EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2610030101 – PLOR-337C K/A: 261000 G2.1.29
URO: 4.1 SRO: 4.0

TASK DESCRIPTION: Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Partial procedure SO 9A.1.A COL "Standby Gas Treatment System Automatic Operation", Rev. 10. All steps are marked "N/A" except for step:

5 (A fan)	20 (AO 20469-01)
6 (B fan)	21 (AO 20469-02)
8 (AO 2507)	22 (AO 20470-01)
9 (AO 2512)	23 (AO 20470-02)
10 (AO 2514)	24 (PO 20465)
11 (AO 2510)	25 (AO 20466)
16 (AO 00475-01)	
17 (AO 00475-02)	
18 (AO 00476-01)	
19 (AO 00476-02)	

C. REFERENCES

1. SO 9A.1.A COL "Standby Gas Treatment System Automatic Operation", Rev. 10.

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Unit 2 Main Control Room related steps of SO 9A.1.A COL "Standby Gas Treatment System Automatic Operation", are complete.

2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to lineup the Unit 2 Main Control Room portion of the Standby Gas Treatment System using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. A Unit 2 startup is in progress.

2. Emergent maintenance was performed on various components of the Standby Gas Treatment System (SGTS).

3. Shift Management directs that a lineup verification of the Unit 2 Main Control Room portion of the SGTS be performed.

4. A partial of SO 9A.1.A COL "Standby Gas Treatment System Automatic Operation" has been reviewed and approved for use.

G. INITIATING CUE

The Control Room Supervisor directs you to perform an Independent Verification (IV) of the Unit 2 Main Control Room portion of the SGTS using the approved partial of SO 9A.1.A COL "Standby Gas Treatment System Automatic Operation". Do NOT manipulate any components. Document any components that are not in the correct position on the "Task Conditions/Prerequisites" sheet.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
******NOTE TO EVALUATOR**** Hand partial of COL 9A.1.A " Standby Gas Treatment System Automatic Operation" to the Examinee to start this JPM.**			
1	Verify Standby Gas Treatment Fan 'A' (0AV020) control switch is in "AUTO". (Cue: Standby Gas Treatment Fan 'A' (0AV020) control switch is in "AUTO" position)	P	On panel 20C012 verify Standby Gas Treatment Fan 'A' (0AV020) control switch is in "AUTO" position. Initial and date the check off list step.
*2	Verify Standby Gas Treatment Fan 'B' (0BV020) control switch is in "AUTO". (Cue: If notified that the Fan 'B' (0BV020) control switch is NOT in "AUTO" position, acknowledge report. If necessary, direct candidate to continue task and report all discrepancies upon completion of task.)	P	On panel 20C012 recognize and document on the "Task Conditions/Prerequisites" sheet that the Standby Gas Treatment Fan 'B' (0BV020) control switch is in the "PULL-TO-LOCK" position and NOT in "AUTO" position.
3	Verify AO-2507 "Drywell Outboard 18" Vent" is in "CLOSED" position. (Cue: AO-2507 "Drywell Outboard 18" Vent" control switch is in "CLOSED" position)	P	On panel 20C003-3 verify that AO-2507 "Drywell Outboard 18" Vent" is in "CLOSED" position. Initial and date the check off list step.
4	Verify AO-2512 "Torus Outboard 18" Vent" is in "CLOSED" position. (Cue: AO-2512 "Torus Outboard 18" Vent" control switch is in "CLOSED" position)	P	On panel 20C003-3 verify that AO-2512 "Torus Outboard 18" Vent" is in "CLOSED" position. Initial and date the check off list step.
5	Verify AO-2514 "Torus Outboard 2" Vent" is in "CLOSED" position. (Cue: AO-2514 "Torus Outboard 2" Vent" control switch is in "CLOSED" position)	P	On panel 20C484A verify that AO-2514 "Torus Outboard 2" Vent" is in "CLOSED" position. Initial and date the check off list step.

STEP NO	STEP	ACT	STANDARD
6	Verify AO-2510 "Drywell Outboard 2" Vent" is in "CLOSED" position. (Cue: AO-2510 "Drywell Outboard 2" Vent" control switch is in "CLOSED" position)	P	On panel 20C484B verify that AO-2510 "Drywell Outboard 2" Vent" is in "CLOSED" position. Initial and date the check off list step.
*7	Verify AO-00475-01 "Standby Gas Treatment A Filter Inlet" is in "AUTO" position. (Cue: If notified that the AO-00475-01 "Standby Gas Treatment A Filter Outlet" is NOT in the "AUTO" position, acknowledge report. If necessary, direct candidate to continue task and report all discrepancies upon completion of task.)	P	On panel 20C012 recognize and document on the "Task Conditions/Prerequisites" sheet that AO-00475-01 "Standby Gas Treatment A Filter Inlet" control switch is in the "CLOSE" position and NOT in "AUTO" position.
*8	Verify AO-00475-02 "Standby Gas Treatment A Filter Outlet" is in "AUTO" position. (Cue: If notified that the AO-00475-02 "Standby Gas Treatment A Filter Outlet" is NOT in the "AUTO" position, acknowledge report. If necessary, direct candidate to continue task and report all discrepancies upon completion of task.)	P	On panel 20C012 recognize and document on the "Task Conditions/Prerequisites" sheet that AO-00475-02 "Standby Gas Treatment A Filter Outlet" control switch is in "CLOSE" and NOT in the "AUTO" position.
9	Verify AO-00476-01 "Standby Gas Treatment B Filter Inlet" is in "AUTO" position. (Cue: AO-00476-01 "Standby Gas Treatment B Filter Inlet" is in "AUTO" position)	P	On panel 20C012 verify that AO-00476-01 "Standby Gas Treatment B Filter Inlet" is in "AUTO" position. Initial and date the check off list step.

STEP NO	STEP	ACT	STANDARD
10	Verify AO-00476-02 "Standby Gas Treatment B Filter Outlet" is in "AUTO" position. (Cue: AO-00476-02 "Standby Gas Treatment B Filter Outlet" is in "AUTO" position)	P	On panel 20C012 verify that AO-00476-02 "Standby Gas Treatment B Filter Outlet" is in "AUTO" position. Initial and date the check off list step.
11	Verify AO-20469-01 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in "CLOSED" position. (Cue:AO-20469-01 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in "CLOSED" position)	P	On panel 20C012 recognize that AO-20469-01 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in the "CLOSED" position. Initial and date the check off list step
12	Verify AO-20469-02 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in "CLOSED" position. (Cue:AO-20469-02 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in "CLOSED" position)	P	On panel 20C012 recognize that AO-20469-02 "Standby Gas Treatment D/W Reactor Bldg Equipment Exhaust" is in the "CLOSED" position. Initial and date the check off list step
13	Verify AO-20470-01 "Standby Gas Treatment Refuel Floor Exhaust" is in "CLOSED" position. (Cue:AO-20470-01 "Standby Gas Treatment Refuel Floor Exhaust" is in "CLOSED" position)	P	On panel 20C012 recognize that AO-20470-01 "Standby Gas Treatment Refuel Floor Exhaust" is in the "CLOSED" position. Initial and date the check off list step

STEP NO	STEP	ACT	STANDARD
14	Verify AO-20470-02 "Standby Gas Treatment Refuel Floor Exhaust" is in "CLOSED" position. (Cue:AO-20470-02 "Standby Gas Treatment Refuel Floor Exhaust" is in "CLOSED" position)	P	On panel 20C012 recognize that AO-20470-02 "Standby Gas Treatment Refuel Floor Exhaust" is in the "CLOSED" position. Initial and date the check off list step
15	Verify PO-20465 "Exhaust to Standby Gas Treatment Equipment Cell" is in "CLOSED" position. (Cue: PO-20465 "Exhaust to Standby Gas Treatment Equipment Cell" is in "CLOSED" position)	P	On panel 20C012 recognize that PO-20465 "Exhaust to Standby Gas Treatment Equipment Cell" is in the "CLOSED" position. Initial and date the check off list step
16	Verify PO-20466 "Exhaust to Standby Gas Treatment Rx Bldg" is in "CLOSED" position. (Cue: PO-20466 "Exhaust to Standby Gas Treatment Rx Bldg" is in "CLOSED" position)	P	On panel 20C012 recognize that PO-20466 "Exhaust to Standby Gas Treatment Rx Bldg" is in the "CLOSED" position. Initial and date the check off list step
17	Inform Control Room Supervision of completion of partial SGTS lineup.	P	Inform Control Room Supervision of completion of partial COL 9A.1.A. A lineup verification of the Unit 2 Main Control Room portion of the SGTS has been performed.
18	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When a lineup verification of the Unit 2 Main Control Room portion of the SGTS has been performed the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2320270401 – PLOR384C K/A: 2.1.25 (Generic)
RO: 3.9 SRO: 4.2

TASK DESCRIPTION: AO 10.12-2 "Alternate Shutdown Cooling"

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

   c. Applicable JPM Work Practice Standards, TQ-JA-150-04 graded satisfactorily.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. AO 10.12-2, Rev 8, "Alternate Shutdown Cooling" (AT2)

2. T-102, Rev 14, "Primary Containment Control" Sheet 3

C. REFERENCES

1. AO 10.12-2, Rev 8, "Alternate Shutdown Cooling"

2. T-102, Rev 14, "Primary Containment Control" Sheet 3

D. TASK STANDARD

1. Satisfactory task completion is indicated when Examinee has completed Attachment 2 of AO 10.12-2 "Alternate Shutdown Cooling"

2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to determine whether Alternate Shutdown Cooling should be placed in service using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Normal Shutdown Cooling is NOT available using SO 10.1.B-2, "Residual Heat Removal System Shutdown Cooling Mode Manual Start"

2. Unit 2 Reactor Pressure is currently 125 psig

3. MO-2-10-017 and MO-2-10-018 are currently closed

4. All SRV's are available for manual operation

5. An ATWS is NOT in progress

6. Reactor has been Shutdown for 4 hours

7. RPV head is installed

8. Torus Level is currently 13.5 feet

9. Torus Temperature is currently 180°F

10. Torus Pressure is currently 2.2 psig

11. 'A' loop of RHR is in Torus cooling with 10,000 gpm per pump

G. INITIATING CUE

AO 10.12-2 "Alternate Shutdown Cooling" steps 4.1 – 4.6 have been completed SAT. The Control Room Supervisor directs you to perform AO 10.12-2 "Alternate Shutdown Cooling" starting at step 4.7 and inform the CRS of the ability to place Alternate Shutdown Cooling in service.

NPSH limits of T-102 "Primary Containment Control"

☐ will be satisfied ☐ will NOT be satisfied

Alternate Shutdown Cooling

☐ can be placed in service ☐ cannot be placed in service

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
	NOTE **Provide the examinee with AO 10.12-2 "Alternate Shutdown Cooling" (AT2) and T-102 "Primary Containment Control" Sheet 3**		
1	Record Current Reactor Pressure in Table 1 of Attachment 2	P	**125 psig** is recorded on Table 1 of Attachment 2
2	Record Current Torus Level in Table 1 of Attachment 2	P	**13.5 feet** is recorded on Table 1 of Attachment 2
3	Record Current Torus Temperature in Table 1 of Attachment 2	P	**180°F** is recorded on Table 1 of Attachment 2
4*	Conclude that Figure 1 of Attachment 2 should be used to determine Torus Temperature Rise and record on Table 1	P	Figure 1 of Attachment 2 is used to determine Torus Temperature rise. **15°F** is recorded on Table 1 of Attachment 2
5*	Add Torus Temperature Rise to Current Torus temperature and record on Table 1	P	**195°F** is recorded as Final Torus Temperature on Table 1 of Attachment 2
6*	Using Current Torus Level and Final Torus Temperature recorded in Table 1, determine if the NPSH limits of T-102, "Primary Containment Control" will be satisfied after initiation of Alternate Shutdown Cooling.	P	It is determined that NPSH limits of T-102, "Primary Containment Control" will **NOT** be satisfied after initiation of Alternate Shutdown Cooling
7	Inform CRS that Alternate Shutdown Cooling cannot be placed in service at this time because NPSH limits will not be satisfied (Cue – As CRS Acknowledge report)	P	CRS is informed that Alternate Shutdown Cooling should not be placed in service at this time
8	As the evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites AND procedures).	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the examinee has performed Attachment 2 of AO 10.12-2 "Alternate Shutdown Cooling" and determined appropriate actions, the evaluator may terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: PLOR-220 K/A: 2.2.41

URO: 3.5 SRO: 3.9

TASK DESCRIPTION: Ability to Obtain and Interpret Station Electrical and Mechanical Drawings

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. M-300 sheet 1, Rev. 48, "P&I Diagram Legend" print
2. M-300 sheet 2, Rev. 46, "P&I Diagram Legend" print
3. M-300 sheet 3, Rev. 01, "P&I Diagram Legend" print
4. M-333 Sheet 1, Rev. 59, "P&I Diagram Instrument Nitrogen" print
5. M-333 Sheet 2, Rev. 60, "P&I Diagram Instrument Nitrogen" print

C. REFERENCES

1. M-300 sheet 1, Rev. 48, "P&I Diagram Legend" print
2. M-300 sheet 2, Rev. 46, "P&I Diagram Legend" print
3. M-300 sheet 3, Rev. 01, "P&I Diagram Legend" print
4. M-333 Sheet 1, Rev. 59, "P&I Diagram Instrument Nitrogen" print
5. M-333 Sheet 2, Rev. 60, "P&I Diagram Instrument Nitrogen" print
6. E-1670 sheet 3 Rev 5 "Electrical Schematic Diagram Instrument Nitrogen Compressor 3AK37" print
7. E-1670 sheet 4 Rev 4 "Electrical Schematic Diagram Instrument Nitrogen Compressor 3BK37" print

D. TASK STANDARD

1. Satisfactory task completion is indicated when it has been determined that:
   a. Solenoid Valve SV-5232A should be energized under the present conditions.
   b. Solenoid Valve SV-5232A is currently closed.
   c. Starting the 3BK037 Instrument Nitrogen Compressor will energize the SV-5232B Solenoid Valve after a time delay of 0.5 seconds.
2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to determine the status of a degraded component in the Instrument Nitrogen System using the appropriate P&IDs. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 and Unit 3 are at 100% power with the station in a normal line-up.

2. An Equipment Operator reports to the control room that Solenoid Valve SV-5232A is making a humming sound. The Solenoid Valve is located on the discharge of the Unit 3 Instrument Nitrogen Compressor 3AK037 (Between the 3A Instrument Nitrogen Compressor and the 3A Instrument Nitrogen Compressor Aftercooler). The 3AK037 compressor is currently running as the 'LEAD' compressor and the pressure in the Receivers (3AT109 and 3BT109) is rising.

3. No other equipment is out of service or in a degraded condition.

4. A copy of the latest approved versions of M-300 sheets 1, 2, & 3 as well as M-333 sheets 1 & 2 are being provided to you.

G. INITIATING CUE

The Control Room Supervisor directs you to determine the following:

- Should the Solenoid Valve SV-5232A be energized with the 3AK037 Compressor running?

- What is the status of SV-5232A right now (is the valve open or closed)?

- If the 3BK037 Instrument Nitrogen Compressor is (manually) started momentarily, will the equipment operator be able to compare the 'humming noise' of the SV-5232A Solenoid Valve with the operation of the SV-5232B Solenoid Valve?

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
N/A	Note to evaluator: The sequence of steps not critical. Nor is it necessary to validate the performance of each step individually. When the trainee makes the correct determinations (either verbally or written), that is sufficient to determine that the below steps have been completed satisfactorily.	N/A	Provide trainee with a written list of 'Task Conditions and Prerequisites' as well as the 'Initiating Cue' Provide trainee with legible copies the latest approved versions of: M-300 sheet 1 M-300 sheet 2 M-300 sheet 3 M-333 sheet 1 M-333 sheet 2
1	Locate the "SV-5232A" on M-333 sheet 2.	P	"SV-5232A" Solenoid Valve is located at coordinates B-6 on M-333 Sheet 2.
2	Locate 'NOTE 4' on the 'Notes' section of M-333 sheet 1.	P	NOTE 4 is located at coordinates F-1 on M-333 Sheet 1.
3	Determine that the "SV-5232A" Solenoid Valve unloads the 3AK037 Compressor for starting (while Solenoid Valve is de-energized).	P	Solenoid Valve SV-5232A opens when the coil is de-energized and allows the discharge of the 3AK037 Compressor to flow directly to the Compressor Inlet (unloading the compressor).
4	Determine that SV-5232A Solenoid Valve is designed to be energized (and closed) when the compressor is running.	P	The electrical connection to the solenoid valve is associated with the compressor Hand Switch and the Auto Start features of the Compressor (solenoid is labeled N.E.).
5	Determine that the SV-5232A Solenoid Valve must be closed in order for the compressor to load and function properly.	P	Compressor will not be able to develop high discharge pressure if a direct flow path exists between the Compressor discharge and the Compressor suction.
6	Determine that SV-5232A has a time delay that prevents the Solenoid Valve from energizing for 0.5 seconds following a start to the 3AK037 Compressor	P	The logic symbol for 'function time delay' is identified (symbol is listed on M-300 sheet 1).
7	Determine that SV-5232B Solenoid Valve is designed to work in the same manner as SV-5232A.	P	Logic lines and symbols used for the SV-5232A Solenoid Valve are identical to the logic lines and symbols used for the SV-5232B Solenoid Valve.

STEP NO	STEP	ACT	STANDARD
*8	Control Room Supervisor informed of the status concerning: Whether Solenoid Valve SV-5232A is energized or not. **(Cue: Acknowledge report.)**	P	Inform the Control Room Supervisor that (this may be done verbally or written – response does not have to match the below listed standards word for word): Solenoid Valve SV-5232A should be energized with the 3AK037 Compressor running
*9	Control Room Supervisor informed of the status concerning: Whether Solenoid Valve SV-5232A is open or closed. **(Cue: Acknowledge report.)**	P	Inform the Control Room Supervisor that (this may be done verbally or written – response does not have to match the below listed standards word for word): Solenoid Valve SV-5232A is currently closed (Valve is energized to close)
*10	Control Room Supervisor informed of the determination made concerning: Comparing SV-5232A and SV-5232B by momentarily starting the 3BK037 Compressor **(Cue: Acknowledge report.)**	P	Inform the Control Room Supervisor that (this may be done verbally or written – response does not have to match the below listed standards word for word): Starting the 3BK037 Compressor will allow a comparison of SV-5232A and SV-5232B provided the 3BK037 Compressor is run for longer than 0.5 seconds.
11	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites **AND** procedures/prints).	P	**Positive control established.**

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the trainee has provided his determinations to the questions given in the 'Initiating Cue', then the evaluator may terminate this JPM session.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3440230503 / PLOR-094C K/A: 2.4.43
URO: 2.8 SRO: 3.5

TASK DESCRIPTION: Direct a Site Evacuation

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

1. EP-AA-113 Personnel Protective Actions

2. EP-AA-113-F-04 MA Emergency Director – Site Assembly, Accountability and Evacuation (use Attachment 2 to this document)

D. TASK STANDARD

1. Satisfactory task completion is indicated when a site evacuation has been directed.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to direct a site evacuation using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

A Site Area Emergency has just been declared by the Emergency Director.

G. INITIATING CUE

The Shift Emergency Director has directed you to implement EP-AA-113-F-04 MA Emergency Director – Site Assembly, Accountability and Evacuation Step 4.0 in order to evacuate the site of non-essential personnel and have them proceed home and await further instructions.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure EP-AA-113-F-04	P	A copy of procedure EP-AA-113-F-04 is obtained. (Hand Student filled out section 4.0 of EP-AA-113-F-04)
*2	Activate the Page Alert Tone system. (Cue: Siren noise audible on loudspeaker.)	P	Station Alert Tone system pushbutton is momentarily depressed at the Plant Reactor Operator's desk.
*3	Make evacuation announcement twice over the Plant Public Address system. "Attention all Personnel. This is a drill. I repeat, this is a drill. A site evacuation has been ordered. All Emergency Response organization members report to your respective emergency response facility or assembly area. All other non-essential personnel shall evacuate the site immediately. Evacuating Personnel shall proceed home and await further instructions" (Cue: Acknowledge announcement.)	P	Depress and hold pushbutton on GAI-Tronics handset while making evacuation announcement twice over the Plant Public Address System.
*4	Rotate "Evacuation Alarm/Mic selector" switch #43, on EDG panel (00C026B) to position 6 (plant). (Cue: Acknowledge control switch operation.)	P	Mic/Siren Selector, switch 43 is placed in "POSITION 6" at panel 00C026B.
*5	Sound evacuation siren for approximately 1 minute by pulling handle out. (Cue: Acknowledge control switch operation.)	P	Mic/Siren Selector, switch 43 is PULLED OUT for approximately 1 minute at panel 00C026B.
6	Push switch #43 on Diesel Panel IN. (Cue: Acknowledge control switch operation.)	P	Mic/Siren Selector, switch 43 is PUSHED IN at panel 00C026B.

STEP NO	STEP	ACT	STANDARD
*7	Make evacuation announcement twice over the PLANT RADIO SYSTEM. "Attention all Personnel. This is a drill. I repeat, this is a drill. A site evacuation has been ordered. All Emergency Response organization members report to your respective emergency response facility or assembly area. All other non-essential personnel shall evacuate the site immediately. Exit the protected area using normal existing procedures. Proceed home and await further instructions" (Cue: Acknowledge announcement)	P	Depress the pushbutton on the radio system microphone while making evacuation announcement twice over the PLANT RADIO SYSTEM.
*8	Rotate the "Evacuation Alarm/Mic selector" switch, (while in the IN mode) to position 2, (microphone river speakers). Activate microphone by pulling handle OUT. (Cue: Acknowledge control switch operation.)	P	Mic/Siren Selector, Switch 43, is placed in "POSITION 2", THEN handle is PULLED OUT at panel 00C026B.
*9	Make evacuation announcement twice over the Pond Paging system. "Attention all Personnel. This is a drill. I repeat, this is a drill. A site evacuation has been ordered. All Emergency Response organization members report to your respective emergency response facility or assembly area. All other non-essential personnel shall evacuate the site immediately. Exit the protected area using normal existing procedures. Proceed home and await further instructions" (Cue: Acknowledge announcement.)	P	Key microphone at panel OOC026B while making evacuation announcement twice over Pond Paging System.

STEP NO	STEP	ACT	STANDARD
10	Push switch #43 selector switch on Diesel Generator Panel IN. (Cue: Acknowledge control switch operation.)	P	Mic/Siren Selector, Switch 43 is PUSHED IN at panel 00C026B.
11	Inform Shift Emergency Director that the Site Evacuation alarm/announcement has been completed and must be repeated every 10-15 minutes until accountability is complete. (Cue Acknowledge report)	P	Must inform Shift Emergency Director that the message will be repeated every 10-15 minutes until accountability is complete.
12	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive Control Established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When a site evacuation has been performed per EP-AA-113-F-04 step 4.0 the Shift Emergency Director should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2991070302 / PLOR-282C K/A: 2.1.20
SRO: 4.6

TASK DESCRIPTION: Review Daily Jet Pump Operability Surveillance

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. JPM Attachment 2, Prepared ST-O-02F-560-2, "Daily Jet Pump Operability"

2. JPM Attachment 3, Prepared Jet Pump Operability Data sheet

3. Calculator

C. REFERENCES

1. ST-O-02F-560-2 Rev. 19, "Daily Jet Pump Operability"

2. Technical Specification 3.4.2, "All Jet Pumps shall be OPERABLE"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the surveillance test has been reviewed, the Jet Pump inoperability has been identified and the proper Technical Specification determination has been made.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to review ST-O-02F-560-2, "Daily Jet Pump Operability" surveillance. Identify any unsatisfactory data points and document any actions that are required. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 is operating at 95% power.

2. ST-O-02F-560-2, "Daily Jet Pump Operability" has been performed by the URO and submitted for review.

3. It is now Sunday at 0830.

G. INITIATING CUE

As the CRS, review ST-O-02F-560-2, "Daily Jet Pump Operability" provided.
On the cue sheet, list any unsatisfactory data points and document any actions that are required by applicable procedures or Technical Specifications / Technical Requirements Manual.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
	***** NOTE ***** **Provide the examinee with prepared copies of ST-O-02F-560-2 and the Jet Pump Operability Data sheet (JPM Attachments 2 and 3).**		
1	Review ST-O-02F-560-2, "Daily Jet Pump Operability" and the Jet Pump Operability Data sheet to verify all required data is recorded and within acceptable values.	P	Reviews ST-O-02F-560-2 and the Jet Pump Operability Data Sheet.
	***** NOTES ***** **1. Steps 2 through 4 can be performed in any sequence.** **2. The Alternate Path portion of this JPM begins with the next step.**		
*2	Identify that 'B' Loop Drive Flow versus Pump Speed on Figure 1 plots outside of Acceptable Range.	P	States and / or records on the cue sheet that 'B' Loop Drive Flow versus Pump Speed on Figure 1 plots outside of Acceptable Range.
*3	Identify that 'B' Loop Jet Pump Flow versus Pump Speed on Figure 2 plots outside of Acceptable Range.	P	States and / or records on the cue sheet that 'B' Loop Jet Pump Flow versus Pump Speed on Figure 2 plots outside of Acceptable Range.
*4	Identify that Jet Pump 'K' differential pressure on Data Sheet 6 (and Jet Pump Operability Data sheet) is outside Acceptable Deviation. (Cue: If asked to re-check value, report that value is accurately recorded.)	P	States and / or records on the cue sheet that Jet Pump 'K' differential pressure on Data Sheet 6 (and Jet Pump Operability Data sheet) is outside Acceptable Deviation.
5	Identify that the Reactor Operator who performed the surveillance test failed to document failed steps 6.3.3, 6.3.5 and 6.3.8.	P	States and / or records on the cue sheet that the Reactor Operator who performed the surveillance test failed to document failed steps 6.3.3, 6.3.5 and 6.3.8.
6	Identify requirement for entry into ON-100, "Failure of a Jet Pump." (Cue: Acknowledge ON-100 entry. Inform examinee that execution of ON-100 is not required.)	P	States and / or records on the cue sheet that ON-100 entry is required due to indications of a failed Jet Pump.

STEP NO	STEP	ACT	STANDARD
*7	Determine that Technical Specification LCO 3.4.2 Condition A entry is required due to failure of SR 3.4.2.1.	P	States and / or records on the cue sheet that Technical Specification LCO 3.4.2, "All Jet Pumps shall be OPERABLE" entry is required due to Jet Pump inoperability.
*8	Determine that Unit 2 must be in Mode 3 in 12 hours.	P	States and / or records on the cue sheet that Unit 2 must be in Mode 3 in 12 hours.
9	Inform Station Management of failed Jet Pump and Technical Specification requirement to be in Mode 3 in 12 hours. (Cue: Acknowledge notification.)	P	States and / or records on the cue sheet that Station Management be notified.
10	As the evaluator, ensure you have positive control of all exam material provided to the examinee (Task Conditions / Prerequisites) AND procedures AND any Data Sheets or scrap paper used for calculations.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Surveillance has been reviewed and Station Management has been notified, the evaluator will terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2011050402 / PLOR-347C K/A: G2.1.32
SRO: 4.0

TASK DESCRIPTION: Review AO 3.8 Attachment 1 for High CRD Temperature

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator

2. Unit 3 Tech Spec 3.1.3, 3.1.4 and Bases

3. In-progress AO 3.8, with data recorded – Required

4. Core Map (NF-PB-721, At 8) – Optional – for classroom setting

C. REFERENCES

1. AO 3.8 Rev 1, "Evaluation of High CRD Temperature on Control Rod Scram Time"

2. Tech Spec 3.1.3, 3.1.4 and Bases

3. Core Map, such as NF-PB-721 At 8

D. TASK STANDARD

1. Satisfactory task completion is indicated when Control Rod 18-55 is declared SLOW or INOPERABLE and AO 3.8 is complete.

2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, complete the Shift Management review of the in-progress AO 3.8 for Control Rod 18-55. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 3 is at 100% power.

2. Eight Control Rods (10-35, 14-43, 14-55, 18-59, 22-35, 30-27, 34-51, 42-43) are currently classified as SLOW.

3. Control Rod 18-55 temperature is 405 °F and cannot be lowered.

4. System Manager has provided the latest Scram Time data for CR 18-55:

   Position 46 – 0.343 Sec
   Position 36 – 0.844 Sec
   Position 26 – 1.396 Sec
   Position 06 – 2.599 Sec

5. AO 3.8 has been completed up through Step 4.7, including Attachment 1.

G. INITIATING CUE

As the Control Room Supervisor, review Attachment 1 of AO 3.8, "Evaluation of High CRD Temperature on Control Rod Scram Time" for Unit 3 Control Rod 18-55 and complete AO 3.8. Identify Technical Specification compliance issues and required actions, if any. (Candidate to document results on back of Cue Sheet) (Hand the candidate the in-progress copy of AO 3.8 with Attachment 1 complete through the Independent Verification.)

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	REVIEW AO 3.8 up to and including step 4.6.	P	AO 3.8, "Evaluation of High CRD Temperature on Control Rod Scram Time" is reviewed.
****** NOTE ****** **The Alternate Path portion of this JPM begins with the next step.**			
2	RECOGNIZE that Scram Time for Control Rod 18-55 is unacceptable. (CUE: If informed, acknowledge as appropriate.)	P	Scram time for position(s) 46, 36, and/or 26 are recognized to be greater than Tech Spec allowance.
*3	DECLARE Control Rod 18-55 "slow". (CUE: If informed, acknowledge as appropriate.)	P	Control Rod 18-55 declared slow.
4	VERIFY Compliance with Technical Specifications 3.1.3 AND 3.1.4. (Cue: N/A)	P	TS 3.1.3 and 3.1.4 reviewed.
*5	RECOGNIZE Non-Compliance with LCO 3.1.3 and/or 3.1.4.b. (CUE: If informed, acknowledge as appropriate.)	P	TS LCO 3.1.3 and/or LCO 3.1.4.b being exceeded is recognized. (Control Rods 14-55, 18-59 are identified as SLOW in the Initiating Cue; Control Rod 18-55 results in THREE Control Rods occupying "adjacent locations".)
6	NOTIFY EDM and direct that Engineering IMMEDIATELY verify the accuracy of the temperature corrected control rod scram time calculation. (CUE: Inform candidate that Engineering concurs with all calculations and control rod speed data.)	P	EDM is involved as required by procedure.
***** NOTE ***** **Either of the alternatives in step 7 are acceptable.**			

STEP NO	STEP	ACT	STANDARD
*7	DETERMINE that Tech Spec 3.1.4 Condition A Required Actions will require Unit 3 to be placed in Mode 3 within 12 Hours. - OR – DECLARE Control Rod 18-55 (OR 18-59 OR 14-55) INOPERABLE, and apply Tech Spec 3.1.3 Condition C Required Actions. (CUE: If informed, acknowledge as appropriate.)	P	Action Statement understood. -OR – Tech Spec 3.1.3 ACTION C Required Actions are identified as an acceptable and in fact preferred alternative. (One of the three adjacent rods must be declared INOPERABLE)
8	Verify an Issue Report is generated for Control Rod 18-55. (Cue: IR generated.)	P	Issue Report generated or task to generate issue has been assigned.
9	Notify System Manager of status of Control Rod 18-55 AND Tech Spec Required Shutdown. (Cue: As System Manager, acknowledge report.)	P	System Manager notified.
10	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When Control Rod 18-55 is declared SLOW or INOPERABLE and AO 3.8 is complete, the evaluator will terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3410170302 / PLOR-273C K/A: G2.2.40
SRO: 4.7

TASK DESCRIPTION: Ability to determine actions required for an Inoperable Fire Door

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. A copy of ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System"

2. Drawing A-486 "Barrier Plan" Elev. 135'

3. Technical Requirements Manual section 3.14

C. REFERENCES

1. ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System"

2. Drawing A-486 "Barrier Plan" Elev. 135'

3. Technical Requirements Manual section 3.14

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Technical Requirements Manual compensatory measures have been identified.

2. Estimated time to complete: 15 minutes Non-Time Critical.

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, determine any actions required to be taken for Fire Door #217 Supervisory Alarm System failing to alarm.

F. TASK CONDITIONS/PREREQUISITES

1. Fire Door supervisory alarm testing is in progress in accordance with ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System".

2. You have just been notified that Fire Door #217 has been fully open for eleven minutes, and has failed to alarm.

3. Previous fire surveillance testing has determined that all smoke detectors on Turbine Building 135' are operable.

G. INITIATING CUE

As the Unit 2 Control Room Supervisor review ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System" and identify any required action(s) for Fire Door #217. Document required action(s) on the cue sheet.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System". (Cue: Provide the candidate with a copy of ST-O-037-390-2)	P	ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System" obtained.
2	Determine Fire Door location.	P	Review ST-O-037-390-2 Data Sheet 1, and determine Fire Door 217 is located on TB2 elevation 135' in the 2A & 2C Battery Room.
3	Review ST-O-037-390-2 sections 4 and 5.	P	Review ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System" for Precautions, Limitations, General Instructions, and Acceptance Criteria.
*4	Identify Fire Door #217 classification.	P	Review ST-O-037-390-2 section 4 and determine Fire Door #217 is a Safety Related door identified by an * on Data Sheet 1.
5	Review ST-O-037-390-2 Performance Steps and Corrective actions.	P	Review ST-O-037-390-2 section 6 for Test Requirements and Corrective Actions.
*6	Identify alarm requirements for Fire Door #217.	P	Determine Fire Door #217 is required to alarm in less than or equal to 10 minutes, and is INOPERABLE.
7	Obtain a copy of the Unit 2 Technical Requirements Manual. (Cue: Provide the candidate with a copy of the Unit 2 Technical Requirements Manual.)	P	Obtain a copy of the Unit 2 Technical Requirements Manual and review section 3.14 Fire Protection Systems.

*8	Determine Unit 2 Technical Requirements Manual required action.	P	Review Technical Requirements Manual section 3.14.8 condition A Establish a continuous fire watch on at least one side of the effected fire barrier within 1 hour. **OR** Verify the OPERABILITY of fire detectors on at least one side of the affected fire barrier and establish a Fire Watch Patrol within 1 hour and perform a fire watch inspection once per hour there after for Unit 2 TB 135' 2A & 2C Battery Room.
9	Inform the Evaluator of task completion. (Cue: The Control Room Supervisor acknowledges the report.)	P	The operator informs the Evaluator of task completion.
10	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Technical Requirement Manual compensatory actions have been identified, and the evaluator has been informed, the evaluator will terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2007550502 / PLOR-287C K/A: 2.3.4
SRO: 3.7

TASK DESCRIPTION: Review and Authorize Two Emergency Exposures

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. JPM Attachment 2, partially completed Authorization for Emergency Exposure Forms for Worker One and Worker Two (with the exception of the Station Emergency Director authorization).

2. JPM Attachment 3, Worker One and Worker Two Exposure Histories

C. REFERENCES

1. EP-AA-113 Rev. 13, "Personnel Protective Actions"

2. EP-AA-113-F-02 Rev. B, "Authorization of Emergency Exposure"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Emergency Director has authorized emergency exposures for both workers on their EP-AA-113-F-02, "Authorization for Emergency Exposure" forms.

2. Estimated time to complete: 20 minutes. (Not time-critical)

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, act as the Emergency Director to review the EP-AA-113-F-02, "Authorization of Emergency Exposure" forms and the exposure history of two workers and then determine whether to authorize the proposed Emergency Exposures. I will describe the initial conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Peach Bottom is experiencing a major plant transient.

2. A General Emergency has been declared.

3. It is necessary for two specially trained individuals to enter an area with extremely high dose rates (> 520 Rem/hour) to prevent a major radiological release that would cause significant radiation sickness to the general public. The release would also result in long-term somatic and genetic effects for the public. It is estimated that each worker would receive a dose of 30 Rem.

4. Only two individuals at Peach Bottom have the required training and experience to prevent the release.

5. Worker One and Worker Two are available and have volunteered for the assignment.

6. Worker One and Worker Two are in protective clothing, ready to don respirators.

7. EP-AA-113-F-02, "Authorization for Emergency Exposure" forms have been completed for both individuals and now require Emergency Director review for approval.

8. A description of each worker's exposure history is attached to their EP-AA-113-F-02 forms.

G. INITIATING CUE

As the Emergency Director, perform the following:

- Review the Worker One and Worker Two exposure histories.

- Review the EP-AA-113-F-02, "Authorization for Emergency Exposure" forms using EP-AA-113, "Personnel Protective Actions."

- If appropriate, complete the EP-AA-113-F-02 form(s) to authorize the proposed Emergency Exposures.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
	***** NOTE ***** **The workers' emergency exposure authorizations may be evaluated in either order.**		
1	Obtain a copy of EP-AA-113, "Personnel Protective Actions."	P	Reviews EP-AA-113 Section 4.3, "Emergency Exposure Limits."
2	Evaluate the emergency task to determine if it is worthy of authorizing Emergency Exposure.	P	Determines that the task has an acceptable basis to authorize emergency exposure. May reference EP-AA-113, Attachment 1, "Emergency Worker Exposure Limits and Associated Risks."
3	Evaluate Worker One's EP-AA-113-F-02, "Authorization for Emergency Exposure" form.	P	Reviews Worker One's EP-AA-113-F-02, "Authorization for Emergency Exposure" form and notes that it is completed correctly and signed by Worker One and Radiation Protection Management.
4	Evaluate Worker One's exposure history.	P	Reviews Worker One's exposure history and determine that it is acceptable for Worker One to receive the Emergency Exposure.
*5	Authorize Worker One to receive the Emergency Exposure.	P	Signs and dates Worker One's EP-AA-113-F-02, "Authorization for Emergency Exposure" form.
6	Evaluate Worker Two's EP-AA-113-F-02, "Authorization for Emergency Exposure" form.	P	Reviews Worker Two's EP-AA-113-F-02, "Authorization for Emergency Exposure" form and notes that it is completed correctly and signed by Worker Two and Radiation Protection Management.
7	Evaluate Worker Two's exposure history.	P	Reviews Worker Two's exposure history and determine that it is acceptable for Worker Two to receive the Emergency Exposure (since his previous Emergency Exposure was not in excess of 25 REM TEDE).
*8	Authorize Worker Two to receive the Emergency Exposure.	P	Signs and dates Worker One's EP-AA-113-F-02, "Authorization for Emergency Exposure" form.
9	Inform the evaluator of the Emergency Exposure Authorization determinations. (Cue: Acknowledge determinations.)	P	The examinee informs the evaluator that <u>both</u> workers are authorized to perform the task.
10	As the evaluator, ensure that you have positive control of all exam material provided to the examinees (Task Conditions/Prerequisites, worker exposure histories, and procedure copies.)	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE:

When the Emergency Exposure Authorization reviews are complete, the examinee will inform the Evaluator. The exercise will then be terminated.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2020050101 / PLOR-007C K/A: 202002A4.07
RO: 3.3 SRO: 3.2

TASK DESCRIPTION: Reset the Recirculation System Upper Flow Limit

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

SO 2.7.A-2 Rev. 10, "Resetting Recirculation System Upper and Lower Flow Limits"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Recirculation Pump upper flow limit for the "A" and "B" Recirculation Pump is reset.

2. Estimated time to complete: 9 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to reset the Recirculation System upper flow limit using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. "C" Condensate Pump has tripped from 100% power.

2. Reactor power is approximately 70%.

3. The cause of the "C" Condensate Pump trip has been determined and corrected.

4. The upper Recirculation Pump flow limit is in effect.

5. Recirc System in operation in accordance with SO 2A.

6. Annunciators at Alarm panel 214 D-4(J-4), "A(B) RECIRC ASD SPEED DEMAND LOCAL" is reset

G. INITIATING CUE

The Control Room Supervisor directs you to reset the upper flow limit for the "A" and "B" Recirculation Pumps using Section 4.2 of SO 2.7.A-2, "Resetting Recirculation System Upper and Lower Flow Limits".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure SO 2.7.A-2.	P	A copy of procedure SO 2.7.A-2 is obtained. Step 4.2 is referenced.
2	Verify Recirc Pump Speed and Recirc Pump Speed Demand are matched on XR-2-02H-21012A(B) OR XI-2-02H—A(B)C164 (Cue: Recirc Pump Speed and Speed Demand on XR-2-02H-21012A(B) OR XI-2-02H-A(B)C164 both read Approx. 45%)	P	Recirc Pump Speed and Recirc Pump Speed Demand verified matched on XR-2-02H-21012A(B) OR XI-2-02H—A(B)C164
*3	Depress the "A Upper Recirc Flow Limit" pushbutton 2A-S14A. (Cue: Acknowledge pushbutton operation.)	P	The "A Upper Recirc Flow Limit" pushbutton 2A-S14A is momentarily depressed at panel 20C004A.
4	Verify "A Upper Flow Limit" red light goes out. (Cue: "A Upper Recirc Flow Limit" red light is out.)	P	"A Upper Flow Limit" red light is verified OUT at panel 20C004A.
*5	Depress the "B Upper Recirc Flow Limit" pushbutton 2A-S14B. (Cue: Acknowledge pushbutton operation.)	P	The "B Upper Recirc Flow Limit" pushbutton 2A-S14B is momentarily depressed at panel 20C004A.
6	Verify "B Upper Recirc Flow Limit" red light is out. (Cue: "B Upper Recirc Flow Limit" red light is out.)	P	"B Upper Recirc Flow Limit" red light is verified OUT at panel 20C004A.
7	Reset the 'A' and 'B' RECIRC FLOW LIMIT" annunciators. (Cue: Annunciators 214 B-3 and 214 G-3 are clear.)	P	'A' and 'B' "RECIRC FLOW LIMIT" annunciators (214 B-3 and 214 G-3) are reset by momentarily depressing the annunciator reset pushbutton.
*8	Depress PB-2-02H-216A "Fault Reset" on Panel 20C004A TWO times to acknowledge AND reset any applicable alarms	P	PB-2-02H-216A "Fault Reset" on Panel 20C004A pushed TWICE to acknowledge and reset alarms

STEP NO	STEP	ACT	STANDARD
*9	Depress PB-2-02H-216B "Fault Reset" on Panel 20C004A TWO times to acknowledge AND reset any applicable alarms	P	PB-2-02H-216B "Fault Reset" on Panel 20C004A pushed TWICE to acknowledge and reset alarms
10	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
11	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Recirculation System upper Flow Limit has been reset for the "A" and "B" Recirculation Pumps, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2060250101 / PLOR-333CA K/A: 206000A2.09
URO: 3.5 SRO: 3.7

TASK DESCRIPTION: Transfer of HPCI Suction From CST To Torus

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

1. Alarm Response Card 221 C-3, Rev. 6, Condensate Storage Tank Level Low-Low

2. Procedure SO 23.7.B-2, Rev. 9, "Transfer of HPCI Pump Suction from CST to Torus"

D. TASK STANDARD

1. Satisfactory task completion is indicated when HPCI flow has been raised to 5000 gpm and pump suction is manually transferred from the CST to the Torus (Torus suction valves open and CST suction valve closed) without adverse effects on RPV injection.

2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to raise HPCI flowrate to 5000 gpm. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. HPCI is injecting into the RPV at 4000 gpm in response to a low RPV level transient.

2. RCIC is isolated.

3. Torus Cooling is in service per RRC 10.1-2, "RHR System Torus Cooling During a Plant Event."

G. INITIATING CUE

The Control Room Supervisor directs you, the Plant Reactor Operator, to raise HPCI flowrate to 5000 gpm.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
*1	Raise HPCI Flow Rate to 5000 gpm. (Cue: The HPCI Flow Controller is now indicating 5000.)	P	The HPCI Flow Controller knob is adjusted in the clockwise direction to raise the flow rate setting from 4000 gpm to between 4950 and 5050 gpm.
2	HPCI Flow is verified to rise toward 5000 gpm. (Cue: The Flow Indicator is reading 5000 gpm.)	P	FI-2-23-108 is monitored to verify that the actual flow rate rises to 5000 gpm.
NOTE Approximately 15 seconds after flow has been raised to 4950 gpm, Annunciator 221 C-3 "CONDENSATE STOR TANK LEVEL LOW - LOW" will be received initiating the next part of the JPM.			
3	Recognize the Condensate Storage Tank Low Level Condition alarm. (Cue: Report Annunciator 221 C-3 is alarming.)	P	Recognize by reporting annunciator 221 C-3 is alarming indicating a Low CST Level condition.
4	Obtain a copy of Alarm Response Card 221 C-3.	P	Candidate references ARC 221 C-3, CONDENSATE STOR TANK LEVEL LOW - LOW.
5	Verify the Low CST Level Condition. (Cue: CST level is indicating 5 feet.)	P	Candidate verifies that CST Level is low by referencing LR-2217 on 20C007A or LI-2217 OR LI-8453 on 20C004. (The candidate may also send an EO to verify level on LI-2210.)
6	Recognize that HPCI failed to automatically swap suction paths on low CST level. (Cue: Acknowledge report.)	P	Candidate will recognize by reporting that the HPCI suction path failed to automatically swap. (A RCIC suction swap is not required due to RCIC being isolated.)

7	Obtain a copy of procedure SO 23.7.B-2 OR Implement auto actions of ARC 221 C-3.		A copy of procedure SO 23.7.B-2, "Transfer of HPCI Pump Suction from CST to Torus", is obtained. Step 4.1 OR The auto actions of ARC 221 C-3 should be referenced for transient conditions.
*8	Open MO-2-23-057 HPCI Torus Suction valve. (Cue: Acknowledge control switch operation.)	P	MO-2-23-057 control switch is momentarily placed in the OPEN position then released at panel 20C004B.
*9	Open MO-2-23-058, HPCI Torus Suction valve. (Cue: Acknowledge control switch operation.)	P	MO-2-23-058 control switch is momentarily placed in the OPEN position then released at panel 20C004B.
10	Verify MO-2-23-057 and MO-2-23-058, HPCI Torus Suction valves are open. (Cue: MO-57 and MO-58 red lights are on, green lights are off.)	P	MO-2-23-057 and MO-2-23-058 red lights are verified ON, and green lights OFF at panel 20C004B.
11	Verify MO-2-23-017 Cond Tank Suction valve is closed. (Cue: MO-17 green light is on, red light is off.)	P	MO-2-23-017 green light is verified ON, and red light OFF at panel 20C004B.
12	Check Level Switches responsible for the automatic swap. (Cue: Acknowledge direction.)	P	Direct that LS-2-23-74 and LS-2-23-75 be checked for proper operation due to the failed auto transfer.
13	Inform Control Room Supervisor of task completion. (Cue: Acknowledge report.)	P	Task completion reported.

14	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the HPCI suction has been transferred to the Torus, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2000800501 / PLOR-083C K/A: 239001A4.01

RO: 4.2 SRO: 4.0

TASK DESCRIPTION: Reopen the Main Steam Isolation Valves after a GP I Isolation

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

Procedure T-221-2, Rev. 15, "Main Steam Isolation Valve Bypass"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Inboard MSIVs are open.

2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to reopen the MSIVs using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Use of this procedure has been directed by the TRIP procedures.

2. Main Condenser is available.

3. RPV level is known.

4. There is no indication of gross fuel failure.

5. There is no indication of a Main Steam Line break.

6. All T-221 Tool Packages have been obtained.

7. Inboard and Outboard MSIVs are closed.

8. Steps 4.1 thru 4.5 of T-221-2, "Main Steam Isolation Valve Bypass" are complete.

G. INITIATING CUE

The Control Room Supervisor directs you to perform T-221-2, "Main Steam Isolation Valve Bypass" steps 4.6 through 4.12 in order to reopen the MSIVs.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure T-221-2.	P	A copy of procedure T-221-2 is obtained.
*2	Open AO-2-02-086A "A" Outboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086A control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
3	Verify AO-2-02-086A "A" Outboard MSIV is open. (Cue: AO-2-02-086A red light is on, green light is off.)	P	AO-2-02-086A red light is verified ON at panel 20C003-01.
*4	Open AO-2-02-086B "B" Outboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086B control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
5	Verify AO-2-02-086B "B" Outboard MSIV is open. (Cue: AO-2-02-086B red light is on, green light is off.)	P	AO-2-02-086B red light is verified ON at panel 20C003-01.
*6	Open AO-2-02-086C "C" Outboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086C control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
7	Verify AO-2-02-086C "C" Outboard MSIV is open. (Cue: AO-2-02-086C red light is on, green light is off.)	P	AO-2-02-086C red light is verified ON at panel 20C003-01.
*8	Open AO-2-02-086D "D" Outboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086D control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.

STEP NO	STEP	ACT	STANDARD
9	Verify AO-2-02-086D "D" Outboard MSIV is open. (Cue: AO-2-02-086D red light is on, green light is off.)	P	AO-2-02-086D red light is verified ON at panel 20C003-01.
*10	Open MO-2-02-077, Outboard Main Steam Drain valve. (Cue: Acknowledge control switch operation.)	P	MO-2-02-077 control switch is momentarily placed in the "OPEN" position at panel 20C003-03.
11	Verify MO-2-02-077, Outboard Main Steam Drain valve open. (Cue: MO-77 red light is on, green light is off.)	P	MO-2-02-077 red light is verified ON at panel 20C003-03.
*12	Open MO-2-02-074, Inboard Main Steam Drain valve. (Cue: Acknowledge control switch operation.)	P	MO-2-02-074 control switch is momentarily placed in the "OPEN" position at panel 20C003-03.
13	Verify MO-2-02-074 Inboard Main Steam Drain valve is open. (Cue: MO-74 red light is on, green light is off.)	P	MO-2-02-074 red light is verified ON at panel 20C003-03.
14	Verify closed MO-2-02-079, Orifice Bypass to Main Cndr valve. (Cue: MO-79 green light is on, red light is off.)	P	MO-2-02-079 green light is verified ON at panel 20C003-03.
*15	Open MO-2-02-078, Downstream Drain valve. (Cue: MO-78 red light is on, green light is off.)	P	MO-2-02-078 control switch is momentarily placed in the "OPEN" position at panel 20C003-03.

STEP NO	STEP	ACT	STANDARD
16	Verify MO-2-02-078 Downstream Drain valve is open. (Cue: MO-78 red light is on, green light is off.)	P	MO-2-02-078 red light is verified ON at panel 20C003-03.
17	Observe pressure differential across the Inboard MSIVs. Determine the difference between Reactor pressure on PI-2-06-090A(B)(C) and "Steam Line" pressure on PI-2864(5) on the DEHC HMI (Cue: PI-2-06-090A(B)(C) indicates 540 psig and "Main Steam Pressure A" and "Main Steam Pressure B" indicate 485 psig and rising slowly.)	P	Pressure differential across the Inboard MSIVs is determined using PI-2-06-090A(B)(C) at panel 20C005A, and "Steam Line" PI-2864(5) on the DEHC HMI
18	Verify differential pressure across the inboard MSIVs is less than 150 psid. (Cue: PI-2-06-090A(B)(C) is 400 psig and Main Steam Pressure is 300 psig.)	P	Differential pressure across the inboard MSIVs is verified less than 150 psig on PI-2-06-090A(B)(C) at panel 20C005A, and "Steam Line" PI-2864(5) on the DEHC HMI
*19	Open AO-2-02-080A "A" Inboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080A control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
20	Verify AO-2-02-080A "A" Inboard MSIV is open. (Cue: AO-2-02-080A red light is on, green light is off.)	P	AO-2-02-080A red light is verified ON at panel 20C003-01.
*21	Open AO-2-02-080B "B" Inboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080B control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
22	Verify AO-2-02-080B "B" Inboard MSIV is open. (Cue: AO-2-02-080B red light is on, green light is off.)	P	AO-2-02-080B red light is verified ON at panel 20C003-01.

STEP NO	STEP	ACT	STANDARD
*23	Open AO-2-02-080C "C" Inboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080C control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
24	Verify AO-2-02-080C "C" Inboard MSIV is open. (Cue: AO-2-02-080C red light is on, green light is off.)	P	AO-2-02-080C red light is verified ON at panel 20C003-01.
*25	Open AO-2-02-080D "D" Inboard MSIV. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080D control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
26	Verify AO-2-02-080D "D" Inboard MSIV is open. (Cue: AO-2-02-080D red light is on, green light is off.)	P	AO-2-02-080D red light is verified ON at panel 20C003-01.
27	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
28	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the MSIVs have been reopened, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2090230401 / PLOR-383CA K/A: 209001A4.03
RO: 3.7 SRO: 3.6

TASK DESCRIPTION: Take Actions for System I CS Injection Valves Overcurrent Alarm

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

   c. Applicable JPM Work Practice Standards, TQ-JA-150-04 graded satisfactorily.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

1. RRC 14.1-2, Rev. 0, "Core Spray Manual Initiation During a Plant Event"

2. ARC-223 B-3, Rev. 0, "System I Core Spray Inj Valves Overcurrent"

D. TASK STANDARD

1. Satisfactory task completion is indicated when both loops of Core Spray are injecting into the RPV.

2. Estimated time to complete: 10 minutes

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to inject with the "A" loop of Core Spray into the RPV using RRC 14.1-2, "Core Spray Manual Initiation during a Plant Event"

F. TASK CONDITIONS/PREREQUISITES

1. A loss of High Pressure feed has occurred.

2. Reactor conditions:
   - Reactor is shutdown
   - RPV level is -140 inches and down slow.
   - RPV Pressure is 300 psig.

3. Off Site Power is supplying 4 KV buses.

4. "B" loop of Core Spray is unavailable.

G. INITIATING CUE

The Control Room Supervisor directs you, the Unit Reactor Operator, to inject with the "A" loop of Core Spray into the RPV using RRC 14.1-2, "Core Spray Manual Initiation during a Plant Event" Section B.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure RRC 14.1-2, "Core Spray Manual Initiation During a Plant Event"	P	A copy of procedure RRC 14.1-2 is obtained.
NOTE: The following pumps can be started in any order			
*2	Start Core Spray pump 2AP037 (Cue: Control switch for Core Spray pump 2AP037 is taken to the start position)	P	The Control switch for Core Spray pump 2AP037 is taken to the start position for a count of three.
3	Verify the A Core Spray pump is running. (Cue: Red light is on and green light is off, discharge pressure is rising, pump amps rise and then return to normal)	P	Monitor pump light indication, discharge pressure and pump amps.
4	Verify MO-2-14-005A "A Min Flow " Valve opens (Cue: Red light is on and green light is off)	P	Monitor valve light indication. Red light is on and green light is off.
*5	Start Core Spray pump 2CP037 (Cue: Control switch for Core Spray pump 2AP037 is taken to the start position)	P	The Control switch for Core Spray pump 2CP037 is taken to the start position for a count of three.
6	Verify the C Core Spray pump is running. (Cue: Red light is on and green light is off, discharge pressure is rising, pump amps rise and then return to normal)	P	Monitor pump light indication, discharge pressure and pump amps.
7	Verify MO-2-14-005C "C Min Flow " Valve opens (Cue: Red light is on and green light is off)	P	Monitor valve light indication. Red light is on and green light is off.
8	Verify Reactor pressure is less than 450 psig. (Cue: When the operator monitors RPV pressure, report that RPV pressure is 300 psig.)	P	Monitor RPV pressure and determine that RPV pressure is 300 psig.

STEP NO	STEP	ACT	STANDARD
The Alternate Path portion of the JPM begins with the next step			
9	Open MO-2-14-12A, "CS Loop A Inboard Discharge Valve". (Cue: Control Switch for MO-12A is taken to the open position and spring returns to normal)	P	The control switch for MO-2-14-12A is taken to the OPEN position for a count of three.
10	Verify open MO-12A, "CS Loop A Inboard Discharge Valve". (Cue: When the MO-2-14-12A control switch is taken to OPEN then report that the red light is off the green light is on and alarm 223 B-3 alarms)	P	Recognize that MO-2-14-12A did not open.
11	Recognize alarm 223 B-3, "System I Core Spray Inj Valves Overcurrent". (Cue: Alarm 226 B-3 is received when MO-12A is taken to open.)	P	The Operator recognizes alarm 223 B-3.
12	Obtain a copy of procedure ARC-223 B-3, "System I Core Spray Inj Valves Overcurrent".	P	A copy of procedure ARC 223 B-3 is obtained.
13	Notify the CRS that MO-2-14-12A did not open due to a thermal overload trip. (Cue: Acknowledge the report from the RO. Repeat the initiating cue to the operator.)	P	Notify the CRS that MO-2-14-12A did not open due to a thermal overload trip.
14*	Hold the MO-2-14-12A control switch to the OPEN position until MO-2-14-12A is open. (Cue: When the control switch for MO-2-14-12A is taken to the OPEN position report the Red light is on and discharge pressure is rising	P	The control switch for MO-2-14-12A is held in the OPEN position until the valve is fully open.

STEP NO	STEP	ACT	STANDARD
15	Verify open MO-2-14-12A, "CS Loop A Inboard Discharge Valve". (Cue: Report that the red light is on and green light is out.)	P	Verify that the Red light is ON and that the green light is OFF.
16	Notify Shift Management of completion of assigned task. (Cue: Acknowledge report.)	P	Verbally report completion of assigned task to Control Room Supervisor.
17	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the "A" loop of Core Spray is injecting into the RPV, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2000490501 / PLOR-024C K/A: 223002A4.03
URO: 3.6 SRO: 3.5

TASK DESCRIPTION: Perform a Group I PCIS Isolation Reset GP-8A)

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

Hand the Examinee a copy of C.O.L. GP-8.A with "As Found Position" column initials already filled in.

C. REFERENCES

1. Procedure GP-8.A, Rev. 12, "PCIS Isolation - Group I"

2. C.O.L. GP-8.A, Rev. 14, "Group I Isolation"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the PCIS Group I Isolation is reset.

2. Estimated time to complete: 8 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to reset the PCIS Group I isolation using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. The plant had been at 100% power.

2. A PCIS Group I isolation has occurred and has been verified to be a result of Main Steam tunnel high temperature.

3. The cause of the PCIS Group I isolation has been corrected.

4. The plant is in a safe, stable shutdown condition.

5. GP-8.A, "PCIS Isolation - Group I" steps 3.1 and 3.2 have been completed.

6. There is no indication of fuel damage.

7. There is no evidence of a steam leak.

G. INITIATING CUE

The Control Room Supervisor directs you to reset the PCIS Group I isolation logic per steps 4.1 through 4.4 of GP-8.A, "PCIS Isolation - Group I".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain copies of procedures GP-8A and COL GP-8A.	P	Copies of procedures GP-8A and COL GP-8A are obtained.
**** NOTE**** **Provide examinee with the marked up COL GP-8A.**			
*2	Place switch to "CLOSE" for AO-2-02-080A. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080A control switch placed in the "CLOSE" position at panel 20C003-01.
3	Initial the AO-2-02-080A box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-080A initialed on COL GP-8A.
*4	Place switch to "CLOSE" for AO-2-02-080B. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080B control switch placed in the "CLOSE" position at panel 20C003-01.
5	Initial the AO-2-02-080B box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-080B initialed on COL GP-8A.
*6	Place switch to "CLOSE" for AO-2-02-080C. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080C control switch placed in the "CLOSE" position at panel 20C003-01.
7	Initial the AO-2-02-080C box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-080C initialed on COL GP-8A.
*8	Place switch to "CLOSE" for AO-2-02-080D. (Cue: Acknowledge control switch operation.)	P	AO-2-02-080D control switch placed in the "CLOSE" position at panel 20C003-01.

STEP NO	STEP	ACT	STANDARD
9	Initial the AO-2-02-080D box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-080D initialed on COL GP-8A.
*10	Place switch to "CLOSE" for AO-2-02-086A. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086A control switch placed in the "CLOSE" position at panel 20C003-01.
11	Initial the AO-2-02-086A box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-086A initialed on COL GP-8A.
*12	Place switch to "CLOSE" for AO-2-02-086B. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086B control switch placed in the "CLOSE" position at panel 20C003-01.
13	Initial the AO-2-02-086B box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-086B initialed on COL GP-8A.
*14	Place switch to "CLOSE" for AO-2-02-086C. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086C control switch placed in the "CLOSE" position at panel 20C003-01.
15	Initial the AO-2-02-086C box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-086C initialed on COL GP-8A.
*16	Place switch to "CLOSE" for AO-2-02-086D. (Cue: Acknowledge control switch operation.)	P	AO-2-02-086D control switch placed in the "CLOSE" position at panel 20C003-01.
17	Initial the AO-2-02-086D box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-086D initialed on COL GP-8A.

STEP NO	STEP	ACT	STANDARD
18	Verify switch in "CLOSE" for AO-2-02-039. (Cue: Switch in "CLOSE".)	P	AO-2-02-039 control switch verified in the "CLOSE" position at panel 20C004A.
19	N/A or initial the AO-2-02-039 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-039 N/A'd or initialed on COL GP-8A.
20	Verify switch in "CLOSE" for AO-2-02-040. (Cue: Switch in "CLOSE".)	P	AO-2-02-040 control switch verified in the "CLOSE" position at panel 20C004A.
21	N/A or initial the AO-2-02-040 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-040 N/A'd or initialed on COL GP-8A.
22	Verify switch in "CLOSE" for AO-2-02-316. (Cue: Switch in "CLOSE".)	P	AO-2-02-316 control switch verified in the "CLOSE" position at panel 20C003-03.
23	N/A or initial the AO-2-02-316 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-316 N/A'd or initialed on COL GP-8A.
24	Verify switch in "CLOSE" for AO-2-02-317. (Cue: Switch in "CLOSE".)	P	AO-2-02-317 control switch verified in the "CLOSE" position at panel 20C003-04.
25	N/A or initial the AO-2-02-317 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-2-02-317 N/A'd or initialed on COL GP-8A.
26	Verify MO-2-02-074 is CLOSED. (Cue: MO-2-02-074 green light is on, red light is off.)	P	MO-2-02-074 green light verified ON at panel 20C003-03.
27	N/A or initial the MO-2-02-074 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for MO-2-02-074 N/A'd or initialed on COL GP-8A.

STEP NO	STEP	ACT	STANDARD
28	Verify MO-2-02-077 is CLOSED. (Cue: MO-2-02-077 green light is on, red light is off.)	P	MO-2-02-077 green light verified ON at panel 20C003-04.
29	N/A or initial the MO-2-02-077 box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for MO-2-02-077 N/A'd or initialed on COL GP-8A.
30	Verify switch in "CLOSE" for AO-8098A. (Cue: Switch in "CLOSE".)	P	AO-8098A control switch verified in the "CLOSE" position at panel 20C003-04.
31	N/A or initial the AO-8098A box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8098A N/A'd or initialed on COL GP-8A.
32	Verify switch in "CLOSE" for AO-8098C. (Cue: Switch in "CLOSE".)	P	AO-8098C control switch verified in the "CLOSE" position at panel 20C003-04.
33	N/A or initial the AO-8098C box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8098C N/A'd or initialed on COL GP-8A.
34	Verify switch in "CLOSE" for AO-8099A. (Cue: Switch in "CLOSE".)	P	AO-8099A control switch verified in the "CLOSE" position at panel 20C003-04.
35	N/A or initial the AO-8099A box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8099A N/A'd or initialed on COL GP-8A.
36	Verify switch in "CLOSE" for AO-8099C. (Cue: Switch in "CLOSE".)	P	AO-8099C control switch verified in the "CLOSE" position at panel 20C003-04.
37	N/A or initial the AO-8099C box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8099C N/A'd or initialed on COL GP-8A.

STEP NO	STEP	ACT	STANDARD
38	Verify switch in "CLOSE" for AO-8098B (Cue: Switch in "CLOSE".)	P	AO-8098B control switch verified in the "CLOSE" position at panel 20C003-02.
39	N/A or initial the AO-8098B box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8098B N/A'd or initialed on COL GP-8A.
40	Verify switch in "CLOSE" for AO-8098D. (Cue: Switch in "CLOSE".)	P	AO-8098D control switch verified in the "CLOSE" position at panel 20C003-02.
41	N/A or initial the AO-8098D box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8098D N/A'd or initialed on COL GP-8A.
42	Verify switch in "CLOSE" for AO-8099B. (Cue: Switch in "CLOSE".)	P	AO-8099B control switch verified in the "CLOSE" position at panel 20C003-02.
43	N/A or initial the AO-8099B box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8099B N/A'd or initialed on COL GP-8A.
44	Verify switch in "CLOSE" for AO-8099D. (Cue: Switch in "CLOSE".)	P	AO-8099D control switch verified in the "CLOSE" position at panel 20C003-02.
45	N/A or initial the AO-8099D box in the "CHECKED BY" column on COL GP-8A.	P	"CHECKED BY" column for AO-8099D N/A'd or initialed on COL GP-8A.

STEP NO	STEP	ACT	STANDARD
46	Verify isolation signal cleared. (Cue: The following annunciators are not lit: 227 B-2, 228 A-2, 228 E-3, 228 E-4)	P	The following Group I Isolation annunciators are verified not lit: 227 B-2 and 228 A-2, OR 228 E-3 and 228 E-4 OR Verifies no alarms on Steam Leak Detection Panel (located on riverside back wall of simulator)
*47	Place the Inboard PCIS Reset Switch, 16A-S32, in the "GRP I" position. (Cue: Acknowledge reset switch operation.)	P	The Inboard PCIS Reset Switch is momentarily placed in the "GRP I" position at panel 20C005A.
*48	Place the Outboard PCIS Reset Switch, 16A-S33, in the "GRP I" position. (Cue: Acknowledge reset switch operation.)	P	The Outboard PCIS Reset Switch is momentarily placed in the "GRP I" position at panel 20C005A.
49	Verify "CHANNEL A and B GROUP I ISOLATION RELAYS NOT RESET" annunciators clear. (Cue: Annunciators 211 H-1 and 211 J-1 are not lit.)	P	The "CHANNEL A and B GROUP I ISOLATION RELAYS NOT RESET" annunciators 211 H-1 and 211 J-1 are verified not lit.
50	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
51	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the PCIS Group I isolation is reset, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2370110101 / PLOR-031C K/A: 262001A4.04
RO: 3.6 SRO: 3.7

TASK DESCRIPTION: EXCITING THE MAIN GENERATOR

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

Procedure SO 50.1.A-2 Rev. 25, "Main Generator Synchronizing and Loading"

D. TASK STANDARD

1. Performance Location: Simulator

2. Satisfactory task completion is indicated when the Main Generator is excited, generator terminal voltage is adjusted to 22 KV, and the automatic voltage regulator is in service.

3. Estimated time to complete: 20 minutes (A.5) Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to excite the Main Generator using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Plant startup in progress with reactor power at approximately 18%.

2. All SO 50.1.A-2, "Main Generator Synchronizing and Loading" prerequisites are met.

3. Generation Dispatch and Transmission System Operator (TSO) have been notified.

4. The AVR will be in Automatic for synchronization.

G. INITIATING CUE

The Control Room Supervisor directs you, the Plant Reactor Operator, to excite the Main Generator and place the automatic voltage regulator in service in accordance with steps 4.2 through 4.11 of SO 50.1.A-2, "Main Generator Synchronizing and Loading."

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of SO 50.1.A-2, "Main Generator Synchronizing and Loading".	P	A copy of SO 50.1.A-2 is obtained.
2	Verify "GENERATOR CORE MONITOR TROUBLE" annunciator is clear. (Cue: Annunciator 206 L-2 is not lit.)	P	"GENERATOR CORE MONITOR TROUBLE " annunciator is verified clear on alarm panel 206 L-2.
3	Verify AVR is in "MANUAL" by observing the green light lit above switch RMS-2-50G-43-0601, "REG/TRANSFER". (Cue: "REG/TRANSFER" switch is in manual, green light is on, red light is off.)	P	Regulator Transfer switch RMS-2-50G-43-0601 is verified in the MANUAL position at panel 20C009.
4	Place and hold RMS-2-50G-70-601, "REG SETPOINT ADJUST" to RAISE until the red "MAX" light is lit. (Cue: In approximately 1 minute report that the red light is lit.)	P	Hold RMS-2-50G-70-601 to the raise position until the red MAX light is lit.
5	Place and hold RMS-2-50G-70-601, "REG SETPOINT ADJUST" to LOWER until the green "MIN" light is lit. (Cue: In approximately 1 minute report that the green light is lit.)	P	Hold RMS-2-50G-70-601 to the raise position until the red MAX light is lit.
*6	Place and hold RMS-2-50G-70-601, "REG SETPOINT ADJUST" to RAISE until the green "MIN" light is out. (Cue: When the operators moves RMS-2-50G-70-601 to RAISE, report that the green light is out.)	P	Hold RMS-2-50G-70-601 to the raise position until the green MIN light is out.
7	Direct an Equipment Operator to Monitor machine gas pressure at panel 20C081 using indicator PI-4356, "Generator Gas Pressure". (Cue: Acknowledge the request to monitor machine gas pressure.)	P	Directs an Equipment Operator to Monitor machine gas pressure at panel 20C081 using indicator PI-4356, "Generator Gas Pressure".
*8	Place RMS-2-50G-41-0601, "ALT EXC FLD BKR" to "CLOSE". (Cue: RMS-2-50G-41-0601, "ALT EXC FLD BKR" is taken to "CLOSE", the red light is lit and the green light is off.).	P	RMS-2-50G-41-0601, "ALT EXC FLD BKR" is taken to "CLOSE".

STEP NO	STEP	ACT	STANDARD
9	Verify that the red light for RMS-2-50G-41-0601, "ALT EXC FLD BKR" is lit and the green light is off. (Cue: Red light is lit and the green light is off for RMS-2-50G-41.)	P	Operator verifies that the red light for RMS-2-50G-41-0601, "ALT EXC FLD BKR" is lit and the green light is off.
10	Verify Field Volts, Amps are NOT zero and Generator Volts are approximately 22 kV (Cue: FIELD voltmeter indicates 100 volts, FIELD ammeter indicates 1400 amps, GENERATOR voltmeter indicates 17 kilovolts)	P	FIELD AMPS and VOLTS and are NOT zero GENERATOR VOLTS approximately 22 kV at panel 2OC009.
*11	Adjust GENERATOR output voltage to obtain 21.5 - 22.5 KV using MAN. DC VOLT REGULATOR RMS-2-50G-70-0601. (Cue: Generator voltmeter indicates 22 KV. Manual DC voltage regulator green light off, yellow light on.)	P	Manual DC Voltage Regulator 70-0601 is adjusted to obtain a GENERATOR output voltage between 21.5 and 22.5 KV at panel 20C009.
12	Verify GENERATOR output voltage is between 21.5 - 22.5 KV. (Cue: GENERATOR VOLTMETER indicates 22 KV.)	P	GENERATOR output voltage is verified between 21.5 and 22.5 KV on GEN VOLTMETER at panel 20C009.
13	Verify "2 EXCITER VOLT PHASE UNBALANCE" alarm on 220 C-3 is clear. (Cue: Alarm "2 EXCITER VOLT PHASE UNBALANCE" alarm on 220 C-3 is clear.)	P	Monitors the status of alarm 220 C-3 and determines that the alarm is clear.
14	Verify the blue "MODE CHANGE READY" light is lit above RMS-2-50G-43-0601 "REG/TRANSFER". (Cue: Blue light is lit above RMS-2-50G-43-0601, "REG/TRANSFER.)	P	Monitors the status of the blue light above RMS-2-50G-43-0601 "REG/TRANSFER" and determines that it is lit..
*15	Place RMS-2-50G-43-0601, "REG/TRANSFER" switch in "AUTO". (Cue: Acknowledge control switch operation.)	P	Reg/Transfer switch 43-0601 is placed in the AUTO position at panel 20C009.

STEP NO	STEP	ACT	STANDARD
16	Verify the red light above RMS-2-50G-43-0601 is lit. (Cue: The Reg/Transfer red light is on, green light is off.)	P	Reg/Transfer red light is verified ON and green light verified OFF at panel 20C009.
17	Inform the Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
18	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Main Generator exciter field breaker is closed and the automatic voltage regulator is in service, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2120020101 / PLOR-385CA K/A: 212000A4.01
RO: 4.6 SRO: 4.6

TASK DESCRIPTION: Install Trip / Isolations using GP-25

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

   c. Applicable JPM Work Practice Standards, TQ-JA-150-04 graded satisfactorily.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Equipment Status Tag stating "Switch in TRIP due to GP-25, Appendix 1 for PS-2-5-11A"

C. REFERENCES

1. GP-25, Rev 11, "Installation of Trips/Isolations to Satisfy Tech Spec/TRM Requirements for Inoperable Instrumentation"

2. GP-25 Table 1, Rev 20, "GP-25 Table 1"

3. GP-25 Appendix 1, Rev 7, "RPS Channel A"

D. TASK STANDARD

1. Satisfactory task completion is indicated when RPS Channel 'A' has a trip input in accordance with GP-25

2. Estimated time to complete: 11 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to input a RPS "A" Channel Reactor Auto Scram using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. PS-2-5-11A has failed and will not cause a SCRAM signal on Main Condenser Low Vacuum

2. A Tech Spec Action entry has been made for PS-2-5-11A

3. It has been determined that the failed signal is "Main Condenser Low Vacuum" on Channel RPS A1

4. RPS "B" Channel Reactor Auto Scram is NOT currently inserted

5. RPS testing is NOT in progress on RPS "B" Channel

6. Permission has been granted from Shift Management to perform GP-25

7. Another RO will update turnover sheets and write the issue for the inoperable instrument

G. INITIATING CUE

The Control Room Supervisor directs you to initiate a RPS "A" Channel Reactor Auto Scram in accordance with GP-25 to satisfy the Tech Spec Actions.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of GP-25 Appendix 1 "RPS Channel A"	P	A copy of procedure GP-25 Appendix 1 is obtained
2	Inform Reactor Operator the next step will initiate an "A" Channel Half Scram **(Cue: Acknowledge the report)**	P	Reactor Operator is informed an "A" Channel Reactor Auto Scram will be initiated
3*	On Panel 20C015 switch 5A-S2A, RPS Channel A1 Test keyswitch is taken to the "TRIP" position **(Cue: Keyswitch 5A-S2A has been taken to the "TRIP" position)**	P	RPS Channel A1 Test keyswitch is taken to the "TRIP" position
The Alternate Path portion of the JPM begins with the next step			
4	Verify Annunciator 211 B-1 "A Channel Reactor Auto Scram" has alarmed **(Cue: Annunciator 211 B-1 is clear)**	P	Operator verifies Annunciator 211 B-1 "A Channel Reactor Auto Scram" is in alarm
5	Notify the CRS that Annunciator 211 B-1 "A Channel Reactor Auto Scram" did not alarm as expected **(Cue: Acknowledge the report from the RO. Repeat the initiating cue to the operator.)**	P	Notify the CRS that Annunciator 211 B-1 "A Channel Reactor Auto Scram" did not alarm as expected
6	On Panel 20C015 switch 5A-S2A, RPS Channel A1 Test keyswitch is returned to the "NORMAL" position **(Cue: Keyswitch 5A-S2A has been taken to the "NORMAL" position)**	P	RPS Channel A1 Test keyswitch is returned to the "NORMAL" position
7	Inform Reactor Operator the next step will initiate an "A" Channel Half Scram **(Cue: Acknowledge the report)**	P	Reactor Operator is informed an "A" Channel Reactor Auto Scram will be initiated

STEP NO	STEP	ACT	STANDARD
8*	On Panel 20C015 switch 5A-S2C, RPS Channel A2 Test keyswitch is taken to the "TRIP" position **(Cue: Keyswitch 5A-S2C has been taken to the "TRIP" position)**	P	RPS Channel A2 Test keyswitch is taken to the "TRIP" position
9	Verify Annunciator 211 B-1 "A Channel Reactor Auto Scram" has alarmed **(Cue: Annunciator 211 B-1 is in alarm)**	P	Operator verifies Annunciator 211 B-1 "A Channel Reactor Auto Scram" is in alarm
10	Place Equipment Status Tag on 5A-S2C, RPS Channel A2 Test keyswitch, stating "Switch in TRIP due to GP-25, Appendix 1 for PS-2-5-11A" **(Cue: When the candidate states that an Equipment Status Tag needs to be placed on 5A-S2C, RPS Channel A2 Test key switch, inform them that an Equipment Status Tag is in place.)**	S	Operator simulates placing an Equipment Status Tag on 5A-S2C.
11	Notify Shift Management of completion of assigned task. **(Cue: Acknowledge report.)**	P	Verbally report completion of assigned task to Control Room Supervisor.
12	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the 'A' Channel Reactor Auto Scram has been initiated, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2640130101 / PLOR-284CA K/A: 400000A2.01
RO: 3.3 SRO: 3.4

TASK DESCRIPTION: Diesel Generator Quick Start from the Control Room – (Alternate Path ESW Pump Trips After Auto Start)

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

Procedure SO 52A.7.A, Rev. 8, "Diesel Generator Manual Emergency Start"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the E-4 Diesel Generator is running and an ESW pump has been manually started or the E-4 Diesel Generator has been shutdown due to lack of cooling water.

2. Estimated time to complete: 5 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to Quick Start the E-4 Diesel Generator using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. E-4 Diesel Generator available for operation in accordance with SO 52A.1.A, "Diesel Generator Lineup for Automatic Start"

2. A plant transient is in progress.

G. INITIATING CUE

The Control Room Supervisor directs you to Quick Start the E-4 Diesel Generator in accordance with SO 52A.7.A, "Diesel Generator Manual Emergency Start" up to and including step 4.6.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure SO 52A.7.A.	P	A copy of procedure SO 52A.7.A is obtained.
*2	Start the E-4 Diesel Generator by momentarily depressing "E4 Diesel Generator Quick Start" pushbutton. (Cue: Acknowledge pushbutton operation.)	P	Momentarily depress the "E4 Diesel Generator Quick Start" pushbutton at panel 00C026D.
3	Verify E-4 Diesel Generator starts. (Cue: E-4 D/G volts 4.28 KV, E-4 D/G frequency 60 Hz and annunciator 005 F-4 is alarming.)	P	Verify E-4 Diesel Generator frequency 58.8 - 61.2 Hz, and E-4 Diesel volts 4.16 - 4.40 KV at panel 00C026D.
4	Acknowledge the "E-4 DIESEL RUNNING" annunciator. (Cue: Annunciator 005 F-4 is lit solid.)	P	The annunciator "ACKNOWLEDGE" pushbutton is depressed on panel 00C026B.
5	Verify 'A' ESW Pump start. (Cue: 'A' ESW Pump red light lit, green light off, discharge pressure is approximately 60 psig on PI-0236A and motor amps are 28 amps on A pump ammeter.)	P	Verify 'A' ESW Pump red light lit, discharge pressure is 25-64 psig on PI-0236A and motor amps are 25-35 amps on the 'A' pump ammeter at panel 00C026B.
6	Verify 'B' ESW Pump start. (Cue: 'B' ESW Pump red light lit, green light off, discharge pressure is approximately 60 psig on PI-0236B and motor amps are 28 amps on B Pump ammeter.)	P	Verify 'B' ESW Pump red light lit, discharge pressure is 25-64 psig on PI-0236B and motor amps are 25-35 amps on the 'A' pump ammeter at panel 00C026C.
*7	Red Flag the ESW Pump selected to remain in service. (Cue: Operated control switch is red flagged.)	P	Place the control switch for the 'A' OR 'B' ESW Pump to START, and allow it to spring return to the Normal-After-Start position.

STEP NO	STEP	ACT	STANDARD
*8	Shutdown the remaining ESW Pump. (Cue: The control switch for the ESW Pump NOT operated in Step 7 is green flagged. The pump green light is ON and red light is OFF. Pump amps are 0.)	P	Place the control switch for the ESW Pump NOT operated in Step 7 to STOP, and allow it to spring return to the Normal-After-Stop position.
9	Verify the ECW Pump automatically shuts down. (Cue: ECW pump green light is ON, red light is OFF, and pump motor amps are 0.)	P	Verify the ECW Pump automatically shut down at Panel 00C026D.
10	Direct an operator to perform SO 52A.8.C, "Diesel Generator Running Inspection". (Cue: Acknowledge direction)	P	Direct an operator to perform SO 52A.8.C, "Diesel Generator Running Inspection".
***** NOTE ***** **The alternate path portion of the JPM begins here.** **There are <u>two</u> possible success paths:** **(1) manually start the other ESW Pump [steps 14 and 15]** **<u>OR</u>** **(2) shut down the E4 Diesel Generator [step 13].**			
11	Acknowledge "A(B) EMERG SERVICE WATER PUMP TRIP" AND "A(B) EMERG SERVICE WATER PUMP OVERCURRENT" alarms. (Cue: Annunciators are in solid. Discharge pressure and motor amps for the ESW Pump that was left in service are 0. Pump green light is ON, red light is OFF.)	P	"A(B) EMERG SERVICE WATER PUMP TRIP" AND "A(B) EMERG SERVICE WATER PUMP OVERCURRENT" alarms acknowledged. Recognize that NO ESW/ECW Pumps are in service providing cooling for the running Diesel Generator.
12	Inform the Control Room Supervisor that NO ESW or ECW pumps are running. (Cue: Control Room Supervisor acknowledges report.)	P	Control Room Supervisor informed that ESW and ECW Pumps are not running.
13*	Shut down the E4 Diesel Generator by turning its control switch to "STOP".		Turn the E4 Diesel Generator control switch to STOP.

STEP NO	STEP	ACT	STANDARD
	****NOTE**** **IF examinee elects to shutdown the EDG to place it in a safe condition due to lack of cooling water, THEN terminate this JPM at this point. Otherwise, proceed to the next step.**		
*14	Manually start the ESW Pump that was green flagged in Step 8 OR shutdown the EDG and inform the Control Room Supervisor. (Cue: Acknowledge control switch operation. If examinee secures the EDG, acknowledge switch operation, and acknowledge report of EDG shutdown as the CRS.)	P	The control switch for either the "A"("B") ESW pump is rotated clockwise to the start position and allowed to spring return to the neutral position OR The EDG Start/Stop switch is taken to the STOP position to shutdown the engine. If EDG shutdown, examinee informs the Control Room Supervisor that the EDG was shutdown due to lack of cooling water.
15	If an ESW pump was started, verify "A" ("B") ESW pump start. (Cue: "A" ("B") ESW pump red light lit, green light off, discharge pressure is approximately 60 psig on PI-0236 A(B) and motor amps are 28 amps on A(B) pump ammeter.	P	"A" ("B") ESW pump red light lit, and discharge pressure is 25 to 64 psig on PI-0236A(B) and motor amps are 22 to 32 amps on the "A" ("B") pump ammeter are verified at panel 00C026B(C).
	*****NOTE***** **The ECW pump will not start if attempted.**		
16	Inform the Control Room Supervisor that the "A" ("B") ESW pump has been started. (Cue: Control Room Supervisor acknowledges report.)	P	Control Room Supervisor informed that cooling water has been established to the E-4 Diesel Generator.
17	Inform the Control Room Supervisor that E-4 Diesel Generator is running and ESW was manually started to supply cooling water. (If E-4 D/G was shutdown, then report D/G shutdown due to lack of cooling water.) (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.

STEP NO	STEP	ACT	STANDARD
18	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

After the E-4 D/G has been Quick Started in accordance with SO 52A.7.A, "Diesel Generator Manual Emergency Start" and cooling water has been manually established using the 'A' or 'B' ESW pump, OR the EDG is shutdown, the evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2002200501 / PLOR-156P K/A: 217000A1.04
URO: 3.6 SRO: 3.6

TASK DESCRIPTION: DEFEAT OF RCIC INTERLOCKS (UNIT 2)

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. T-251 Tool Package

2. EOP Tool Locker Key

C. REFERENCES

T-251-2, Rev. 5, "RPV Pressure Control Using RCIC"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Relay contacts have been booted per Step 4.1 of T-251-2.

2. Estimated time to complete: 12 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to defeat Unit 2 RCIC interlocks using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1 Use of this procedure has been directed by TRIP procedures.

2. Water is available from the CST and RCIC suction is aligned to the CST.

3. RCIC is available.

4. HPCI is NOT in operation.

5. T-250 "RPV Pressure Control Using HPCI with Suction From the CST" has not been performed.

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to perform Step 4.1 of T-251-2, "RPV Pressure Control Using RCIC".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
*1	Open Emergency Operating Procedure Tool Locker and obtain T-251 Tool Kit. (Cue: Equipment obtained.)	S	Tool Locker located on Radwaste Building El. 165' (near Unit 2 Remote Shutdown Panel) is unlocked, opened and T-251 Tool Kit is located.
	****NOTE**** **When examinee locates tool kit, inform him that he now has the tools to perform the procedure. Provide the examinee with a copy of the T-200 procedure which corresponds to the tool kit that has been chosen. <u>DO NOT</u> allow equipment to be removed from the locker. Relock the locker before leaving the area.**		
2	Remove front cover from relay 13A-K1. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 13A-K1 at panel 20C34 [FRONT] in the Cable Spreading Room.
3	Don personnel protective equipment in accordance with SA-AA-129	S	For installing boots natural fibers should be worn and the worker should be de-metaled. The contact boots are considered insulated tools.
*4	Boot contact 5-6 on relay 13A-K1. (Cue: Boot is installed.)	S	The THIRD FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
*5	Boot contact 11-12 on relay 13A-K1. (Cue: Boot is installed.)	S	The FAR LEFT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
6	Replace front cover on relay 13A-K1. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.

7	Remove front cover from relay 23A-K1. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 23A-K1 at panel 20C39 [FRONT] in the Cable Spreading Room.
*8	Boot contact 3-4 on relay 23A-K1. (Cue: Boot is installed.)	S	The SECOND FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
9	Replace front cover on relay 23A-K1. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.
10	Remove front cover from relay 23A-K4. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 23A-K4 at panel 20C39 [FRONT] in the Cable Spreading Room.
*11	Boot contact 5-6 on relay 23A-K4. (Cue: Boot is installed.)	S	The THIRD FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
12	Replace front cover on relay 23A-K4. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.
13	Inform Control Room of task completion. (Cue: Control Room acknowledges report.)	S	Task completion reported using telephone or GAI-TRONICS page system. NOTE: Hand held radio is NOT to be used in the Cable Spreading Room.
14	As an evaluator ensure you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When Step 4.1 of T-251-2, "RPV Pressure Control Using RCIC" is complete, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2008450599 / PLOR-386P K/A: 218000 K4.04
RO: 3.5 SRO: 3.6

TASK DESCRIPTION: Perform EO Actions to Bypass SV-9130A, ADS Nitrogen Supply

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Copy of T-331-3 Area 31 Fire Guide Attachment 1

C. REFERENCES

1. T-331-3, Rev 005, Area 31 Fire Guide

D. TASK STANDARD

1. Satisfactory task completion is indicated when a bypass around the SV-9130A valve has been installed.

2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to install a bypass around the SV-9130A valve using the appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. A fire has occurred in the 3A and 3C Emergency Battery Room.

2. The ADS valves do NOT currently have a long term pneumatic supply.

G. INITIATING CUE

The Control Room Supervisor directs you to perform T-331-3 Attachment 1 step 3.1 to install a bypass around the SV-9130A valve.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of T-331-3 Attachment 1. (Cue: Provide the candidate with a copy of T-331-3 Attachment 1.)	S	Copy of Attachment 1 obtained.
2	Obtain bypass line for SV-9130A. (Cue: Bypass line has been removed.)	S	Remove bypass line for SV-9130A from its holder on the wall.
3	Remove FME plugs. (Cue: FME plugs have been removed.)	S	Remove FME plugs from the female Parker fittings on each end of the bypass line.
Next two steps are not sequence dependant.			
*4	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL one end of the bypass line on the Parker fitting downstream of HV-3-16A-33155A ("ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130A") by matching the bypass line and test tap color codes.
*5	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL the other end of the bypass line on the Parker fitting downstream of HV-3-16A-33156A ("ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130A") by matching the bypass line and test tap color codes.
Next two steps are not sequence dependant.			
*6	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130A. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33155A "ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130A" by rotating the handwheel counter clockwise to the full OPEN position.
*7	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130A. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33156A "ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130A" by rotating the handwheel counter clockwise to the full OPEN position.
8	Verify nitrogen supply pressure. (Cue: PI-9130 is reading 92 psig.)	S	VERIFY supply pressure is >85 psig on PI-9130, "ADS Backup Nitrogen Supply Press" at RB SW el. 135'.

9	Notify the Control Room (Cue: Control Room notified.)	S	Notify the Main Control Room that SV-9130A "ADS Backup Nitrogen A HDR Supply to Drywell" bypass line is in service.
10	As an evaluator ensure you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When a bypass has been installed around SV-9130A, the Control Room Supervisor should be informed, the evaluator will terminate the exercise.

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2010100404 / PLOR-073P K/A: 201001A2.06
RO: 2.9 SRO: 2.9

TASK DESCRIPTION: Loss of CRD Regulating Function (Outside of Control Room Actions)

A. NOTES TO EVALUATOR:

1. An asterisk (*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.

2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.

3. JPM Performance

   a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).

   b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.

4. Satisfactory performance of this JPM is accomplished if:

   a. The task standard is met.

   b. JPM completion time requirement is met.

      1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.

      2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.

5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

1. Procedure ON-107, Rev. 24, "Loss of CRD Regulating Function"

2. Procedure SO 3.7.H-2(3), "CRD Hydraulic System Pump Suction Filter Replacement"

3. P&ID M-356 Sheet 1 (2), "Control Rod Drive Hydraulic System"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the CRD pump suction filter is bypassed and isolated.

2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to bypass and isolate the CRD pump suction filter using appropriate procedures. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2(3) is operating at full power steady state conditions.

2. Both CRD pumps have tripped on low suction pressure.

3. ON-107 "Loss of CRD Regulating Function" procedure has been entered.

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to bypass and isolate the Unit 2(3) CRD pump suction filter in accordance with ON-107, "Loss of CRD Regulating Function".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure ON-107.	P	A copy of procedure ON-107 is obtained.
*2	Slowly open HV-2(3)-3-129, CRDHS Bypass Valve for Pump Suction Filter 2(3)0F101. (Cue: Valve handwheel is turned [COUNTERCLOCKWISE] until stem length above valve yoke rises 4 inches, then will not turn.)	S	HV-2(3)-3-129, handwheel is slowly turned COUNTERCLOCKWISE until resistance of valve backseat is felt.
*3	Slowly close HV-2(3)-3-130, CRDHS Outlet Block Valve from Pump Suction Filter 2(3)0F101. (Cue: Valve handwheel is turned [CLOCKWISE] until stem length above valve yoke lowers 4 inches, then handwheel will not turn.)	S	HV-2(3)-3-130 handwheel is slowly turned CLOCKWISE until resistance of valve seat is felt.
*4	Close HV-2(3)-3-127, CRD Water Pump Suct Fltr 2(3)0F101 Inlet Block Valve. (Cue: Valve handwheel is turned [CLOCKWISE] until stem length above valve yoke lowers 4 inches, then handwheel will not turn.)	S	HV-2(3)-3-127 handwheel is turned CLOCKWISE until resistance of valve seat is felt.
5	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	S	Task completion reported using telephone hand held radio, or GAI-TRONICS page system.
6	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

Under "ACT" P - must perform
S - must simulate

I. TERMINATING CUE

When the Unit 2(3) CRD pump suction filter is bypassed and isolated, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

GENERAL REQUIREMENTS

- Recorders will be rolled prior to the scenario and paper from selected recorders will be retained for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc. will be in their normal storage places.
- All markable procedures, boards, etc. will be erased.
- All paper used by the Crew will be retained for the examination team as requested.
- The simulator operators will keep a log of all communications during the scenario as requested by the examination team.
- Establish the monitored parameters list with the Lead Examiner.

SCENARIO SOURCE HISTORY

- This scenario was altered from one developed for the 2013 NRC ILT Exam.

INITIAL SETUP

Initial Conditions

- IC-14, 100% power
- Lower power with Recirc flow to approximately 85%
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

Blocking Tags

- None

Event Triggers

Triggers 1-11 = False

Malfunctions

IMF VED01_25, "MO-13-18 Magnetic Overcurrent Trip"
IMF ASD04A (1) 50, "Recirc Flow Controller "A" Oscillations"
IMF SWS01B (4), "Service Water Pump "B" Trip"
IMF MAP06M (5), "13.2 KV 2R4 transformer Breaker Trip"
IMF HPC07 (7) .2, "HPCI steam supply line break"
ICF TCVBV1:SMV_0 (8) 0, "Turbine Bypass Valve 1"
ICF TCVBV2:SMV_0 (8) 0, "Turbine Bypass Valve 2"
ICF TCVBV3:SMV_0 (8) 0, "Turbine Bypass Valve 3"
ICF TCVBV4:SMV_0 (8) 0, "Turbine Bypass Valve 4"
ICF TCVBV5:SMV_0 (8) 0, "Turbine Bypass Valve 5"
ICF TCVBV6:SMV_0 (8) 0, "Turbine Bypass Valve 6"
ICF TCVBV7:SMV_0 (8) 0, "Turbine Bypass Valve 7"
ICF TCVBV8:SMV_0 (8) 0, "Turbine Bypass Valve 8"
ICF TCVBV9:SMV_0 (8) 0, "Turbine Bypass Valve 9"

Overrides

IOR ANO205RI3 (10) ALARM_ON, "Standby Liquid or Pipe Hi-Lo Temp"
IOR ANO205RI4 (11) ALARM_ON, "Standby Liquid Tank Heater Power Off"
IOR ANO204CA1 ALARM_OFF, "RCIC Turbine Trip"
IOR ZLORC04CMO1318_1 OFF, "Cond Storage Tank Suction Valve MO-13-18 (green)"
IOR ZLORC04CMO1318_2 ON, "Cond Storage Tank Suction Valve MO-13-18 (red)"
IOR ZGI13A2S03 OFF, "Turbine Trip Throttle Valve Trip"
IOR ZGI13A1S07 OPEN, "HPCI steam line isolation valve MO-23-15"
IOR ZGI13A1S05 OPEN, "HPCI steam line isolation valve MO-23-16"
IOR ANO204CA5 (2) ALARM_ON, "Logic Bus Power Lost"
IOR ZGI13A2S26 (2) OPEN, "Torus Suction Valve MO-13-39"
IOR ZGI13A2S28 (2) OPEN, "Torus Suction Valve MO-13-41"
IOR ZGI13A1S24 (2) OPEN, "Min Flow Byp Vlv MO-23-25"
IOR ZLOHP04BMO2325_2 OFF, "Min Flow Byp Vlv MO-23-25"
IOR ZLOHP04BMO2325_1 ON, "Min Flow Byp Vlv MO-23-25"
IOR ZGI13A2S20 (3) CLOSE, "Condensate Tank Suction Valve MO-13-18"
IOR ZGI13A2S11 (2) CLOSE, "Steam Line Isolation Valve MO-13-15"

Remote Functions

IRF DCW16C (6) RESET, "DW Chiller Trip Reset C"
IRF DCW19C (6) RESET, "'C'DW chiller 480 BKR UV Reset"
IRF IAS03C (9) RESET, "'C' Air Compressor Reset"
IRF IAS10C (9) RESET, "'C' Air Compressor 480 BKR UV Reset"

Trip Overrides

MRF HPO04TO Override, "HPCI Isolation Override – Includes K27, K28, K36, K57 Relays"

Expert Command

TRG 3 == DMF VED01_25
TRG 3 == DOR ZLORC04CMO1318_1
TRG 3 == DOR ZLORC04CMO1318_2
TRG 3 == MOR ZGI13A1S24 CLOSE

Batch Files

None

Turnover Procedures

RT-O-001-408-2, "Cycling of Combined Intermediate Valves"

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 **Power Reduction;**

Support the Crew as necessary to lower Reactor power to approximately 80%.

EVENT 2 **Perform RT-O-001-408-2, "Cycling of Combined Intermediate Valves" for CIV 1 only;**

Support the Crew as necessary to perform RT-O-001-408-2, "Cycling of Combined Intermediate Valves" for CIV 1 only.

EVENT 3 **Standby Liquid Control Tank High Temperature;**

When directed by the Lead Exami9ner, initiate pending events on trigger 10 and verify that I/O Override ANO205RI3 activates.

If directed to check SBLC Tank Temperature, wait approximately 3 minutes and report that SBLC Tank Temperature (TIC-2-11-048) is reading 125°F and rising slowly. (195' Rx Bldg.)

If directed to report the status of the SLC tank heaters, report that the heater is on.

If requested to remove power from the heater (E-124-R-C, Switch #52-3604), then initiate pending events on trigger 11 and verify that I/O Override **ANO205RI4** activates.

EVENT 4 **"A" Recirc pump oscillations;**

When directed by the Lead Examiner, initiate pending events on trigger 1 and verify that malfunction **ASD04A** activates.

EVENT 5 **RCIC Logic Bus Power Loss;**

When directed by the Lead Examiner, initiate pending events on trigger 2 and verify that the following I/O Overrides activate:

- **ZGI13AS24**
- **ZGI13AS11**
- **ANO204CA5**
- **ZGI13A2S26**
- **ZGI13A2S28**

When the PRO closes MO-13-18, initiate pending events on trigger 3 and verify the following:

- **VED01_25 (deletes)**
- **ZLORC04CMO1318_1** (deletes)
- **ZLORC04CMO1318_2** (deletes)
- **ZGI13A2S20** (activates)
- **ZGI13A1S24 CLOSE** (Modifies)

If directed to check fuses 13A-F1, 13A-F2, 13A-F21 and 13A-F22 in the cable spreading room, wait approximately 4 minutes and report (BY PHONE) that there is extensive damage inside the cabinet caused by a short circuit.

EVENT 6 **"B" Service Water Pump trips;**

When the Tech Spec determination is complete or as directed by the Lead Evaluator, activate pending events on trigger 4 and verify malfunction **SWS01B** activates.

If directed to investigate the trip of the "B" Service water pump, wait approximately 2 minutes and report that the pump is tripped on instantaneous overcurrent.

If directed to verify open the following valves for the "C" Service Water pump:

- HV-2-30-21700C, "2C Service Water Pump Discharge Block Valve"
- HV-2-30B-21892C, "2C SW Pump Lube Water Inlet Isolation Valve"
- HV-2-30B-21886C, "2C SW Pump Upper Bearing Lube Wtr Inlet Block Valve"

wait approximately 4 minutes and report that

- HV-2-30-21700C, "2C Service Water Pump Discharge Block Valve"
- HV-2-30B-21892C, "2C SW Pump Lube Water Inlet Isolation Valve"
- HV-2-30B-21886C, "2C SW Pump Upper Bearing Lube Wtr Inlet Block Valve"

are open.

If directed to blowdown the "Y" strainer, wait approximately 5 minutes and report that was clear water issuing from HV-2-30B-21874C and that HV-2-30B-21874C is closed.

If directed to verify High Pressure Lube water flow, report that there is flow through FG-2379C into the funnel.

If directed to report oil level, wait approximately one minute and report that oil level is between ½ and ¾ on the gage glass.

If directed to report local Service water discharge pressure, wait approximately one minute and report that pressure is 87 psig.

If directed to verify proper operation of the Service water system per step 4 of SO 30.1.A-2, "Unit 2 Service Water System Normal Operations" wait approximately 13 minutes and report that the Service Water system is operating properly.

EVENT 7 **Trip of 2R4Transformer Breaker;**

When directed by the Lead Examiner, activate pending events on trigger 5 and verify malfunction **MAP06M** activates.

If directed to investigate the trip of the 2R4 Transformer Breaker, wait approximately 3 minutes and report that the breaker is tripped with an acrid odor coming from the 2R4 Transformer Breaker.

If directed to open breaker 52-2662, wait approximately 2 minutes and report that the 52-2662 breaker is open.

If directed to reset the under voltage trip for the "C" Drywell Chiller, wait approximately 2 minutes enter pending events on trigger 6 and verify that Remote Functions **DCW19C** and **DCW16C** activate.

If directed to reset the under voltage trip for the "C" Instrument Air Compressor, wait approximately 2 minutes and enter pending events on trigger 9 and verify that Remote Functions **IAS03C** and **IAS10C** activate.

EVENT 8 **HPCI Steam Leak into Secondary Containment;**

When directed by the Lead Examiner, activate pending events on trigger 7 and verify malfunction **HPC07** activates.

If directed to investigate the fire alarm as the Fire Brigade, report back that the Incident Commander, Fire Brigade members 1-4, Ops HP, and Security are responding to the fire. Wait approximately 3 minutes and then report that there is steam in the Reactor Building.

Following the Reactor Scram, raise the severity of Malfunction HPC07 to 5% with a 10 minute ramp time. (**MMF HPC07 5 10:00**)

Modify HPC07 as needed to drive Torus room temperature to the "Action Level".

EVENT 9 **HPCI Isolation Pushbutton and Control Switch Failure;**

All attempts to isolate HPCI will fail

EVENT 10 **Bypass Valves Fail Closed;**

When the Crew begins attempts to depressurize the RPV using Bypass valves activate pending events on trigger 8 and verify the following malfunctions activate:

ICF TCVBV1
ICF TCVBV2
ICF TCVBV3
ICF TCVBV4
ICF TCVBV5
ICF TCVBV6
ICF TCVBV7
ICF TCVBV8
ICF TCVBV9

EVENT 11 **Emergency blowdown due to exceeding Reactor Building temperature limits in more than one area;**

When the second area temperature exceeds the action level, the CRS will direct an emergency blowdown. The CRS may have directed a rapid depressurization with bypass valves prior the second parameter exceeding the action level.

TERMINATION The scenario may be terminated when 5 SRVS are open, the Reactor is depressurizing, and Reactor level is under control.

SHIFT TURNOVER

PLANT CONDITIONS:

- Unit 2 is at 85% power.

INOPERABLE EQUIPMENT/LCOs:

- None

SCHEDULED EVOLUTIONS:

- Lower Reactor power to approximately 80 %
- RT-O-001-408-2, "Cycling of Combined Intermediate Valves" for CIV 1 only

SURVEILLANCES DUE THIS SHIFT:

- RT-O-001-408-2, "Cycling of Combined Intermediate Valves"

ACTIVE CLEARANCES:

- None

GENERAL INFORMATION:

- None

CRITICAL TASK LIST

1. **When a Primary System is discharging into Secondary Containment through an unisolable leak, scram the Reactor prior to performing an Emergency Blowdown (T-103-3)**

2. **Perform an Emergency Blowdown when the second Reactor Building area Temperature exceeds an Action level (T-103-4)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 1

Event Description: **Lower Reactor power to approximately 80%**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the URO to lower Reactor power to 80% in accordance with the ReMA.
	URO	Commence power reduction in accordance with the ReMA.
		Monitor nuclear instrumentation and reactor power during control rod withdrawal.
	PRO	Monitor balance of plant conditions during rod withdrawal.
		Peer check rod motion as directed by CRS.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 2

Event Description: **Perform RT-O-001-408-2, "Cycling of Combined Intermediate Valves" for CIV 1 only**

Cause: N/A

Effects: None

Time	Position	Applicant's Actions or Behavior
	CRS	Direct PRO to perform RT-O-001-408-2, "Cycling of Combined Intermediate Valves" for CIV 1 only.

	PRO	Perform RT-O-001-408-2, "Cycling of Combined Intermediate Valves".
		• Review RT
		• Access the CIV Tests Screen 5544.
		• Select CIV-1.
		• Select the Open Trend button.
		• Select the Start button and verify the Intercept Valve:
		  • Slow closes the first 90% of travel.
		  • Fast closes the remaining 10% of travel.
		  • When the Intercept Valve is 10% open, the Intermediate Stop Valve starts to slow close the first 90% of travel.
		  • The intermediate Stop Valve fast closes the remaining 10%.
		  • Valves operate smoothly.
		• Complete RT paperwork for CIV 1.

	URO	Monitor plant parameters/assist as directed.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 3

Event Description: SBLC Tank High Temperature.

Cause: Heater switch failed leaving heater energized after it should have shutdown.

Effects: With tank temperature >120°F, SBLC must be considered INOP.

Time	Position	Applicant's Actions Or Behavior
	URO/PRO	Recognize by reporting STANDBY LIQUID OR PIPE HI-LO TEMP (211 J-3) annunciator is alarming.
	URO	Enter and execute ARC 211 J-3 • Dispatch an operator to check tank temperature locally. • Report tank temperature to CRS. • Direct operator to verify that the heater is NOT on and the control switch is in auto.
	PRO	Determine the power supply to the SBLC Tank Heater and report it to the CRS.
	CRS	Direct that the Tank Heater be deenergized. Reference Tech Spec 3.1.7 and recognize that with 125°F tank temperature, SBLC must be considered INOP. Tech Spec 3.1.7, Condition C applies requiring temperature to be restored in 8 hours.
	PRO	Direct the EO to deenergize the tank heater using switch #52-3604 on E-124-R-C.
	URO/PRO	Recognize by reporting that the tank heater is off when STANDBY LIQUID TANK HEATER POWER OFF (211 J-4) annunciator is received.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 4

Event Description: **"A" Recirc pump oscillations**

Cause: Failure in the 'A' flow controller

Effects:
1. Jet pump flow oscillation
2. Total flow oscillations
3. Reactor level oscillations
4. 'A' Recirc parameter changes
5. Reactor power oscillations

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report that Reactor power is oscillating. Recognize by reporting the 'A' Recirc pump oscillations URO may place a speed hold on the 'A Recirc pump without direction at this time.
	Crew	Recognize the rise in Reactor power as an entry into OT-104, "Positive Reactivity Insertion". May enter and execute OT-104, "Positive Reactivity Insertion" per OP-PB-101-111-1001. "Strategies for Successful Transient Mitigation" if the Crew recognizes power rising. Recognize and report the oscillations as an entry into OT-112, "Unexpected/Unexplained Change in Core Flow". Enter and execute OT-112, "Unexpected/Unexplained Change in Core Flow" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	CRS	Plot conditions on the Power to Flow map Direct monitoring for THI Direct the URO to place a speed hold on the "A" Recirc pump. Refer to SO 2H.7.B-2, "Reactor Recirc Adjustable Speed Drive Manual Hold and Reset". Review Tech Specs 3.4.1 and determine that no actions are required.
	URO	Monitor for indications of THI Place SS-2(3)-02H-2(3)10A, "Speed Reset-Hold" to "HOLD".

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 5

Event Description: **RCIC Logic Bus Power Loss**

Cause: Blown fuses 13A-F1 and 13A-F2 in the "A" logic circuit

Effects:

1. Alarm; 222 A-5, "Logic Bus Power Lost"
2. RCIC will be INOP
3. Torus suction valves will open
4. CST level drops due to leaking check valve

Time		Position	Applicant's Actions or Behavior
		PRO	Recognize by reporting the "Logic Bus Power Lost" alarm. Enter and execute ARC 222 A-5. Recognize by reporting that the Torus suction valve are opening. When the Torus suction valves are open, recognize by reporting that the CST suction valve did not close. Recognize by reporting the MO-2-13-15, "Steam Line Isolation valve is closed.
	TS	CRS	Enter and execute ARC 222 A-5. Direct the PRO to close MO-2-13-18, "Condensate Tank Suction". Reference Tech. Spec. 3.3.5.2. Because there is a loss of RCIC initiation capability, declare RCIC INOP with in 1 hour of discovery. Enter 3.5.3 verify that HPCI is operable and restore RCIC within 14 days.
		PRO	Close MO-2-13-18, "Condensate Tank Suction".

Operator Actions ES-D-2

Op Test No.: 1 Scenario No.: 1 Event No.: 6

Event Description: "B" Service Water pump trip

Cause: Internal short causes the "B" Service Water pump to trip on overcurrent

Effects: Component temperatures cooled by Service water will begin to rise until the Standby Service Water pump is started.

Time	Position	Applicant's Actions or Behavior
	Crew	Recognize and report the trip of the "'B' Service pump. Enter and execute the following Alarm Response Cards: • 216 H-1, "'B' Service Water Pump Trip" • 216 H-2, "'B' Service Water Pump Overload" Recognize the trip of the "B" Service water pump as a symptom for entry in ON-127, "Loss of Service Water" Enter and execute ON-127, "Loss of Service Water" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	CRS	Direct the PRO to monitor components cooled by Service Water for a rise in temperatures. Direct a RO to place the "C" Service Water pump in service using SO 30.1.A-2, "Unit 2 Service Water System Normal Operations".
	PRO	Monitor temperatures of components cooled by Service Water.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 6

Event Description: **"B" Service Water pump trip** (continued)

Time	Position	Applicant's Actions or Behavior
	URO	Place the "C" Service Water pump in service using SO 30.1.A-2, "Unit 2 Service Water System Normal Operations".

NOTE
The operator may direct the following steps or may direct the Equipment Operator to verify the "C" Service Water pump is ready for a start.

Direct an Equipment Operator to verify open the following valves for the "C" Service Water pump to be started:

- HV-2-30-21700C, "2C Service Water Pump Discharge Block Valve"
- HV-2-30B-21892C, "2C SW Pump Lube Water Inlet Isolation Valve"
- HV-2-30B-21886C, "2C SW Pump Upper Bearing Lube Wtr Inlet Block Valve"

Direct an Equipment Operator to perform the following for the "C" Service Water pump:

- Blowdown the Lube Water Y-Strainer.
- Open HV-2-30B-21874C, "2C Service Wtr Pp Lube Wtr Y-Strainer Drain Valve".
- WHEN a clean stream of water is visible, then close HV-2-30B-21874C.

Direct an Equipment Operator to verify High Pressure Lube Water flow through FG-2379C, "Lube Water Supply Flow" into the funnel.

Direct an Equipment Operator to verify the upper AND lower motor bearing lube oil reservoir levels indicate ½ to ¾ sight glass levels.

Start the "C" "Service Water pump and verify steady state motor current indicates within 23 to 28 amps.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 6

Event Description: **"B" Service Water pump trip** (continued)

Time	Position	Applicant's Actions or Behavior
	URO	Check PI-2286, "Service Wtr Pumps Disch Hdr" indicates between 65 and 95 psig. Direct an Operator to check PI-2377C, "Service Water Pump Discharge Press" indicates between 65 and 95 psig. Monitor Alterrex Exciter outlet cooler air temperature on PMS Points G007 and G005 AND XI-80838, Point 611 at Panel 20C007B for changes. If Alterrex Cooler valve manipulations are required due to high temperatures (greater than 104 °F OR 40 °C), then perform SO 50G.1.A-2, "Operation of Alterrex Air Cooler".

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 7

Event Description: **Trip of 2R4Transformer Breaker**

Cause: Contact failure inside of the breaker

Effects: Trip of the "C" Instrument Air compressor
Minor trouble alarms on the "A" and "B" Recirc ASD drives
Recirc ASD UPS trouble alarm
Turbine Building Vent Panel Trouble alarm
SJAE Discharge Hi/Lo Pressure

Time	Position	Applicant's Actions or Behavior
	Crew	Recognize by reporting the following alarms "2R4 Reactor Area Load Center Trouble" Enter and execute the following ARC 219 F-4
	CRS	Direct an Equipment Operator to determine the cause of the 2R4 breaker trip. Direct the PRO to Green flag the 2R4 Transformer Breaker. Direct the PRO to cross tie the 2R4 and 1R4 MCCs using SO 55.6.A-0 "480V Auxiliary Load Center Cross-Tie" or RRC 55.1-2, "Cross-tie of 480V Load Centers during a Plant Event".
	PRO	Cross tie the 2R4 and 1R4 MCCs using SO 55.6.A-0 "480V Auxiliary Load Center Cross-Tie" or RRC 55.1-2, "Cross-tie of 480V Load Centers during a Plant Event" by performing the following: • Direct an Equipment Operator to shed the non-essential loads by opening the 52-2662 breaker. • Document the load shed of 52-2662 on Attachment 4. • Hold closed the 1R4 to 2R4 cross-tie breaker and open the 2R4 breaker. • Direct an Equipment Operator to reset the local under voltage trip on the "C" Drywell Chiller. • Direct an Equipment Operator to reset the local under voltage trip on the "C" Instrument Air compressor.

ES-D-2

Operator Actions

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 8

Event Description: **HPCI steam leak into Secondary Containment**

Cause: Unisolable HPCI steam line break in the HPCI room

Effects: Secondary containment temperature will increase. First alarm to actuate is 210 J-3 "High Area Temp". This will cause an entry into T-103 "Secondary Containment Control".

Time	Position	Applicant's Actions or Behavior
	PRO/URO	Recognize and report the following alarms • "High Area Temp" alarm (210 J-3) • Fire Panel alarm (007 D-6 Lower) • "Reactor Building Vent Panel Trouble" (216 L-1)
	PRO	Dispatch the Fire Brigade using RRC FF-01, "Dispatch of the Fire Brigade" Report the rise in HPCI room temperature (Point #3). Report the temperature alarm as an entry into T-103 "Secondary Containment Control".
	CRS	Enter and execute T-103 "Secondary Containment Control". • Monitor and control secondary containment temperatures. • Perform a local evacuation IAW GP-15. • Determine a primary system is discharging into the Reactor Building. • Direct a RO to isolate the steam leak
	PRO	Monitor secondary containment temperatures on TR-2-13-139. Inform the CRS of the failure to isolate HPCI **(see Event 9)**.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 8

Event Description: **HPCI steam leak into Secondary Containment** (continued)

Time	Position	Applicant's Actions or Behavior
CT	CRS	Direct a GP-4 "Manual Reactor Scram" before HPCI room temperature (Point #3) exceeds the action level of 150 degrees F. Enter and execute T-101 "RPV Control".
CT	URO	Perform GP-4 "Manual Reactor Scram" as directed: • Place the mode switch to SHUTDOWN. • Verify control rods are inserting. • Verify APRMs are downscale. • When reactor level begins to recover, then "Emergency Stop" all 3 RFPTs. • Close all RFP discharge valves and open 'C' RFP discharge bypass valve. • Establish and maintain reactor level control with feedwater. • Verify scram discharge volume vents and drains are closed. • Verify all control rods are inserted. • Verify reactor pressure, trend, and status of EHC. • Notify health physics of changing plant conditions.
	PRO	Perform GP-4 "Manual Reactor Scram" as directed: • Transfer 13 KV house loads. • Trip main turbine when less than 50 MWe. • Verify main generator lockout. • Verify Group II and III isolations and SGTS initiation. • Verify hydrogen water chemistry is isolated. • Verify both Recirc pumps speed have runback to at least 30%. • Monitor instrument air header pressure and drywell pressure. • When the CRS is ready, report scram actions.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 8

Event Description: **HPCI steam leak into Secondary Containment** (continued)

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the URO to control reactor level between +5" to +35" with feedwater. Direct the PRO to bypass and restore instrument nitrogen to the drywell.
	URO	Control reactor level between +5" to +35" with feedwater.
	PRO	Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2. • Place AO-2969A control switch to "CLOSE". • Place AO-2969B control switch to "CLOSE". • Place Drywell Instrument Nitrogen Bypass Switch 16A-S100 in the "BYPASS" position. • Place Drywell Instrument Nitrogen Bypass Switch 16A-S99 in the "BYPASS" position. • Place AO-2969A control switch to "OPEN". • Place AO-2969B control switch to "OPEN".
	CRS	Direct a Reactor depressurization to 500-600 psig.
	URO/PRO	Perform reactor depressurization to 500-600 psig using the Bypass Valves, as directed. **(See Event 10)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 9

Event Description: **HPCI Isolation Pushbutton and Control Switch Failure**

Cause: Logic and Control Switch failure

Effects: HPCI will fail to isolate, resulting in Secondary containment temperature continuing to rise.

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to isolate HPCI.
	PRO	Attempt to manually close the MO-15 and -16 valves. Recognize and report the failure of the MO-15 and 16 valves to fully close

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **1** **Event No.:** **10**

Event Description: **Bypass Valves Fail Closed**

Cause: EHC System failure

Effects: Operator attempts to de-pressurize will require shifting over to using Safety Relief Valves or alternate depressurization systems.

Time	Position	Applicant's Actions or Behavior
	URO	Open Bypass Valves to initiate depressurization to 500 to 600 psig as directed by the CRS. Recognize and report the failure of the Bypass Valves.
	CRS	Direct the PRO to continue depressurization using Safety Relief Valves (May direct depressurization with alternate systems) Direct the PRO to place Torus Cooling in service.
	PRO	Continue depressurization using Safety Relief Valves and establish a RPV pressure band of 500-600 psig. Place Torus Cooling IAW RRC 10.1, "RHR System Torus Cooling during a Plant Event". • Open MO-039A(B) • If HPSW pump not in service then open MO-089A(B)(C)(D) • If not in service start a HPSW pump • If not in service start a RHR pump • Open MO-034A(B) "Full Flow Test" • If necessary then start other HPSW pump • Open additional MO-089A(B)(C)(D) • If necessary then start the other RHR pump • Verify flow 9500-10,400 on FI-2-10-81076A(B)(C)(D) for all running RHR pumps • Direct an Operator to Close HV-2-10-70A AND/OR HV-2-10-70B • Throttle CV-2-10-2677A(B)(C)(D) as required not to exceed 12,200 on FI-2-10-81076A(B)(C)(D)

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 11

Event Description: **Emergency blowdown due to exceeding Reactor Building temperature limits in more than one area**

Cause: Steam leak in the Reactor Building continues to degrade Secondary Containment parameters

Effects: Reactor depressurization via ADS SRVs

Time	Position	Applicant's Actions or Behavior
CT	CRS	When the same parameter exceeds an action level in more than one area (HPCI Room and Torus Room) and the primary system breach has not been isolated, enter and execute T-112 "Emergency Blowdown": • Verify torus level is above 7 feet. • Verify reactor pressure is 50 psig or more above torus pressure. • Direct 5 ADS SRVs opened.
CT	PRO	When directed, open 5 ADS SRVs by placing their control switches in OPEN.

TERMINATION CRITERIA:

The scenario may be terminated when 5 SRVS are open, the Reactor is depressurizing, and Reactor level is under control.

GENERAL REQUIREMENTS

- Recorders will be rolled prior to the scenario and paper from selected recorders will be retained for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc. will be in their normal storage places.
- All markable procedures, boards, etc. will be erased.
- All paper used by the Crew will be retained for the examination team as requested.
- The simulator operators will keep a log of all communications during the scenario as requested by the examination team.
- Establish the monitored parameters list with the Lead Examiner.

SCENARIO SOURCE HISTORY

This Scenario has been modified from the scenario developed for the 2013 NRC exam.

INITIAL SETUP

Initial Conditions

- IC-14, 100% power
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

Blocking Tags

None

Event Triggers

TRG 1- 6 = False
TRG 7 REACTOR_MODE_SWITCH_NOT_IN_RUN
TRG 8 RPV_LEVEL_LE_-48
TRG 9-10 = False

Malfunctions

IMF IPM03 90, "Anticipated Transient without Scram"
IMF CRH051423 (1), "Control Rod (14-23) Accumulator Trouble"
IMF RRS29C (6), "'B' 3041 RPT Breaker Trip"
IMF RRS24B (7) 50 5:00, "Thermal Hydraulic Instabilities In-Phase"
IMF RPS05 (10), "RPS Automatic Scram Circuit Failure"
IMF RRS29A (6 1:00 00), "'A' 3041 RPT Breaker Trip"

Overrides

IOR ZGI04A8S04 (2 0 2) START, "E-4 DG Quick Start Pushbutton"
IOR ANO226DF1 (2 01:00 00) ALARM_ON "E-4 Diesel Gen Differential and Ground"
IOR ANO204RA1 (4) ALARM_ON "'A' Cleanup Recirc Pump Motor Winding Temperature High"
IOR ANO204RA2 (4 03:00 00) ALARM_ON "'A' Cleanup Recirc Pump Motor Winding Temperature High-High"
IOR ZGI02A2S10 (9) TRIP, "'C' RFPT Trip Dis"

Remote Functions

IRF MSS05A (3) CLOSE, "'A' SJAE Steam Isolation Valve AO-2466A"

Trip Overrides

IRF ARI01TO OVERRIDE (10), "ARI Relay Trip Override"
IRF ARI02TO OVERRIDE, (10) "ARI Relay Trip Override"

Expert Commands

TRG 5 = DOR ANO204RA1
TRG 5 = DOR ANO204RA2
TRG 7 = DMF IPM03
TRG 8 = DMF RRS24B

Turnover Procedures

None

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 **Swap TBCCW pumps;**

Support crew for TBCCW pump swap in accordance with SO 34.6.A-2, "Placing Standby Turbine Building Closed Cooling Water System Pump in Service".

- When directed to perform Step 4.1 of SO 34.6.A-2, wait approximately 1 minute and report that the "B" TBCCW pump has been vented.
- When directed per Step 4.2.1 of SO 34.6.A-2, report 'B' TBCCW pump discharge pressure is 85 psig.
- When directed per Step 4.4 of SO 34.6.A-2, report 'B' TBCCW pump discharge pressure is 85 psig.

EVENT 2 **Individual Control Rod Drive Scram Accumulator Low Pressure;**

When directed by the Lead Examiner, initiate pending events on trigger 1 and verify malfunction **CRH051423** activates.

When directed to go to the HCU for rod 14-23 per ARC 211 E-2, wait approximately 2 minutes and report an unisolable nitrogen leak on the accumulator and pressure is 900 psig and slowly lowering.

EVENT 3 **E-4 Diesel Generator Spurious Start;**

After the Tech Spec determination is completed, or when directed by the Lead Examiner, initiate pending events on trigger 2 and verify I/O Override **ZGI04A8S04** activates.

After the E4 diesel starts, verify override **ZGI04A8S04 deletes**.

One minute later verify override **ANO226DF1** activates.

If directed to perform running inspection or investigate E4 EDG, then wait until the diesel is shutdown and report that you see nothing abnormal with the E-4 Diesel Generator

EVENT 4 **Failure of Steam Jet Air Ejector Steam Supply Valve;**

After the TS requirements have been determined for the EDG spurious start, or when directed by the Lead Examiner, initiate pending events on trigger 3 and verify Remote Function **MSS05A** activates.

EVENT 5 **Fast Reactor Power Reduction for Lowering Main Condenser Vacuum;**

Support the crew for GP-9, "Fast Power Reduction".

Role-play as the Power System Director when called.

EVENT 6 **RWCU Pump Motor Winding High Temperature;**

When directed by the Lead Examiner, initiate pending events on trigger 4 and verify I/O Override **ANO204RA1** activates.

Verify that I/O Override **ANO204RA2** actives 3 minutes after initiating pending events of trigger 4.

When the "A" RWCU pump is removed from service, initiate pending events on Trigger 5 and verify that the following delete:

- **ANO204RA1**
- **ANO204RA2**

If directed to report winding temperature on TIS-2-12-089A, wait approximately 2 minutes and report that temperature is 142^0F and rising fast.

If directed to perform step 4.1.5 of SO 12.2.A-2, "Reactor Water Cleanup System Shutdown" for the filter demins, wait approximately 5 minutes and report that step 4.1.5 is complete.

If directed to isolate the "A" RWCU pump using step 4.1.9 of SO 12.2.A-2, "Reactor Water Cleanup System Shutdown", wait approximately 4 minutes and report that step 4.1.5 is complete.

If directed to shutdown the Noble Metals Monitoring system, wait approximately 10 minutes and report that the Noble Metals Monitoring system is shutdown.

EVENT 7 **"B" Recirc pump trips followed by the "A" Recirc pump trip, mode switch to shutdown ;**

When directed by the Lead Examiner, initiate pending events on trigger 6 and verify the following malfunction activate:

- **RRS29C**
- **RRS29A 1 minute later**

If directed to investigate the trip of the RPT breaker, wait approximately 5 minutes and report that you don't see any reason why the breaker tripped

EVENT 8 **Scram and Hydraulic ATWS;**

Verify that malfunction **IPM03** deletes when the mode switch is taken to Shutdown.

Verify that malfunction **RRS24B** actives when the mode switch is taken to Shutdown.

Verify that malfunction **RRS24B** deletes when RPV level drops below -48 inches.

When requested to perform T-221, wait 3 minutes enter Remote Function **MRF T221_1 DEFEAT** "Remove Low RPV Level/GP1 Isolation" and report to the control room that T-221 is complete.

When requested as the Equipment Operator to perform T-216 steps 4.1 and 4.2 wait approximately 4 minutes and initiate pending events on trigger 10 and verify the following activate:

- **RPS05**
- **ARI01**
- **ARI02**.

Report to the control room that T-216 steps 4.1 and 4.2 are complete.

EVENT 9 **Standby Liquid Control pump Trips;**

When a Standby Liquid Control pump has been running for approximately 1 minute, enter malfunction **IMF SLC01A**, "SBLC Pump "A" trip" OR **IMF SLC01B**, "SBLC Pump "B" trip" to trip the operating SCL pump.

EVENT 10 **"C" RFP Trips;**

When RPV level is controlled below -60 inches and Reactor power is approximately 20% then initiate pending events on trigger 9 and verify I/O override **ZGI02A2S10** activates.

TERMINATION The scenario may be terminated when the crew has control of RPV power and level using T-240 "Termination and Prevention of Injection into the RPV" and the crew has taken actions to lower Reactor power with either SLC or control rods.

SHIFT TURNOVER

PLANT CONDITIONS:

Unit 2 is at 100% power

INOPERABLE EQUIPMENT/LCOs:

There is no equipment out of service.

SCHEDULED EVOLUTIONS:

Swap running TBCCW Pumps per SO 34.6.A-2. Noisy bearing on the 'A' TBCCW pump motor; maintenance to install monitoring instrumentation.

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

None

GENERAL INFORMATION:

None

CRITICAL TASK LIST

1. **Attempt to shut down the Reactor by performing one or more of the following: T-216, "Control Rod Insertion by Manual Scram of Individual Scram Test Switches", T-220, "Driving Control Rods During a Failure to Scram", Injecting Standby Liquid Control Before Torus Temperature exceeds 110 degrees Fahrenheit. (T-101-4)**

2. **Perform T-240, "Termination and Prevention of Injection into the RPV to minimize Thermal-hydraulic instabilities (THI) until RPV level is below -60 inches. (T-117-1)**

3. **Inhibit ADS initiation during an ATWS with Feedwater available within 10 minutes and 12 seconds. (T-117-7)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 1

Event Description: Swap TBCCW pumps

Cause: Noisy bearing on the 'A' TBCCW pump motor; maintenance to install monitoring instrumentation

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to perform SO 34.6.A-2 "Placing the Standby Turbine Building Closed Cooling Water System Pump in Service."
	PRO	Perform SO 34.6.A-2 "Placing the Standby Turbine Building Closed Cooling Water System Pump in Service." • Contact the Equipment Operator to perform SO 34.6.A-2 Step 4.1 to vent the 'B' TBCCW pump and verify it ready for start **NOTE: MCR TBCCW discharge pressure indication reads lower than local indication.** • Start the 'B' TBCCW pump and direct the EO to verify discharge pressure is greater than 70 psig on local pressure indicator. • Stop the 'A' TBCCW pump and place it in AUTO. • Direct the EO to verify discharge pressure of running pump is greater than 70 psig and less than or equal to 87 psig on local pressure indicator. • Inform the CRS and Maintenance the pump swap is complete.
	URO	Monitor plant parameters and assist as directed.

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **2** **Event No.:** **2**

Event Description: **Individual control rod drive scram accumulator low pressure**

Cause: Leaking CRD HCU accumulator

Effects:

1. Alarms:
   - 211 E-2 "CRD Accum Lo Pres / Hi Level"
2. Control rod must be declared SLOW or INOPERABLE per Tech Spec.

Time		Position	Applicant's Actions or Behavior
		URO	Recognize by reporting alarm 211 E-2 "CRD Accum Lo Pres / Hi Level" Recognize alarm condition is for control rod 14-23. Reference the corresponding Alarm Response Card.
		CRS	Reference Alarm Response Card 211 E-2 "CRD Accum Lo Pres / Hi Level". Direct that an Equipment Operator to investigate HCU 14-23.
		URO	Dispatch an Equipment Operator to HCU 14-23
	TS	CRS	Upon field report of leaking HCU accumulator, references Tech Spec 3.1.5 for control rod scram accumulators. Recognizes Tech Spec 3.1.5 Condition A applies. Declare control rod 14-23 SLOW or INOPERABLE within 8 hours.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 3

Event Description: **E4 diesel generator spurious start**

Cause: Spurious automatic start signal

Effects:

1. Alarms:
   - 005 F-4 "E4 Diesel Running"
   - 002 A-5 "Emergency Service Water Pump Auto Start"
   - 212 B-2 "Emergency Cooling Water Pump Auto Start"
   - 005 F-1 "E-4 Diesel Gen Differential and Ground" (approximately 1 minute after generator start)
2. The diesel will continue to run until manually shutdown

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize by reporting alarm 005 F-4 "E4 Diesel Running" and enter corresponding Alarm Response Card. • Red flag the E4 Diesel Generator control Switch by placing the control Switch to "START" Recognize the E4 diesel is running unloaded. Verify diesel automatic response using SO 52B.1.B "Diesel Generator Automatic Start". • Verify an ESW pump started. o Check pump discharge pressure (PI-0236A (B)) "DISCH PRESS" 25 to 64 psig. o Check pump motor current "AMPS" 25 to 35 amps. • Red-flag the ESW pump to remain in service. • Shutdown the remaining ESW pump per ARC-002 A-5. • Direct an Equipment Operator to perform a running inspection of the E-4 diesel generator. Recognize by reporting alarm 005 F-1 "E-4 Diesel Gen Differential and Ground" and enter corresponding Alarm Response Card. • Trip the E4 Diesel Generator by placing control switch to "STOP" • Place E4 Diesel Generator control switch, E42 and E43 Breakers in Pull-to-Lock
	CRS	If not already done direct placing the E4 diesel in Pull-to-Lock. Request Maintenance and/or I&C assistance in troubleshooting E4 diesel generator spurious start and the Differential and Ground

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 3

Event Description: **E4 diesel generator spurious start** (continued)

Time	Position	Applicant's Actions or Behavior
	CRS	Declare the E-4 diesel inoperable.
TS		Review Tech Spec 3.8.1 and determine Condition B applies: • Verify alignment/availability of the Conowingo tie line immediately. • Verify breaker alignment for operable offsite circuits within 1 hour. • Restore the E-4 diesel generator to operable status within 14 days.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 4

Event Description: **Failure of Steam Jet Air Ejector Steam Supply Valve**

Cause: Leak in normal air supply to steam supply valve

Effects: 1. Alarms:
- 204 D-5, "SJAE Disch Hi/Lo Press"
- 003 E-3, "2 Unit Off Gas Recombiner Trouble"
- 231 H-1, "Guard Bed Adsorber Inlet Flow Low"
- 231 E-1, "Cooler Outlet Temperature High/Low"

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize by reporting the following alarms: • 204 D-5, "SJAE Disch Hi/Lo Press" • 003 E-3, "2 Unit Off Gas Recombiner Trouble" • 231 H-1, "Guard Bed Adsorber Inlet Flow Low" • 231 E-1, "Cooler Outlet Temperature High/Low" Enter and execute the following: • 204 D-5, "SJAE Disch Hi/Lo Press" • 003 E-3, "2 Unit Off Gas Recombiner Trouble" • 231 H-1, "Guard Bed Adsorber Inlet Flow Low" • 231 E-1, "Cooler Outlet Temperature High/Low" Recognize by reporting A SJAE steam supply isolation valve AO-2466A closed on Panel 20C006B. Recognize by reporting lowering main condenser vacuum.
	CREW	Enter and execute OT-106 "Condenser Low Vacuum" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	CRS	Recognize that step 3.9 of OT-106 applies to present condition (AO-2466A closed) Direct the PRO to perform step 3.9 of OT-106.
	PRO	Place control switch "Alt Instr Air AO-2-08A-2466A" to OPEN on Panel 20C007A. Verify AO-2-08A-2466A indicates open at Panel 20C006B. Place PIC-2239A "A Steam Press" in MANUAL on Panel 20C007A. Restore SJAE steam supply pressure to between 115 and 125 psig.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 5

Event Description: **Fast Reactor Power Reduction**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	URO	Reduce reactor power in accordance with GP-9-2 "Fast Power Reduction" until vacuum stops lowering. • Lower recirculation flow as required to a value of no lower than 61.5 Mlbs/hr. • Stop power reduction when main condenser vacuum stops lowering and/or begins to improve.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 6

Event Description: **"A" RWCU Pump Motor Winding High Temperature**

Cause: Failed insulation on the windings of the "A" RWCU Pump motor

Effects: 215 A-1, "'A' Cleanup Recirc Pump Motor Winding Temperature High"
215 A-2, "'A' Cleanup Recirc Pump Motor Winding Temperature High-High"
Remove the "A" RWCU pump from service and close MO-2-12-068 "RWCU Outlet".

Time	Position	Applicant's Actions or Behavior
	URO	Recognize by reporting alarm, "'A' Cleanup Recirc Pump Motor Winding Temperature High". Enter and execute ARC 215 A-1. Direct an Equipment Operator to report "A" RWCU pump motor temperature.
	CRS	Enter and execute ARC 215 A-1 Direct the URO to either swap RWCU pumps or Remove the "A" RWCU pump from service.
	URO	Recognize by reporting alarm, "'A' Cleanup Recirc Pump Motor Winding Temperature High-High". Enter and execute ARC 215 A-2. Direct an Equipment Operator to report "A" RWCU pump motor temperature. Recognize by reporting that the "A" RWCU pump should have tripped. Trip the "A" RWCU pump. Close MO-2-12-068 "RWCU Outlet".
	CRS	Enter and execute ARC 215 A-1 Direct the URO to trip the "A" RWCU pump.
	URO	Trip the "A" RWCU pump if not already tripped.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 7

Event Description: **"B" Recirc Pump Trip followed by the "A" Recirc Pump trip**

Cause: "B" RPT Breaker Trip caused by a failure of the 1-2 contacts on relay K-45 in the 3041 breaker.

"A" RPT Breaker Trip caused by a failure of the 1-2 contacts on relay K-45 in the 3041 breaker.

Effects: Drop in Reactor power

Time	Position	Applicant's Actions or Behavior
	Crew	Recognize by reporting the Trip of the "B" Recirc pump. Recognize by reporting the trip of the "B" Recirc pump as an entry to OT-112, "Unexpected Unexplained Change in Core Flow". Enter and execute OT-112, "Unexpected Unexplained Change in Core Flow" " per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	URO	May begin to insert GP-9-2 rods before the "A" Recirc pump trip. Monitor for THI.
	URO	Recognize by reporting the trip of the "A" Recirc pump. Scram the Reactor.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 8

Event Description: **ATWS – hydraulic Lower RPV Level to Minimize THI**

Cause: Control rods insert to various positions due to limited Scram Discharge Volume

Effects: Requires the crew to take actions to terminate the ATWS, as well as control RPV level/power

Time	Position	Applicant's Actions or Behavior
	URO	• Place the mode switch to "SHUTDOWN". • Verify control rods are inserting. • Report APRMs are NOT downscale and that an ATWS is in progress with reactor power > 4% (T-101 entry condition).
	PRO	Perform GP-4 "Manual Reactor Scram": • Transfer 13 KV house loads using RRC 53.1-2.
	CRS	Enter and execute T-101, "RPV Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation": Enter and execute T-117, Level Power Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Direct the Reactor Operators to perform the ATWS RRCs.
	URO	Perform RRC 94.3-2, "URO Actions During an ATWS with Power Above 4 Percent or Unknown": • Depress both Scram pushbuttons • Initiate ARI • Inform the CRS of Reactor power and that you are ready to inject SLC. • Inject SLC when directed **(Event 9)** • Verify RWCU isolates • Verify that SLC is injecting • Verify closed the SDV vent and drain valves

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 8

Event Description: **ATWS – hydraulic / turbine bypass valves fail closed** (continued)

Time	Position	Applicant's Actions or Behavior
	PRO	Perform RRC 94.4-2, "PRO Actions During an ATWS with Power Above 4 Percent or Unknown":
	CT	• Inhibit ADS • Inform the CRS that ADS is inhibited and that you are ready to perform T-240-2 • When directed, bypass and restore instrument nitrogen When directed, perform T-240-2, "Termination and Prevention of Injection into the RPV"
	CRS	Direct the URO to inject SLC Direct the PRO to perform T-240-2, "Termination and Prevention of Injection into the RPV" to lower RPV level to below -60 inches.
	CT	Direct the PRO to establish a RPV level band of -70 to -110 inches. Direct the PRO to bypass and restore instrument nitrogen. Direct the URO to stabilize RPV pressure below 1050 using bypass valves.
	CT	Direct the URO to insert control rods using: • T-216, "Control Rod Insertion by Manual Scram of Individual Scram Test Switches". • T-220, "Driving Control Rods During Failure to Scram". Direct the Third RO or an Equipment Operator to perform T-221, "Main Steam Isolation Valve Bypass".

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 8

Event Description: **ATWS – hydraulic / turbine bypass valves fail closed** (continued)

Time	Position	Applicant's Actions or Behavior
	URO	Perform T-220, "Driving Control Rods During Failure to Scram" by performing the following: • Raise CRD Drive Header pressure • Bypass the RWM
	CT	• Fully insert control rods using the Emergency In/Notch Override switch
		Perform T-216, "Control Rod Insertion by Manual Scram of Individual Scram Test Switches": • Direct an Equipment Operator to perform Step 4.1 and 4.2 of T-216 • Reset ARI • Reset the Scram • Open the SDV vent and drain valves • Drain the Scram Discharge Volume • When the Scram Discharge Volume is drained, insert a manual scram.
	PRO	Perform T-240 when directed.
	CT	• Terminate and prevent injection using T-240, Attachment 1, Figure 1: o If HPCI is NOT running, place the Aux Oil Pump in "Pull-to-Lock". o If HPCI is running, place the Aux Oil Pump in "Start", depress and hold the "Remote Trip" pushbutton; when turbine speed reaches ~0 rpm, place the Aux Oil Pump in "Pull-to-Lock" and release the "Remote Trip" pushbutton. o Press "Emergency Stop" for all reactor feed pumps o Close reactor feed pump discharge valves MO-2149A, B, C. o Verify closed MO-8090 "C RFP Discharge Bypass".
		Restore RPV injection to control level below -60 inches and within the RPV level band by performing the following: • Stop MO-2134C, "Feed Pump Disc" from stroking closed • Raise the speed of the "C" RFP until discharge is above Reactor pressure. • If Reactor power is within the capacity of HPCI, the PRO may reinject with HPCI to establish the RPV level band.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 9

Event Description: **Standby Liquid Control (SBLC) Pump Trip**

Cause: First SLC pump placed into service trips on overcurrent.

Effects: Reactor power drop will be delayed until the second SBL pump is placed in service.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize the Standby Liquid Control (SLC) pump placed into service has tripped. Place the standby SLC pump in service using keylock control switch on the 20C005A panel.
	CRS	Acknowledge that the operating SLC pump tripped. Direct placing the backup SLC pump in service, if not already done.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 10

Event Description: **"C" RFP Trips**

Cause: Failure in the manual trip logic causes a loss of Feedwater.

Effects: Level control will have to be established with the "A" or "B" RFP, RCIC or with HPCI.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize by reporting the trip of the "C" RFP. Place HPCI, RCIC or the "A" or "B" RFP in service to control RPV level.
	CRS	Direct the PRO to re-establish RPV level control.

TERMINATION CRITERIA:

The scenario may be terminated when the crew has control of RPV power and level using T-240 "Termination and Prevention of Injection into the RPV" and the crew has taken actions to lower Reactor power with either SLC or control rods.

GENERAL REQUIREMENTS

- Recorders will be rolled prior to the scenario and paper from selected recorders will be retained for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc. will be in their normal storage places.
- All markable procedures, boards, etc. will be erased.
- All paper used by the Crew will be retained for the examination team as requested.
- The simulator operators will keep a log of all communications during the scenario as requested by the examination team.
- Establish the monitored parameters list with the Lead Examiner.

SCENARIO SOURCE HISTORY

- This scenario is modified from one developed for the 2013 exam.

INITIAL SETUP

Initial Conditions

- IC-8 First RFP start 3 Bypass valves
- Insert control rods until Reactor Power is approximately 5%
- Remove the "B" Drywell chiller from service so that the "A" Drywell chiller is the only chiller in service.
- Place Status Tags on "E" and "L" Bellows indicating lights
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active
- Ensure RPV level master controller display is on setpoint

Blocking Tags

- "D" HPSW pump

Event Triggers

TRG E1 – E4 = False
TRG E5 REACTOR_MODE_SWITCH_IN_SHUTDOWN

Malfunctions

IMF DCW02A (1), "'A' Drywell Chiller Trips"
IMF ADS03C (2), "'C' Bellows Leak"
IMF CRH040231 (3), "Control Rod (02-31) Drifts In"
IMF CRH041847 (4), "Control Rod 18-47) Drifts In"
IMF PCS07 (5) 100 20:00 0, "Break in the Torus Water Space"
IMF HPW01B, "HPSW Pump 'B' Trip"
IMF ADS03E, "'E' Bellows Leak"
IMF ADS03L, "'L' Bellows Leak"

Overrides

IOR ZGI12A3S54 STOP, "HPSW Pump 2DP42"
IOR ZGI02A5S14 NORMAL, "Drywell N2 Valve 2969A Isolation"
IOR ZGI02A5S12 NORMAL, "Drywell N2 Valve 2969B Isolation"
IOR ZLOSW0322DP42_1 OFF, "HPSW pump 2DP42 Green Light"
IOR ZAORM14RR1751B_1 5E-5, "Stack Gas Recorder"
IOR ZAORM14RR1751A_1 5E-5, "Stack Gas Recorder"
IOR ANO214D2 ALARM_OFF, "Stack Gas Hi Rad"
IOR ANO209RG4 ALARM_OFF, "Low Drywell to Torus Differential Pressure"
IOR ZAOPC033DPI8143 0.06, "Torus to Drywell DP"
IOR ANO196LE1 ALARM_OFF, "Outlet Temp High Low"
IOR ANO203AAB5 ALARM_OFF, "Blowdown Relief Valves Bellows Leaking"

Expert Commands

TRG 2 == **DOR ANO203AAB5**
TRG 5 == **DOR ANO209RG4**
TRG 5 == **DOR ZAOPC033DPI8143**

Turnover Procedures

- GP-2 "Normal Plant Start-Up" complete up to and including step 6.2.35
  - Step 6.2.45 – in progress
  - Control rod sequence sheets marked up through Sequence 14, rod 34-35 is next to be withdrawn from position 12-48
- Control rod withdrawal per SO 62.1.A-2 "Withdrawing/Inserting a Control Rod" and GP-2 Attachment 10.
- SO 6C.1.A-2 "'C' Reactor Feedwater Pump Startup With Vessel Level Control Established Through AO-8091" up to step 4.4
- SO 7B.4.A-2 "Containment Atmosphere De-Inerting And Purging Via SBGT System" at step 4.23 OP-AB-300-1003 Attachment 1 "Reactivity Maneuver Approval Form" at step 1 of 4 covering startup from all rods in to generator synchronization

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 **Secure the Drywell Purge Lineup;**

If directed to close and lock HV-2-6B-23840A then wait approximately 2 minutes and report that HV-2-6B-23840A is closed and locked.

If directed to close and lock HV-2-6B-23840D then wait approximately 2 minutes and report that HV-2-6B-23840D is closed and locked.

If directed to verify HCS-522-1 is open, wait approximately 2 minutes and report that HCS-522-1 is open.

Support the crew as necessary while securing drywell purge.

EVENT 2 **Continue the Reactor Startup by withdrawing control rods;**

Support the crew as necessary during control rod withdrawal.

EVENT 3 When directed by the Lead Examiner's, initiate pending events on trigger 1 and verify **DCW02A** activates.

If an Equipment Operator is dispatched to inspect the 2A Drywell Chiller, report the chiller is shutdown and screen diagnostics indicate a severe power phase unbalance.

If an Equipment Operator is dispatched to inspect the 2A Drywell Chiller circuit breaker, report the breaker is tripped on overcurrent.

Support placing the standby chiller in service using SO 44A.6.A-2 "Placing An Additional Drywell Chiller In Service". The Equipment Operator will be directed to perform steps 4.4 through 4.13 prior to starting the chiller, then verify 4.15 and perform 4.17.

EVENT 4 **"C" SRV Bellows Leaking;**

When directed by the Lead Examiner, initiate pending events on trigger 2 and verify Malfunction **ADS03C** activates and override **ANO203AAB5** deletes.

SIMULATOR OPERATOR DIRECTIONS

EVENT 5 **Master Feedwater Controller Failure;**

When the Tech Spec determination has been made or at the direction of the Lead Evaluator, perform the following:

- Select the Westinghouse Ovation DCS Graphics Navigation Menu.
- From that menu select the 6100 Panel, "Feedwater Control System"
- Select the Control Display
- Select the Master M/A station
- Activate the Master M/A station by clicking on the word "Master" on the controller display.
- Use the "Down Arrow" to adjust the setpoint to 12.
- Continue to monitor this display and adjust the set point back to 12 if the URO attempts to raise the setpoint.

EVENT 6 **Control Rod 02-31 Drifts In followed by a second drifting control rod:**

When directed by the Lead Examiner, initiate pending events on trigger 3 and verify malfunction **CRH040231** activates.

When the PRO completes scramming control rod 02-31 then delete malfunction **DMF CRH040231.**

If directed to investigate HCU 02-31, wait approximately 3 minutes and report that the scram outlet riser is hot.

After the Tech Spec determination has been completed or when directed by the Lead Examiner, initiate pending events on trigger 4 and verify malfunction **CRH041847** activates.

EVENT 7 **Torus Leak;**

Verify malfunction **PCS07** activates.

If an Equipment Operator is dispatched to determine the source of the torus leak, wait 5 minutes, then report hearing a loud rush of water in the Torus Room.

When dispatched to close E324-R-B (3863) per step 4.1 of T-231-2, WAIT 2 minutes and Insert Remote Function **IRF RHR25 CLOSE,** "MO 176 Power Supply Breaker"

EVENT 8 **Instrument Nitrogen Fails to Bypass;**

If directed to perform T-261, "Placing the Backup Instrument Nitrogen Supply from the CAD Tank In Service" wait approximately 15 minutes enter Remote Function **IRF T261_1 OPEN**, "Backup N2 from CAD System to 'B' N2 Header" and report that T-261 is complete.

SIMULATOR OPERATOR DIRECTIONS

EVENT 9 **"B" HPSW Pump Trip;**

If directed to investigate the trip of the "B" HPSW pump, wait approximately 2 minutes and report that it is tripped on instantaneous overcurrent.

EVENT 10 **RPV Blowdown due to Low Torus Level;**

TERMINATION The scenario may be terminated when the RPV is depressurizing and HPSW is injecting into the Torus.

SHIFT TURNOVER

PLANT CONDITIONS:

- Unit 2 startup IAW GP-2 "Normal Plant Startup" in progress. Procedure complete up to and including step 6.2.51.
  - 6.2.45 is open (Drywell purge) to support Drywell inspections, which are now complete.
  - Control rod sequence sheets marked up through Sequence 14, rod 34-35 is next to be withdrawn from position 12-48. Crew should reference GP-2 Attachment 10 for control rod withdrawal requirements.
- Currently in Step 1 of ReMA.

INOPERABLE EQUIPMENT/LCOs:

- "D" HPSW pump
- PTSA for "E" and "L" SRV bellows leaking. TCCP applied to clear bellows leaking alarm.

SCHEDULED EVOLUTIONS:

- Secure Drywell purge per step 6.2.45 of GP-2, using SO 7B.4.A-2 through to step 4.23.12
- Continue the Reactor startup in accordance with GP-2.

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

- "D" HPSW pump blocked for motor inspection

GENERAL INFORMATION:

- After turnover the crew will secure Drywell purge then resume power ascension. GP-2 is complete up to and including step 6.2.35. A Reactivity Briefing was already completed and you are ready to begin withdrawing rods at Control rod sequence sheets marked up through Sequence 14, rod 34-35 is next to be withdrawn from position 12-48
- Control rod withdrawal per SO 62.1.A-2 "Withdrawing/Inserting a Control Rod"
- Reactor level control is through AO-8091 using SO 6C.1.A-2 (at step 4.4).
- Containment purge is in progress using SO 7B.4.A-2 (at step 4.22).

CRITICAL TASK LIST

1. **Shutdown the reactor when a second control rod drifts into the core. (ON-121-1)**

2. **Perform an Emergency Blowdown when Torus level cannot be maintained above 10.5 feet. (T-102-2)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 1

Event Description: **Secure drywell purge Lineup**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct drywell purge secured per step 6.2.45 of GP-2, using SO 7B.4.A-2.

	PRO	Secure drywell purge starting at step 4.22 of SO 7B.4.A-2 "Containment Atmosphere De-inerting and Purging Via SBGT System".
		• Place the standby Drywell Purge Fan to OFF
		• Stop the running Drywell Purge Fan
		• Shutdown SBGT using SO 9A.2.B "SBGT System Shutdown Following Manual Start"
		  o Stop the 'A' SBGT fan by placing its control switch to STOP (spring returns to AUTO)
		  o Close 'A' filter inlet AO-475-1 by placing its control switch to AUTO
		  o Close 'A' filter outlet AO-475-2 by placing its control switch to AUTO
		• Close AO-20459 and AO-20460 on panel 20C012
		• Direct EO to verify HCS-00522-1 is OPEN on panel 0BC452
		• Close the following valves using SO 7B.7.A-2:
		  o AO-2505
		  o AO-2520
		  o AO-2506
		  o AO-2507
		• Close SBGT valves AO-20469-1 and AO-20469-2 on the 20C012 panel
		
		NOTE: at the Lead Examiner's direction, step 4.4 of SO 9A.2.B (SBGT Shutdown Following a Manual Start) may be performed by an "extra" operator.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 2

Event Description: **Power Ascension with Control Rods**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the URO to commence rod withdrawal in accordance with the Startup REMA and the Startup Sequence beginning with Rod Group 14, control rod 34-35.
	URO	Commence rod withdrawal beginning with Rod Group 14, control rod 34-35. Withdraw control rods by selecting the rod on the matrix and then using the Single Notch / Continuous Withdrawal switch to withdraw control rods. Monitor nuclear instrumentation and reactor power during control rod withdrawal. Performs a control rod coupling check when control rod is full out (48).
	PRO	Monitor balance of plant conditions during rod withdrawal.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 3

Event Description: **"A" Drywell Chiller Trip**

Cause: Spurious chiller motor high temperature

Effects:

1. Alarms:
   - 217 D-1 "Drywell Chiller Trouble"
   - 217 J-1 "Drywell Chilled Water Hi-Lo Temp" (approximately 15 minutes after chiller trip, depending on restoration time)
   - 217 J-2 "A Drywell Chiller Discharge Hi Temp" (approximately 5 minutes after chilled trip)
   - 213 B-3 "Recirc Pump Motor Hi Temp"
2. "A" chiller outlet temperature increases; chilled water supply and return, drywell cooler fan outlet and return, drywell equipment drain sump outlet, and recirc pump motor temperatures all increase. Drywell temperature and pressure rise accordingly.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize by reporting alarm 217 D-1 "Drywell Chiller Trouble" and enter the corresponding Alarm Response Card. Recognize by reporting alarm 217 J-1 "Drywell Chilled Water Hi-Lo Temp" and enter the corresponding Alarm Response Card, if it alarms. Recognize by reporting alarm 217 J-2 "'A' Drywell Chiller Discharge Hi Temp" and enter the corresponding Alarm Response Card. Recognize by reporting alarm 213 B-3 "Recirc Pump Motor Hi Temp" and enter the corresponding Alarm Response Card.
	CRS	Enter and execute ARC 217 D-1 "Drywell Chiller Trouble": • Direct the PRO to place additional drywell chillers in service IAW SO 44A.6.A-2 "Placing an Additional Drywell Chiller in Service." NOTE: Drywell chillers are NOT in outage operation. • Direct the PRO to perform SO 44A.7.F-2 "Response to a Drywell Chiller Trouble Alarm." • Request Maintenance assistance to investigate chiller trip.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 3

Event Description: **"A" Drywell Chiller Trip (continued)**

Time	Position	Applicant's Actions or Behavior
	PRO	Place the control switch for the 'A' drywell chiller in "STOP". Start the standby drywell chiller IAW SO 44A.6.A-2 "Placing an Additional Drywell Chiller in Service." • Direct an Equipment Operator to verify 2B or 2C Drywell Chiller is ready for start by performing steps 4.4 through 4.7 of SO 44A.6.A-2. • Place the 'B' or 'C' drywell chiller in service by placing the chiller control switch in "START". Dispatch an Equipment Operator to perform steps 4.9 and 4.10 of SO 44A.6.A-2. Dispatch an Equipment Operator to perform SO 44.A.7.F-2 "Response to a Drywell Chiller Trouble Alarm."

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **3** **Event No.:** **4**

Event Description: **"C" SRV Bellows Leaking**

Cause: Ruptured Bellows in the "C" SRV

Effects: 1. Alarm: 227 B-5, "Blowdown Relief Valve Bellows Leaking"

Time	Position	Applicant's Actions or Behavior
	Crew	Recognize by reporting alarm 227 B-5, "Blowdown Relief Valve Bellows Leaking" Enter and execute ARC 227 B-5.
	PRO	Determine that the "C" SRV indicates a leaking Bellows from the bellows leaking indicating light for "C" SRV.
TS	CRS	Refer to Tech Spec 3.4.3 for SRV operability. • Determine that Tech Spec Condition A applies and the Unit must be placed in Mode 3 in 12 hours.

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **3** **Event No.:** **5**

Event Description: **Master Feedwater Controller Failure**

Cause: Digital failure causes the setpoint of the Master Level Controller to fail to 12 inches.

Effects: The "C" RFP bypass controller (AO-8091) will close causing a low RPV level condition.
Alarm: 210 H-2, "Reactor HI-LO Water Level"

Time	Position	Applicant's Actions or Behavior
	URO	Recognize by reporting 210 H-2 "Reactor HI-LO Water Level" alarm. Recognize by reporting that RPV level is low. Recognize by reporting low RPV level as an entry for OT-100, "Reactor Low Level". Enter and execute OT-100, "Reactor Low Level" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Recognize that the Master level controller setpoint has failed. Place the "C"RFP bypass controller in Manual and recover RPV level to 23 inches.
	CRS	Enter and execute OT-100, "Reactor Low Level" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Direct the URO to place the "C"RFP bypass controller in Manual and recover RPV level to 23 inches if not already completed.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: **Control Rod 02-31 Drifts In followed by a second drifting control rod**

Cause: Leaking directional control valve on HCU

Effects: Uncontrolled reactivity change

Time	Position	Applicant's Actions or Behavior
	URO	Recognize by reporting the 211 (D-4) "Rod Drift" alarm (211 D-4). Enter and Execute ARC 211 D-4. Recognize by reporting that control 02-31 is drifting into the core. Recognize the drifting control rod as a symptom for entry into ON-121, "Drifting Control Rod" Enter and execute ON-121,"Drifting Control Rods" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Perform the following actions per ON-121, "Drifting Control Rod": • Select control rod 02-31. • Insert the control rod using the "Emergency In" control switch and hold for 30 seconds. Repeat this step up to a total of five times. • When the CRS directs the PRO to individually scram control rod, then hold the Emergency in switch to keep control rod 02-31 fully inserted.
	CRS	Enter ON-121 "Drifting Control Rod" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Direct an Equipment Operator to inspect HCU 02-31. Request Shift Manager to notify Reactor Engineering. When control rod 02-31 does not settle to position 00, direct the PRO to scram control rod 02-31 using the individual scram switch.
	PRO	When directed by the CRS, place the scram toggle switch for rod 02-31 in the "Down" position. Return the scram toggle switch to the "Up" position after 15 seconds.
	URO	After the scram toggle switch is returned to the "Up" position, then release the Emergency In switch. Recognize by reporting that control rod 02-31 has settled to position 00.
TS	CRS	Refer to Tech Spec 3.1.3 for one inoperable control rod. • Determine Condition C applies: fully insert the control rod within 3 hours and disarm the rod drive mechanism within 4 hours.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 6

Event Description: **Control Rod 02-31 Drifts In followed by a second drifting control rod** (continued)

Time	Position	Applicant's Actions or Behavior
	URO	Recognize by reporting that control rod 18-47 is drifting into the core.
CT		Inform the CRS and place the Reactor Mode switch in shutdown.
	CRS	Direct the Reactor Operator to place the Mode Switch in Shutdown if not already completed. (Acceptable to direct the RO to depress the manual scram pushbuttons). Enter and execute T-101, RPV Control per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	URO	Perform URO scram actions per RRC 94.1-2, "Reactor Operator Scram Actions" • Place the mode switch to SHUTDOWN. • Verify control rods are inserting. • Verify APRMs are downscale. • Establish and maintain RPV level control with feedwater. • Verify all control rods are inserted. • Verify scram discharge volume vents and drains are closed. • Verify RPV pressure, trend, and status of EHC. • Notify health physics of changing plant conditions.
	PRO	Per RRC 94.2-2, PRO Scram Actions: • Verify Group II and III isolations and SGTS initiation (if RPV level < 1 inch) • Verify hydrogen water chemistry is isolated. • Verify both recirc pumps speed have runback to 30%. • Monitor instrument air header pressure and drywell pressure. • When the CRS is ready, report scram actions.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.: 3** **Event No.: 6**

Event Description: **Control Rod 02-31 Drifts In followed by a second drifting control rod** (Continued)

Time	Position	Applicant's Actions or Behavior
	CRS	Direct RPV level restored and maintained between +5 and +35 inches. Direct restoration of drywell instrument nitrogen IAW GP-8.E "Primary Containment Isolation Bypass" (if RPV level < 1 inch).
	URO	Control RPV level between +5" to +35" with feedwater/Condensate.
	PRO	Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2 (if RPV level < 1 inch). Recognize by reporting that the Instrument Nitrogen bypass has failed. **(Event 8)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 7

Event Description: **Torus leak**

Cause: Rupture in the torus shell in the water space.

Effects: 1. Alarms:

- 224 E-5 "Torus Room Flood"
- 226 A-4 "Torus Level Out Of Normal Range"

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize by reporting alarm 226 A-4, "Torus Level Out Of Normal Range". Enter and execute ARC 226 A-4. Direct an Equipment Operator to determine the source of the leak.
	CRS	Enter and execute ARC 226 A-4. Enter and execute T-102, "Primary Containment Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". • Direct the PRO to restore Torus level using T-233 "CST Makeup to the Torus via HPCI Minimum Flow Line". • Direct the PRO to restore Torus level using T-231, "HPSW Injection into the Torus". Enter and execute ON-110 "Loss of Primary Containment".
	PRO	Perform T-233 "CST Makeup to the Torus Via HPCI Minimum Flow Line" as directed. • Verify HPCI suction MO-23-017 OPEN. • Open HPCI minimum flow MO-23-025.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 7

Event Description: **Torus leak** (continued)

Time	Position	Applicant's Actions or Behavior
	PRO	Perform T-231 "HPSW Injection Into the Torus" as directed. • Direct an Equipment Operator to close E324-R-B (3863) "Emer Intertie Valve MO-2-10-176". • Verify closed MO-10-154B "Outboard Discharge". • Verify 2B and 2D RHR pumps are shutdown. • Verify 2B and 2D HPSW pumps are shutdown. • Verify closed MO-10-089B "B HPSW Hx Out". • Verify closed MO-10-089D "D HPSW Hx Out". • Verify closed MO-32-2344 (10-186) "HPSW Loop Cross Tie". • OPEN MO-10-176 "HPSW/RHR Em Outer Cross Tie". • OPEN MO-10-174 "HPSW/RHR Em Inner Cross Tie". • OPEN MO-10-039B "Torus Hdr". • Start the "B" HPSW pump. • Recognize by reporting the trip of the "B" pump. • Direct an Equipment Operator to investigate the trip of the "B" HPSW pump. **(EVENT 9)**
	PRO	Recognize by reporting alarm 224 E-5, "Torus Room Flood" Enter and execute ARC 224 E-5.
	CRS	Enter and execute ARC 224 E-5 Enter and execute T-103 "Secondary Containment Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Direct an evacuation of the torus room in accordance with GP-15 "Local Evacuation" (make request to Shift Manager).
	URO/PRO	Recognize and report that torus level is approaching 12.5 feet. Begin RPV depressurization when directed by the CRS.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 7

Event Description: **Torus Leak** (continued)

Time	Position	Applicant's Actions or Behavior
	CRS	Direct RPV depressurization using bypass
		NOTE: the following RWCU system response steps are only applicable if RWCU stays in service
	URO/PRO	Recognize and report the "Clean-up Filter Demin System Trouble Alarm" (215 C-3)
	URO/PRO	Recognize and report cavitation of the RWCU pump.
	CRS	Direct the URO/PRO to secure the RWCU pump.
	URO/PRO	Secure the RWCU pump by placing the control switch to stop.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 8

Event Description: Instrument Nitrogen Fails to Bypass

Cause: Key lock bypass circuit fails to function

Effects: Normal Instrument supply valves will not open.

Must align the backup nitrogen bottles or perform T-261, "Backup N2 from CAD System to "B" N2 Header".

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to perform SO 16A.7.A-2, "Backup Instrument Nitrogen to ADS System Manual Actuation". May direct the PRO to perform T-261, "Backup N2 from CAD System to "B" N2 Header".
	PRO	Place the Nitrogen bottles in service by performing the following: • Place SV-8130A "A Supply and SV-8130B, "B Supply" control switches to Reset and then place in Auto/Open. • Verify open SV-8130A and 8130B. • Verify PI-8142, "Backup N2" is greater than or equal to 85 psig. If directed to perform T-261, "Backup N2 from CAD System to "B" N2 Header": Place the control switch for AO-2969B to Close. Direct an Equipment Operator to perform step 4.2 to align the CAD tank for Instrument Nitrogen.

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **3** **Event No.:** **9**

Event Description: **"B" HPSW Pump Trip**

Cause: Instantaneous Overcurrent Condition

Effects: Place the "A" loop of HPSW in service to fill the Torus

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to align the "A" loop of HPSW for injection using T-231, "HPSW Injection into the Torus".
	PRO	Align the "A" loop of HPSW for injection using T-231, "HPSW Injection into the Torus" by performing the following: • Verify all HPSW pumps are shutdown. • Verify MO-2-10-089A-D are closed. • Open MO-2-32-2344 (10-186), "HPSW Loop Cross Tie". • Start the "A" or "C" HPSW pump • Throttle MO-10-034B "Full Flow Test" to maintain HPSW flow below 5,300 gpm. • Start a second HPSW pump in the same loop, if needed. • Throttle MO-10-034B "Full Flow Test" to maintain HPSW flow below 10,600 gpm.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 10

Event Description: **RPV Blowdown**

Cause: Torus leak rate get worse. HPSW is not making up for the Torus Level Drop

Effects: Depressurize the RPV

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report that torus level is approaching 10.5 feet.
CT	CRS	When torus level cannot be maintained above 10.5 feet, direct an emergency blowdown. Note The CRS may elect to use bypass valves to perform a rapid depressurization until Torus level reaches 10.5 feet. Enter and execute T-112 "Emergency Blowdown" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". • Verify torus level is above 7 feet. • Verify reactor pressure is 50 psig above torus pressure. • Direct 5 ADS SRVs opened.
CT	PRO	Perform an emergency blowdown by opening 5 ADS SRVs. Report 5 ADS SRVs are open.
	CRS	Direct RPV level maintained between +5 and +35 inches using Condensate.
	URO	Maintain RPV level between +5 and +35 inches using Condensate.

TERMINATION CRITERIA:

The scenario may be terminated when the RPV is depressurizing and HPSW is injecting into the Torus.

GENERAL REQUIREMENTS

- Recorders will be rolled prior to the scenario and paper from selected recorders will be retained for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc. will be in their normal storage places.
- All markable procedures, boards, etc. will be erased.
- All paper used by the Crew will be retained for the examination team as requested.
- The simulator operators will keep a log of all communications during the scenario as requested by the examination team.
- Establish the monitored parameters list with the Lead Examiner.

SCENARIO SOURCE HISTORY

- This scenario was modified from a scenario submitted as a spare in 2011.

INITIAL SETUP

Initial Conditions

- IC-14, 100% power 60 F River
- Place the "D" HPSW pump in service
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

Blocking Tags

- None

Event Triggers

Trg 1 = False
Trg 2 = hpsw_d_green_light_on (zlosw032dp42_1 == 1)
Trg 3-5 = False
Trg 6 = RCIC_speed_GT_3000 (RCNT > 3000)
Trg 7 = False
Trg 8 = RPV_Pressure_LE_500 (RRPDOME <= 500)

Malfunctions

IMF CRM023823, "Control Rod (38-23) Stuck"
IMF ASD07A, "'A' Recirc 45% Runback Failure"
IMF ASD07B, "'B' Recirc 45% Runback Failure"
IMF MAP06E, "13.2KV #12 Breaker Trip"
IMF MAP06F, "13.2KV #22 Breaker Trip"
IMF RHR04D (3) 25, "RHR Pump "D" Discharge Line Break"
IMF MCS05A (4), "'A' Condensate pump trip"
IMF MAP06D (5), "13.2KV #2 Breaker Trip"
IMF HPC03 (5), "HPCI turbine trips"
IMF RRS20 (7) 4 20:00, "Recirculation Loop Rupture"
IMF VED01_41 (8), "MO-2-10-25A Magnetic Over Current Trip"
IMF VED01_54 (8), "MO-2-10-25B Magnetic Over Current Trip"

Overrides

IOR ANO203DE3 (1) ALARM_ON, "'D' High Pressure Service Water Pump Overcurrent"
IOR ZAOSW0322DP42 (1) 130, "HPSW Pump 2D Overcurrent"
IOR ANO209LA2 (5) ALARM_ON, "2 Aux Bus Overcurrent Relays"

Trip Overrides

IRF CSS01TO OVERRIDE, "RX LO LVL, DW Hi PR&RX LO PR"
IRF CSS02TO OVERRIDE, "RX LO LVL, DW Hi PR&RX LO PR"

Remote Functions

IRF RCI01 (6) TRIPPED, "RCIC Turbine Trip Throttle"

Expert Commands

Trg 2 = DOR ANO203DE3
Trg 2 = DOR ZAOSW0322DP42
Trg 5 = MRF ARI01TO NORMAL

Turnover Procedures

SO 10.1.D-2, "Residual Heat Removal System Torus Cooling"
ReMA for Control rod insertion.

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 **Place Torus Cooling In Service;**

If directed to close HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B", wait approximately 2 minutes enter Remote Function **IRF RHR02B CLOSE**, "LPCI Line "B" Stayfull Valve HV-70B" and report that HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B" is closed.

EVENT 2 **Insert control rods in accordance with the ReMA;**

EVENT 3 **Stuck Control Rod;**

When the URO raises drive water pressure 50 psig then delete malfunction **DMF CRM023823.**

If directed to perform local inspection of CRD 38-23, wait approximately 1 minute and report back that no issues were found.

EVENT 4 **"D" HPSW Pump Overcurrent;**

When directed by the Lead Examiner, initiate pending events on trigger 1 and verify the following I/O Overrides activate:

- **ANO203E3**
- **ZAOSW0322DP42**

If directed to investigate the "D" HPSW high current condition, wait approximately 2 minutes and report that there is a Timed Overcurrent trip on the "D" HPSW pump.

When the PRO secures the "D" HPSW pump, verify the following events pending on trigger 2 delete:

- **ANO203E3**
- **ZAOSW0322DP42**

If directed to place stayfull back on the "B" loop of RHR, wait approximately 1 minute enter Remote Function **IRF RHR02B OPEN**, "LPCI Line "B" Stayfull Valve HV-70B" and report that HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B" is open.

SIMULATOR OPERATOR DIRECTIONS

EVENT 5 **"D" RHR Room Flood;**

When directed by the Lead Examiner, initiate pending events on trigger 3 and verify Malfunction **RHR04D** activates.

If directed to investigate water level in the "D" RHR Pump Room, Wait approximately 3 minutes and report that there is approximately 9 inches of water in the room and rising slowly.

Continue to report a rising level until MO-2-10-13D "D Torus suction" valve is closed.

If directed to close HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B", wait approximately 2 minutes enter Remote Function **IRF RHR02B CLOSE**, "LPCI Line "B" Stayfull Valve HV-70B" and report that HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B" is closed.

When the Crew isolates the "D" Torus suction valve report that the leak is stopped.

EVENT 6 **'A' Condensate pump trip with Recirc runback failure;**

When directed by the Lead Examiner, initiate pending events on trigger 4 and verify Malfunction **MCS05A** activates.

When requested to check the 'A' condensate pump breaker, report that it tripped on instantaneous overcurrent.

Support the crew as necessary during the power reduction.

EVENT 7 **Loss of High Pressure Feed** (Loss of Feedwater, HPCI Trip, Recirc Leak Greater than RCIC capacity);

When directed by the Lead Examiner, initiate pending events on trigger 5 and verify the following I/O Overrides activate:

- **MAP06D**
- **ANO209LA2**
- **HPC03**

If directed to investigate the HPCI trip, wait approximately 3 minutes and report that you cannot identify the reason for the HPCI trip.

EVENT 8 **RCIC Trip;**

If directed to investigate the RCIC trip, wait approximately 2 minutes and report that the mechanical overspeed trip linkage is unlatched. There does not appear to be any damage to RCIC.

If directed to reset the RCIC overspeed trip, then when MO-4487 is closed enter Remote Function MRF RCI01 NORMAL, "RCIC Turbine Trip Throttle" wait approximately 1 minute and report that the RCIC overspeed trip is reset.

Pre-inserted instrument failures will prevent the crew from spraying the torus or the drywell.

EVENT 9 **Recirc Leak Greater than RCIC Flow Rate;**

When directed by the Lead Examiner, initiate pending events on trigger 7 and verify Malfunction **RRS20** activates.

Adjust the severity of RRS20 as necessary to control the pace of RPV level trend toward -172 inches. Ensure the crew has time to enter T-111 and inhibit ADS before raising the leak severity.

When Drywell Sprays are in service, consider raising the leak rate of RRS20 to 4% with a 5 minute ramp.

If asked, report DWCW return header pressure is 26 psig.

EVENT 10 **ECCS Injection Valves Fail to Open;**

When RPV pressure drops below 500 psig, verify that Malfunction **VED01_41** and **VED01_54** activate.

If directed to investigate the Trip of MO-2-10-25A, "Inboard Discharge" and MO-2-10-25B, "Inboard Discharge", wait approximately 3 minutes and report that the feeds to the Swing Bus are tripped on magnetics.

TERMINATION The scenario may be terminated when RPV level has been recovered above -172 inches.

SHIFT TURNOVER

PLANT CONDITIONS:

- Unit 2 is steady at 100% power.
- "D" HPSW pump is in service.

INOPERABLE EQUIPMENT/LCOs:

- None

SCHEDULED EVOLUTIONS:

- Place Torus cooling in service on the "B" loop of RHR.
- Lower power using the provided ReMA.

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

- None

GENERAL INFORMATION:

- Place the "B" loop of Torus Cooling in service. The "D" HPSW pump is already running.
- Lower Reactor power using the ReMA.

CRITICAL TASK LIST

1. **Inhibit ADS before an automatic depressurization occurs. (T-101-9)**

2. **Perform an Emergency Blowdown when RPV level reaches -172 inches. (T-111-4)**

3. **Following an Emergency Blowdown, open a low pressure ECCS injection valve to restore RPV level above -172 inches before RPV pressure is less than 270 psig and RPV level is less than -205 inches. (T-111-6)**

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 1

Event Description: **Place Torus Cooling in service**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to place the "B" Loop of Torus cooling in service.
	PRO	Place Torus Cooling in service using SO 10.1.D-2, "Residual Heat Removal System Torus Cooling": • Open MO-2-10-039B, "Torus Hdr" • Start the "D" RHR pump • Verify the "Blowdown Auto-Control Interlock RHR of CS" alarm (227 A-5) • Open MO-2-10-34B, "Full Flow Test". • Verify flow is between 9500 and 10400 on FI-2-10-81076D. • Direct an Equipment Operator to close HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B"
	URO	Monitor plant parameters/assist as directed.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 2

Event Description: **Insert Control Rods in accordance with the ReMA**

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the URO to insert control rods in accordance with the ReMA
	URO	Insert control rods using the provided ReMA and SO 62.1.A-2, "Withdrawing/Inserting a Control Rod": • Verify Rod Select Power Switch is On. • Select the control rod to be moved by depressing the corresponding Rod Select Pushbutton. • Verify the selected control rod is indicated on the Full Core Display and the Four Rod Display. • Place the rod control switch to the In position and hold it there. • When the control rod is within 1 ½ and 2 notches of the target rod position then release the Rod Control Switch.
	PRO	Monitor plant parameters during down power operations. Peer Check control rod motion is directed by the CRS.

Operator Actions **ES-D-2**

Op Test No.: **1** **Scenario No.:** **4** **Event No.:** **3**

Event Description: **Stuck Control Rod**

Cause: Mechanical binding of the control rod blade

Effects: Control rod will not move with normal drive pressure but will move when Drive pressure is raised.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize by reporting that control rod 38-23 is stuck. Determine the cause of the stuck rod and attempt to free the stuck rod using SO 62.1.A-2, "Withdrawing/Inserting a Control Rod": Raise drive pressure 50 psid. Attempt to insert control rod 38-23. Recognize by reporting that control rod 38-23 is moving normally.
	CRS	Direct the URO to determine the cause of the stuck rod and attempt to free the stuck rod using SO 62.1.A-2, "Withdrawing/Inserting a Control Rod" if not already in-progress.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 4

Event Description: **"D" HPSW Pump Overcurrent**

Cause: Timed Overcurrent Condition on the "D" HPSW pump motor

Effects: Alarm 226 E-3, "'D' High Pressure Service Water Pump Overcurrent" will be received

A timed overcurrent condition will not cause an automatic trip of the HPSW pump.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize by reporting the "D High Pressure Service Water Pump Overcurrent" alarm. Enter and execute ARC 226 E-3. Report that current for the "D" HPSW pump is 130 amps.
	CRS	Enter and execute the Alarm Response Cards for 226 "D High Pressure Service Water Pump Overcurrent" alarm. Direct the PRO to remove the "D" HPSW pump from service. Direct an Equipment Operator to investigate the issue with the "D" HPSW pump.
TS		Review Tech Spec section 3.7.1 Condition A (High Pressure Service Water System) 3.6.2.3 Condition A (Residual Heat Removal (RHR) Suppression Pool Cooling), 3.6.2.4 Condition A (Residual Heat Removal (RHR) Suppression Pool Spray) 3.6.2.5 Condition A (Residual Heat Removal (RHR) Drywell Spray) and determine that the "D" HPSW pump must be returned within 7 days in all Tech Specs.
	PRO	Secure the "D" HPSW pump when directed: • Shutdown the "D" HPSW pump. • Close MO-2-10-89D, "RHR Hx 2D HPSW Outlet Valve" Secure the PRO to secure the Torus cooling lineup. • Open Stayfull valve HV-2-10-70B, "RHR Pressurizing Line Block Valve to RHR Loop B". • Close MO-2-10-34B, ""Full Flow Test".. • When MO-2-10-34B is closed, shutdown the "D" RHR pump. • Close MO-2-10-39B, "Torus Header"

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 5

Event Description: **"D" RHR Room Flood**

Cause: Rupture between the "D" RHR pump and the RHR Pump Check Valve

Effects: Torus level will drop

"D" RHR room will Flood as indicated by the "'D' RHR Pump Room Flood" alarm (226 E-5)

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize by reporting the "'D'RHR Pump Room Flood" alarm (226 E-5). Enter and Execute ARC 226 E-5. Direct an Equipment Operator to investigate water level in the "D" RHR pump room.
	CRS	Enter and Execute ARC 226 E-5. Enter and execute T-103, Secondary Containment Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". Direct the PRO to isolate the suction of the "D" RHR pump by closing MO-2-10-13D, "Torus Suction".
	TS	Review Tech Spec section 3.5.1 Condition A (ECCS Operating) and determine that "D" RHR pump must be returned to operable within 7 days. (3.5.1.A).
	PRO	Close MO-2-10-13D, "Torus Suction". Monitor RHR room level and Torus level to determine that the leak has been isolated.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 6

Event Description: **'A' Condensate Pump Trip with Recirc Runback Failure**

Cause: 'A' Condensate pump trips on overcurrent / relay failure in the Recirc runback logic

Effects:

1. Alarms:
   - 203 E-1 "A Condensate Pump Overload"
   - 203 E-2 "A Condensate Pump BKR Trip"
2. Recirc automatic runback fails to occur, resulting in lowering reactor level and requiring manual recirc flow reduction to control reactor level.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize by reporting the trip of the 'A' Condensate pump. Recognize by reporting the Recirc pump runback (45%) failed to occur. Recognize and reporting the entry into OT-100, "Reactor Low Level": Monitor for Thermal Hydraulic Instabilities (THI).
	URO	Enter and execute OT-100, "Reactor Low Level" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation": • Recognize the reactor water level drop is caused by a lack of makeup capability, requiring power reduction with Recirc flow. • Insert a manual runback by depressing the "Manual High Flow Limit R/B" switch. • Verify that the runback occurs. • Monitor RPV level and verify that RPV level recovers.
	CRS	Enter OT-100, "Reactor Low Level" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation": If not already completed, direct the URO to lower power. Enter and execute ARC 203 E-2 "A Condensate Pump BKR Trip". Enter and execute OT-112, "Unexpected/Unexplained Change in Core Flow" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	PRO	Investigate the cause of the 'A' Condensate pump trip using the applicable Alarm Response Card. • Direct an Equipment Operator to investigate the breaker and pump. • Green flag the 'A' Condensate pump control switch.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 7

Event Description: **Loss of High Pressure Feed** (Loss of Feedwater, HPCI Trip)

Cause: Failure in the bus work results in an overcurrent condition and a bus lockout
HPCI trips on the start
RCIC trips but can be reset

Effects:

1. Alarms:
   - 219 A-2 "2 Aux Bus Overcurrent Relays"
   - 219 B-2 "2 Aus Bus Lo Voltage"
   - 219 H-5 "2 Bkr Trip"
   - 220 F-4 "2 Gen Volt Reg Common Alarm"
   - 220 J-5 "2AD006 / 2BD006 Battery Charger Trouble"
2. #2 Auxiliary Bus breakers trip, de-energizing the bus and its loads
3. The immediate impact of loss of #2 Auxiliary Bus is the resultant loss of the remaining Condensate pumps, causing reactor water level to drop rapidly.
4. RPV level drops

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report the loss of #2 Auxiliary Bus.
	URO	Recognize and report Reactor water level is dropping rapidly. Place the mode switch to SHUTDOWN. Verify control rods are inserting. Verify APRMs are downscale. Establish and maintain reactor level control with RCIC **(Event 8)** Verify scram discharge volume vents and drains are closed. Verify all control rods are inserted. Verify reactor pressure, trend, and status of EHC. Notify health physics of changing plant conditions.
	PRO	• Transfer #1 13 KV bus. • Trip main turbine when less than 50 MWe. • Verify main generator lockout. • Verify Group II and III isolations and SGTS initiation. • Verify hydrogen water chemistry is isolated. • Verify both Recirc pumps speed have runback to at least 30%. • Monitor instrument air header pressure and drywell pressure. When the CRS is ready, report scram actions.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 7

Event Description: **Loss of High Pressure Feed** (Loss of Feedwater, HPCI Trip) (continued)

Time	Position	Applicant's Actions or Behavior
	CRS	Enter and execute T-101 "RPV Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation". • Direct restoring reactor level to +5 to +35 inches with HPCI and RCIC. • Direct instrument nitrogen bypassed and restored IAW GP-8E. • Direct reactor pressure stabilized below 1050 psig.
	PRO	Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2. • Place AO-2969A control switch to "CLOSE". • Place AO-2969B control switch to "CLOSE". • Place Drywell Instrument Nitrogen Bypass Switch 16A-S100 in the "BYPASS" position. • Place Drywell Instrument Nitrogen Bypass Switch 16A-S99 in the "BYPASS" position. • Place AO-2969A control switch to "OPEN". • Place AO-2969B control switch to "OPEN".
	URO	Recognize by reporting the trip of HPCI. Recognize by reporting the trip of RCIC. Direct an Equipment Operator to investigate the HPCI trip. Direct an Equipment Operator to investigate the RCIC trip.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 8

Event Description: **RCIC Trip**

Cause: RCIC trips on overspeed on an automatic or manual start

Effects: "RCIC Turbine Trip" alarms (222 A-1)

RCIC can be reset and restarted.

Time	Position	Applicant's Actions or Behavior
	URO	Reset and restart RCIC using SO 13.7.A-2, "Recovery from RCIC System Isolation or Turbine Trip": Close MO-24487, "Trip Throttle Valve Operator Position" Direct the Equipment operator to reset the Overspeed Trip mechanism. Close MO-2-13-131, "Supply" When MO-2-13-131 indicates full closed then open MO-4487. Verify RCIC flowrate is 600gpm.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 9

Event Description: **Recirc Leak Greater than RCIC Flow Rate**

Cause: A leak develops on a weld joint on the suction piping of the "B" reactor recirculation pump after it tripped; the leak size propagates over time.

Effects: The leak rate will exceed the capacity of RCIC and result in a RPV level drop.

The leak will require the Crew to enter and execute T-111, "Level Restoration"

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report alarms 210 F-2 "Drywell Hi-Lo Press" and 225 A-4 "Drywell Hi-Lo Press". Enter and execute OT-101, "High Drywell Pressure" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	CRS	Enter and execute follow-up actions of OT-101 "High Drywell Pressure" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation".
	URO	Maximize drywell cooling using RRC 44A.1-2, "Maximize Drywell Cooling".
	CRS	Enter and execute T-102, "Primary Containment Control" per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation" when Drywell pressure reaches 2 psig. Re-enter and execute T-101, "RPV Control per OP-PB-101-111-1001 "Strategies for Successful Transient Mitigation" when Drywell pressure reaches 2 psig. **Note; with the rate of RPV level drop the CRS may elect not to place Containment sprays in-service and focus on RPV level restoration instead.** Direct torus sprays initiated IAW T-204 "Initiation of Containment Sprays Using RHR. Direct the PRO to maximize Drywell Cooling by performing T-223, "DW Cooler Fan Bypass". Direct CAD placed in service as time permits. Re-enter T-102 when Torus level reaches 14.9 feet, and when Drywell temperature reaches 145 degrees F.

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 9

Event Description: **Recirc Leak Greater than RCIC Flow Rate** (continued)

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize by reporting the continued drop in RPV level. Monitor T-102 parameters (torus temperature, torus level, drywell pressure, torus pressure, drywell temperature) and provide trends to the CRS as appropriate.
	PRO	Maximize drywell cooling by performing T-223 "DW Cooler Fan Bypass". Shutdown drywell cooling fans when directed.
	PRO	If directed, spray the torus in accordance with T-204, "Initiation of Containment Sprays Using RHR": • Verify System 1 and 2 Drywell Pressure Permits Containment Spray annunciators (224 D-3, 225 B-3) are lit. • Place keylock switch 10A-S18A(B) in "MANUAL OVERRIDE". • Momentarily place switch 10A-S17A(B) in "MANUAL". • Open or verify open MO-2-10-39A(B) "Torus Header". • Open or verify open MO-2-10-89A(B C D) HPSW Hx Outlet". • Start A(B C D) HPSW pump. • Start A(B C D) RHR pump. • Close or verify closed MO-2-10-34A(B) "Full Flow Test". Throttle open MO-2-10-38A(B) "Torus Spray" to obtain 1,000 gpm on FI-2-10-136B
	URO/PRO	Place CAD in service when directed.
	CRS	Direct the URO to place the Standby Liquid Control system in service. Direct the URO to Maximize CRD flow using T-246, "Maximizing CRD Flow to the Reactor Vessel". Enter and execute T-111, "Level Restoration".
CT		Direct the PRO to Inhibit ADS. Direct the PRO to start all the RHR and Core Spray pumps. (One RHR pump may be used for Containment Sprays)

Operator Actions **ES-D-2**

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 9

Event Description: **Recirc Leak Greater than RCIC Flow Rate** (continued)

Time	Position	Applicant's Actions or Behavior
	URO	Start a SLC pump and verify injection. Maximize CRD flow using T-246, "Maximizing CRD Flow to the Reactor Vessel".
CT	PRO	Inhibit ADS using RRC 1G.1-2, "Automatic Depressurization System Inhibit". Start all available RHR and Core Spray pumps. (One RHR pump may be used for Containment Sprays)Direct the operator to attempt to spray the torus with the opposite loop of RHR. If directed, spray the drywell in accordance with T-204, "Initiation of Containment Sprays Using RHR". • Verify Recirc pumps are tripped. • Verify all Drywell Cooling fans are Off. • Open MO-2-10-31A(B), "Drywell Spray Inboard" • Open MO-2-10-26A(B), "Drywell Spray Outboard"
	URO/PRO	Recognize by reporting that RPV level has dropped to -172 inches.
	CRS	Enter and execute T-112, "Emergency Blowdown" • Verify torus level is above 7 feet. • Verify reactor pressure is 50 psig above torus pressure.
CT		• Direct 5 ADS SRVs opened.
CT	URO/PRO	When directed, open 5 ADS SRVs by placing their control switches in OPEN. If a loop is aligned for Containment Sprays, realign the RHR loop for injection. When RPV pressure reaches 450 psig, recognize by reporting the following: MO-2-10-25A, "RHR Inboard Discharge" failed to open. **(Event 10)** MO-2-10-25B, "RHR Inboard Discharge" failed to open. MO-2-14-12A, "Core Spray Inboard Discharge" valve failed to open. MO-2-14-12B, "Core Spray Inboard Discharge" valve failed to open.

Operator Actions **ES-D-2**

Op Test No.: 1 Scenario No.: 4 Event No.: 10

Event Description: ECCS Injection Valves Fail to Open

Cause: MO-2-10-25A and MO-2-10-25B, "RHR Inboard Discharge" valves trip on magnetics

MO-2-14-12A and MO-2-14-12B, "Core Spray Inboard Discharge" valves fail to automatically open

Effects: RHR loops will not inject.
Core Spray injection valves will open when the ROs attempt to open them using the control switches

Time		Position	Applicant's Actions or Behavior
	CT	CRS	If not already completed, direct a RO to attempt to open MO-2-14-12A, "Core Spray Inboard Discharge" valve and MO-2-14-12B, "Core Spray Inboard Discharge" valve. Direct an Equipment operator to investigate the Trip of MO-2-10-25A and MO-2-10-25B.
	CT	URO/PRO	Open MO-2-14-12A and B using the control switch. Verify that the A and B Core Spray loops are injecting. Recognize by reporting that RPV level is recovering.

TERMINATION CRITERIA:
The scenario may be terminated when RPV level has been recovered above -172 inches.