves. **Cue:** **If asked, indicate that a Concurrent Verification (CV) has been completed.**		
9	(Step 3.3.2) IF A Train VC/ YC operating, …..	The operator observes that the A Train of VC/YC is OFF.		
*10	(Step 3.3.3) IF B Train VC / YC operating, place "B" Train CR Outside Air Press Fan" to "ON".	The operator rotates the B Train CR Outside Air Press Fan Control Switch to the ON position.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11 *	(Step 3.3.4) Depress "MAN" for the following (to ensure fans off): • #1 CRA Otsd Air Fan • #2 CRA Otsd Air Fan	The operator presses the MAN pushbutton for #1 CRA Otsd Air Fan, and observes the Green status light is LIT, Red status light is OFF. The operator presses the MAN pushbutton for #2 CRA Otsd Air Fan, and observes the Green status light is LIT, Red status light is OFF.		
*12	(Step 3.3.5) Depress "OFF" for the following: • CRA-OAD-4 (CR Area Otsd Air Fans Damper) • CRA-OAD-3 (CR Area Otsd Air Fans Damper)	The operator presses the OFF pushbutton for CRA-OAD-4, and observes the Red status light is OFF. The operator presses the OFF pushbutton for CRA-OAD-3, and observes the Red status light is OFF.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	(Step 3.3.6) Check the following dark: • CRA-OAD-4 (CR Area Otsd Air Fans Damper) "OPEN" light • CRA-OAD-3 (CR Area Otsd Air Fans Damper) "OPEN" light	The operator observes CRA-OAD-4 light is OFF. The operator observes CRA-OAD-3 light is OFF. **Cue:** **Another operator will complete this procedure**		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 Systems - Control Room JPM G

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 at 100% power.
- Annunciator 1RAD2 A1, 1EMF-35 UNIT VENT PART HI RAD, has just alarmed.

INITIATING CUE: Respond to this alarm.

SIM JPM H

Facility:	McGuire	Task No.:	
Task Title:	Restore Normal Power to 1ETB and Unload the 1B EDG	JPM No.:	2015 Systems - Control Room JPM H
K/A Reference:	056 AA1.02 (4.0/3.9)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The station experienced a Loss of Off-Site Power 10 hours ago, resulting in a Unit 1 Reactor Trip from 100% power (Unit 2 is in No Mode during a full core off-load).
- Both the 1A and 1B, as well as the 2A and 2B Standby Diesel Generators automatically started and re-powered their respective essential busses.
- The Unit 1 Control Room staff entered E-0, Reactor Trip or Safety Injection, and after verifying that Safety Injection was NOT necessary, transitioned to ES-0.1, Reactor Trip Response.
- U-2 Off-Site Power was restored within 2 hours, and the Unit 2 Control Room staff has restored normal power to the essential 4160 volt busses, and shutdown the Diesel Generators.
- The Unit 1 Control Room has responded per AP/1/A/5500/07 (Loss of Electrical Power) Case I (Loss of Normal Power to Both 1ETA and 1ETB).
- Normal power will not be restored to 1ETA due to an electrical fault on the 1ATC Transformer.
- The Emergency Coordinator has indicated that 1ETB can now be restored to normal power via the 1ATD Transformer from the Control Room.

Initiating Cue:	The CRS has directed you to restore 1ETB to normal power and separate the 1B D/G from the Grid from the Control Room per OP/1/A/6350/002 (Diesel Generator), Enclosure 4.4 (1B D/G Shutdown).
Task Standard:	While 1ETB is being powered by the 1B D/G, the operator will parallel 1ETB, with 1ATD, and then unload the 1B D/G.
Required Materials:	None
General References:	EP/1/A/5000/E-0 (Reactor Trip or Safety Injection), Rev 34 EP/1/A/5000/ES-0.1 (Reactor Trip Response), Rev 39 AP/1/A/5500/07 (Loss of Electrical Power), Rev 35 OP/1/A/6350/002 (Diesel Generator), Rev 123
Handouts:	Handout 1: Enclosure 4.4 of OP/1/A/6350/002 (Diesel Generator) marked up through Step 3.1.
Time Critical Task:	NO
Validation Time:	11 minutes

Critical Step Justification	
Step 1	This step is critical because rotating the “1B D/G Mode Select” switch counter-clockwise to the C/R position is necessary for the Control Room operator to control the 1B D/G.
Step 4	This step is critical because operator rotating "1B D/G Volt Adjust" switch clockwise and/or counterclockwise as necessary to match voltages is necessary to parallel 1ETB (powered by the 1B D/G), with 1ATD.
Step 5	This step is critical because rotating the 1B D/G Sync Scope Switch to ON is necessary to parallel 1ETB (powered by the 1B D/G), with 1ATD.
Step 7	This step is critical because depressing the RAISE/LOWER pushbutton causing the synchroscope to move slowly in the FAST direction is necessary to parallel 1ETB (powered by the 1B D/G), with 1ATD.
Step 8	This step is critical because depressing the 1ETB Normal Breaker CLOSE pushbutton with the synchroscope pointer is 3 minutes before vertical is necessary to parallel 1ETB (powered by the 1B D/G), with 1ATD.
Step 9	This step is critical because pressing the Raise pushbutton to raise DG load after paralleling and rotating the Voltage Adjust handle to raise power factor within band are necessary to parallel 1ETB (powered by the 1B D/G), with 1ATD.
Step 14	This step is critical because depressing the 1B D/G Gov Control LOWER pushbutton until load meter indicates < 200 KW is necessary to unload the 1B D/G.
Step 15	This step is critical because depressing the 1ETB Emergency Breaker OPEN pushbutton is necessary to unload the 1B D/G.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset simulator to IC-39, 100% Power

2. Place in RUN and allow time to stabilize

3. Insert Malfunction EP001, Station Blackout

4. Insert Malfunction OVR-11X_185_1 = 0, 1ATC 4KV Xfer FDR Bkr Close PB = OFF

5. Remove EP001 and insert:

   - LOA-EP172 (Zone Lockout Reset)
   - LOA-EP173 (In-Plant Lockout Reset)
   - LOA-EP174 (Switchyard Lockout Reset)

6. Perform the actions of EP/1/A/5000/E-0 up through step 5 and transition to ES-0.1.

7. Perform the actions of EP/1/A/5000/ES-0.1 up through step 18.a, and transition to AP/1/A/5500/07.

8. Perform the actions of AP/1/A/5500/07 Case I up through step 54.j.

9. Freeze the Simulator

OR

1. Reset to IC-237 (January, 2015)

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	(Step 3.2) Place Control Room "1B D/G Mode Select" switch to the applicable position: "LOCAL" to operate D/G from local panel. OR "C/R" to operate D/G from Control Room.	The operator rotates the "1B D/G Mode Select" switch counter-clockwise to C/R for the 1B D/G.		
2	(Step 3.3) If D/G is operating Unloaded,…..	The operator observes Emergency Breaker status (Red light LIT) and determines that the D/G is not running unloaded.		
3	(Step 3.4) IF D/G is carrying 1ETB separated from the Duke Grid, parallel D/G to Grid as follows: (Step 3.4.1) Check "Line Volts" 3960-4360 V.	The operator observes Normal and Emergency Breaker status and determines that the D/G is separated from the Duke Grid. The operator observes Line Volts Meter at ≈4125V.		
*4	(Step 3.4.2) Match D/G with line voltage using "1B D/G Volt Adjust."	The operator rotates "1B D/G Volt Adjust" switch clockwise and/or counterclockwise as necessary and voltage meters indicate the same.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*5	(Step 3.4.3) Place the “1B D/G Sync Switch” to “ON.”	The operator rotates the 1B D/G Sync Scope Switch to ON. The operator observes synch scope meter dial is NOT moving or moving slowly in the SLOW direction.		
6	(Note prior to Step 3.4.4) As a guide, have synchroscope traveling no faster than one revolution in 20 seconds.	The operator reads the NOTE and proceeds.		
*7	(Step 3.4.4) Using "1B D/G Gov Control," adjust D/G speed to allow synchroscope to move slowly and smoothly in "FAST" direction.	The operator depresses the RAISE/LOWER pushbutton causing the synchroscope to move slowly in the FAST direction.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*8	(Step 3.4.5) IF desired to align 1ETB to normal supply (1ATD), perform the following: (Notes prior to Step 3.4.5.1): • D/G load will drop to 0 amps when bus is paralleled to Duke Grid. • D/G load shall be quickly raised after breaker closed to prevent reverse power condition. IF a reverse power condition occurs, the D/G Emergency Breaker will trip after a short time delay. • Steps 3.4.5.1 and 3.4.5.2 may be completed and then signed off as time allows. (Step 3.4.5.1) HOLD until synchroscope pointer is within 3 minutes before the 12 o'clock position, THEN firmly depress and release "CLOSE" on "1ETB Normal Breaker."	The operator determines from initial conditions that it is desired to align 1ETB to 1ATD. The operator reads the NOTES and proceeds. The operator observes pointer is 3 minutes before vertical, then depresses the 1ETB Normal Breaker CLOSE pushbutton and observes Red Status light is LIT.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*9	(Step 3.4.5.2) Perform concurrently: Quickly raise D/G load to 800 - 1000 KW using "1B D/G Gov Control." Adjust power factor to 0.9 – 0.92 lagging using "1B D/G Voltage Adjust."	The operator presses Raise pushbutton and observes KW meter indicates 800-1000KW. The operator rotates Voltage Adjust handle and observes meter indication reads 0.9 Lagging.		
10	(Step 3.4.5.3) Place “1B D/G Sync Switch” to “OFF.”	The operator turns the 1B D/G Sync scope to OFF.		
11	(Step 3.4.5.4) Evaluate offsite power operability.	The operator has the CRS sign for offsite power operability. **Cue:** **As CRS, initial Step 3.4.5.4.**		
12	(Step 3.4.5.5) Go to Step 3.5.9.	The operator proceeds to Step 3.5.9.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	(Step 3.5.9) HOLD for 10 minutes	The operator waits for 10 minutes. **Cue:** **Using TIME COMPRESSION the 1B D/G has been at 800-1000 KW for 10 minutes.**		
*14	(Step 3.5.10) Perform the following: (Step 3.5.10.1) Lower D/G load to less than 200 KW using “1B D/G Gov Control.”	The operator depresses the 1B D/G Gov Control LOWER pushbutton until load meter indicates < 200 KW. The operator observes that meter indicates 200KW.		
*15	(Step 3.5.10.2) Open “1ETB Emergency Breaker.”	The operator depresses the 1ETB Emergency Breaker OPEN pushbutton and observes the Green Status light is LIT.		
16	(Note prior to Step 3.6) IF D/G has been loaded less than full load (3600 - 4000 kW) for an extended event, performing a full load run for 1 hour essentially reconfirms McGuire Tech Spec SR 3.8.1.3 AND conforms to industry practices.	The operator reads the Note and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17	(Step 3.6) IF D/G started due to EP/AP actions and remains unloaded, notify Station Management that loading D/G at full load (3600-4000 KW) for greater than one hour at a later time should be performed to clean injector tips.	The operator recognizes that the D/G started due to EP/AP actions and loaded, and recognizes that this Step is NA.		
18	(Step 3.7) Ensure D/G operates unloaded for 15 minutes.	**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.: 2015 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: _____

INITIAL CONDITIONS:

- The station experienced a Loss of Off-Site Power 10 hours ago, resulting in a Unit 1 Reactor Trip from 100% power (Unit 2 is in No Mode during a full core off-load).
- Both the 1A and 1B, as well as the 2A and 2B Standby Diesel Generators automatically started and re-powered their respective essential busses.
- The Unit 1 Control Room staff entered E-0, Reactor Trip or Safety Injection, and after verifying that Safety Injection was NOT necessary, transitioned to ES-0.1, Reactor Trip Response.
- U-2 Off-Site Power was restored within 2 hours, and the Unit 2 Control Room staff has restored normal power to the essential 4160 volt busses, and shutdown the Diesel Generators.
- The Unit 1 Control Room has responded per AP/1/A/5500/07 (Loss of Electrical Power) Case I (Loss of Normal Power to Both 1ETA and 1ETB).
- Normal power will not be restored to 1ETA due to an electrical fault on the 1ATC Transformer.
- The Emergency Coordinator has indicated that 1ETB can now be restored to normal power via the 1ATD Transformer from the Control Room.

INITIATING CUE:

The CRS has directed you to restore 1ETB to normal power and separate the 1B D/G from the Grid from the Control Room per OP/1/A/6350/002 (Diesel Generator), Enclosure 4.4 (1B D/G Shutdown).

IN-PLANT JPM I

Facility:	McGuire	Task No.:	
Task Title:	Start the Hydrogen Analyzers	JPM No.:	2015 Systems – In-Plant JPM I
K/A Reference:	069 AA1.03 (2.8/3.0)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), Key 172 and Handout 1.

Initial Conditions:	• Unit 1 has tripped from 100% power due to an accident. • The crew is currently in EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure). • The crew is currently checking Containment Hydrogen Concentration.
Initiating Cue:	The CRS has directed you to place the Hydrogen Analyzers in service in accordance with Enclosure 5 (Placing H_2 Analyzers In Service) of EP/1/A/5000/G-1 (Generic Enclosures).
Task Standard:	The operator will place the 1A Hydrogen Analyzer in service.
Required Materials:	PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.) KEY #172 (Key 178 will be Simulated)
General References:	EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure), Rev 19 EP/1/A/5000/G-1 (Generic Enclosures), Rev 37

Handouts: Handout 1: Enclosure 5 (Placing H_2 Analyzers In Service) of EP/1/A/5000/G-1 (Generic Enclosures).

Time Critical Task: NO

Validation Time: 20 minutes

NOTE: The Examiner will need to sign out Key 172 from the WCC ahead of time.

Critical Step Justification	
Step 2	This step is critical because going to the 1MICA 6851 1A VX HYDROGEN ANALYZER REMOTE CABINET is necessary to place the 1A Hydrogen Analyzer in service.
Step 3	This step is critical because using Key 172 to Open the 1MICA 6851 1A VX HYDROGEN ANALYZER REMOTE CABINET is necessary to place the 1A Hydrogen Analyzer in service.
Step 4	This step is critical because is placing Key 178 in the “ISOLATION VALVES OPEN” switch, and rotating the switch clockwise is necessary to place the 1A Hydrogen Analyzer in service.
Step 6	This step is critical because rotating the "HYDROGEN ANALYZER SAMPLE ENABLE SWITCH" clockwise is necessary to place the 1A Hydrogen Analyzer in service.
Step 7	This step is critical because rotating the "HYDROGEN ANALYZER SAMPLE SELECT" switch counter-clockwise is necessary to place the 1A Hydrogen Analyzer in service.
Step 8	This step is critical because pressing the "OFF" PB for “SAMPLE ROUTED TO PAMS PANEL” switch is necessary to place the 1A Hydrogen Analyzer in service.
Step 9	This step is critical because rotating the “OFF-STANDBY /ANALYZE” switch clockwise is necessary to place the 1A Hydrogen Analyzer in service.
Step 10	This step is critical because pressing the "LOCAL/REMOTE SELECTOR" pushbutton is necessary to place the 1A Hydrogen Analyzer in service.
Step 12	This step is critical because rotatin the “FUNCTION SELECTOR” counterclockwise is necessary to place the 1A Hydrogen Analyzer in service.

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), Key 172 and Handout 1.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Step 1) Obtain one key 172 and two keys 178 from "Unit 1 EP/AP Keys" on Unit 1 BOP desk.	The operator recognizes that the required Keys have been obtained and proceeds. **Cue:** **The Use of the 178 Keys will be <u>simulated</u> during this JPM.**		
*2	(Step 2) Start 1A H_2 Analyzer as follows: (Step 2.a) Proceed to "1MICA 6851 1A VX HYDROGEN ANALYZER REMOTE CABINET (750' elevation in cable spreading room).	The operator proceeds to cabinet.		
*3	(Step 2.b) Use key 172 to access remote panel.	The operator uses Key 172 to Open Cabinet.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*4	(Step 2.c) Inside remote panel, use key 178 to place “ISOLATION VALVES OPEN” switch to “ON”.	The operator places Key 178 in the “ISOLATION VALVES OPEN” switch, and rotates the switch clockwise (Simulates). **Cue:** **The Switch is in the ON position.**		
5	(Step 2.d) Check "POWER ON" light above “ISOLATION VALVES OPEN” switch – LIT.	The operator observes the “POWER ON" light. **Cue:** **The POWER ON light is LIT.**		
*6	(Step 2.e) Place "HYDROGEN ANALYZER SAMPLE ENABLE SWITCH" to "SAMPLE".	The operator rotates the "HYDROGEN ANALYZER SAMPLE ENABLE SWITCH" clockwise. **Cue:** **The Switch is in SAMPLE.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*7	(Step 2.f) Select sample location as follows: (Step 2.f.1) Place "HYDROGEN ANALYZER SAMPLE SELECT" switch to “UPPER CONT” (Step 2.f.2) Check “POWER ON” light for selected location - OFF	The operator rotates the "HYDROGEN ANALYZER SAMPLE SELECT" switch counter-clockwise. **Cue:** **The Switch is in UPPER CONT.** The operator observes the “POWER ON" light. **Cue:** **The POWER ON light is OFF.**		
*8	(Step 2.g) Depress "OFF” pushbutton on “SAMPLE ROUTED TO PAMS PANEL” switch.	The operator presses the "OFF" PB for “SAMPLE ROUTED TO PAMS PANEL” switch.		
*9	(Step 2.h) Place “OFF-STANDBY/ANALYZE” switch to "ANALYZE"	The operator rotates the “OFF-STANDBY /ANALYZE” switch clockwise. **Cue:** **The Switch is in Analyze.**		
*10	(Step 2.i) Depress "LOCAL/REMOTE SELECTOR" pushbutton.	The operator presses the "LOCAL/REMOTE SELECTOR" pushbutton.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	(Step 2.j) Ensure "H2 DUAL RANGE SW" is in 0-30% range.	The operator observes the position of the "H2 DUAL RANGE SW". **Cue:** **The Switch is in the 0-30% range.**		
*12	(Step 2.k) Place "FUNCTION SELECTOR" to "SAMPLE".	The operator rotates the "FUNCTION SELECTOR" counterclockwise. **Cue:** **The Function Selector is in the SAMPLE position.**		
13	(Step 2.l) Do not continue until 5 minutes have elapsed.	The operator waits for five minutes. **Cue:** **Using Time Compression, five minutes have elapsed.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	(Step 2.m) IF “COMMON ALARM” lit, THEN perform the following: (Note prior to Step 2.m.1) A low gas flow condition may be causing the "COMMON ALARM" and may clear itself once condensation is removed from the sample line. (Step 2.m.1) Depress "ALARM RESET". (Step 2.m.2) IF "COMMON ALARM" clears, THEN GO TO Step 2.n.	The operator observes the COMMON ALARM. **Cue:** **The COMMON ALARM light is LIT.** The operator reads the NOTE, and proceeds. The operator presses the "ALARM RESET" pushbutton and observes the COMMON ALARM. **Cue:** **The COMMON ALARM light is CLEAR.** The operator proceeds to Step 2.n.		
15	(Step 2.n) Notify control room that 1A H2 Analyzer is in service.	The operator calls the control room and reports. **Cue:** **As the BOP, acknowledge report.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	(Step 3) Start 1B H2 Analyzer as follows.....	The operator starts to place the 1B Hydrogen Analyzer in service. **Cue:** **Another Operator will start 1B H2 Analyzer and complete the Enclosure.**		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 Systems – In-Plant JPM I

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- Unit 1 has tripped from 100% power due to an accident.
- The crew is currently in EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure).
- The crew is currently checking Containment Hydrogen Concentration.

INITIATING CUE:

The CRS has directed you to place the Hydrogen Analyzers in service in accordance with Enclosure 5 (Placing H_2 Analyzers In Service) of EP/1/A/5000/G-1 (Generic Enclosures).

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

IN-PLANT JPM J

Facility:	McGuire	Task No.:	
Task Title:	Transfer of 1EMXA-4 To SSF During A Loss Of All AC on Unit 1	JPM No.:	2015 Systems – In-Plant JPM J
K/A Reference:	055 EA2.04 (3.7/4.1)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:
- A Station Blackout has occurred at Unit 1.
- The crew is currently in EP/1/A/5000/ECA-0.0 (Loss of All AC Power).
- The CRS has dispatched an operator to the SSF to complete Enclosure 2 (Unit 1 SSF ECA-0.0 Actions).

Initiating Cue: The CRS has directed you to perform Enclosure 3 (Unit 1 ETA and ETB Rooms - ECA-0.0 Actions).

A PORTION OF THIS JPM IS TIME CRITICAL

Task Standard: The operator will transfer 1EXMA-4 to its alternate power supply within 4 minutes from dispatch (Start of the JPM), and identify that the 1ETA-2 Lockout Relay has tripped.

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

General References: EP/1/A/5000/ECA-0.0 (Loss of All AC Power), Rev 35

PT/0/A/4600/113 (Operator Time Critical Task Verification), Rev 19

Handouts: Handout 1: Blank Copy of Enclosure 3 (Unit 1 ETA and ETB Rooms - ECA-0.0 Actions).

Time Critical Task: **Yes - 4 Minutes from time of dispatch**

Seal injection from standby makeup pump can be initiated within 10 minutes of a loss of all AC power event or an App R fire event. This requires completion of actions at SSF to start SBMUP within 7 minutes of dispatch, and completion of actions in ETA room to swap EMXA-4 within 4 minutes of dispatch. (This ensures NV valve controls are swapped to SSF prior to operator at SSF aligning SBMUP. After dispatch, it takes 1 minute to get dosimetry and leave control room through side door, and 3 additional minutes from aux bldg door at MG set room to perform local action. Valve control will then be swapped to SSF 2 minutes before the operator at SSF must align and start SBMUP).

NOTE: Dispatch id from Aux Bldg side of CAD Door 509

Validation Time: 10 minutes

Critical Step Justification	
Step 2	This step is critical because rotating the 1EMXA4-1A Breaker counterclockwise is necessary to transfer 1EXMA-4 to its alternate power supply within 4 minutes from dispatch.
Step 3	This step is critical because removing the Kirk Key from the 1EMXA4-1A Breaker is necessary to transfer 1EXMA-4 to its alternate power supply within 4 minutes from dispatch.
Step 4	This step is critical because inserting the Kirk Key in Breaker 1EMXA4-3A and rotating the 1EMXA4-3A Breaker clockwise is necessary to transfer 1EXMA-4 to its alternate power supply within 4 minutes from dispatch.
Step 5	This step is critical because observing the 1ETA-2 Breaker and interpreting the meaning of the Breaker Handle is pointing towards 2 O'clock and an ORANGE target is visible at 12 O'clock is necessary to identify that the 1ETA-2 Lockout Relay has tripped.

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

START TIME: _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	(Notes prior to Step 1) The fastest pathway to 1ETA room from Control Room is: Exit Fire Door 926A (CAD 507) (Unit 1 Submarine Door to C/R Electrical Pen Rm; Elev. 767). Emergency egress Fire Door 925E (CAD 509) (C/R Electrical Pen Rm; Elev. 767; Door to Unit 1 aux bldg stairway). Enter cable room (from stairwell). Enter 1ETA room through swgr AHU room.	The operator reads the Notes and proceeds.		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	(Step 1) At 1EMXA4 (located north wall 1ETA room), swap 1EMXA4 to its alternate power supply (SMXG) as follows: (Caution prior to Step 1.a) It may be necessary to apply pressure on the breaker rotary switch in the counterclockwise direction while opening the kirk key device(s).	The operator reads the Caution, and proceeds.		
*	(Step 1.a) Open breaker 1EMXA4-1A (1EMXA4 Incoming Bkr (Normal) From 1EMXA2 MCC).	The operator rotates the 1EMXA4-1A Breaker counterclockwise. **Cue:** **The Breaker is rotated counterclockwise.**		
*3	(Step 1.b) Remove kirk key from 1EMXA4-1A.	The operator removes the Kirk Key from the 1EMXA4-1A Breaker. **Cue:** **The Kirk Key is removed.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*4	(Step 1.c) Use kirk key and close breaker 1EMXA4-3A (1EMXA4 Incoming Bkr (Alternate) From SMXG MCC).	The operator inserts the Kirk Key in Breaker 1EMXA4-3A. **Cue:** **The Kirk Key is inserted.** The operator rotates the 1EMXA4-3A Breaker clockwise. **Cue:** **The Breaker is rotated clockwise.** **Stop Time for Time Critical Step:** ----------		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*5	(Step 2) Check for tripped lock-out relays on the following cabinets in 1ETA Room: • 1ETA-1 (Normal Incoming Bkr From 1ATC Xfmr (6900/4160v)) • 1ETA-2 (Alternate Incoming Bkr From SATA Xfmr (6900/4160v)) • 1ETA-15 (1A Diesel Generator Auxiliary Instrumentation for 1ETA-14) • 1ERNCADGRC1A (D/G Relay Cabinet 1A).	The operator observes the 1ETA-1 Breaker. **Cue:** **The 1ETA-1 Breaker Handle is pointing UP with target visible.** The operator observes the 1ETA-2 Breaker. **Cue:** **The 1ETA-2 Breaker Handle is pointing towards 2 O'clock and an ORANGE target is visible at 12 O'clock.** The operator determines that the 1ETA-2 Lockout Relay is tripped. The operator observes the 1ETA-15 Breaker. **Cue:** **The 1ETA-15 Breaker Handle is pointing UP with target visible.** The operator observes the 1ERNCADGRC1A Breaker. **Cue:** **The 1ERNCADGRC1A Breaker Handle is pointing UP with target visible.**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	(Step 3) Check for tripped lock-out relays on the following cabinets in 1ETB Room: • 1ETB-1 (Normal Incoming Bkr From 1ATD Xfmr (6900/4160v)) • 1ETB-2 (Alternate Incoming Bkr From SATB Xfmr (6900/4160v)) • 1ETB-15 (1B Diesel Generator Auxiliary Instrumentation for 1ETB-14) • 1ERNCADGRC1B (D/G Relay Cabinet 1B).	The operator proceeds to the 1ETB Room. **Cue:** **Another operator has checked the relays in 1ETB and reports to you that none are tripped.**		
7	(Step 4) Notify Control Room Supervisor status of relays checked above.	The operator uses radio or phone to inform CRS that ONLY the 1ETA-2 Lockout Relay (Alternate Incoming Bkr From SATA Xfmr (6900/4160v)) is tripped. **Cue:** **CRS acknowledges message and directs you to return to the control room.**		

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

STOP TIME: _____ **TIME CRITICAL STOP TIME:** _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 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: _____

INITIAL CONDITIONS:

- A Station Blackout has occurred at Unit 1.
- The crew is currently in EP/1/A/5000/ECA-0.0 (Loss of All AC Power).
- The CRS has dispatched an operator to the SSF to complete Enclosure 2 (Unit 1 SSF ECA-0.0 Actions).

INITIATING CUE: The CRS has directed you to perform Enclosure 3 (Unit 1 ETA and ETB Rooms - ECA-0.0 Actions).

A PORTION OF THIS JPM IS TIME CRITICAL

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

IN-PLANT JPM K

Facility:	McGuire	Task No.:	
Task Title:	Manually Fail Open 2SA-48ABC and 2SA-49AB	JPM No.:	2015 Systems – In-Plant JPM K
K/A Reference:	E05 EA1.1 (4.1/4.0)		

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.

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM and Handout 1.

Initial Conditions:	• Unit Two was at 100% power when a spurious Feedwater Isolation signal caused a Reactor trip. • The 2A CA pump is tagged out for motor replacement. • The 2B CA pump started and tripped on overload. • The crew has transitioned from EP/2/A/5000/E-0 to EP/2/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink). • They are at step 7.d when the BOP notices the TDCAP is not running. • Both 2SA-48ABC and 2SA-49AB are closed.
Initiating Cue:	The CRS has directed you to fail the air supplies to 2SA-48ABC and 2SA-49AB per EP/2/A/5000/FR-H.1, RNO's 7.d.1 and 7.d.2.
Task Standard:	The operator will ensure that the Air supply valves to 2SA-48ABC and 2SA-49AB are closed, and that their associated regulator petcocks are opened.
Required Materials:	PPE (Hardhat, Safety Glasses, Hearing Protection, Safety Shoes etc.)

General References: EP/2/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink), Rev 21

Handouts: Handout 1: Blank Copy of Page 4 of 123 of EP/2/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink).

Time Critical Task: NO

Validation Time: 10 minutes

Critical Step Justification	
Step 1	This step is critical because rotating the 2VI-2046 in the clockwise direction, rotating the bleed knob clockwise, and observing the 2SA-48ABC valve stem, and interpreting the meaning of stem position and the sound of steam flow is necessary to ensure that the Air supply valves to 2SA-48ABC is closed, and that its associated regulator petcocks are opened.
Step 2	This step is critical because rotating the 2VI-2047 in the clockwise direction, rotating the bleed knob clockwise, and observing the 2SA-49AB valve stem, and interpreting the meaning of stem position and the sound of steam flow is necessary to ensure that the Air supply valves to 2SA-49AB is closed, and that its associated regulator petcocks are opened.

(Denote Critical Steps with an asterisk*)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

START TIME: _____

STEPS	ELEMENTS	TANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	(Step 7.d RNO d) Perform the following as necessary: (Step 7.d RNO d.1) IF 2SA-48ABC (SM From S/G C To TD CA Pump Isol) is closed, THEN dispatch operator to fail air as follows: (Step 7.d RNO d.1.a) CLOSE 2VI-2046 (Unit 2 VI Pilot Air to 2SA-48ABC Isol) (Unit 2 Interior Doghouse, 767+5, west of column EE-60). (Step 7.d RNO d.1.b) Bleed air at associated air regulator.	The operator rotates the 2VI-2046 in the clockwise direction. **Cue:** **The Handle is rotated clockwise.** The operator rotates the bleed knob clockwise. **Cue:** **The sound of air is heard venting from the valve operating cylinder; and then stops.** The operator observes the 2SA-48ABC valve stem. **Cue:** **The valve has moved to the OPEN position, and the sound of steam flow is heard.**		

STEPS	ELEMENTS	TANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*2	(Step 7.d RNO d) Perform the following as necessary: (Step 7.d RNO d.2) IF 2SA-49AB (SM From S/G B to TD CA Pump Isol) is closed, THEN dispatch operator to fail air as follows: (Step 7.d RNO d.2.a) CLOSE 2VI-2047 (Unit 2 VI Pilot Air to 2SA-49AB Isol) (Unit 2 Interior Doghouse, 767+7, east of column EE-59). Bleed air at associated air regulator.	The operator rotates the 2VI-2047 in the clockwise direction. **Cue:** **The Handle is rotated clockwise.** The operator rotates the bleed knob clockwise. **Cue:** **The sound of air is heard venting from the valve operating cylinder; and then stops.** The operator observes the 2SA-49AB valve stem. **Cue:** **The valve has moved to the OPEN position.**		

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2015 Systems – In-Plant JPM K

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- Unit Two was at 100% power when a spurious Feedwater Isolation signal caused a Reactor trip.
- The 2A CA pump is tagged out for motor replacement.
- The 2B CA pump started and tripped on overload.
- The crew has transitioned from EP/2/A/5000/E-0 to EP/2/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink).
- They are at step 7.d when the BOP notices the TDCAP is not running.
- Both 2SA-48ABC and 2SA-49AB are closed.

INITIATING CUE:

The CRS has directed you to fail the air supplies to 2SA-48ABC and 2SA-49AB per EP/2/A/5000/FR-H.1, RNO's 7.d.1 and 7.d.2.

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