JOB PERFORMANCE MEASURE

Job Position RO	No. JP-OP-315-0004-002	Revision 0
JPM Title Start A Reactor Recirc Pump At Power (Alt Path)	Duration 15 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: __Jason Vanbrunt_____

JPM Type: Normal / **Alternate Path /** Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.				12.				23.			
*** 2.**				13.				***24.**			
3.				14.							
4.				***15.**							
5.				16.							
6.				***17.**							
7.				***18.**							
*** 8.**				19.							
9.				***20**.							
10.				21.							
11.				22.							

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Information

System:

B3100 - Reactor Recirculation System

Task:

02B3100044 – Returning to two Recirc Loop Operation at power

References: Required (R) / Available (A)

23.138.01, "Reactor Recirculation System" (R)
ARP 3D138 (R)

Tools and Equipment Required:

N/A

Initial Conditions:

- The plant is operating in single loop with the South Recirc Pump running
- The North Recirc Pump was removed from service for emergent maintenance, and is now ready to be returned to service

Initiating Cue(s):

The CRS directs you to start the North Reactor Recirculation Pump in accordance with 23.138.01, Section 8.0

- All section 8.1 prerequisites are met
- Procedure steps 8.2.1 through 8.2.8 are complete

Terminating Cue(s):

Reactor Recirculation MG Set A is tripped IAW ARP 3D138

Task Standard:

Reactor Recirculation MG Set A is started IAW 23.138.01, then tripped IAW ARP 3D138 following loss of cooling to motor bearings

Licensed Operator Exam Information (Required for NRC Exams Only)

Safety Function:

Safety Function 1 – Reactivity Control

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 202001 - Recirculation System
K/A STATEMENT:
A4. Ability to manually operate and/or monitor in the control room:
A4.01 Recirculation Pumps..... 3.7 / 3.7

Maintenance Rule Safety Classification:

B3100-05

Maintenance Rule Risk Significant? (Yes or No)

No

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide the examinee the Cue Sheet and a copy of 23.138.01 section 8.0 with procedure place keeping complete thru 8.2.9** **If asked, the evaluator will act as the peer checker and reactivity management SRO**		
1.	[8.2.9] For the North (South) RR MG Set to be started, verify the following (COP H11 P603): • Lockout Bus A (B) red POWER AVAILABLE light is on • Generator A (B) Field Breaker is open by Trip Coil #1 and Trip Coil #2 white TRIPPED lights on	1.	Verifies the following at P603: • Lockout Bus A red POWER AVAILABLE light is on • Generator A Field Breaker is open by Trip Coil #1 and Trip Coil #2 white TRIPPED lights on
*** 2.**	[8.2.10] For the North (South) RR MG Set to be started, at B31-P003A (B), Rx Recirc Pump MG Set A (B) Auxiliary Relay Cubicle, perform the following (RB4-A13 and RB4-A11, respectively): • Reset any protective relay targets and Generator Lockout Relay. • Verify, white GENERATOR LOCKOUT light is off	* **2**.	Directs N.O. to perform the following at the North Recirc Pump MG set Aux Relay Cubicle: • Reset any protective relay targets and Generator Lockout Relay. • Verify, white GENERATOR LOCKOUT light is off
CUE:	**As N.O., acknowledge direction**		
BOOTH OPERATOR:	**When direction is given to N.O. TRIGGER lesson "RRMG A Lockout Reset" step**		
CUE:	**As N.O, report that all relay targets have been reset and the GENERATOR LOCKOUT light is OFF**		
3.	[8.2.11] Verify 3D135 (3D159), RECIRC SYS A (B) GEN LOCKOUT RELAY TRIPPED, is clear	3.	Verifies 3D135 is clear
4.	[8.2.12.1] Verify 3D129, RECIRC A & B FLOW LIMITER 2/3 DEFEATED, is in alarm	4.	Verifies 3D129 is in alarm
5.	[8.2.12.2] If available, yellow LIMITER 2/3 DEFEATED, boxes for RR MG Sets A and B are visible on C32-K816, FW & RR Flat Panel Display	5.	Verifies yellow LIMITER 2/3 DEFEATED, boxes for RR MG Sets A and B are visible on C32-K816, FW & RR Flat Panel Display
6.	[8.2.12.3] If C32-K816, FW & RR Flat Panel Display, is unavailable, simultaneously push Recirc Runback Reset A RESET and Recirc Runback Reset B RESET pushbuttons	6.	Determines step 8.2.12.3 is N/A

ELEMENT	STANDARD
7. [8.2.12.4] If C32-K816, FW & RR Flat Panel Display, is available, perform the following: a. Verify the following RR Limiters are clear. Otherwise, proceed to Step b or c, as applicable. 1) Red LIMITER 2, boxes for RR MG Sets A and B are clear. 2) Red LIMITER 3, boxes for RR MG Sets A and B are clear. b. If LIMITER 2 boxes for RR MG Set A and B are not clear, perform the following: 1) Push Recirc Runback Reset A RESET pushbutton and verify RR Limiter 2 for North RR MG set is reset as follows: a) Red LIMITER 2, box for RR MG Set A is clear on C32 K816, FW & RR Flat Panel Display. 2) Push Recirc Runback Reset B RESET pushbutton and verify RR Limiter 2 for South RR MG Set is reset as follows: a) Red LIMITER 2, box for RR MG Set B is clear on C32 K816, FW & RR Flat Panel Display. c. If LIMITER 3 boxes for RR MG Set A and B are not clear, perform the following: 1) Simultaneously push both Recirc Runback Reset A RESET and Recirc Runback Reset B RESET pushbuttons and verify RR Limiter 3 for North and South RR MG Sets are reset as follows: a) Red LIMITER 3, boxes for RR MG Set A and B are clear on C32-K816, FW & RR Flat Panel Display	7. Verifies the following RR Limiters are clear: ☐ Red LIMITER 2, boxes for RR MG Sets A and B are clear. ☐ Red LIMITER 3, boxes for RR MG Sets A and B are clear. • Determines steps b and c are N/A
*** 8.** [8.2.13.1] Turn Scoop Tube A (B) Brake switch to RESET, then release	*** 8.** Turns Scoop Tube A Brake switch to RESET, then releases

9.	[8.2.13.2] Verify 3D112 (3D136), RECIRC SYS A (B) FLUID DRIVE SCOOP TUBE LOCK, is clear	9.	Verifies 3D112 is clear
10.	[8.2.13.3] If available, red DRIVE LOCKED, box for RR MG Set A (B) is clear on C32-K816, FW & RR Flat Panel Display	10.	Verifies red DRIVE LOCKED, box for RR MG Set A is clear
11.	[8.2.13.4] Push Recirc Pump Vib Switch Reset A (B) pushbutton	11.	Pushes Recirc Pump Vib Switch Reset A (B) pushbutton
12.	[8.2.13.5] Verify 3D138 (3D162), RECIRC PMP A (B) MOTOR VIBRATION HIGH, is clear	12.	Verifies 3D138 is clear
13.	[8.2.14.1] Raise Turbine Speed/Load demand at least 100 MWe greater than actual	13.	Verifies Turbine Speed/Load demand is at least 100 MWe greater than actual
14.	[8.2.14.2] Raise Turbine Flow Limiter at least 10% greater than actual	14.	Verifies Turbine Flow Limiter is at least 10% greater than actual
***15.**	[8.2.15] Record information required by Enclosure D, Logging Requirements for RR Pump Startup	*1**5.**	Records applicable information on Enclosure D, Logging Requirements for RR Pump Startup
CUE:	**Provide examinee with a copy of 23.138.01 enclosures C & D**		
16.	[8.2.16] Comply with Technical Specifications, Section 3.4.10, "RCS Pressure and Temperature (P/T) Limits." (SR 3.4.10.3, SR 3.4.10.4, SR 3.4.10.5 and SR 3.4.10.6)	16.	Requests CRS review TS 3.4.10 for compliance
CUE:	**As CRS, report that you have verified compliance with TS 3.4.10**		
***17.**	[8.2.17] Close or verify closed B3105-F031A (B), N (S) RR Pump Discharge Vlv, for the pump to be started	***17**.	Closes B3105-F031A, N RR Pump Discharge Vlv
CUE:	**If asked, North RR MG Set fluid drive oil temp is >80ºF**		
CUE:	**If asked, the SNE has verified the correct control rod configuration**		
NOTE:	**The examinee should read step 8.2.19 prior to performing step 8.2.18**		
***18.**	[8.2.18] Start North (South) RR MG Set	***18.**	Places the North RR MG Set CMC switch to RUN

19. [8.2.19] Observe the following during start: 1. North (South) RR MG Set ammeter increases momentarily to full scale. 2. North (South) RR MG Set speed increases to approximately 80% indicated on B31-R621A (B), North (South) RR MG Set Gen Speed Controller process variable (PV) or, if available, on C32-K816, FW & RR Flat Panel Display. 3. North (South) RR MG Set Field Breaker closes approximately 6 seconds after RR MG Set start. 4. North (South) RR MG Set ammeter decreases to approximately 320 amps. 5. B3105-F031A (B), N (S) RR Pump Discharge Vlv, jogs open. 6. Verify North (South) RR MG Set speed is approximately 28% indicated on B31-R621A (B), North (South) RR MG Set Gen Speed Controller process variable (PV) or if available, on C32-K816, FW & RR Flat Panel Display	19. Observes the following during start: ☐ North RR MG Set ammeter increases momentarily to full scale. ☐ North RR MG Set speed increases to approximately 80% indicated on B31-R621A, North RR MG Set Gen Speed Controller process variable (PV) or, if available, on C32-K816, FW & RR Flat Panel Display. ☐ North RR MG Set Field Breaker closes approximately 6 seconds after RR MG Set start. ☐ North RR MG Set ammeter decreases to approximately 320 amps. ☐ B3105-F031A, N RR Pump Discharge Vlv, jogs open. ☐ Verify North RR MG Set speed is approximately 28% indicated on B31-R621A, North RR MG Set Gen Speed Controller process variable (PV) or if available, on C32-K816, FW & RR Flat Panel Display
Alternate Path Begins Here	
Note: Annunciator 3D138 will alarm 1 minute after the North Recirc pump is started	
***20**. Respond to annunciator 3D138	***20.** Acknowledges 3D138, reports alarm to CRS and reviews ARP 3D138
CUE: Aa CRS, acknowledge report and provide examinee with a copy of 3D138	

21. [1] Monitor the following Recirc Pump A Motor temperatures on IPCS: • B31-N380A, Recirc Pump A Motor Upper Thrust Bearing (IPCS Point B31DT2106) • B31-N381A, Recirc Pump A Motor Lower Thrust Bearing (IPCS Point B31DT2109) • B31-N382A, Recirc Pump A Motor Upper Guide Bearing (IPCS Point B31DT2110) • B31-N383A, Recirc Pump A Motor Lower Guide Bearing (IPCS Point B31DT2111	21. Monitors Recirc Pump A Motor temperatures on IPCS
22. [2] Attempt to reset alarm by depressing RECIRC PUMP VIB SWITCH RESET A pushbutton	22. Depresses RECIRC PUMP VIB SWITCH RESET A pushbutton
23. [3] Direct an operator to check and report vibration amplitudes at the local vibration monitor (RB1-D17, inside H21-P336, IPCS I/O Cabinet)	23. Directs N.O. to check and report vibration amplitudes
CUE: As N.O., acknowledge direction	
***24.** [4] **IF** vibration alarm is received in conjunction with a high temperature alarm on Recirc Pump A, Bearing Oil Cooling Water, Point 4, trip B3103-S001A, North RR MG Set	***24** Responds to the high temperature alarm on B31-R601 (P603), "Recirc System Coolant Temps" recorder POINT 4 "RRP A MTR" and **TRIPS** the North RR MG Set by placing the CMC switch to OFF/RESET.
CUE: Terminate JPM when the North RR MG set is tripped.	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

JPM Title Start A Reactor Recirc Pump At Power (Alt Path)	No.: JP-OP-315-0004-002 Revision: 0 Page 9

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

None

System Specific Notes and Cues:

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

Any full power IC or pre-saved IC

Malfunctions:

Number	Title	Value	Delay	Ramp
C97MF0531	03D138 Recirc Pmp A Motor Vibration High Note 1	ACTIVE	1 min	0
B31MF0059	Recirc Pump A Motor Upper Brng Hi Temp Note 2	ACTIVE	2 min	0

Remote Functions:

Number	Title	Value	Delay	Ramp
B31RF0007	Generator A Lockout Relay Reset	RESET	0	0
B31RF0007	Generator A Lockout Relay Reset Note 3	NORMAL	3 sec	0

Override Functions:

Number	Title	Value	Delay	Ramp

Note 1: Activates 1 minute after N RR pump CMC switch placed in RUN

Note 2: Activates 2 minutes after N RR pump CMC switch placed in RUN

Note 3: Returns reset switch to NORMAL 3 seconds after reset

Special Instructions:

NOTE: A pre-saved IC may be used in place of these instructions

1. Place the simulator in RUN
2. Initiate single loop operation by stopping the North RR pump per applicable steps of 23.138.01 section 7.0 thru step 7.2.12
3. Execute and run lesson JP-OP-315-0004-002, and trigger the START step
4. Ensure power, pressure, and level stabilize, then freeze the simulator

Cue Sheet: (JP-OP-315-0004-002)

Initial Conditions:

- The plant is operating in single loop with the South Recirc Pump running
- The North Recirc Pump was removed from service for emergent maintenance, and is now ready to returned to service

Initiating Cue(s):

- The CRS directs you to start the North Reactor Recirculation Pump in accordance with 23.138.01, Section 8.0
- You have just attended a pre-job brief in the Control Room for this evolution
- All section 8.1 prerequisites are met

JOB PERFORMANCE MEASURE

Job Position RO	No. JP-OP-315-0108-001	Revision 2
JPM Title Maintain Reactor Water Inventory Using RWCU Blowdown Operation	Duration 10 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: _____Jason Vanbrunt_____

JPM Type: **Normal** / Alternate Path **/** Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.											
2.											
3.											
*** 4.**											
*** 5.**											
*** 6.**											
*** 7.**											

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /_____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Information

System:

G3300 – Reactor Water Cleanup System

Task:

02G3300006 – Blowdown using Reactor Water Cleanup

References: Required (R) / Available (A)

23.707, "Reactor Water Cleanup" (R)

Tools and Equipment Required:

None

Initial Conditions:

- You extra on shift LNO.
- The plant is in Mode 2 with a startup in progress

Initiating Cue(s):

The CRS directs you to align Reactor Water Cleanup to blowdown to the Main Condenser for RPV Water Level Control IAW SOP 23.707, section 8.2, and restore RPV water level to ~197".

- All step 8.2.1 prerequisites have been met
- RW HVAC is in service
- RWCU F/D A is in service
- RWCU F/D B is in Hold

Terminating Cue(s):

RWCU is aligned to blowdown to the main condenser.

Task Standard:

RWCU is aligned to blowdown to the main condenser IAW 23.707 section 8.2; then adjusted to mitigate rising RWCU F/D inlet temperature IAW 23.707

Licensed Operator Exam Information (Required for NRC Exams Only)

Safety Function:

2 – Reactor Water Inventory Control

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 204000 Reactor Water Cleanup System

K/A STATEMENT:

A4. Ability to manually operate and/or monitor in the control room:

A4.08 Reactor Water Level ..... 3.4 / 3.4

Maintenance Rule Safety Classification:

G3300-03

Maintenance Rule Risk Significant? (Yes or No)

Yes

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide Examinee with CUE SHEET.** **When examinee determines correct section of procedure, provide a copy of 23.707 to mark up.**		
1.	[8.2.2.1] RWHVAC in service per 23.411, "Radwaste Building Heating and Ventilation" or dose projection calculations shall be verified prior to transfers per ODCM 4.11.2.5.1	1.	Verifies per initial conditions that RWHVAC is in service.
2.	[8.2.2.2] Place one RWCU F/D in hold and leave one RWCU F/D in Auto prior to initiating blowdown	2.	Verifies per initial conditions that one RWCU F/D is in hold, and one is in service.
3.	[8.2.2.3] Close or verify closed G3300-F033, RWCU Blowdown FCV, using G33-R606, RWCU Blowdown FCV G3300-F033 Controller	3.	Verifies closed G3300-F033, RWCU Blowdown FCV, using G33-R606, RWCU Blowdown FCV G3300-F033 Controller.
*** 4.**	[8.2.2.4] Open G3352-F034, RWCU B/D To Cndr Iso Valve	*** 4.**	Opens G3352-F034, RWCU B/D To Cndr Iso Valve.
NOTE:	**Blowdown valve F033 will need to be fully open to establish lowering RPV level.**		
*** 5.**	[8.2.2.5.a] Slowly throttle open G3300-F033, RWCU Blowdown FCV, **and if Blowdown Flow is inadequate** Throttle closed G3352-F042, RWCU Return Iso Vlv, until a slight increase in flow is noted on G33-R602, RWCU Blowdown Flow Ind.	*** 5.**	Slowly throttles open G3300-F033, RWCU Blowdown FCV to establish blowdown flow. **and if Blowdown Flow is inadequate** Throttle closed G3352-F042, RWCU Return Iso Vlv, as necessary to establish an increase in flow on G33-R602.
*** 6.**	[8.2.2.5.b] Repeat the previous step until desired blowdown flow is attained, as indicated on G33-R602, RWCU Blowdown Flow Ind	*** 6.**	Continues to adjust blowdown flow until lowering RPV water level is noted.

*** 7.** [8.2.2.8] If RWCU F/D Inlet Temperature is approaching 130°F, perform the following to reduce blowdown flow: a. Slowly throttle close G3300-F033, RWCU Blowdown FCV, using G33 R606, RWCU Blowdown FCV G3300-F033 Controller, until a decrease is noted on G33-R602, RWCU Blowdown Flow Ind. b. Repeat the previous step until the desired flow is attained and Filter Demin Inlet Temperature is being maintained below 130°F.	*** 7.** Verifies channel 3 selected on G33-N601 RWCU Temp Selector Sw; recognizes temperature approaching or exceeding 130ºF, then slowly throttles closed G3300-F033 using G33-R605 adjustment knob until temperature is decreasing
CUE: Terminate JPM when G3300-F033 has been throttled closed, and RWCU F/D Inlet Temp is decreasing.	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating 25 amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Manual valves are checked in the closed direction (MOP02 and MOP05). Valve stem position may aid in valve position determination but cannot be used as Independent Verification (MOP02).

Ex.: Verify valve closed: "Valve handwheel indicates no valve movement in the clockwise direction."

Verify valve open: "Valve handwheel has been rotated slightly in the clockwise direction and returned to the original positions."

Closing a valve: "Valve handwheel has been rotated in the fully clockwise direction until no additional valve movement. Valve stem is down."

Opening a valve: "Valve handwheel has been rotated in the fully counterclockwise direction until no additional valve movement, valve stem is out."

System Specific Notes and Cues:

None

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

IC-194

Malfunctions:

Number	Title	Value	Delay	Ramp	Step

Remote Functions:

Number	Title	Value	Delay	Ramp	Step

Override Functions:

Number	Title	Value	Delay	Ramp	Step
H_P602_C024	RWCU Sys Temp Ind[1]	132	0	60	
H_P602_C024	RWCU Sys Temp Ind[2]	79	0	60	

Note 1: Ramps temp up to 132º over 60 sec when G3352-F042 close pushbutton is depressed

Note 2: Ramps temp down to 79º over 60 sec when G33-R606 meter drops below 97% (when knob is turned to throttle closed G3300-F033 less than 97% open) AND G3352-F042 green closed light is lit (F042 has previously been throttle closed)

Special Instructions:

1. Restore to IC 194
2. Open and execute lesson JP-OP-315-0108-001.lsn
3. Trigger the Start step
4. Set RWCU Temp Selector Switch to Channel 3
5. Allow the candidate to enter the simulator then start the JPM.

Cue Sheet: (JP-OP-315-0108-001)

Initial Conditions:

- You extra on shift LNO.
- The plant is in Mode 2 with a startup in progress

Initiating Cue(s):

The CRS directs you to align Reactor Water Cleanup to blowdown to the Main Condenser for RPV Water Level Control IAW SOP 23.707, section 8.2, and restore RPV water level to ~197".

- All step 8.2.1 prerequisites have been met
- RW HVAC is in service
- RWCU F/D A is in service
- RWCU F/D B is in Hold

JOB PERFORMANCE MEASURE

Job Position SRO / RO	No. JP-OP-315-0129-202	Revision 0
JPM Title Respond to Failure of Both RPV Pressure Regulators – Alt path	Duration 5 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO / NO

Evaluator: _____

Validating Representatives Name: _Jason Vanbrunt_____

JPM Type: Normal / **Alternate Path /** Time Critical

Evaluation Method: **Perform** / Walkthrough / Discuss

Location: Plant / **Simulator** / Classroom

Start Time _____

Stop Time _____

Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
*** 1.**				*** 5.**							
2.				*** 6.**							
*** 3.**				*** 7.**							
*** 4.**				*** 8.**							

OPERATOR FUNDAMENTALS OBSERVATION

Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.

Operator Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations	Comment Number
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS:

REMEDIAL CONTENT:

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ / _____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JOB PERFORMANCE MEASURE

JPM Title Respond to Failure of Both RPV Pressure Regulators – Alt path	No.: JP-OP-315-0129-202 Revision: 0 Page 3

JPM Information

System:

N3000 - Governor and Control System

Task:

Recognize, respond to, and correct Pressure Regulator Signal fails HIGH

References: Required (R) / Available (A)

20.109.02, Reactor Pressure Controller Failure (R)
ARP 4D91, Electric Governor Trouble (A)

Tools and Equipment Required:

None

Initial Conditions:

- You are the CRLNO
- The Reactor is at full power (100%)
- Plant conditions are as you see them

Initiating Cue(s):

Respond to plant conditions as required.

Terminating Cue(s):

End JPM when Reactor Mode Switch has been placed in SHUTDOWN, MS Bypass Valves and Main Turbine are tripped.

Task Standard:

Respond to annunciator 4D91 IAW ARP 4D91, diagnose Pressure Regulator #1 failure, and enter AOP 20.109.02. Adjust RPV pressure IAW 20.109.02 subsequent actions. Diagnose Pressure Regulator #2 failure and perform immediate actions of 20.109.02.

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

Safety Function 3: Reactor Pressure Control

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 241000 Reactor/Turbine Pressure Regulating System
K/A STATEMENT: A4. Ability to manually operate and/or monitor in the control room:
A4.02 Reactor pressure . . . . . 4.1* / 4.1*

Maintenance Rule Safety Classification:

N3012-01

Maintenance Rule Risk Significant? (Yes or No)

No

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide the examinee with Cue Sheet #1, place simulator in RUN when examinee is ready.** **NOTE: Failure of PR#1 occurs 30 seconds after simulator is placed in RUN.**		
*** 1.**	Respond to annunciator 4D91 IAW ARP 4D91	*** 1.**	Refers to ARP 4D91, diagnoses failure of Pressure Regulator #1 LOW, recognizes required entry into AOP 20.109.20, and reports to CRS
CUE:	• **Provide a copy of ARP 4D91 and 20.109.02 when required.** • **As CRS, acknowledge report, announce entry into 20.109.02, and ask examinee for evaluation of failure (if not previously reported)** • **When examinee reports PR#1 has failed LOW, direct CRLNO to perform subsequent actions for condition B.**		
2.	[B.1] Verify the following: • Backup Pressure Regulator takes control. • Indicated Pressure Regulator Setpoints are the same as before the failure. • Indicated Pressure controlling ~ 3.5 psi higher.	2.	Verifies: ☐ Backup Pressure Regulator takes control. ☐ Indicated Pressure Regulator Setpoints are the same as before the failure. ☐ Indicated Pressure controlling ~ 3.5 psi higher.
CUE:	**If asked, the pre-transient setpoints were as currently indicated on panel 804.**		
*** 3.**	[B.2] Return Pressure Setpoint to value prior to failure by: a. Depress Regulator No. 1(2) pushbutton for pressure Regulator in control. b. Depress Pressure Controls LOWER pushbutton to lower Regulator Pressure Setpoint.	*** 3.**	Returns Pressure Setpoint to value prior to failure by: ☐ Depresses Regulator No. 2 pushbutton. ☐ Depresses Pressure Controls LOWER pushbutton to lower Regulator Pressure Setpoint.
*** 4.**	[B.3] Verify Reactor Pressure returns to value prior to Regulator failure.	*** 4**.	Observes RPV pressure is approximately equal to pre-transient value.
	Alternate Path Begins Here **NOTE: Uncontrolled pressure decrease begins 45 seconds after RPV pressure drops below 1030 psig on C32-R605A, Div 1 RPV Pressure indicator on P603**		
*** 5.**	Recognize uncontrolled RPV pressure decrease	*** 5**.	Observes and reports RPV pressure lowering and determines Pressure Regulator #2 has failed HIGH.

ELEMENT		STANDARD	
* **6**.	[IA.1] Place Reactor Mode switch in SHUTDOWN.	* **6**.	Places Reactor Mode switch in SHUTDOWN.
* **7.**	[IA.2] Trip MS Bypass Valves	* **7.**	Trips MS Bypass Valves.
* **8**.	[IA.2] Trip Main Turbine	* **8**.	Trips Main Turbine.
CUE:	**Acknowledge report.**		
CUE:	**Terminate JPM when Reactor Mode Switch has been placed in SHUTDOWN, MS Bypass Valves and Main Turbine are tripped.**		

Stop Time_____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating __X__ amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Manual valves are checked in the closed direction (MOP02 and MOP05). Valve stem position may aid in valve position determination, but cannot be used as Independent Verification (MOP02).

Ex.: Verify valve closed: "Valve handwheel indicates no valve movement in the clockwise direction."

Verify valve open: "Valve handwheel has been rotated slightly in the clockwise direction and returned to the original positions."

Closing a valve: "Valve handwheel has been rotated in the fully clockwise direction until no additional valve movement. Valve stem is down."

Opening a valve: "Valve handwheel has been rotated in the fully counterclockwise direction until no additional valve movement, valve stem is out."

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee. Notify Examinee that time compression may be used for activities performed outside of the Control Room. Notify Examinee if JPM is Time Critical (only if JPM is **NOT** Alternate Path.)

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:
20

Malfunctions:

Number	Title	Value	Delay	Ramp
C71MF0001	Auto Scram Failure	ACTIVE	0	0
N30MF0051	Pressure Regulator Failure N001A	400	30	0
N30MF0052	Pressure Regulator Failure N001B **[Note 1]** [cd='H_P603_C011_2 LT 1030]	1050	15	0

Remote Functions:

Number	Title	Value	Delay	Ramp
EOPRF0033	INBD MSIV All Defeat	DEFEAT	0	0
EOPRF0036	OTBD MSIV All Defeat	DEFEAT	0	0

Override Functions:

Number	Title	Value	Delay	Ramp
P804_A058_1	TURB PRESS CONTROLS LOWER SWITCH **[Note 1]**	False	45	0
P804_A057_1	TURB PRESS CONTROLS RAISE SWITCH **[Note 1]**	False	45	0

Note 1: Lesson step is triggered when PR#2 light is lit and RPV pressure is >1031 psig on C32-R605A, Div 1 RPV Pressure indicator on P603. PR#2 fails 45 seconds after RPV pressure drops below 1030 psig.

Special Instructions:

1. Restore to IC 20.
2. Execute lesson JP0129-202 Both PRs fail 4.lsn

JOB PERFORMANCE MEASURE

Cue Sheet: (JP-OP-315-0129-202)

Initial Conditions:

- You are the CRLNO
- The Reactor is at full power (100%)
- Plant conditions are as you see them

Initiating Cue(s):

Respond to plant conditions as required.

JOB PERFORMANCE MEASURE

Job Position RO	No. JP-OP-315-0140-410	Revision 0
JPM Title Manually Initiate Core Spray - Alt Path	Duration 10 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: ___Jason Vanbrunt_____

JPM Type: Normal / **Alternate Path** / Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
*** 1.**				*** 7.**							
*** 2.**				8.							
3.				*** 9.**							
4.				***10.**							
5.				11.							
*** 6.**											

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /_____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Title Manually Initiate Core Spray - Alt Path	No.: JP-OP-315-0140-410 Revision: 0 Page 3

JPM Information

System:

E2100 – Core Spray System

Task:

02E2100003 – Initiate the Core Spray System manually

References: Required (R) / Available (A)

23.203, "Core Spray System" (A)
23.203, Enclosure A Hard Card (R)

Tools and Equipment Required:

None

Initial Conditions:

- You are the Control Room LNO.
- The reactor has scrammed.
- The EOPs have been entered.
- RPV Water level has decreased to less than 30 inches.
- Both divisions of RHR and Core Spray have failed to automatically initiate.

Initiating Cue(s):

The CRS directs you to initiate Division 2 Core Spray and inject water into the RPV to raise level.

Terminating Cue(s):

Division I Core Spray System is injecting into the RPV.

Task Standard:

Division 2 Core Spray is aligned to inject to the RPV IAW 23.203 hard card, failure of the Div 2 injection valve is then recognized, and Div 1 is aligned and injects into the RPV in accordance with 23.203 hard card.

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

2 - Reactor Water Inventory Control

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 209001 – Low Pressure Core Spray System

K/A STATEMENT:

A2. Ability to (a) predict the impacts of the following on the LOW PRESSURE CORE SPRAY SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)

A4.03 Injection Valves . . . . . 3.7 / 3.6

Maintenance Rule Safety Classification:

E2100-02

Maintenance Rule Risk Significant? (Yes or No)

No

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
NOTE:	**Examinee will announce actions which change plant conditions/alarms with "Crew Update."**		
CUE:	**Provide examinee with Cue Sheet. When examinee selects 23.203, Enclosure A hard card at H11P601, provide him a copy of the hard card to mark up.**		
*** 1.**	[1.] Start Core Spray Pump B.	*** 1.**	Starts Core Spray Pump B.
*** 2.**	[2.] Start Core Spray Pump D.	*** 2.**	Starts Core Spray Pump D.
3.	Verify Reactor Pressure is below 461 psig.	3.	Verifies Reactor Pressure is below 461 psig.
	Alternate Path Begins Here		
4.	[3.] Open E2150-F005B, CSS Loop B Inboard Isolation Valve.	4.	Recognizes failure of E2150-F005B to respond to Open pushbutton.
5.	Report to the CRS that Division II Core Spray System injection valve failed to open. Recommend using Div I Core Spray.	5.	Reports to CRS and makes recommendation.
CUE:	**Direct examinee to perform recommended action(s). When examinee selects 23.203, Enclosure A hard card at H11P602, provide him a copy of the hard card to mark up.**		
NOTE:	**Examinee may place Core Spray Pumps B and/or D in OFF or Auto.**		
*** 6.**	[1.] Start Core Spray Pump A.	*** 6.**	Starts Core Spray Pump A.
*** 7.**	[2.] Start Core Spray Pump C.	*** 7.**	Starts Core Spray Pump C.
8.	Verify Reactor Pressure is below 461 psig.	8.	Verifies Reactor Pressure is below 461 psig.
*** 9.**	[3.] Open, E2150-F005A, CSS Loop A Inboard Isolation Valve.	*** 9.**	Opens E2150-F005A.
***10.**	[4.] As Reactor Pressure decreases and flow through each division exceeds 775 gpm, verify E2150-F031A, Core Spray Minimum Flow Bypass, closes.	***10.**	Recognizes failure of E2150-F031A to auto close and depresses close pushbutton to manually close E2150-F031A.
11.	Inform CRS that Division I Core Spray is injecting into the RPV.	11.	CRS is informed that Division I Core Spray is injecting into the RPV.
CUE:	**End JPM when Division I Core Spray System is injecting into the RPV.**		

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

None

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

IC-07

Malfunctions:

Number	Title	Value	Delay	Ramp
E21MF0002	Core Spray Injection Valve Fails As-Is E2150-F005B	0	0	0
E41MF0005	HPCI Logic A Spurious Isolation	ACTIVE	0	0
N20MF0018	Condenser Pump Trip C	ACTIVE	0	0
N20MF0019	Condenser Pump Trip N	ACTIVE	0	0
N20MF0020	Condenser Pump Trip S	ACTIVE	0	0
E11MF0037	RHR Pump Trip A	ACTIVE	0	0
E11MF0038	RHR Pump Trip B	ACTIVE	0	0
E11MF0039	RHR Pump Trip C	ACTIVE	0	0
E11MF0040	RHR Pump Trip D	ACTIVE	0	0
B31MF0066	Recirc Loop A Rupture	3	0	0
B31MF0066	Recirc Loop A Rupture [cd='H_P602_C030_1 LT 35']	0.15	0	0

Remote Functions:

Number	Title	Value	Delay	Ramp
E21RF0005	CS Div 1 Auto Init Defeat	DEFEAT	0	0
E21RF0006	CS Div 2 Auto Init Defeat	DEFEAT	0	0
E21RF0017	MOV E2150-F005B Breaker [cd='P602_B003_1 EQ 1']	OPEN	0	0

Override Functions:

Number	Title	Value	Delay	Ramp
E201F031A_MTVFAILSP 1	CS 31A Fails Open	1	0	0
E201F031A_MTVFAILSP 0	CS 31A Closes on PB [cd='P601_B012_1 EQ 1']	0	0	0

Special Instructions:

1. Initialize the simulator to IC-7 (or other pre-developed IC), place in **RUN**.
2. Open and **execute** lesson "JP0140.408 CS inject with valve failures.lsn".
3. Place the Mode Switch in **Shutdown**, and place both ADS switches to **Inhibit**.
4. Place simulator in **FREEZE** when level reads approximately 22" wide range and reactor pressure is about 135 psig.
5. Place simulator in **RUN** just prior to starting the JPM.

Cue Sheet: (JP-OP-315-0140-410)

Initial Conditions:

- You are the Control Room LNO.
- The reactor has scrammed.
- The EOPs have been entered.
- RPV Water level has decreased to less than 30 inches.
- Both divisions of RHR and Core Spray have failed to automatically initiate.

Initiating Cue(s):

The CRS directs you to initiate Division 2 Core Spray and inject water into the RPV to raise level.

JOB PERFORMANCE MEASURE

Job Position SRO / RO	No. JP-OP-802-3006-502	Revision 0
JPM Title Vent the Torus Irrespective of Offsite Release Rates - Alternate Path	Duration 10 minutes	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: __Jason Vanbrunt_____

JPM Type: Normal / **Alternate Path /** Time Critical

Evaluation Method: **Perform** / Walkthrough / Discuss

(Circle method used) Plant / **Simulator** / Classroom

Start Time _____

Stop Time _____

Total Time: _____

PERFORMANCE EVALUATION SUMMARY							
Element	S	U	Comments	Element	S	U	Comments
1.				12.			
2.				***13.**			
3.				***14.**			
***4.**				***15.**			
***5.**				***16.**			
6.				***17.**			
7.				***18.**			
8.				***19.**			
***9.**				***20.**			
10.				***21.**			
***11.**				22.			

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

System:

A7100 – Primary Containment Isolation System

Task:

02A0004006 - Vent/Purge Primary Containment during EOP performance

References: Required (R) / Available (A)

29.ESP.07, Primary Containment Venting (R)

Tools and Equipment Required:

None

Initial Conditions:

- You are the Control Room LNO.
- An accident has occurred, and the crew has entered 29.100.01, Sh. 2, Primary Containment Control.
- The CRS has determined that Primary Containment Pressure CANNOT be kept below the PCPL

Initiating Cue(s):

The CRS directs you to vent the Torus irrespective of offsite rad release rates in accordance with 29.ESP.07 and reduce Torus pressure to less than 1.68 psig.

Terminating Cue(s):

T4600-F412 and T4803-F400 are open and Torus pressure is lowering.

Task Standard:

Vent the Torus irrespective of offsite rad release rates in accordance with 29.ESP.07 section 2 using 6" vent valves following recognition of T4600-420 failure until Torus pressure is lowering.

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

5 – Containment Integrity, 10 – Emergency Plant Evolutions

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 295024 – High Drywell Pressure

K/A STATEMENT:

EA1 Ability to operate and/or monitor the following as they apply to high drywell pressure:

EA1.19 Containment Atmosphere Control..... 3.3 / 3.4

Maintenance Rule Safety Classification:

A7100-01

Maintenance Rule Risk Significant? (Yes or No)

Yes

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide the examinee the Cue Sheet.**		
CUE:	**If asked, Drywell Venting is NOT in progress.**		
1.	[2.1] If venting the Drywell, notify the SM and exit this section.	1.	Verifies that the Drywell is not being vented.
2.	[2.2] If Torus Level is at or above 570 feet (H11-P602), exit this section.	2.	Verifies Torus level is <570' using P602 indication.
3.	[2.3] Contact Chemistry to sample the Primary Containment atmosphere for activity and continue in this section concurrently.	3.	Contacts Chemistry to perform PC atmosphere sample, then continues concurrently.
CUE:	**As Chemistry, acknowledge direction to sample PC.**		
*** 4.**	[2.4] Direct Defeat Primary Containment Vent Valve Isolations in accordance with 29.ESP.22, "Defeat of Primary Containment Vent Valve Isolations," (Section 3.0) and continue in this section concurrently.	*** 4.**	Directs N.O. to perform 29.ESP.22 section 3.0, then continues concurrently.
CUE:	**As N.O., acknowledge direction to perform 29.ESP.22, then report 29.ESP.22 is complete through step 3.5 and request the CRLNO preform 29.ESP.22 step 3.6 (depress the "Inbd & Otbd MSIV Iso Reset Sw pushbuttons").** **CUE: When examinee obtains 29.ESP.22 provide paper copy.** **NOTE: 29.ESP.22 step 3.6 must be complete prior to venting.**		
*** 5.**	[29.ESP.22 step 3.6] Reset the isolation as follows: • [3.6.1] At COP H11-P601, depress A7100-M120, Inbd MSIV Iso Reset Sw pushbutton. • [3.6.2] At COP H11-P602, depress A7100-M146, Otbd MSIV Iso Reset Sw pushbutton.	*** 5.**	Resets the isolation as follows: • At COP H11-P601, depresses A7100-M120, Inbd MSIV Iso Reset Sw pushbutton. • At COP H11-P602, depresses A7100-M146, Otbd MSIV Iso Reset Sw pushbutton. • Continues in 29.ESP.07
6.	[2.5] Determine pressure to stop venting the Torus: • [2.5.1] If venting to lower pressure below the Primary Containment Pressure Limit curve, stop venting at 32 to 39 psig • [2.5.2] N/A	6.	Determines that Torus venting should be stopped between 32 to 39 psig.
7.	[2.6] If Torus Pressure is less than 1.68 PSIG, Start or verify running one division of SGTS, otherwise continue at Step 2.10.	7.	Verifies Torus pressure is >1.68 psig and BOTH divisions of SGTS are running, determines steps 2.7, 2.8, & 2.9 are N/A, then skips ahead to step 2.10.

ELEMENT		STANDARD	
8.	[2.10] Shutdown SGTS.	8.	Obtains 23.404 SGTS hard card at P808 or P817
CUE:	**When examinee locates 23.404 SGTS shutdown hard card, provide paper copy.**		
*** 9**.	[1.1] place T4600-C003, Div 1 SGTS Exhaust Fan, in OFF/RESET	*** 9**.	Places T4600-C003, Div 1 SGTS Exhaust Fan, in OFF/RESET.
10.	[1.1.a] At H11-P808, verify the following dampers close: • T4600-F004A, Div 1 SGTS Exh Fan Inlet Iso Damper • T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr • T4600-F409, Div 1 SGTS SC Inbd Iso Dmp	10.	Verifies at P808 the following dampers close. • T4600-F004A, Div 1 SGTS Exh Fan Inlet Iso Damper • T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr • T4600-F409, Div 1 SGTS SC Inbd Iso Dmp
* **11**.	[1.2] Place T4600-C004, Div 2 SGTS Exhaust Fan, in OFF/RESET.	* **11**.	Places T4600-C004, Div 2 SGTS Exhaust Fan, in OFF/RESET
12.	[1.1.a] At H11-P817, verify the following dampers close: • T4600-F004B, Div 2 SGTS Exh Fan Inlet Iso Damper • T4600-F008B, Div 2 SGTS SC Otbd Iso Dmpr • T4600-F408, Div 2 SGTS SC Inbd Iso Dmp	12.	Verifies at P817 the following dampers close. • T4600-F004B, Div 2 SGTS Exh Fan Inlet Iso Damper • T4600-F008B, Div 2 SGTS SC Otbd Iso Dmpr • T4600-F408, Div 2 SGTS SC Inbd Iso Dmp
CUE:	**If asked for direction, as CRS, ask for recommendation. Operator should recommend proceeding to open 6" purge isolation valve per step 1.7.4.** **As CRS, direct operator to proceed until DW pressure is lowering.**		
* **13**.	[2.11] Isolate SGTS by closing or verifying closed: • [2.11.1] T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr • [2.11.2] T4600-F409, Div 1 SGTS SC Inbd Iso Dmpr • [2.11.3] T4600-F008B, Div 2 SGTS SC Otbd Iso Dmpr • [2.11.4] T4600-F408, Div 2 SGTS SC Inbd Iso Dmpr • [2.11.5] T4600-F407, RBHVAC To SGTS Iso Vlv • [2.11.6] T4600-F406, HPCI To SGTS Iso Vlv • [2.11.7] T4600-F410, RB5 Air Inlet Iso Vlv	* **13**.	Closes or verifies closed: • [2.11.1] T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr • [2.11.2] T4600-F409, Div 1 SGTS SC Inbd Iso Dmpr • [2.11.3] T4600-F008B, Div 2 SGTS SC Otbd Iso Dmpr • [2.11.4] T4600-F408, Div 2 SGTS SC Inbd Iso Dmpr • [2.11.5] T4600-F407, RBHVAC To SGTS Iso Vlv • [2.11.6] T4600-F406, HPCI To SGTS Iso Vlv • [2.11.7] T4600-F410, RB5 Air Inlet Iso Vlv

ELEMENT	STANDARD
* **14**. [2.12] Place Keylock switch for T4600-F421, SC Hard Vent Otbd Iso Vlv, in OPER.	* **14**. Places Keylock switch for T4600-F421, SC Hard Vent Otbd Iso Vlv, in OPER.
***15**. [2.13] Place Keylock switch for T4600-F420, SC Hard Vent Inbd Iso Vlv, in OPER	***15**. Places Keylock switch for T4600-F420, SC Hard Vent Inbd Iso Vlv, in OPER.
***16**. [2.14] Open or verify open T4600-F421, SC Hard Vent Otbd Iso Vlv	***16**. Opens T4600-F421, SC Hard Vent Otbd Iso Vlv.
Alternate Path begins here	
***17**. [2.15] Open or verify open T4600-F420, SC Hard Vent Inbd Iso Vlv	***17**. Attempts to open T4600-F420, SC Hard Vent Inbd Iso Vlv, observes failure to open, reports to CRS
CUE: As CRS, acknowledge report	
***18**. [2.15] If T4600-F421 or T4600-F420 fail to open, perform Steps 2.21 and 2.22 and return	***18**. Determines that steps 2.21 and 2.22 must be performed before continuing at step 2.17.
***19**. [2.21] If Torus Pressure is not being reduced as fast as necessary, evacuate the Refuel Floor.	***19**. Determines Torus pressure is NOT being reduced, and the Refuel floor must be evacuated
NOTE: The examinee may perform the evacuation announcement OR may request the CRS perform the announcement. **CUE: If asked, as CRS, acknowledge request and report that the Refuel Floor has been evacuated.**	
***20**. [2.22] Open T4600-F410, RB5 Air Inlet Iso Vlv, then return to step 2.17	***20**. Opens T4600-F410, RB5 Air Inlet Iso Vlv, then returns to step 2.17
***21**. [2.17] Open or verify open the following 6" Vent Path Valves: • [2.17.1] T4600-F412, Torus 6” Purge Iso Vlv • [2.17.2] T4600-F400, Torus Exh Iso Valve	***21**. [2.17] Opens the following 6" Vent Path Valves: • [2.17.1] T4600-F412, Torus 6” Purge Iso Vlv • [2.17.2] T4600-F400, Torus Exh Iso Valve
22. [2.18] If Torus Pressure is reduced to the value determined above, proceed to Step 2.24, otherwise continue	22. Observes Torus pressure dropping, and reports to CRS
CUE: Terminate the JPM when 6” vents are open and Operator reports lowering Torus pressure.	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating __X__ amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Manual valves are checked in the closed direction (MOP02 and MOP05). Valve stem position may aid in valve position determination, but cannot be used as Independent Verification (MOP02).

Ex.: Verify valve closed: "Valve handwheel indicates no valve movement in the clockwise direction."

Verify valve open: "Valve handwheel has been rotated slightly in the clockwise direction and returned to the original positions."

Closing a valve: "Valve handwheel has been rotated in the fully clockwise direction until no additional valve movement. Valve stem is down."

Opening a valve: "Valve handwheel has been rotated in the fully counterclockwise direction until no additional valve movement, valve stem is out."

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

None

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee. Notify Examinee that time compression may be used for activities performed outside of the Control Room.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

IC-20, or any other full power IC.

Malfunctions:

Number	Title	Value	Delay	Ramp
B31MF0066	Recirc Loop Rupture A	2.0	0	0

Remote Functions:

Number	Title	Value	Delay	Ramp
EOPRF0015 **(note 1)**	PC Vent Valves Div 1 Iso Defeat	DEFEAT	0	0
EOPRF0016 **(note 1)**	PC Vent Valves Div 2 Iso Defeat	DEFEAT	0	0
EOPRF0056 **(note 1)**	T46-F406 Override/Defeat of auto open signal	DEFEAT	0	0
EOPRF0057 **(note 1)**	T46-F407 Hi DWP open seal in defeat	DEFEAT	0	0
EOPRF0058 **(note 1)**	T46-F410 Hi DWP open seal in defeat	DEFEAT	0	0

Override Functions:

Number	Title	Value	Delay	Ramp
N/A				

Special Instructions:

1. Initialize simulator to any full power IC, and place in **RUN**. (A preset IC may be used in place of steps 2-4 below as desired)
2. Open and execute Lesson JP3006-502 Vent Torus.lsn.
3. Place CMC switches for HPCI aux oil pump, and ALL LP ECCS pumps EXCEPT CS A in OFF/RESET.
4. Trigger lesson "Start" step and allow drywell pressure to rise to >20 psig.
5. Freeze the simulator to allow initial cue and walkdown.
6. Place the simulator in RUN when examinee and examiner are ready to begin.

Cue Sheet: (JP-OP-802-3006-502)

Initial Conditions:

- You are the Control Room LNO.
- An accident has occurred, and the crew has entered 29.100.01, Sh. 2, Primary Containment Control.
- The CRS has determined that Primary Containment Pressure CANNOT be kept below the PCPL

Initiating Cue(s):

The CRS directs you to vent the Torus irrespective of offsite rad release rates in accordance with 29.ESP.07 and reduce Torus pressure to less than 1.68 psig.

JOB PERFORMANCE MEASURE

Job Position NO	No. JP-OP-315-0165-004	Revision 0
JPM Title Start and Parallel an EDG from the Control Room	Duration 20 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO / NO

Evaluator: _____

Validating Representatives Name: ___Jason Vanbrunt_____

JPM Type: **Normal** / Alternate Path **/** Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.				***10.**							
***2.**				***11.**							
3.				***12.**							
4.				***13.**							
5.				***14.**							
6.				***15.**							
7.				***16.**							
8.				17.							
***9.**				***18.**							

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ / _____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Title Start and Parallel an EDG from the Control Room	No.: JP-OP-315-0165-004 Revision 0 Page 3

JPM Information

System:

R3000 - Emergency Diesel Generator System

Task:

02R3000004 - Parallel an EDG from the Control Room

02R3000048 – Control EDG output voltage in automatic voltage regulation from the Control Room

References: Required (R) / Available (A)

23.307, Emergency Diesel Generator System (R)

Tools and Equipment Required:

None

Initial Conditions:

- You are the CRLNO.
- EDG-14 is to be started and paralleled in preparation for emergent maintenance on 4KV bus 65F normal and alternate supply breakers.
- EDG-14 is currently in standby IAW 23.307 section 5.8.

Initiating Cue(s):

The CRS directs you to start and parallel EDG-14 per 23.307, Emergency Diesel Generator System, sections 5.14 and 6.1.

- The SM has given permission for the EDG to be paralleled.
- The Central System Supervisor has been notified that the EDG is to be paralleled with the system.
- An operator is on station locally at EDG 14.

Terminating Cue(s):

EDG 14 is running paralleled with 4KV bus 65F in accordance with 23.307.

Task Standard:

EDG 14 started and paralleled with 4KV bus 65F IAW 23.307, EDG System, section 5.8.

JPM Title Start and Parallel an EDG from the Control Room	No.: JP-OP-315-0165-004 Revision 0 Page 4

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

6 - Electrical

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 264000 Emergency Generators (Diesel/Jet)

K/A STATEMENT:

A4. Ability to manually operate and/or monitor in the Control room:

A4.04 Manual start, loading, and stopping of emergency generator..... 3.7 / 3.7

Maintenance Rule Safety Classification:

R3000-01

Maintenance Rule Risk Significant? (Yes or No)

Yes

JPM Title Start and Parallel an EDG from the Control Room	No.: JP-OP-315-0165-004 Revision 0 Page 5

PERFORMANCE EVALUATION

Start Time _____

	ELEMENT		STANDARD
CUE:	**Provide examinee with Cue Sheet. When examinee has explained how control copy of procedure will be obtained, provide a copy of 23.307.**		
1.	[5.14.1] Verify EDG in standby, in accordance with Section 5.8, Standby Mode EDG 14.	1.	Verifies EDG-14 is in standby mode (from initial conditions).
*** 2.**	[5.14.2.1] Place EDG 11 (12, 13, 14) Start/Stop control switch in START (COP H11-P809/P810)	*** 2.**	Places EDG-14 Start/Stop control switch in START.
3.	[5.14.2.2] After start, verify the following: a. Respective EDG Service Water Pump has automatically started. b. Verify respective EDG Ventilation System operating by verifying the following fans are running (H11-P808 or P817). • RHR EDG Switchgear Room Vent Supply Fans North and/or South. • RHR Div 1 (2) Pump Room Vent Supply Fans North and/or South. • RHR EDG Room Vent Supply Fans East and/or West. c. Selected Fuel Oil Transfer Pump has started. d. EDG is being maintained at 60 Hz (59.7 Hz – 60.3 Hz). e. EDG Output Voltage is 120V (117V to 124V	3.	Verifies: ☐ Respective EDG Service Water Pump has automatically started. ☐ Verify respective EDG Ventilation System operating by verifying the following fans are running (H11-P808 or P817). ☐ RHR EDG Switchgear Room Vent Supply Fans North and/or South. ☐ RHR Div 1 (2) Pump Room Vent Supply Fans North and/or South. ☐ RHR EDG Room Vent Supply Fans East and/or West. ☐ Selected Fuel Oil Transfer Pump has started. ☐ EDG is being maintained at 60 Hz (59.7 Hz – 60.3 Hz). ☐ EDG Output Voltage is 120V (117V to 124V
CUE:	**Report as Control Room that Tech Spec and MMR12 required actions are complete for EDG-11 (12, 13, 14).**		
4.	[5.14.3] Direct an operator to man the EDGs that started, and perform inspection and Attachments 7 and 9 as soon as possible.	4.	Directs an operator to man EDG 14 and perform inspection and Attachments 7 and 9 as soon as possible.
CUE:	**As N.O., acknowledge direction.**		
5.	[5.14.4] Place EDG Service Water Pump in RUN at the EDG Local Panel	5.	Directs an operator to place EDG Service Water Pump in RUN.
CUE:	**As N.O., acknowledge direction, and report the EDG Service Water Pump is in RUN at the local panel.**		

ELEMENT		STANDARD	
6.	[5.14.5] If desired, load the EDG in accordance with Section 6.1 or 6.2, Paralleling From the Control Room or Paralleling From the Local Control Panel.	6.	Refers to section 6.1 to prepare to parallel the EDG as directed
7.	[6.1.1] Verify Specific Prerequisites: 1. Speed of EDG is such that frequency is 60 Hz (60 to 60.2). 2. Output voltage of EDG is nominal 4160 (50 volts higher than bus voltage) 117-124V indicated in the Control Room. 3. The Shift Manager has given permission for EDG to be paralleled. 4. Central System Supervisor has been notified that EDG is to be paralleled with the system.	6.	Verifies prerequisites: ☐ Speed of EDG is such that frequency is 60 Hz (60 to 60.2). ☐ Output voltage of EDG is nominal 4160 (50 volts higher than bus voltage) 117-124V indicated in the Control Room. ☐ The Shift Manager has given permission for EDG to be paralleled (per initial conditions). ☐ Central System Supervisor has been notified that EDG is to be paralleled with the system (per initial conditions).
8.	[6.1.2.1] Declare the EDG-14 inoperable and comply with Tech Spec 3.8.1 and 3.8.2 and MMR12.	8.	Contacts CRS to verify required Tech Spec actions have been taken.
CUE:	**AS CRS, report that all applicable tech spec actions have been taken.**		
*** 9.**	[6.1.2.2] Place respective Control Room Synchronize switch for EDG 14 Breaker Position ED3 in ON.	*** 9.**	Places respective Control Room Synchronize switch for EDG 14 Breaker Position ED3 in ON
*** 10.**	[6.1.2.3] Place respective Auto Manual select switch for EDG Output Breaker in MANUAL.	*** 10.**	Places Auto Manual select switch for EDG 14 Output Breaker in MANUAL.
NOTE:	**The Synchronizing Check Circuit requires the Synchroscope to be rotating < 2.9 rpm (approximately 1 revolution in 20 to 60 seconds) prior to closing the Output Breaker.**		
***11.**	[6.1.2.4] Adjust speed of EDG, using EDG Governor Control switch, until Synchroscope Pointer is revolving slowly (< 2.9 rpm) in FAST direction.	***11.**	Adjusts speed of EDG, using EDG Governor Control switch, until Synchroscope Pointer is revolving slowly (< 2.9 rpm) in FAST direction.
***12.**	[6.1.2.5] If necessary, adjust EDG Output Voltage until SYNCH BUS Starting Volts are approximately 3 volts higher than SYNCH BUS Running Volts.	***12.**	Adjusts EDG Output Voltage as necessary until SYNCH BUS Starting Volts are approximately 3 volts higher than SYNCH BUS Running Volts.
***13.**	[6.1.2.6] When synchroscope pointer is approximately 5 minutes before reaching top dead center (vertical) position, close respective EDG Output Breaker.	***13.**	Closes EDG 14 Output Breaker when synchroscope pointer is approximately 5 minutes before reaching top dead center (vertical) position.
***14.**	[6.1.2.7] Immediately apply at least a 750 to 1000kW load to EDG using EDG Governor Control switch with VARS greater than zero.	***14.**	Immediately places EDG 14 Governor Control switch in RAISE until the EDG is loaded to at least 750 to 1000kW load to EDG using EDG

ELEMENT		STANDARD	
***15.**	[6.1.2.8] Apply KVARS of 200 to 400 using EDG Voltage Control switch.	***15.**	Adjusts EDG 14 Voltage Control switch in RAISE or LOWER until the EDG reactive load is between 200 and 400 KVAR.
***16.**	[6.1.2.9] Place Control Room Synchronize switch for EDG 14 Breaker Position ED3 in OFF.	***16.**	Places Control Room Synchronize switch for EDG 14 Breaker Position ED3 in OFF.
17.	[6.1.2.10] Maintain this load for five minutes, if running EDG is for transfer of electrical buses and another run is scheduled within 72 hours that loads the EDG to 1750kw, the EDG may be shutdown, otherwise continue.	17.	Determines that the EDG should remain loaded in this condition for 5 minutes and determines the need to continue to load the EDG to >1750 kW.
CUE:	**If asked, as CRS, direct the candidate to raise the EDG load to1750 kW.** **CUE: Using time compression, inform the candidate that 5 minutes have elapsed.**		
***18.**	[6.1.2.11.a] Increase load to 1750 to 1850kW with KVARS of 1100 to 1350 at a gradual rate over a five minute period.	***18.**	Uses the EDG 14 Governor Control switch in RAISE to GRADUALLY raise EDG load to between 1750 kW and 1850 kW over a 5-minute period; AND uses the EDG Voltage Control switch to gradually adjust reactive load to between 1100 and 1350 KVARs.
CUE:	**End the JPM when EDG load has been raised to 1750-1850 kW and reactive load is 1100-1350 KVAR**		

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

JPM Title Start and Parallel an EDG from the Control Room	No.: JP-OP-315-0165-004 Revision 0 Page 8

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating __X__ amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee. **Notify Examinee if time compression is used for activities performed outside of the Control Room.**

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

Any full power IC

Malfunctions:

Number	Title	Value	Delay	Ramp
N/A				

Remote Functions:

Number	Title	Value	Delay	Ramp
N/A				

Override Functions:

Number	Title	Value	Delay	Ramp
N/A				

Special Instructions:

N/A

Cue Sheet: (JP-OP-315-0165-004)

Initial Conditions:

- You are the CRLNO.
- EDG-14 is to be started and paralleled in preparation for emergent maintenance on 4KV bus 65F normal and alternate supply breakers.
- EDG-14 is currently in standby IAW 23.307 section 5.8.

Initiating Cue(s):

The CRS directs you to start and parallel EDG-14 per 23.307, Emergency Diesel Generator System, sections 5.14 and 6.1.

- The SM has given permission for the EDG to be paralleled.
- The Central System Supervisor has been notified that the EDG is to be paralleled with the system.
- An operator is on station locally at EDG 14.

JOB PERFORMANCE MEASURE

Job Position SRO / RO	No. JP-OP-802-2001-217	Revision 0
JPM Title Evacuate the Main Control Room and Establish Control At the Remote Shutdown Panel	Duration 20 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: ____Jason Vanbrunt_____

JPM Type: **Normal** / Alternate Path / Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
*** 1.**											
*** 2.**											
*** 3.**											
*** 4.**											
*** 5.**											
*** 6.**											
*** 7.**											

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ / _____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Title Evacuate the Main Control Room and Establish Control At the Remote Shutdown Panel	JP-OP-802-2001-217 Revision 0 Page 3

JPM Information

System:

B2104 – Safety and Relief Valves

Task:

02A0001010 – Shutdown from Outside the Control Room

References: Required (R) / Available (A)

AOP 20.000.19, Shutdown from Outside the Control Room (R)

Tools and Equipment Required:

None

Initial Conditions:

- You are the Control Room LNO.
- The SM has determined that the Main Control Room must be evacuated due to toxic fumes.
- The CRS has entered AOP 20.000.19, S Shutdown from Outside the Control Room
- The CRS has announced the event over the Hi-Com, sounded the plant area alarm, and directed available ops personnel to report to the Remote Shutdown Panel
- The SM is reviewing EP-101

Initiating Cue(s):

The CRS directs you to perform subsequent action A.4 and all subsequent actions for condition E of 20.000.19

Terminating Cue(s):

Reactor level and pressure are being controlled in accordance with AOP 20.000.19.

Task Standard:

Actions are taken to evacuate the Main Control Room in accordance with 20.000.19 Shutdown from Outside the Control Room. The Remote Shutdown Panel is activated, and reactor pressure and water level are maintained within allowable limits from the Remote Shutdown Panel

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

2 – Reactor water inventory control

3 – Reactor Pressure Control

7 - Instrumentation

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 295016 – Control Room Abandonment

K/A STATEMENT:

AA1 Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: (CFR: 41.7 / 45.6)

AA1.07 Control room/local control transfer mechanisms.....4.2 / 4.3

Maintenance Rule Safety Classification:

B2104-03

Maintenance Rule Risk Significant? (Yes or No)

Yes

PERFORMANCE EVALUATION

Start Time _____

ELEMENT	STANDARD
CUE: Provide the examinee the Cue Sheet.	
*** 1**. [A.4] IF possible, prior to evacuating Control Room: • Place Reactor Mode switch in SHUTDOWN. • Trip Main Turbine. • Determine if ambient air temperature>36°F (IPCSPoint D40CM6402).	*** 1**. Prior to evacuating the Control Room: ☐ Places Reactor Mode switch in SHUTDOWN. ☐ Trips Main Turbine. ☐ Determines if ambient temperature >36°F (IPCS Point D40CM6402).
NOTE: Inboard MSIVs will fail close when the Main Turbine is tripped. This will not require control room action but will require the operator to control RPV level and pressure from the RSD. **NOTE: Only the East CRD pump switch will need to be repositioned to match the control room. All others are already in the correct position.**	
*** 2**. [E.1] Position CMC switches on H21-P100 to match Control Room position	*** 2.** Places the East CRD pump to RUN and verifies the remaining component CMC switches match the control room
*** 3**. [E.2] Place the following in ON (H21-P100): • C3500-M130, Div 2 DC Transfer switch • C3500-M131, BOP Transfer switch • C3500-M134, Swing Bus Transfer switch • C3500-M132, Div 1 DC Transfer switch • C3500-M133, Div 1 AC Transfer switch	*** 3**. Places the following transfer switches to ON at panel H21-P100: ☐ C3500-M130, Div 2 DC Transfer switch ☐ C3500-M131, BOP Transfer switch ☐ C3500-M134, Swing Bus Transfer switch ☐ C3500-M132, Div 1 DC Transfer switch ☐ C3500-M133, Div 1 AC Transfer switch
*** 4.** [E.3] Place the RCIC Rm High Temp Isolation Defeat (Logic A) in BYPASS	*** 4.** Rotates the switch clockwise to the BYPASS position.
*** 5.** [E.4] Place the RCIC Rm High Temp Isolation Defeat (Logic B) in BYPASS.	*** 5.** Rotates the switch clockwise to the BYPASS position

NOTE:	**The candidate may decide to control pressure first if level initially appears normal. If so, the candidate will return to this step later.**		
*** 6.**	[E.5] Maintain Reactor Water Level between 174 and 214 inches using one of the following: a. RCIC b. CRD	*** 6.**	Depresses and holds RCIC INITIATE pushbutton on the RSD Panel, until flow is indicated on C35-R006, RCIC Pump Discharge Flow Indicator, or Operates the CRD pumps as necessary.
*** 7.**	[E.6] **IF** necessary, maintain Reactor Pressure between 900 and 1050 psig by using B2104-F013A and/or B2104-F013B.	*** 7.**	Recognizes RPV pressure rise and manually operates SRVs A and/or B to control pressure between 900 and 1050 psig.
CUE:	**End JPM when reactor level and pressure are being controlled in accordance with AOP 20.000.19.**		

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

None

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

IC 20 or any full power IC

Malfunctions:

Number	Title	Value	Delay	Ramp
B21MF0013	A Inboard MSIV Fails Closed[1]	0.0	0	0
B21MF0014	B Inboard MSIV Fails Closed[1]	0.0	0	0
B21MF0015	C Inboard MSIV Fails Closed[1]	0.0	0	0
B21MF0016	D Inboard MSIV Fails Closed[1]	0.0	0	0
B21MF0023	SRV A Fails to open[1,2]	0.0	0	0
B21MF0024	SRV B Fails to open[1]	0.0	0	0

[1]Active when Main Turbine trip push button is depressed, *cd*= '*P804_A061_3 EQ 1'*

[2]Deleted when SRV A OPEN switch is depressed, *cd*= '*P100_C015_1 EQ 1'*

Remote Functions:

Number	Title	Value	Delay	Ramp

Override Functions:

Number	Title	Value	Delay	Ramp

Special Instructions:

1. Reset to IC-20, or preset IC if desired, and place the simulator to RUN
2. Execute JP-802-2001-217.lsn and trigger the "Start" step
3. Freeze until examinee is ready to begin

Cue Sheet: (JP-OP-802-2001-217)

Initial Conditions:

- You are the Control Room LNO.
- The SM has determined that the Main Control Room must be evacuated due to toxic fumes.
- The CRS has entered AOP 20.000.19, S Shutdown from Outside the Control Room
- The CRS has announced the event over the Hi-Com, sounded the plant area alarm, and directed available ops personnel to report to the Remote Shutdown Panel
- The SM is reviewing EP-101

Initiating Cue(s):

- The CRS directs you to perform subsequent action A.4 and all subsequent actions for condition E of 20.000.19.

JOB PERFORMANCE MEASURE

Job Position SRO/RO	No. JP-OP-315-0166-003	Revision 0
JPM Title Restore RB HVAC and Shutdown SGTS Following Automatic Operation	Duration 15 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO

Evaluator: _____

Validating Representatives Name: ___Jason Vanbrunt_____

JPM Type: **Normal** / Alternate Path **/** Time Critical Start Time _____

Evaluation Method: **Perform** / Walkthrough / Discuss Stop Time _____

Location: Plant / **Simulator** / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.				11.							
*** 2.**				12.							
3.				13.							
*** 4.**				14.							
*** 5.**				***15.**							
*** 6.**				***16.**							
7.				17.							
*** 8**											
9.											
10.											

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Information

System:

T4100 - Heating, Ventilating and Air Conditioning (RBHVAC)

Task:

02T4100001 - Startup the Reactor Building Heating Ventilation and Air Conditioning system.

References: Required (R) / Available (A)

23.404, Standby Gas Treatment System (R)
23.426, Reactor Building Heating Ventilation and Air Conditioning (R)

Tools and Equipment Required:

SS-1 Printout

Initial Conditions:

- You are the Control Room LNO.
- An automatic start of Div 1 SGTS and shutdown and isolation of RB HVAC occurred.
- The cause of the actuation signal has since cleared.
- Proper operation of the Reactor Building Exhaust Plenum Radiation Monitor has been verified by verifying normal status for Channel 1 on the SS1. Completion and Independent Verification of normal status for RB SPING has been documented in the unit log

Initiating Cue(s):

The CRS directs you to return RB HVAC to service.

Terminating Cue(s):

RB HVAC is in operation, Div 1 SGTS shutdown

Task Standard:

RB HVAC isolation logic reset and system placed in operation per 23.426; and Div 1 SGTS shutdown per 23.404.

Licensed Operator Exam Information (Required for NRC Exams Only)

Safety Function:

Safety Function 9 - Radioactivity Release

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 28800 Plant Ventilation System

K/A STATEMENT:

A.4 Ability to manually operate and/or monitor in the control room

A4.01 Start and Stop Fans .....3.1 / 2.9

Maintenance Rule Safety Classification:

N/A

Maintenance Rule Risk Significant? (Yes or No)

N/A

PERFORMANCE EVALUATION

Start Time _____

ELEMENT	STANDARD
CUE: Provide examinee Cue Sheet.	
CUE: Step 5.1.2.1 is complete.	
1. [5.1.2.1] Obtain a SS-1 printout or verify locally proper operation of the Reactor Building Exhaust Plenum Radiation Monitor by verifying normal status for Channel 1, and document completion of Independent Verification of normal status for RB SPING.	1. Verified by Initial Conditions.
NOTE: Only division 1 is tripped, therefore only division 1 pushbutton must be depressed to fully reset isolation logic.	
*** 2**. [5.1.2.2] If recovering from an Automatic initiation of Reactor Building Ventilation Isolation condition: a. Verify initiating logic has been reset. b. Disarm or Verify Disarmed Division 1 and 2 Manual Isolation Trip pushbuttons. c. Depress Division 1 and 2 Manual Isolation RESET pushbuttons. d. Verify green Division 1 and 2 Reactor Building Isolate RESET lights come ON.	*** 2**. Resets RB HVAC isolation logic as follows: □ Disarms Division 1 and verifies disarmed Division 2 Manual Isolation Trip pushbuttons. □ Depress Division 1 and 2 Manual Isolation RESET pushbuttons. (**depressing the div 2 reset pushbutton is NOT critical**) □ Verify green Division 1 and 2 Reactor Building Isolate RESET lights come ON.
3. [5.1.2.3] Select desired T4100-C004, (C005, C006) RB East (Center, West) Exhaust Fan: a. Place its four-position mode switch in a position corresponding to appropriate T4100-C001, (C002, C003) RB East (Center, West) Supply Fan. b. Ensure no other switches are selected to that supply fan.	3. Verifies exhaust fans CMC switches are positioned to correspond with the associated supply fans to be started and ensures no other exhaust fan CMC switches are selected for the supply fans to be started.
* **4**. [5.1.2.4] Place appropriate T4100-C001, (C002, C003) RB East (Center, West) Supply Fan in AUTO.	* **4.** Places selected supply fans CMC switches placed in AUTO.

ELEMENT	STANDARD
*** 5**. [5.1.2.5] Start desired T4100-C004, (C005, C006) RB East (Center, West) Exhaust Fan and verify the following: a.T4100-C004, (C005, C006) RB East (Center, West) Exhaust Fan starts and Exhaust Secondary Isolation Dampers open. b. Respective Exhaust Fan Discharge Damper begins to open, after a 20 second time delay. c. After approximately seven seconds for first fan, and after approximately two seconds for remaining fans: • Selected T4100-C001, (C002, C003) RB East, (Center, West) Supply Fan auto starts and • Secondary Containment Supply Isolation Dampers open. d. Twenty seconds after T4100-C001, (C002, C003) RB East, (Center, West) Supply Fan starts the respective Supply Fan Discharge Damper begins to open. e. T4100-F029, RBHVAC Intake Air Damper, opens. f. Respective Discharge Dampers for the Exhaust and Supply Fan travel to the full open position. g. NO FLOW indicating lights go OFF.	*** 5**. Places ONE exhaust fan CMC switch in RUN and verifies proper system operation.
*** 6.** [5.1.2.6] When flows have stabilized, start a second set of Reactor Building Ventilation Supply and Exhaust Fans.	*** 6**. Places selected exhaust fan CMC switch placed in RUN and verifies proper system operation.
7. [5.1.2.7] Monitor Reactor Building differential pressure for Division 1 and 2 on T41-R800A(B), Div 1(2) CR and RB Diff Press Rec. a. Maintain Reactor Building pressure at a normal reading of minus 0.25 inches H2O (minus 0.125 inches to minus 0.5 inches) differential pressure (dP).	7. Monitors Reactor Building differential pressure to ensure -0.125 inches to -0.5 inches is maintained.
NOTE: The following sub-steps are used to start RB Booster Exhaust Fans and are from section 5.6, excluding steps 5.6.2.2 and 5.6.2.3, which have no applicability.	
***8**. [5.6.2.1] Place the following switches in AUTO (H11-P808): • T4100-C015, RB Sample Sink Bstr Exh Fan • T4100-C016, RB CA Equip Room Bstr Exh Fan	***8.** Places T4100-C015 and T4100-C016 CMC switches in AUTO.

ELEMENT	STANDARD
9. [5.6.2.4] Check operation of Booster Fans by the following alarms are clear: • 8D33, RB CONTAM'D EQUIP STRGE RM EXHAUST FAN NO FLOW • 8D34, REAC BLDG H2O SAMP STA EXHAUST FAN NO FLO	9. Verifies Annunciators 8D33 and 8D34 are not in alarm.
10. [5.1.2.9] Direct an operator to Rotate Reactor Building Exhaust Fan Trip Alarm Reset pushbutton collar to ON to restore alarm to service (RB5-A15).	10. Reactor Building Exhaust Fan Trip Alarm Reset pushbutton collar rotated to ON
CUE: **Report as field operator (RB Rounds) that Reactor Building Exhaust Fan Trip Alarm Reset pushbutton collar is rotated to ON.**	
11. Inform CRS that RB HVAC is in operation.	11. Informs CRS that RB HVAC is in operation.
CUE: As CRS, acknowledge report. **When examinee obtains 23.404, SGTS, section 8.1, provide a copy.**	
12. [8.1.1] Permission obtained from SM or CRS to shutdown SGTS division	12. Requests permission from CRS to shutdown SGTS
CUE: If asked, as CRS grant permission to shutdown SGTS Div 1.	
13. [8.1.2.2] Open or verify open T4600-F407, RBHVAC To SGTS Iso Vlv	13. Verifies open T4600-F407, RBHVAC To SGTS Iso Vlv
14. [8.1.2.3] If T4600-F406, HPCI To SGTS Iso Vlv, is open, **and** processing of effluent from HPCI Barometric Condenser is no longer required, then close T4600-F406	14. Verifies closed T4600-F406, HPCI To SGTS Iso Vlv
***15.** [8.1.2.4] If T4600-F410, RB5 Air Inlet Iso Vlv, is open, **and** processing of effluent from Refueling Area is no longer required, then close T4600-F410	***15.** Closes T4600-F410, RB5 Air Inlet Iso Vlv
***16**. [8.1.2.5] Place T4600-C003 (4), Div 1 (2) SGTS Exhaust Fan in OFF/RESET	***16.** Places T4600-C003, Div 1 SGTS Exhaust Fan in OFF/RESET
17. [8.1.2.6] If Div 1 SGTS was shutdown, at H11-P808 verify the following dampers close: • T4600-F004A, Div 1 SGTS Exh Fan Inlet Iso Damper. • T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr. • T4600-F409, Div 1 SGTS SC Inbd Iso Dmpr.	17. Verifies the following dampers close: ☐ T4600-F004A, Div 1 SGTS Exh Fan Inlet Iso Damper. ☐ T4600-F008A, Div 1 SGTS SC Otbd Iso Dmpr. ☐ T4600-F409, Div 1 SGTS SC
CUE: Terminate JPM when Div 1 SGTS is shutdown and dampers verified closed.	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

System Specific Notes and Cues:

All exhaust fan four-position Mode switches must be in the appropriate position for its corresponding supply fan prior to starting any exhaust fan. Otherwise a system trip will result when the successive exhaust fans are started or their mode switches repositioned. Do not select the same supply fan with more than one exhaust fan.

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:
Any IC may be used.

Malfunctions:

Number	Title	Value	Delay	Ramp

Remote Functions:

Number	Title	Value	Delay	Ramp

Override Functions:

Number	Title	Value	Delay	Ramp

Special Instructions:

1. Manually start Division 1 of SGTS using Manual Isolation Pushbutton per section 5.4 of 23.404.
2. Verify shutdown and isolation of the RBHVAC system per section 5.4 of 23.404. Ensure the following:
    a. Trip reset
    b. RB vent exh & supp fan CMC switches placed in OFF/RESET
    c. RB booster fans in off

Cue Sheet: (JP-OP-315-0166-003)

Initial Conditions:

- You are the Control Room LNO.
- An automatic shutdown and isolation of RB HVAC occurred.
- The cause of the actuation signal has since cleared.
- Proper operation of the Reactor Building Exhaust Plenum Radiation Monitor has been verified by verifying normal status for Channel 1 on the SS1. Completion and Independent Verification of normal status for RB SPING has been documented in the unit log.

Initiating Cue(s):

The CRS directs you to return RB HVAC to service.

JOB PERFORMANCE MEASURE

Job Position NO	No. JP-OP-802-3006-301	Revision 2
JPM Title Defeat of RCIC Low RPV Pressure Isolation	Duration 30 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO / NO

Evaluator: _____

Validating Representatives Name: __C. Chambers_____

JPM Type: **Normal** / Alternate Path **/** Time Critical Start Time _____

Evaluation Method: Perform / **Walkthrough** / Discuss Stop Time _____

Location: **Plant** / Simulator / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.											
*** 2.**											
*** 3.**											
*** 4.**											

OPERATOR FUNDAMENTALS OBSERVATION

Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.

Operator Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations	Comment Number
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ /

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Information

System:

E5100 – RCIC

Task:

04E5100008 – Defeat RCIC Low RPV pressure isolation

References: Required (R) / Available (A)

29.ESP.16, Defeat of RCIC Low RPV Pressure and High Area Temperature Isolations (R)

Tools and Equipment Required:

EOP Defeat Package from SM EOP Locker

Initial Conditions:

- You are the Reactor Building Rounds Operator
- The crew has entered 29.000.01, sheet 1, RPV Control
- RCIC is required for injection to the RPV

Initiating Cue(s):

The CRS directs you to defeat RCIC Low Pressure Isolations per 29.ESP.16

Terminating Cue(s):

RCIC Low Pressure Isolations have been defeated per 29.ESP.16.

Task Standard:

RCIC Low Pressure Isolations plug-in relays removed per 29.ESP.16.

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

2 – Reactor Water Inventory Control

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 295031 Reactor Low Water Level

K/A STATEMENT:

EA1 Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

EA1.05 Reactor core isolation system: Plant-Specific .....4.3 / 4.3

Maintenance Rule Safety Classification:

E5100-02

Maintenance Rule Risk Significant? (Yes or No)

No

PERFORMANCE EVALUATION

Start Time _____

ELEMENT	STANDARD
CUE: Provide Examinee with CUE SHEET and a copy of 29.ESP.16.	
1. [1.1] Obtain EOP Cabinet key and retrieve EOP Defeat Package from SM EOP Locker.	1. Obtains the key and retrieves the correct EOP defeat package
CUE: The candidate has obtained the EOP package **NOTE: Plug-in relays have seismic clips which need to be removed first and then the relays are grasped on both sides and pulled straight back out of the cabinet. Minimum PPE per ODE14 Attachment 9 is safety glasses and 100% cotton long sleeve shirts.**	
*** 2.** [3.1] At H21-P080 (AB4-F12) (Division 1): 3.1.1 Remove plug-in Relay E51-K204C 3.1.2 Remove plug-in Relay E51-K204A 3.1.3 Place removed relays in the EOP Defeat Package	*** 2.** At H21-P080 (AB4-F12), performs the following: ☐ Removes plug-in Relay E51-K204C ☐ Removes plug-in Relay E51-K204A ☐ Places removed relays in the EOP Defeat Package
CUE: E51-K204A and E51-K204C are removed and are in the package	
* 3. [3.2] At H21-P081 (AB4-F11) (Division 2): 3.2.1 Remove plug-in Relay E51-K204D 3.2.2 Remove plug-in Relay E51-K204B 3.2.3 Place removed relays in the EOP Defeat Package	* 3. At H21-P081 (AB4-F11): ☐ Removes plug-in Relay E51-K204D ☐ Removes plug-in Relay E51-K204B ☐ Places removed relays in the EOP Defeat Package
CUE: E51-K204B and E51-K204D are removed and are in the package	
* 4. [3.3] At COP H11-P601, reset the isolation as follows: 3.3.1 Turn E5100-M098, RCIC Logic B Iso Trip Reset Sw, to RESET and release. 3.3.2 Turn E5100-M088, RCIC Logic A Iso Trip Reset Sw, to RESET and release	* 4. Contacts control room to perform step 3.3.
CUE: As control room, report that step 3.3 is complete **CUE: End the JPM when examinee reports the task is complete.**	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating __X__ amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Manual valves are checked in the closed direction (MOP02 and MOP05). Valve stem position may aid in valve position determination, but cannot be used as Independent Verification (MOP02).

Ex.: Verify valve closed: "Valve handwheel indicates no valve movement in the clockwise direction."

Verify valve open: "Valve handwheel has been rotated slightly in the clockwise direction and returned to the original positions."

Closing a valve: "Valve handwheel has been rotated in the fully clockwise direction until no additional valve movement. Valve stem is down."

Opening a valve: "Valve handwheel has been rotated in the fully counterclockwise direction until no additional valve movement, valve stem is out."

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

ESP Defeats are installed either by installing a jumper, lifting leads, or removing a plug-in relay or fuse.

Installing Jumpers:

- Ensure the operator goes to the SM and obtains the key to the EOP cabinet.
- Upon unlocking the cabinet, the operator finds the correct package and ensures the proper equipment is in the package.
- Per the attached drawing, locate the panel and verify the panel opened is correct and the operator has opened the correct side door.
- Within the panel, locate the proper terminal strip and verify that the proper terminal number is selected.
- Using proper safety techniques, a jumper is landed on each terminal ensuring that no other terminal is touched or cabinet ground is touched with the free end.
- Repeat until all jumpers are installed per the package.
- For some cabinets, the terminals are separated load to source side of the terminal point by a Knife Switch. In these cabinets the direction of the ESP has the knife switch screw unlocked and opened prior to installing the defeat. This will be spelled out and then the same rules as above apply.

- When both ends are safely landed on all jumpers per the package in the proper location, the operator calls the control room and informs them that the defeat is installed.

Lifting Leads:

- Ensure the operator goes to the SM and obtains the key to the EOP cabinet.
- Upon unlocking the cabinet, the operator finds the correct package and ensures the proper equipment is in the package.
- Per the attached drawing, locate the panel and verify the panel opened is correct and the operator has opened the correct side door.
- Within the panel, locate the proper terminal strip and verify that the proper terminal number is selected.
- Using the proper safety techniques, remove the locking screw and remove the wire from the terminal point keeping it from making contact with the other cabinet wiring or cabinet sides.
- Tape the wire electrical end or install the boot provided.
- For some terminal points, more than one wire will be terminated at the proper point. For these, the instruction will read " Lift and separate leads". This means remove the leads safely and place each into boots or tape separately.
- For some cabinets, the terminals are separated load to source side of the terminal point by a Knife Switch. In these cabinets the direction of the ESP has the knife switch screw unlocked and opened prior to installing the defeat. This will be spelled out and then the same rules as above apply.
- When all leads are removed per the package in the proper location, the operator calls the control room and informs them that the defeat is complete.

Remove Plug-in Relay or Fuse:

- Ensure the operator goes to the SM and obtains the key to the EOP cabinet.
- Upon unlocking the cabinet, the operator finds the correct package and ensures the proper equipment is in the package.
- Per the attached drawing, locate the panel and verify the panel opened is correct and the operator has opened the correct side door.
- Locate the plug-in relay or fuse and verify the defeat package to the relay, or fuse in question, labels.
- Plug-in relays have seismic clips which need to be removed first and then grasped on either side and pulled straight back out of the cabinet.
- Fuses need to be grasped by fuse pullers and pulled out evenly and in one motion. There is a fuse identifier mylar cover on some fuses which needs to be removed to reach the fuse.
- The one exception is the Main Turbine Bypass Dump System fuses which set in the H11P632 cabinet in a fuse block. FS59 & FS60 are contained in a block that can be pulled out much like the plug-in relay without the seismic clip.
- When all steps are complete, contact the control room and announce that the defeat is completed

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

N/A

Malfunctions:

Number	Title	Value	Delay	Ramp
N/A				

Remote Functions:

Number	Title	Value	Delay	Ramp
N/A				

Override Functions:

Number	Title	Value	Delay	Ramp
N/A				

Special Instructions:

N/A

Cue Sheet (JP-OP-802-3006-301)

Initial Conditions:

- You are the Reactor Building Rounds Operator
- The crew has entered 29.000.01, sheet 1, RPV Control
- RCIC is required for injection to the RPV

Initiating Cue(s):

The CRS directs you to defeat RCIC Low Pressure Isolations per 29.ESP.16

JOB PERFORMANCE MEASURE

Job Position SRO / RO / NO	No. JP-OP-315-0027-001	Revision 0
JPM Title Startup RPS MG Set A(B)	Duration 15 minutes	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO / NO

Evaluator: _____

Validating Representatives Name: __John Holdwick_____

JPM Type: **Normal** / Alternate Path **/** Time Critical Start Time _____

Evaluation Method: Perform / **Walkthrough** / Discuss Stop Time _____

Location: **Plant** / Simulator / Classroom Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
1.				7.							
2.				*** 8.**							
*** 3.**				*** 9.**							
4.				*** 10.**							
5.				11.							
6.				12.							

OPERATOR FUNDAMENTALS OBSERVATION				
Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.				
Operator Fundamental	**Meets all Expectations**	**Opportunity for Improvement**	**Does not meet Expectations**	**Comment Number**
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

_____

_____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ / _____

JPM Title Startup RPS MG Set A(B)	No.: JP-OP-315-0027-001 Revision: 0 Page 2

System:

C7100 - Reactor Protection System

Task:

04C7102001 - Startup the Reactor Protection System MG set A/B and Alternate Transformer

References: Required (R) / Available (A)

23.316, RPS 120V AC AND RPS MG SETS (R)

Tools and Equipment Required:

N/A

Initial Conditions:

- You are the Reactor Building Rounds.
- RPS MG Set A(B) is in STANDBY, ready to be placed in service.
- All Prerequisites have been completed.

Initiating Cue(s):

The Control Room LNO directs you to start RPS MG Set A(B)

Terminating Cue(s):

RPS MG Set A(B) started and ready to be placed in service.

Task Standard:

RPS MG Set A(B) started and ready to be placed in service in accordance with 23.316, section 5.1(5.2).

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

7 - Instrumentation

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 212000 - Reactor Protection System

K/A STATEMENT:

A1. Ability to predict and/or monitor changes in parameters associated with operating the REACTORPROTECTION SYSTEM controls including: (CFR: 41.5)

A1.01 RPS motor-generator output voltage ..... 2.8 / 2.9

Maintenance Rule Safety Classification:

C7100-01

Maintenance Rule Risk Significant? (Yes or No)

Yes

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide Examinee with CUE SHEET and, when requested, provide 23.316 copy** **NOTE: Steps are written for MG set A. If MG set B is to be started refer to procedure section 5.2**		
1.	[5.1.2.1] Verify closed or close MCC 72B-4C, Pos. 2C (RB1-G13) Circuit Breaker and locked (hasp engaged) for RPS MG Set A. (MCC 72E-5B Pos. 1C-R (RB1-D9) for MG set B)	1.	Verifies MCC 72B-4C, Pos. 2C is closed with the hasp engaged. (MCC 72E-5B Pos. 1C-R (RB1-D9) for MG set B)
CUE:	**MCC 72B-4C, Pos. 2C is closed with the hasp engaged.**		
2.	[5.1.2.2] Green MOTOR OFF light for RPS MG Set A (B) on RPS MG Set A Control Panel is ON.	2.	Verifies the green MOTOR OFF light is lit on the RPS MG Set A (B) Control Panel.
CUE:	**The green MOTOR OFF light is lit.**		
*** 3.**	[5.1.2.3] Depress and hold the MOTOR ON pushbutton, located on the RPS MG Set A(B) Control Panel until MG Set A(B) Generator Voltage increases to 115 to 125V AC.	*** 3.**	Depresses and holds the MOTOR ON pushbutton and observes voltage raising on the voltmeter.
CUE:	**The MOTOR ON pushbutton is depressed and voltage rises to 120 VAC.**		
4.	[5.1.2.4] Release MOTOR ON pushbutton.	4.	Releases the MOTOR ON pushbutton.
CUE:	**Pushbutton is released.**		
5.	[5.1.2.5] Verify the red MOTOR ON light is on.	5.	Verifies the red MOTOR ON light is on.
CUE:	**Red MOTOR ON light is lit.**		
6.	[5.1.2.6] If necessary, adjust the VOLT ADJUST Potentiometer on RPS MG Set A Control Panel until 120V AC is obtained as read on Generator Voltmeter.	6.	Verifies the reading on the voltmeter.
CUE:	**Indicated voltage is 120V AC.**		
7.	[5.1.2.7] Verify stable operation of RPS MG Set A(B) for at least one minute at a Generator Output Voltage of 120V AC.	7.	Monitors voltage for at least one minute.
CUE:	**Using time compression report that 1 minute has elapsed and indicated voltage is 120V AC and stable**.		
*** 8.**	[5.1.2.8] Close Generator Output Circuit Breaker on RPS MG Set A(B) Control Panel (AB3-H11).	*** 8.**	Closes the Generator output circuit breaker.
CUE:	**Generator output circuit breaker is closed.**		

ELEMENT		STANDARD	
* 9.	[5.1.2.9] On C7100-S003A(D), EPA Circuit Breaker perform the following: a. Place Keylock Reset switch in RESET, then back to OPER. b. Verify Trip Lights are off. c. Reset and close C7100-S003A(D), EPA Circuit Breaker.	* 9.	On C7100-S003A(D): ☐ Rotates the Keylock Reset switch to RESET, and back to OPER. ☐ Verifies the Trip Lights are off. ☐ Resets and closes C7100-S003A(D).
CUE:	**Keylock Reset switch is in RESET, and back to OPER. Trip Lights are off. C7100-S003A(D) is Reset and closed.**		
* 10.	[5.1.2.10] On C7100-S003C(B), EPA Circuit Breaker perform the following: a. Place Keylock Reset switch in RESET, then back to OPER. b. Verify Trip Lights are off. c. Reset and close C7100-S003C(B), EPA Circuit Breaker.	* 10.	On C7100-S003C(B): ☐ Rotates the Keylock Reset switch to RESET, and back to OPER. ☐ Verifies the Trip Lights are off. ☐ Resets and closes C7100-S003C(B).
CUE:	**Keylock Reset switch is in RESET, and back to OPER. Trip Lights are off. C7100-S003C(B) is Reset and closed**.		
11.	[5.1.2.11] Verify stable Generator Output Voltage of 120V AC by checking Control Panel Generator Voltmeter. a. If erratic Generator Output Voltage is observed, shutdown MG Set.	11.	Monitors the voltmeter for stable 120V AC reading.
CUE:	**Generator Output Voltage is 120V AC and stable**		
12.	[5.1.2.12] On COP H11-P809(810), at DIVISION I REAC PROT SYSTEM PWR SOURCE SEL switch, verify red GEN AVAIL light is on.	12.	Contacts the control room to determine if the DIVISION I REAC PROT SYSTEM PWR SOURCE SEL switch, red GEN AVAIL light is on.
CUE:	**Control room reports the DIVISION 1(2) REAC PROT SYSTEM PWR SOURCE SEL switch, red GEN AVAIL light is on**. **CUE: End JPM after control room report**		

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

CMC switches will turn RED and amperage will increase when the switch is rotated to the start position started. The current should initially be five to seven times the normal running amps with the ammeter flashing. As counter EMF is developed, the amperage will lower to the normal running amperage and the ammeter will no longer flash. CMC switches will turn GREEN when the pumps are stopped and amperage will decrease to zero.

Ex.: Pump start: "Switch has been rotated to the start position, red light is lit, green light is out, amperage initially pegs out high, and is now indicating _____ amps."

Pump stop: "Switch has been rotated to the stop position, green light is lit, red light is out, amperage indicates 0 amps."

Remotely operated valve position is determined with open and close indicating lights. A RED light only would indicate that the valve is open. A GREEN light only would indicate that the valve is closed. Dual indication would indicate that the valve is in some intermediate position.

Manual valves are checked in the closed direction (MOP02 and MOP05). Valve stem position may aid in valve position determination, but cannot be used as Independent Verification (MOP02).

Ex.: Verify valve closed: "Valve handwheel indicates no valve movement in the clockwise direction."

Verify valve open: "Valve handwheel has been rotated slightly in the clockwise direction and returned to the original positions."

Closing a valve: "Valve handwheel has been rotated in the fully clockwise direction until no additional valve movement. Valve stem is down."

Opening a valve: "Valve handwheel has been rotated in the fully counterclockwise direction until no additional valve movement, valve stem is out."

Controllers have an Auto light that is GREEN when selected and AMBER (YELLOW) when Manual is selected. When in Manual, the open and closed pushbuttons control the parameter to be changed by adjusting position or speed. When the deviation meter is nulled, then the process can be shifted to Auto to allow the desired setpoint to control the process.

System Specific Notes and Cues:

MG Set A(B) Voltmeter (0 - 150 volts) is located at AB3-G12.

MG Set A(B) Ammeter (0 - 200 amps) is located at AB3-G12.

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee. Notify Examinee that time compression may be used for activities performed outside of the Control Room.

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

Simulator Setup

IC#:

N/A

Malfunctions:

Number	Title	Value	Delay	Ramp
N/A				

Remote Functions:

Number	Title	Value	Delay	Ramp
N/A				

Override Functions:

Number	Title	Value	Delay	Ramp
N/A				

Special Instructions:

N/A

Cue Sheet: (JP-OP-315-0027-001)

Initial Conditions:

- You are the Reactor Building Rounds.
- RPS MG Set A(B) is in STANDBY, ready to be placed in service.
- All Prerequisites have been completed.

Initiating Cue(s):

The Control Room LNO directs you to start RPS MG Set A(B)

JOB PERFORMANCE MEASURE

Job Position SRO / RO / NO	No. JP-OP-315-0167-404	Revision 0
JPM Title RBCCW Manual Bypass Ops - Alt Path	Duration 15 minutes*	Page 1

*2 times Duration for ILO Exams

Examinee: _____ SRO / RO / NO

Evaluator: _____

Validating Representatives Name: ___Art Snowberger_____

JPM Type: Normal / **Alternate Path** / Time Critical

Evaluation Method: Perform / **Walkthrough** / Discuss

Location: **Plant** / Simulator / Classroom

Start Time _____

Stop Time _____

Total Time: _____

PERFORMANCE EVALUATION SUMMARY											
Element	S	U	Comment	Element	S	U	Comment	Element	S	U	Comment
*** 1.**				6.							
2.				7.							
*** 3.**				*** 8.**							
*** 4.**				*** 9.**							
*** 5.**				*** 10.**							

OPERATOR FUNDAMENTALS OBSERVATION

Monitor operator fundamentals during the JPM set. Rate each area based on the criteria by placing a checkmark in the appropriate column. Indicate the comment number associated with the observation.

Operator Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations	Comment Number
Monitoring				
Control				
Conservatism				
Teamwork				
Knowledge				

OVERALL EVALUATOR COMMENTS: _____

REMEDIAL CONTENT: _____

_____ PASS _____ FAIL

Evaluator Signature / Date: _____ / _____

JPM Observation Criteria

Fundamental	Meets all Expectations	Opportunity for Improvement	Does not meet Expectations
Monitoring	Equipment status monitored at proper frequency, using multiple means if available. Understood which indications were critical.	Some monitoring was performed but undue focus on task or lack of system knowledge prevented ideal monitoring.	Did not recognize key equipment status indicators, too much focus on single indications and ignored total system status.
Control	Task preview used to prepare for job. Aware of control bands and maintained them. Configuration control maintained.	Adequate control of system maintained throughout task but some improvements could be made such as better manual control or greater depth of knowledge for anticipating system response.	No anticipation of results of actions. Unaware or control bands or not able to maintain them. Lack of knowledge of how to control system parameters.
Conservatism	Low threshold for identification of problems. Questioning attitude. Uses “stop when unsure” if needed. Sensitive to nuclear safety.	Some opportunities existed to question before proceeding, High focus on task completion without consideration for other system affects.	Proceeds even when unsure with unanswered questions. High threshold for problem conditions.
Teamwork	Routinely communicates system status changes to the team. Communicates actions before taking them.	Communicated most status and actions. Some improvement would be warranted.	Routinely takes action without informing the team.
Knowledge	Able to anticipate system response based on solid system knowledge. Good working knowledge of generic fundamentals to predict and monitor system response.	Plant, system, or generic fundamental knowledge has some gaps.	Unable to predict system response, unsure of generic fundamentals concepts related to plant operation. Only relied on procedure for operating knowledge.

JPM Information

System:

P4200 Reactor Building Closed Cooling Water

Task:

Number and Description

References: Required (R) / Available (A)

23.127 Reactor Building Closed Cooling Water/Emergency Equipment Cooling Water System

Tools and Equipment Required:

None

Initial Conditions:

- You are an extra operator on shift
- P42-F403, RBCCW DP Control Vlv, had been removed from service to perform emergent maintenance, and is now ready to be returned to service

Initiating Cue(s):

The CRS directs you to return P42-F403, RBCCW DP Control Vlv, to service per 23.127, section 7.20.3

- A ladder is staged in the P42-F013 area
- Communication has been established between the Main Control Room and AB1 between the RBCCW Heat Exchangers

Terminating Cue(s):

Manual bypass operation has been restored IAW 23.127 section 7.20.2

Task Standard:

Return to service for DP control valve has been attempted, and following failure to operate, manual bypass is restored IAW 23.127

Licensed Operator Exam Information (required for NRC exams)

Safety Function:

8 – Plant Service Systems

K/A Reference: (from NUREG 1123)

K/A SYSTEM: 400000 – Component Cooling Water System

K/A STATEMENT: A1.03 Ability to predict and / or monitor changes in parameters associated with operating the CCWS controls including:

CCW Pressure …….. 2.7 / 2.7

Maintenance Rule Safety Classification:

P4200-04

Maintenance Rule Risk Significant? (Yes or No)

No

PERFORMANCE EVALUATION

Start Time _____

ELEMENT		STANDARD	
CUE:	**Provide Examinee with CUE SHEET and, when requested, provide 23.127 copy**		
NOTE:			
*** 1.**	[7.20.3.1] Verify open or open P4200-F009, RBCCW DP Control Vlv Inlet Iso Vlv	*** 1.**	Opens P4200-F009
CUE:	**If asked, F009 is currently closed.** **When examinee demonstrates opening the valve, report the valve opens.**		
2.	[7.20.3.2] Verify IAS is lined up to P42-F403, RBCCW DP Control Vlv	2.	Verify IAS is lined up to P42-F403
CUE:	**IAS isolation valves to P42-F403 are open**		
*** 3.**	[7.20.3.3] Slowly open P4200-F013, until P42-F403 indicates closed locally	*** 3.**	Slowly rotates F013 handwheel in the open direction and observes F403 closed
CUE:	**When examinee demonstrates opening F013, report the valve opens, and F403 indicates fully closed.**		
*** 4.**	[7.20.3.4] Slowly open P4200-F012, RBCCW DP Control Vlv Outlet Iso Vlv	*** 4.**	Slowly rotates F012 handwheel in the open direction
CUE:	**When examinee demonstrates opening F012, report the valve opens**		
	Alternate Path Begins Here		
*** 5.**	[7.20.3.4] Perform the following concurrently: • Slowly close P4200-F013, RBCCW DP Control Vlv Bypass Vlv. • Verify P42-F403 is maintaining RBCCW pumps DP between 41 and 49 psid as indicated on P42-R802, RBCCW Headers Pressure Indicator	*** 5.**	Slowly closes F013 while observing F403 and recognizes failure of F403 to operate properly
CUE:	**When examinee demonstrates closing F013, report the valve closes.** **As MCR, report RBCCW pump DP cycling rapidly between 10 and 60 psid on P42-R802**		
6.	May observe P42-F403 for proper operation	6.	Observes P42-F403 operation and contacts control room to report F403 failure and request direction to proceed
CUE:	**If asked, F403 position is cycling rapidly (hunting). As MCR, acknowledge report and ask examinee for a recommendation, then direct examinee to proceed with recommended action.**		

ELEMENT	STANDARD
NOTE: Desired recommendation is to restore manual bypass operation per section 7.20.2	
7. [7.20.2.1] Verify closed P4200-F013, RBCCW DP Control Vlv Bypass Vlv	7. Verifies closed P4200-F013
CUE: F013 is closed. **NOTE: F013 was closed in previous section.**	
*** 8.** [7.20.2.2] Throttle open P4200-F013, RBCCW DP Control Vlv Bypass Vlv, while monitoring the following: • A change in RBCCW return pressure (green needle) is noted on P42-R802 • P42-F403 goes closed	*** 8.** Throttles open P4200-F013, monitors position of P42-F403, and requests control room report RBCCW return pressure on P42-R802
CUE: • **When examinee demonstrates opening F013, report the valve opens** • **F403 fully closes as F013 is opened** • **As MCR, report a rise in RBCCW return pressure on P42-R802 green needle**	
*** 9.** [7.20.2.3] Slowly close P4200-F012, RBCCW DP Control Vlv Outlet Iso Vlv	*** 9.** Slowly rotates F012 handwheel in the closed direction
CUE: When examinee demonstrates closing F012, report the valve closes	
***10.** [7.20.2.4] Adjust and maintain RBCCW supply header pressure 41 to 49 psid above RBCCW return header pressure by throttling P4200-F013, RBCCW DP Control Vlv Bypass Vlv	*** 10.** Adjusts P4200-F013 position until RBCCW supply header pressure is 41 to 49 psid above RBCCW return header pressure
CUE: As MCR, report RBCCW supply header pressure is 45 psid above RBCCW return header pressure, then TERMINATE the JPM	

_____ SATISFACTORY _____ UNSATISFACTORY

Stop Time _____

*** Critical Step**

JOB PERFORMANCE MEASURE

Evaluator Notes:

ENSURE ALL INDUSTRIAL AND PERSONNEL SAFETY PRACTICES ARE USED AND ENFORCED AT ALL TIMES.

FAILURE TO WEAR ALL PPE REQUIRED FOR TASK PERFORMANCE WILL RESULT IN FAILURE OF THIS JPM.

Generic Notes and Cues:

System Specific Notes and Cues:

Task Performance and Cues:

The Elements of this JPM are step by step in accordance with the procedure. The Standard is that the procedure is performed as written. The Cues are as listed above for indication or as each step is completed the appropriate information is reported to the examinee. Notify Examinee that time compression may be used for activities performed outside of the Control Room. Notify Examinee if JPM is Time Critical (only if JPM is **NOT** Alternate Path.)

Critical Steps:

Critical Tasks are identified by asterisk (*) and **bolded** steps on the cover sheet. Verify that the latest revision of the procedure is used and critical tasks are correctly identified.

JOB PERFORMANCE MEASURE

JPM Title	No: Revision: Page

FOLLOW-UP DOCUMENTATION QUESTIONS

Reason for follow-up question(s):

Question:

Reference:

Response:

Question:

Reference

Response:

JOB PERFORMANCE MEASURE

JPM Title	No: Revision: Page

Simulator Setup

IC#:

Malfunctions:

Number	Title	Value	Delay	Ramp

Remote Functions:

Number	Title	Value	Delay	Ramp

Override Functions:

Number	Title	Value	Delay	Ramp

Special Instructions:

JOB PERFORMANCE MEASURE

Cue Sheet: (JP-OP-XXX-XXXX-XXX)

Initial Conditions:

- You are an extra operator on shift
- P42-F403, RBCCW DP Control Vlv, had been removed from service to perform emergent maintenance, and is now ready to be returned to service

Initiating Cue(s):

- The CRS directs you to return P42-F403, RBCCW DP Control Vlv, to service per 23.127, section 7.20.3
- A ladder is staged in the P42-F013 area
- Communication has been established between the Main Control Room and AB1 between the RBCCW Heat Exchangers