EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	☐ QUALIFICATION MANUAL	☐ OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR -NEW/CA
COURSE:		REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	Lineup Standby Gas Treatment System for Automatic Operation – Alternate Path (Switches Are Out of Position)		

APPROVALS:

_____ Signature / Title Date

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_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness: _____ Signature/Date	PIMS CODE:	
	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2610030101 – PLOR-NEWCA 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 COL 9A.1.A "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. COL 9A.1.A "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 COL 9A.1.A, A "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 COL 9A.1.A "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 COL 9A.1.A "Standby Gas Treatment System Automatic Operation". Do NOT manipulate any components.

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.	P	On panel 20C012 recognize that the Standby Gas Treatment Fan 'B' (0BV020) control switch is in the "PULL-TO-LOCK" position and NOT in "AUTO" position. May report to the Control Room Supervisor that the switch is out of target position now or report all mispositionings after COL is completed. Initial and date the check off list step.
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.
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.)	P	On panel 20C012 recognize that AO-00475-01 "Standby Gas Treatment A Filter Inlet" control switch is in the "CLOSE" position and NOT in "AUTO" position. May report to the Control Room Supervisor that the switch is out of target position now or report all mispositionings after COL is completed. Place switch in "AUTO" position. Initial and date the check off list step.
*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.)	P	On panel 20C012 recognize that AO-00475-02 "Standby Gas Treatment A Filter Outlet" control switch is in "CLOSE" and NOT in the "AUTO" position. May report to the Control Room Supervisor that the switch is out of target position now or report all mispositionings after COL is completed. Place switch in "AUTO" position. Initial and date the check off list step

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.
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

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) <u>AND</u> 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.

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

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 COL 9A.1.A "Standby Gas Treatment System Automatic Operation". Do <u>NOT</u> manipulate any components.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEWC
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	ISOLATING THE 2A TBCCW HEAT EXCHANGER DUE TO A LEAK		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness: _____ Signature/Date	PIMS CODE:	
	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2002300401 / PLOR-NEWC 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. P&ID M-314 sheet 2, Rev. 61

2. P&ID M-316 sheet 2, Rev. 61

C. REFERENCES

1. P&ID M-314 sheet 2, Rev. 61

2. P&ID M-316 sheet 2, Rev. 61

D. TASK STANDARD

1. Satisfactory task completion is indicated when the isolation points and vent/drain paths for the TBCCW and service water side of the 2A TBCCW heat exchanger have been identified.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, determine the isolation points, vent paths, and drain paths necessary to isolate a tube leak located on the 2A TBCCW heat exchanger.

F. TASK CONDITIONS/PREREQUISITES

A suspected tube leak has been identified on the standby 2A Turbine Building Closed Cooling Water (TBCCW) heat exchanger 2AE038.

G. INITIATING CUE

The Control Room Supervisor directs you to identify the valves and their required positions to isolate, vent and drain the tube and shell side of the 2A TBCCW heat exchanger. Document your results on the CUE SHEET.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Locate the component that is leaking on P&ID drawings M-316 sheet 2 (TBCCW side) and M-314 sheet 2 (Service Water side). (Cue: Provide the candidate with a copy of M-316 Sheet 2 and M-314 Sheet 2.)	P	Locate 2AE038 on M-316 sheet 2, (Coordinates H-5) and on M-314 sheet 2 (Coordinates H-4).
******NOTE****** **It should be determined by the Examinee that isolation points are selected first and then vents and drains are to be opened. This applies to both the TBCCW and Service Water sides of the heat exchanger.**			
*2	Close HV-2-34-24275A "2AE038 TBCCW Inlet Block Valve". (Cue: Acknowledge that isolation point has been selected.)	P	Identifies that HV-2-34-24275A "2AE038 TBCCW Inlet Block Valve" must be CLOSED in order to isolate TBCCW to the heat exchanger.
*3	Close HV-2-34-24278A "2AE038 TBCCW Outlet Block Valve". (Cue: Acknowledge that isolation point has been selected.)	P	Identifies that HV-2-34-24278A "2AE038 TBCCW Outlet Block Valve" must be CLOSED in order to isolate TBCCW to the heat exchanger.
*4	Uncap and open HV-2-34-24359A "2AE038 Lower Vent Valve" AND / OR Uncap and open HV-2-34-24276A "2AE038 Upper Vent Valve" (Cue: Acknowledge that vent point(s) has been selected.)	P	Identifies that HV-2-34-24359A "2AE038 Lower Vent Valve" must be UNCAPPED and OPEN in order to VENT the lower section of the 2A TBCCW heat exchanger AND / OR HV-2-34-24276A "2AE038 Upper Vent Valve" must be UNCAPPED and OPEN in order to VENT the upper section of the 2A TBCCW heat exchanger.

*5	Uncap and open HV-2-34-24277A "2AE038 Drain Valve" (Cue: Acknowledge that drain path has been selected.)	P	Identifies that HV-2-34-24277A "2AE038 Drain Valve" must be UNCAPPED and OPEN in order to DRAIN the TBCCW side of the 2A TBCCW heat exchanger.
*6	Close HV-2-30-21774A "2AE038 Service Water Inlet Block Valve". (Cue: Acknowledge that isolation point has been selected.)	P	Identifies that HV-2-30-21774A "2AE038 Service Water Inlet Block Valve" must be CLOSED in order to isolate Service Water to the heat exchanger.
*7	Close HV-2-30-21775A "2AE038 Service Water Outlet Block Valve". (Cue: Acknowledge that isolation point has been selected.)	P	Identifies that HV-2-30-21775A "2AE038 Service Water Outlet Block Valve" must be CLOSED in order to isolate Service Water to the heat exchanger.
*8	Uncap and open HV-2-30-21776A "2AE038 Service Water Inlet Drain Valve" AND / OR Uncap and open HV-2-30-21777A "2AE038 Service Water Low Point Drain Valve" AND / OR Uncap and open HV-2-30-21778A "2AE038 Service Water High Point Drain Valve" (Cue: Acknowledge that drain point(s) has been selected.)	P	Identifies that HV-2-30-21776A "2AE038 Service Water Inlet Drain Valve" must be UNCAPPED and OPEN in order to DRAIN the Service Water side of the 2A TBCCW heat exchanger AND / OR HV-2-30-21777A "2AE038 Service Water Low Point Drain Valve" must be UNCAPPED and OPEN in order to DRAIN the Service Water side of the 2A TBCCW heat exchanger. AND / OR HV-2-30-21778A "2AE038 Service Water High Point Drain Valve" must be UNCAPPED and OPEN in order to DRAIN the Service Water side of the 2A TBCCW heat exchanger.
*9	Uncap and open HV-2-30-21779A "2AE038 Service Water Vent Valve" (Cue: Acknowledge that vent point(s) has been selected.)	P	Identifies that HV-2-30-21779A "2AE038 Service Water Vent Valve" must be UNCAPPED and OPEN in order to VENT the Service Water side of the 2A TBCCW heat exchanger.

10	Inform Control Room Supervisor of task completion. (Cue: The Control Room Supervisor acknowledges the report.)	P	The operator informs the Control Room Supervisor of task completion.
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 TBCCW and Service Water side isolation points, vent paths, and drain paths to the 2A TBCCW heat exchanger have been identified, and the Control Room Supervisor informed, the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

A suspected tube leak has been identified on the standby 2A Turbine Building Closed Cooling Water (TBCCW) heat exchanger 2AE038.

INITIATING CUE

The Control Room Supervisor directs you to identify the valves and their required positions to isolate, vent and drain the tube and shell side of the 2A TBCCW heat exchanger. Document your results on this CUE SHEET

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	☐ QUALIFICATION MANUAL	☐ OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEW-C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	MJK
TITLE:	PRO DUTIES FOR A LIQUID RADWASTE DISCHARGE		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2730130202 / PLOR-NEW-C K/A: 2.3.11

URO: 3.8 SRO: 4.3

TASK DESCRIPTION: Ability to control radiation releases.

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 ST-C-095-805-2, Rev. 12, completed through step 6.12.8.

C. REFERENCES

1. ST-C-095-805-2, Rev. 12, "Liquid Radwaste Discharge".

D. TASK STANDARD

1. Satisfactory task completion is indicated when section 6.13 has been completed in its entirety.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the necessary steps to set-up the plant in preparation for a Liquid Radwaste discharge. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. Both units are operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry and Shift Management have completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.12.8.

4. Six Circulating Water Pumps are in operation.

5. The discharge Canal-To-Intake Pond crosstie gate is closed.

6. The PRO review and set-up has not been completed.

G. INITIATING CUE

You are the PRO. Complete section 6.13 of ST-C-095-805-2 "Liquid Radwaste Discharge" in preparation for a liquid radwaste discharge.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Record actual number of operating Circulating Pumps.	P	Verifies six Circulating Pumps are operating from Task Conditions/Prerequisite information record and initial step 6.13.1.
*2	Set the HI Trip Setpoint.	P	Manually adjust the HI Setpoint Pot setting for RIS-0-17-350 to ≤ 4.18, and record and initial step 6.13.2.
*3	Set the HI HI Trip Setpoint.	P	Manually adjust the HI HI Setpoint Pot setting for RIS-0-17-350 to ≤ 4.21, and record and initial step 6.13.3.
4	Mark step 6.13.4 "N/A"	P	Step 6.13.4 is reviewed and marked "N/A".
5	Review PRO steps.	P	Visually verify all the PRO steps in section 6.13 are complete, and initial step 6.13.5 SAT.
6	Record your name and initials.	P	Print your name and initials in Section 10.0.
7	Inform Control Room Supervision of completion of task.	P	Inform Control Room Supervision of completion of section 6.13 of ST-C-095-805-2 "Liquid Radwaste Discharge".
8	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 Section 6.13 of ST-C-095-805-2 has been completed, terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Both units are operating at 100% power.

2. The Floor Drain Sample Tank (FDST) needs to be discharged.

3. Chemistry and Shift Management have completed ST-C-095-805-2, "Liquid Radwaste Discharge" through step 6.12.8.

4. Six Circulating Water Pumps are in operation.

5. The discharge Canal-To-Intake Pond crosstie gate is closed.

6. The PRO review and set-up has not been completed.

INITIATING CUE

You are the PRO. Complete section 6.13 of ST-C-095-805-2 "Liquid Radwaste Discharge".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-186C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	002
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	ACTIVATE THE EMERGENCY RESPONSE DATA SYSTEM		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness: _____ Signature/Date	PIMS CODE:	
	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2007500501 / PLOR-186C K/A: 2.4.39

URO: 3.9 SRO: 3 8

TASK DESCRIPTION: Knowledge of the RO's responsibilities in emergency plan implementation

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. EP-MA-110-100-F-12, Rev. C, "PBAPS ERDS Activation"

C. REFERENCES

1. EP-MA-110-100, Rev. 7 "ERO Computer Applications"

2. EP-MA-110-100-F-12, Rev. C "PBAPS ERDS Activation"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Emergency Director is informed that the ERDS link has been made.

2. Estimated time to complete: 7 minutes NOT-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform the actions as the NRC Communicator for an Alert emergency classification. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. An Alert has just been declared on Unit 2.

2. You have been assigned to be the NRC Communicator.

G. INITIATING CUE

The Emergency Director directs you to initiate the ERDS link to the NRC via the Plant Monitoring System terminal located on the Unit 2 side of the PRO's desk in accordance with EP-MA-110-100-F-12. Inform the Emergency Director when the connection is made.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
****NOTE**** **Ensure that the PMS terminal used has no more than one window open at start of JPM.**			
****NOTE**** **Perform this JPM ONLY on a PMS terminal located in the simulator, preferably the terminal on the Unit 2 side of the PRO's desk.** **Performance on a PMS terminal outside of the simulator will result in initiating the ERDS link to the NRC.**			
1	Obtain a copy of procedure EP-MA-110-100-F-012.	P	A copy of procedure EP-MA-110-100-F-012 is obtained.
2	Review EP-MA-110-100-F-012.	P	EP-MA-110-100-F-012 is reviewed.
*3	Locate the PMS terminal. **(Cue: If on the simulator, inform the examinee that SIMA equals PB2.)**	P	If on the simulator the examinee locates the PMS terminal on the Unit 2 side of the PRO's desk and selects SIMA for the appropriate data to be transmitted. If outside the simulator the examinee locates the PMS terminal and selects PB2 for the appropriate data to be transmitted.
*4	Select the EPDS Menu. (Cue: EPDS Menu selected.)	P	At the PMS terminal, the operator selects the EPDS menu or types "EPD".
*5	Select the NRC Link Activation. (Cue: NRC Link Activation selected.)	P	At the PMS terminal, the operator selects the NRC Link Activation, or types "NRC".
*6	Activate the Link. (Cue: "F1" selected.)	P	At the PMS terminal, the operator selects "F1".
*7	Select Unit 2. (Cue: Unit 2 activated.)	P	At the PMS terminal, the operator selects "F1" to activate Unit 2.
*8	Enter the password. (Cue: Password "USNRC" entered.)	P	At the PMS terminal, the operator types the password "USNRC" and depresses return.

****NOTE TO EVALUATOR**** The cue in step 9 below is REQUIRED to be given to Examinee			
9	Confirm data is being transmitted. **(Cue: ERDS Status Window displays "Sending Data")**	P	Visually confirms that ERDS Status Window displays "Sending Data".
10	Notify the Emergency Director. (Cue: The ED acknowledges the report.)	P	Verbally notify the Emergency Director that the ERDS link to the NRC has been completed.
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 ERDS link to the NRC has been completed and the Emergency Director informed, the evaluator will terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. An Alert has just been declared on Unit 2.

2. You have been assigned to be the NRC Communicator.

INITIATING CUE

The Emergency Director directs you to initiate the ERDS link to the NRC via the Plant Monitoring System terminal located on the Unit 2 side of the PRO's desk in accordance with EP-MA-110-100-F-12. Inform the Emergency Director when the connection is made.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEWC
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	Mjk
TITLE:	Review and Evaluate Reactor Coolant Chemistry Limits		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 3443100402 / PLOR-NEWC K/A: 2.1.34
SRO: 3.5

TASK DESCRIPTION: Knowledge of primary and secondary plant chemistry limits

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. CH-10 "Chemistry Goals"
   - Fill out four separate CH-10-1 Chemistry Recommendation Forms using Attachment 2 of this JPM as a reference. One form for reactor water, the other three are for A, B, and C condensate pump discharge.

2. ON-126 "High Condensate Conductivity" (give access to if requested)

3. TRM 3.9, RCS Chemistry (give access to if requested)

C. REFERENCES

1. CH-10, Rev. 15, "Chemistry Goals"

2. ON-126, Rev. 3, "High Condensate Conductivity"

3. TRM 3.9, RCS Chemistry

D. TASK STANDARD

1. Satisfactory task completion is indicated when ON-126 "High Condensate Conductivity" reactor coolant chemistry actions and Technical Requirements Manual (TRM) Action Levels are determined in response to a condenser tube leak.

2. Estimated time to complete: 15 minutes <u>Non-Time Critical</u>

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to determine immediate plant impact and compensatory measures, if any, for identified system chemistry limits 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 has been at 100% power for 160 days.

2. The Hydrogen Water Chemistry System is in service.

3. Chemistry has delivered four CH-10-1 Chemistry Recommendation Forms related to Unit 2 condensate conductivity and Reactor Water chloride concentration.

4. PMS conductivity values match values provided on the CH-10-1 forms.

5. All the samples have been verified.

G. INITIATING CUE

The Shift Manager directs you to determine what immediate plant and/or Technical Specification/TRM/ODCM actions, if any, exist for the above conditions.

Document the results of your determination on the CUE SHEET.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
******NOTE TO EVALUATOR****** **Provide all four CH-10-1 forms to the Examinee at the start of the JPM.** **Provide a copy of procedure CH-10 "Chemistry Goals" at the start of the JPM.**			
******NOTE TO EVALUATOR****** **The following steps can be performed in any order.**			
1	Review the four CH-10-1 Chemistry Recommendation Forms for Unit 2.	P	Review CH-10-1 Chemistry Recommendation Forms. Review CH-10 "Chemistry Goals".
2	Enter ON-126 "High Condensate Conductivity".	P	Recognize that condensate pump discharge conductivity > 0.4 µS/cm is a symptom for entry into ON-126.
*3	Determine that a plant shutdown per GP-3 "Normal Plant Shutdown" is required.	P	Recognize the chemistry change as a severe conductivity intrusion (condenser tube leak) and ON-126 directs a plant shutdown using GP-3.
*4	Determine that the 2A condenser waterbox needs to be removed from service.	P	Determines that ON-126, step 2.4, directs isolation of the source of the high conductivity. Using the CH-10-1 Chemistry Recommendation Forms the examinee determines that conductivity is high on the discharge of the 2C condensate pump which is tied to the 2A waterbox.

STEP NO	STEP	ACT	STANDARD
*5	Verify, immediately, by administrative methods that Reactor Coolant System chloride concentration has not been > 0.2 ppm for > 2 weeks in the last calendar year. (Cue: if asked to assist with administrative check of chloride concentration, reply as the Chemistry Manager and report that chloride concentration has been < 0.2 ppm for the last calendar year.	P	Recognize that Reactor Coolant System chloride concentration is > 0.2 ppm (actual is 0.22 ppm) limit in TRM Table 3.9-1, therefore, TRM 3.9.B applies. TRM 3.9.B applies. Verify that Reactor Coolant System chloride concentration has not been > 0.2 ppm for > 2 weeks in the last calendar year.
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 determination of what immediate plant and/or regulatory actions, if any, exist, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Unit 2 has been at 100% power for 160 days.

2. The Hydrogen Water Chemistry System is in service.

3. Chemistry has delivered four CH-10-1 Chemistry Recommendation Forms related to Unit 2 condensate conductivity and reactor water chloride concentration.

4. PMS conductivity values match values provided on the CH-10-1 forms.

5. All the samples have been verified.

INITIATING CUE

The Shift Manager directs you to determine what immediate plant and/or Technical Specification/TRM/ODCM actions, if any, exist for the above conditions.

Document the results of your determination on this CUE SHEET.

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(Continue on back of sheet if necessary)

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEW
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	Determine Personal Protective Equipment for Racking Out a 480 Volt Breaker		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness: _____ Signature/Date	PIMS CODE:	
	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2991780301 / PLOR-NEW K/A: 2.1.26

SRO: 3.6

TASK DESCRIPTION: Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).

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. SA-AA-129 "Electrical Safety"

2. Tablet or booklet for Examinee to document results of determination.

C. REFERENCES

1. SA-AA-129, Rev. 4, "Electrical Safety"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the minimum required proper personal protective equipment (PPE) has been determined for racking out a 480 Volt breaker using SA-AA-129 "Electrical Safety".

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 minimum required personal protective equipment (PPE) 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

The breaker for the 2A EHC pump needs to be racked out in support of scheduled maintenance.

G. INITIATING CUE

As the Work Execution Control Supervisor, determine the MINIMUM personal protective equipment (PPE) required for racking out the 2A EHC pump breaker using SA-AA-129 "Electrical Safety". Document your determination on the CUE SHEET.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Review SA-AA-129 "Electrical Safety". (Cue: Hand the Examinee a copy of SA-AA-129 "Electrical Safety".)	P	Reviews SA-AA-129 "Electrical Safety". References ATTACHMENT 4 - Electrical Safe Work Practices Hazard Assessment.
*2	Determine that Class 2 clothing is required.	P	Uses ATTACHMENT 4 - Electrical Safe Work Practices Hazard Assessment, of SA-AA-129, Item 2, for racking in/out a 480 Volt load center breaker.
*3	Determine that eye protection is required.	P	Uses ATTACHMENT 4 - Electrical Safe Work Practices Hazard Assessment, of SA-AA-129, Item 2, for racking in/out a 480 Volt load center breaker.
*4	Determine that a face shield is required.	P	Uses ATTACHMENT 4 - Electrical Safe Work Practices Hazard Assessment, of SA-AA-129, Item 2, for racking in/out a 480 Volt load center breaker.
*5	Determine that a hard hat is required.	P	Uses ATTACHMENT 4 - Electrical Safe Work Practices Hazard Assessment, of SA-AA-129, Item 2, for racking in/out a 480 Volt load center breaker.
6	Inform evaluator of completion of the task.	P	Communicate that the task has been completed.
7	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 minimum personal protective equipment (PPE) for racking out a 480 Volt breaker using SA-AA-129 "Electrical Safety" has been determined, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. The breaker for the 2A EHC pump needs to be racked out in support of scheduled maintenance.

INITIATING CUE

As the Work Execution Control Supervisor, determine the MINIMUM personal protective equipment (PPE) required for racking out the 2A EHC pump breaker using SA-AA-129 "Electrical Safety". Document your determination on this CUE SHEET.

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EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-222C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	001
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	REVIEW A TEMPORARY PROCEDURE CHANGE		

APPROVALS:

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Signature / Title Date

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Signature / Title Date

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Signature / Title Date

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Signature / Title Date

APPROVED FOR USE: _____
Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness:	PIMS CODE:	
_____ Signature/Date	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 3421130302 / PLOR-222C K/A: 2.2.6
SRO: 3.6

TASK DESCRIPTION: Knowledge of the process for making changes to procedures

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. ST-O-080-520-2 marked-up with a proposed Temporary Change to step 6.1.2 for reactor vessel flange and head flange to be greater than 65 degrees F

2. AD-PB-101-1003, Rev. 8, "Temporary Changes to Approved Documents and Partial Procedure Use"

3. Attachment 1 of AD-PB-101-1003, with first three sections filled out.

C. REFERENCES

1. ST-O-080-520-2, Rev. 3 "Reactor Vessel Head Flange Temperature Surveillance"

2. AD-PB-101-1003, Rev. 8, "Temporary Changes to Approved Documents and Partial Procedure Use"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Shift Management review has been completed, the errors in the procedure have been identified and the Temporary Change is disapproved pending resolution of the problems.

2. Estimated time to complete: 10 minutes <u>Non-Time Critical</u>

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to review a Temporary Change to a procedure 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 Temporary Change has been prepared for ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance" step 6.1.2, to ensure reactor vessel flange and head flange temperature is greater than 65 degrees F.

G. INITIATING CUE

You have been assigned as the SRO Reviewer for the temporary change to the surveillance procedure. Review and approve the temporary change to ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Review ST-O-080-520-2 temporary procedure change.	P	Review the procedure change and compare it to the Change of Intent Screening criteria in AD-PB-101-1003.
*2	Identify a change of intent due to: • a change to the acceptance criteria that decreases the margin of acceptance, and/or • a change to technical specifications	P	Identify that the proposed change to step 6.1.2 constitutes a "change of intent" in accordance with AD-PB-101-1003 step 2.1 due to: • a change to the acceptance criteria that decreases the margin of acceptance, and/or • a change to technical specifications
*3	Disapprove the procedure change. (Cue: Acknowledge the disapproval.)	P	Disapprove the temporary procedure change.
4	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 review of ST-O-080-520-2 has been completed, and the temporary procedure change is disapproved, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

A Temporary Change has been prepared for ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance" step 6.1.2, to ensure reactor vessel flange and head flange temperature is greater than 65 degrees F.

INITIATING CUE

You have been assigned as the SRO Reviewer for the temporary change to the surveillance procedure. Review and approve the temporary change to ST-O-080-520-2 "Reactor Vessel Head Flange Temperature Surveillance".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEWC
COURSE:		REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	REVIEW AND APPROVE PRIMARY CONTAINMENT PURGE/VENT ISOLATION VALVE CUMULATIVE HOUR LOG		

APPROVALS: _____
Signature / Title Date

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Signature / Title Date

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Signature / Title Date

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Signature / Title Date

APPROVED FOR USE: _____
Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2270140201 / PLOR-NEWC K/A: 2.3.13

SRO: 3.8

TASK DESCRIPTION: Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, 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. Calculator

2. Copy of ST-O-007-560-2 "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log".

- A calculation error made on Data Sheet 1 such that "Accumulated Total Time Since Beginning of Calendar Year" is greater than 90 hours, with the procedure completed to indicate total time is less than 90 hours (use Attachment 2 of this JPM for exact values).

C. REFERENCES

1. ST-O-007-560-2, Rev. 2, "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log".

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Shift Management review has been completed, the calculation error on Data Sheet 1 identified, and the total accumulated time a purge/vent valve is open has been determined to be greater than 90 hours.

2. Estimated time to complete: 15 minutes <u>Non-Time Critical</u>

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to review the Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. The "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log" for Unit 2 (ST-O-007-560-2) has been completed.

2. The "Accumulated Total Time Since Beginning of Year" is greater than 80 hours. Shift Management has been notified as required by Step 6.1.6.

G. INITIATING CUE

You are the Work Execution Control Supervisor. Perform the Plant Staff review and approval of ST-O-007-560-2 "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	**Cue: Hand the Examinee a completed copy of ST-O-007-560-2 "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log" with Data Sheets 1 and 2 data filled in by hand from Attachment 2 of this JPM."**		
2	Review ST-O-007-560-2 for completeness.	P	Verifies all procedure steps, Data Sheet 1, and Data Sheet 2 have been completed satisfactorily.
3	Verify calculations.	P	Performs all calculations that were done on Data Sheet 1 to verify they are correct and properly recorded.
*4	Recognize calculation errors.	P	Recognizes the following calculation errors on Data Sheet 1: 1. Second row of the "Flow Path Open Total Time" column should be 17 Hr, 4 Min versus 5 Hr, 4 Min. 2. Fourth row of the "Accumulated Total Time Since Beginning of Calendar Year" column total is incorrect...one additional hour should be added NOTE: the "critical" part of this step is to recognize the first error and the fact that the accumulated total time has exceeded 90 hours.
*5	Determines the "Accumulated Total Time Since Beginning of Year" is beyond the Acceptance Criteria specified in Step 5.0.	P	Determines the "Accumulated Total Time Since Beginning of Year" is 93 Hr, 22 Min versus 80 Hr, 22 Min.
6	Notify Shift Management of unsatisfactory test results. (Cue: Acknowledge report.)	P	Reports to Shift Manager and/or Control Room Supervisor that the "Accumulated Total Time Since Beginning of Year" is greater than 90 hours.
7	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 review of ST-O-007-560-2 has been completed and the materials have been returned to the evaluator, the exercise will be terminated.

TASK CONDITIONS/PREREQUISITES

1. The "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log" for Unit 2 (ST-O-007-560-2) has been completed.

2. The "Accumulated Total Time Since Beginning of Year" is greater than 80 hours. Shift Management has been notified as required by Step 6.1.6.

INITIATING CUE

You are the Work Execution Control Supervisor. Complete the Plant Staff review and approval of ST-O-007-560-2 "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-234C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #::	001
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	EAL CLASSIFICATION AND STATE/LOCAL NOTIFICATIONS FOR ALERT – HIGH WINDS WITH VISIBLE PLANT DAMAGE		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2007510502/PLOR-234C K/A: 2.4.40

SRO: 4.5

TASK DESCRIPTION: Knowledge of SRO responsibilities in emergency plan implementation.

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-112-100, Rev 9, "Control Room Operations" (R)

2. EP-AA-111, Rev. 14, "Emergency Classification and Protective Action Recommendations" (R)

3. EP-MA-114-100, Rev. 12, "Mid-Atlantic State/Local Notifications" (R)

4. EP-MA-114-100-F-01, Rev F, "State / Local Event Notification Form" (R)

5. EP-AA-1007, Table PBAPS 3-1, Rev. 17 "Emergency Action Level (EAL) Matrix (R)

6. EP-AA-112-100-F-01, Rev. H, "Shift Emergency Director Checklist" (R)

7. EP-AA-114-F-01, Rev C, "Release in Progress Determination Guidance" (R)

8. EP-AA-111-F-08, Rev D, "Limerick/Peach Bottom Plant Based PAR Flowchart" (R)

D. TASK STANDARD

1. Satisfactory task completion is indicated when the plant conditions have been classified correctly and EP-MA-114-100-F-01, "State/Local Event Notification Form" has been completed accurately.

   (NOTE: The criteria for accurate Event Notification form completion was derived from EP-AA-125-1002, Rev. 4, "ERO Performance – Performance Indicators Guidance").

2. Estimated time to complete: Event Classification – 15 minutes: Time Critical
   State/Local Notification – 13 minutes: Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to make the EAL classification and complete the State/Local Event Notification form (if required). I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

NOTE: This is a time critical JPM.

At time = 0 seconds:

1. Both Units are operating at 100% power.
2. Meteorological Tower data indicates 90 mph winds on-site and wind direction from 20 degrees.
3. Neither the Unit 2 nor the Unit 3 Secondary Containment can be maintained negative.
4. Unit 2 and Unit 3 Reactor Building Vent Stacks are damaged.
5. Equipment on Unit 2 Reactor Building elevation 234' is reported to be damaged.
6. Equipment on Unit 3 Reactor Building elevation 195' is reported to be damaged.
7. There has been a loss of all off-site communication capability.

G. INITIATING CUE #1
(on separate sheet)

As the Emergency Director determine if an EAL classification is applicable, and if so, make the classification.

FOLLOW-UP CUE #2
(on separate sheet and is ONLY given to examinee if a classification has been determined)

Complete the State/Local Event Notification form EP-MA-114-100-F-01.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
NOTE **Record the time using the clock above the Full Core Display. Time = _____**			
1	Obtain a copy of procedures EP-AA-112-100-F-01 and EP-AA-1007.	P	A copy of procedures EP-AA-112-100-F-01 and EP-AA-1007 are obtained.
*2	Determine the appropriate EAL IC. (Cue: Classification is acknowledged.)	P	The following sections of EP-AA-1007, Table PBAPS 3-1 are referenced: Natural and Destructive Phenomena Affecting the Protected Area (HU5), Natural and Destructive Phenomena Affecting the Plant Vital Area (HA5), Loss of all Table M7 Offsite communications capability (MU10). **The event is classified as an Alert (HA5)** due to meeting EALThreshold #2 (based on tornado or high winds > 87 mph within Protected Area resulting in visible damage to plant structures (Reactor Building Vent Stacks) or equipment in any Table H2 area (Reactor Building) or Control Room indication of degraded system performance (positive pressure in Reactor Building).
3	Announce the event classification to the facility staff.	P	Announces the event classification to the Control Room crew.
NOTE **<u>WHEN</u> the examinee completes the classification determination, <u>THEN</u> record the time using the clock above the Full Core Display. Time = _____ Determine if the elapsed time since the initiating cue exceeds 15 minutes.**			

*** NOTE ***

Inform the examinee that the Public Address announcement and the ERO Notification are NOT required for this JPM.

*** NOTE ***

<u>Cue #2:</u> Complete the State/Local Event Notification Form EP-MA-114-100-F-01.

The following steps are associated with completion of EP-MA-114-100-F-01, "State/Local Event Notification Form".

4	Check the call status.	P	"This is a drill" line is checked in Block #1.
*5	Check the affected station.	P	"Peach Bottom" is checked in Block #2.
*6	Check the event classification.	P	"Alert" classification is checked in Block #3a.
7	Check the affected unit.	P	Units "Two" and "Three" are checked in Block #3b.
*8	Enter the time and date of the declaration.	P	Declaration time (in 24 hour clock nomenclature) and today's date are entered in Block #3c. The declaration time should match the time the examiner entered in the note before JPM step 1.
9	Check the applicable change in classification status.	P	"Initial Declaration" is checked in Block #3d.
*10	Enter the EAL number declared <u>AND/OR</u> provide a brief non-technical description of event.	P	EAL# "HA5" is annotated in Block #4a <u>AND/OR</u> a simplified explanation for the event classification is provided in Block #4b. Acronyms, abbreviations or other terms that would not be recognized by state and local response agencies are avoided. The Offsite EAL Reference Manual may be referred to, if necessary.
*11	Check the non-routine radiological release status.	P	"NO" non-routine radiological release in progress is checked in Block #5. EP-AA-114-F-01, "Release In Progress Determination Guidance" may be referenced.
*12	Enter the wind direction "Degrees from". (Cue: Wind direction is from 20 degrees.)	P	Wind direction is obtained from either PMS Met data or Control Room panel OOC767 and is entered as the "wind direction degrees from" in Block #6a. Minor discrepancy in parameter value is acceptable.
*13	Enter the wind speed. (Cue: Wind speed is 90 mph.)	P	Wind speed is obtained from either PMS Met data or Control Room panel OOC767 and is entered in Block #6b. Minor discrepancy in parameter value is acceptable.

*14	Check the utility Protective Action Recommendation.	P	The "Not Applicable" box is checked in Block #7a.
15	Check the appropriate conclusion.	P	"This is a drill" line is checked in Block #8.
16	Enter the Utility Message number and approve the event notification form.	P	The Emergency Director enters "1" for the Utility Message Number and signs the Event Notification form in the form's header area.
***** NOTE ***** **<u>WHEN</u> the examinee completes the Event Notification form,** **<u>THEN</u> record the time using the clock above the Full Core Display. Time = _____** **Determine if the elapsed time since the classification exceeds 13 minutes.**			
17	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task condition/Prerequisites) AND procedures.	P	Positive control established.

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

I. TERMINATING CUE

When plant conditions have been classified and EP-MA-114-100-F-01, "State/Local Event Notification Form" has been completed, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

NOTE: This is a time critical JPM.

At time = 0 seconds:

1. **Both Units are operating at 100% power.**
2. **Meteorological Tower data indicates 90 mph winds on-site and wind direction from 20 degrees.**
3. **Neither the Unit 2 nor the Unit 3 Secondary Containment can be maintained negative.**
4. **Unit 2 and Unit 3 Reactor Building Vent Stacks are damaged.**
5. **Equipment on Unit 2 Reactor Building elevation 234' is reported to be damaged.**
6. **Equipment on Unit 3 Reactor Building elevation 195' is reported to be damaged.**
7. **There has been a loss of all off-site communication capability.**

INITIATING CUE

As the Emergency Director determine if an EAL classification is applicable, and if so, make the classification.

TASK CONDITIONS/PREREQUISITES

NOTE: This is a time critical JPM.

At time = 0 seconds:

1. **Both Units are operating at 100% power.**
2. **Meteorological Tower data indicates 90 mph winds on-site and wind direction from 20 degrees.**
3. **Neither the Unit 2 nor the Unit 3 Secondary Containment can be maintained negative.**
4. **Unit 2 and Unit 3 Reactor Building Vent Stacks are damaged.**
5. **Equipment on Unit 2 Reactor Building elevation 234' is reported to be damaged.**
6. **Equipment on Unit 3 Reactor Building elevation 195' is reported to be damaged.**
7. **There has been a loss of all off-site communication capability.**

CUE #2

Complete the State/Local Event Notification form EP-MA-114-100-F-01.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Requalification	CODE #:	PLOR-309CA
COURSE:	Licensed Operator Requalification	REV #::	011
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	Starting a Recirculation Pump (Alternate Path – Scoop Tube Lockup)		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2020040101 / PLOR-309CA K/A: 202001A4.01

RO: 3.7 SRO: 3.7

TASK DESCRIPTION: STARTING A RECIRCULATION PUMP (ALTERNATE PATH - SCOOP TUBE LOCKUP)

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 2A.1.B-2, Rev. 45, "Starting the Second Recirculation Pump"

D. TASK STANDARD

1. Performance Location: Simulator

2. Satisfactory task completion is indicated when the "B" Reactor Recirculation Pump has been started and subsequently tripped due to a scoop tube lockup.

3. Estimated time to complete: 14 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to start the "B" Reactor Recirculation Pump 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 "2B" Recirculation pump is being placed in service following a spurious trip.

2. All the prerequisite steps of SO 2A.1.B-2, "Starting the Second Recirculation Pump" have been successfully performed.

3. Steps 4.1 through 4.25 of SO 2A.1.B-2, "Starting the Second Recirculation Pump" have been successfully performed.

4. ST-O-02B-510-2, "Reactor Coolant Temperatures" has been performed. Data from ten minutes ago showed reactor dome to bottom head drain DT is 80°F and the loop to loop DT is 23°F.

5. An Equipment Operator is in place to visually verify relays at Panel 2BC152.

G. INITIATING CUE

The Control Room Supervisor directs you to start the "B" Reactor Recirculation Pump in accordance with SO 2A.1.B-2, "Starting the Second Recirculation Pump", beginning at step 4.26.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure SO 2A.1.B-2.	P	A copy of procedure SO 2A.1.B-2 is obtained.
	***** NOTE ***** **The next step is not applicable if the 'A' Recirc pump speed is already less than 50%. This will depend on simulator initial conditions used.**		
*2	Lower "A" Recirc pump speed to less than 50% as read on SPI-2-02-184-016A. (Cue: SPI-2-02-184-016A is lowering, FR-2-02-154 is lowering, and reactor level is stable.)	P	Manual control knob is turned COUNTERCLOCKWISE until SPI-2-02-184-016A indicates < 50% at panel 20C004A. This step may not be applicable if initial conditions have the 'A' Recirc. Pump speed already less than 50%.
3	Verify the speed of the "A" Recirc pump is less than 50%. (Cue: SPI-2-02-184-016A indicates 45%.)	P	"A" Recirc pump speed is verified to be less than 50% on SPI-2-02-184-016A at panel 20C004A.
*4	Verify closed MO-2-02-053B, Recirc Pump B Discharge Valve. (Cue: MO-2-02-053B green light is on, red light is off.)	P	MO-2-02-053B green light is verified ON at panel 20C004A.
	***** NOTE ***** **When ready to perform a plant announcement to start the Recirc. Pump, inform the Examinee to <u>not</u> make the announcement if another JPM is being conducted simultaneously in the simulator.**		
5	Verify reactor coolant temperatures stated in step 4.17.1 and 4.17.2 are still valid. (Cue: ST-O-02B-510-2, "Reactor Coolant Temperatures" were performed satisfactorily 10 minutes ago. Reactor dome to bottom head drain DT is 80°F and the loop to loop DT is 23°F.	P	Verifies that ST-O-02B-510-2, "Reactor Coolant Temperatures" were performed within the last 15 minutes indicating that Reactor dome to bottom head drain DT is < 145°F AND the loop to loop DT is <50°F.
*6	Place "B" Recirc MG Set drive motor control switch to start. (Cue: Acknowledge control switch operation. Annunciator 214 G-3 is flashing.)	P	"B" Recirc MG Set Drive Motor Breaker control switch is momentarily placed in the START position at panel 20C004A.

STEP NO	STEP	ACT	STANDARD
7	Direct an operator to verify that relay 2-2A-K015B is energized. (Cue: Equipment operator acknowledges the direction and reports that relay 2-2A-K015B is energized.)	P	Equipment operator directed to verify relay 2-2A-K015B is energized.
8	Direct an operator to verify that relay 2-2A-K022B energizes 20 seconds after the drive motor starts. (Cue: Equipment operator acknowledges the direction and reports that relay 2-2A-K022B energized 20 seconds after the drive motor start.)	P	Equipment operator directed to verify relay 2-2A-K022B energizes 20 seconds after the drive motor starts.
9	Verify the "B" Recirc MG Set drive motor starts, generator speed reached 100% and field breaker closes in 21 seconds. (Cue: "B" Recirc MG Set Drive Motor Breaker red light is on, green light is off. SPI-2-02-184-16B indicates an increase to 100%. 21 seconds later, "B" Recirc MG Set Field Breaker red light is on, green light is off.)	P	"B" Recirc MG Set Drive Motor Breaker red light is verified ON, MG Set speed is verified to increase to 100% on SPI-2-02-184-16B and the "B" Recirc MG Set Field Breaker red light is verified ON at panel 20C004A.
	***** NOTE ***** **The next step may not be performed if the examinee decides to trip the 'B' Recirc. Drive Motor first.**		
10	Direct an Equipment operator to verify that relay 2-2A-K015B de-energized 6 seconds after the field breaker closes. (Cue: Equipment operator acknowledges the direction and reports that relay 2-2A-K015B de-energized 2 seconds after the field breaker closes.)	P	Equipment operator directed to verify relay 2-2A-K015B de-energized 2 seconds after the field breaker closes. This step may not be performed if the Examinee decides to immediately perform steps 11 & 12.
*11	When the field circuit breaker closes, the "B" RECIRC FLUID DRIVE SCOOP TUBE LOCK and "B" RECIRC FLUID DRIVE SCOOP TUBE POSITIONER TROUBLE annunciators are recognized alarming. (Cue: As soon as the field circuit breaker closes, SPI-2-02-184-016B reading drops to 55% and annunciators 213 C-3 and 214 J-1 begin flashing.)	P	Recognizes "B" RECIRC FLUID DRIVE SCOOP TUBE LOCK and "B" RECIRC FLUID DRIVE SCOOP TUBE POSITIONER TROUBLE annunciators are flashing at panels 213 C-3 and 214 J-1.

STEP NO	STEP	ACT	STANDARD
*12	Trip the "B" Recirc Pump Drive Motor (Cue: "B" Recirc Pump Drive Motor breaker green light is on, red light is off.)	P	"B" Recirc Pump Drive Motor breaker control switch is momentarily placed in the STOP position at panel 20C004A.
13	Inform Control Room Supervisor of the receipt of the "B" RECIRC FLUID DRIVE SCOOP TUBE LOCK alarm and trip of the "B" Recirc Pump. (Cue: Control Room Supervisor acknowledges report.)	P	Receipt of the "B" RECIRC FLUID DRIVE SCOOP TUBE LOCK alarm and trip of the "B" Recirc Pump reported to CRS.
14	As evaluator ensure you have positive control of all exam material provided to the examinee (Task Condition / Prerequisites) AND procedures.	P	Positive Control established.

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

I. TERMINATING CUE

When the "B" Recirculation Pump has been started and subsequently tripped due to a scoop tube lockup, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. The "2B" Recirculation pump is being placed in service following a spurious trip.

2. All the prerequisite steps of SO 2A.1.B-2, "Starting the Second Recirculation Pump" have been successfully performed.

3. Steps 4.1 through 4.25 of SO 2A.1.B-2, "Starting the Second Recirculation Pump" have been successfully performed.

4. ST-O-02B-510-2, "Reactor Coolant Temperatures" has been performed. Data from ten minutes ago showed reactor dome to bottom head drain DT is 80°F and the loop to loop DT is 23°F.

5. An Equipment Operator is in place to visually verify relays at Panel 2BC152

INITIATING CUE

The Control Room Supervisor directs you to start the "B" Reactor Recirculation Pump in accordance with SO 2A.1.B-2, "Starting the Second Recirculation Pump", beginning at step 4.26.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Requalification	CODE #:	PLOR-300CA
COURSE:	Licensed Operator Requalification	REV #:	013
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	Manually Initiate HPCI (Alternate Path – Manual Initiation Pushbutton Fails to Operate)		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2060050101 / PLOR-300CA K/A: 295031EA1.02

URO: 4.5 SRO: 4.5

TASK DESCRIPTION: Manually Initiate HPCI (Alternate Path – Manual Initiation Pushbutton Fails to Operate)

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. None

C. REFERENCES

1. RRC 23.1-2, Rev. 5, "HPCI System Operation During A Plant Event"

D. TASK STANDARD

1. Satisfactory task completion is indicated when HPCI is injecting to the RPV at 5000 gpm.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to manually initiate the HPCI system and inject to the Reactor vessel at a flow rate of 5000 gpm 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. RPV Level is –25 inches and lowering slowly.

G. INITIATING CUE

The Control Room Supervisor directs you to initiate the HPCI system using the HPCI Manual Initiation pushbutton and inject to the Reactor vessel at 5000 gpm using RRC 23.1-2 "HPCI System Operation During A Plant Event"

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain copy of RRC 23.1-2 "HPCI System Operation During A Plant Event"	P	References Section A "HPCI Injection Using Manual Initiation Push-button".
2	Arm and depress the HPCI Manual Initiation Pushbutton 23A-S105. (Cue: Acknowledge pushbutton operation.)	P	HPCI Manual Initiation Pushbutton collar is rotated clockwise to the ARMED position and then the pushbutton is momentarily DEPRESSED at panel 20C004B.
*3	Recognize that the Manual Initiation pushbutton did not function. (Cue: HPCI discharge pressure, flow and speed indicate zero. Aux oil pump green light is on, red light is off.)	P	Manual Initiation pushbutton failure to function is recognized.
	******NOTE****** IF NEEDED, REPEAT INITIATING CUE TO GET EXAMINEE TO CONTINUE **The Control Room Supervisor directs you to initiate the HPCI system using the HPCI Manual Initiation pushbutton and inject to the Reactor vessel at 5000 gpm using RRC 23.1-2 "HPCI System Operation During A Plant Event"**		
	******NOTE****** **Steps 4 through 11 can be performed by the Examinee using either RRC Section A "HPCI Injection Using Manual Initiation Push-button" <u>OR</u> RRC Section B "HPCI Injection By Manual Component Operation".**		
*4	Simultaneously start the Auxiliary Oil Pump, 20P026 and open MO-2-23-014 "Supply" valve. (Cue: Acknowledge control switch operation.)	P	Auxiliary oil pump control switch is placed in the START position while simultaneously placing MO-2-23-014 "Supply" control switch momentarily in the "OPEN" position at panel 20C004B.
5	Verify the Auxiliary Oil Pump started. (Cue: Auxiliary Oil pump red light is on green light is off and annunciator 222 D-5 is alarming, "HPCI AUXILIARY OIL PUMP RUNNING", Turbine Stop and Control valve red lights are on.)	P	Verify the Auxiliary Oil pump red light is ON at panel 20C004B or annunciator 222 D-5 is alarming at panel 20C204C.

STEP NO	STEP	ACT	STANDARD
6	Verify MO-2-23-014, "Supply" valve is open. (Cue: MO-14 red light is on, green light is off, HPCI discharge pressure and speed rise.)	P	MO-2-23-14 red light verified ON, HPCI discharge pressure (PI-2-23-109) and HPCI speed (SPI-4505) rising at panel 20C004B.
*7	Open MO-2-23-019, "To Feed Line" valve. (Cue: Acknowledge control switch operation.)	P	MO-2-23-019 control switch is momentarily placed in the OPEN position at panel 20C004B.
8	Verify MO-2-23-019, "To Feed Line" valve is open. (Cue: MO-19 red light is on, green light is off, HPCI flow rise.)	P	MO-2-23-019 red light is verified ON and flow (FI-2-23-108) rising at panel 20C004B.
9	Start the HPCI Gland Seal Condenser Vacuum Pump, 20K002. (Cue: Vac pump red light is on, green light is off.)	P	HPCI Gland Seal Condenser Vacuum Pump control switch is placed in the START position at panel 20C004B.
10	Verify pump flowrate of 5000 gpm. (Cue: FI-2-23-108 indicates 5000 gpm.)	P	A HPCI flowrate of approximately 5000 gpm is verified on FI-2-23-108 at panel 20C004B.
11	Inform Control Room Supervisor that HPCI was manually started and is injecting into the RPV. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
12	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) <u>AND</u> procedures.	P	Positive control established.

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

I. TERMINATING CUE

When HPCI is injecting into the Reactor vessel at a flow rate of 5000 gpm, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. RPV Level is –25 inches and lowering slowly.

INITIATING CUE

The Control Room Supervisor directs you to initiate the HPCI system using the HPCI Manual Initiation pushbutton and inject to the Reactor vessel at 5000 gpm using RRC 23.1-2, "HPCI System Operation During a Plant Event".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Training	CODE #:	PLOR-083C
COURSE:	Licensed Operator Requalification	REV #::	009
AUTHOR:	M. J. Kelly	TYPIST:	Mda
TITLE:	Reopen The Main Steam Isolation Valves After a GP I Isolation		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

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. 8, "Main Steam Isolation Vale 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 PR-2865 on panel 20C008A. (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" PR-2865 at panel 20C008A.
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" PR-2865 at panel 20C008A.
*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.

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.

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.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR- ???CA
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	PERFORM CORE SPRAY B PUMP CAPACITY TEST FOR IST (Alternate Path – Minimum Flow Valve Fails to Open)		

APPROVALS: _____
Signature / Title Date

_____
Signature / Title Date

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Signature / Title Date

_____
Signature / Title Date

APPROVED FOR USE: _____
Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2090140101 / PLOR-NEW1CA K/A: 209001A4.04

URO: 2.9 SRO: 2.9

TASK DESCRIPTION: Ability to manually operate and/or monitor Core Spray minimal flow valves in the control room

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. None

C. REFERENCES

1. ST-O-014-212-2, Rev. 1, "Core Spray B Pump Capacity Test for IST"

D. TASK STANDARD

1. Satisfactory task completion is indicated when it is recognized that the Core Spray B Pump has no minimum flow protection, the pump is secured, and Core Spray B loop is returned to a normal standby lineup, as specified in the performance steps of ST-O-014-212-2, Section 6.0.

2. Estimated time to complete: 15 minutes <u>Non-Time Critical</u>

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to perform Core Spray 2B pump capacity test for IST 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 is operating at 100% power.

2. An Equipment Operator is standing by in the 2B and 2D Core Spray Pump Rooms.

3. Communications are available between the Control Room, 2B and 2D Core Spray Pump Rooms, B and D Core Spray Pump Triangle Room, and Cable Spreading Room.

4. Core Spray pump 2B oil level is between the minimum and maximum lines on the sightglass.

5. Core Spray pump 2B static pump suction pressure is 6 psig.

6. All data recording will be performed (simulated) by a second operator.

7. 2B Core Spray pump flow (Computer point H056) is displayed on XI-80187E on the C03-04 panel and on XI-80190E at the TRIP Table computer screen.

G. INITIATING CUE

The Control Room Supervisor directs you to perform Core Spray 2B Pump Capacity Test for IST in accordance with ST-O-014-212-2 (provided).

Provide examinee a copy of ST-O-014-212-2 with the following items completed:

- Section 1 of the cover page
- Procedure section 2.0, "Test Equipment"
- Procedure section 3.0, "Prerequisites"

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Complete step 6.1.1 of ST-O-014-212-2 as "Not Applicable"	P	Places "N/A" at step 6.1.1 of ST-O-014-212-2.
2	Verify oil level in the 2B Core Spray pump is between the operating range minimum and maximum lines on sightglass. (Cue: If necessary repeat initial condition that 2B Core Spray pump oil level is between the minimum and maximum lines on the sightglass.)	P	Places initials in "Sat" column of step 6.1.2 of ST-O-014-212-2.
3	Record static pump suction pressure from PI-2-14-036B "2B Core Spray Pump Suction Pressure". (Cue: If necessary repeat initial condition that 2B Core Spray static pump suction pressure is 6 psig.)	P	Documents "6 psig" and places initials in "Sat" column of step 6.1.3 of ST-O-014-212-2.
4	CLOSE MO-2-14-011B "Core Spray Outboard Disch". (Cue: Acknowledge control switch operation)	P	MO-2-14-011B control switch is momentarily placed in "CLOSE" at Panel 20C003.
5	VERIFY CLOSED MO-2-14-011B "Core Spray Outboard Disch". (Cue: MO-2-14-011B green light is ON; red light is OFF.)	P	Verifies that MO-2-14-011B green light is ON; red light is OFF at Panel 20C003.
	****** NOTE: ****** **If this JPM is being performed in parallel with another JPM, direct candidate <u>NOT</u> to make the plant page announcement prior to starting 2B Core Spray pump.**		
*6	START 2BP037 "Core Spray B Pump". (Cue: Acknowledge control switch operation.)	P	"Starting 2B Core Spray pump" is announced on plant page prior to starting Core Spray pump 2B. 2B Core Spray pump control switch is momentarily placed in the "START" position at Panel 20C003.

STEP NO	STEP	ACT	STANDARD
7	VERIFY Core Spray 2B Pump STARTS and is RUNNING by observing motor current on 14A-M1B and discharge pressure on PI-2-14-048B "Core Spray Disch P". (Cue: Ammeter 14A-M1B indicates 40 amps, PI-2-14-048B indicates 350 psig.)	P	2B Core Spray pump green light is verified OFF, red light is verified ON. Pump motor amps on ammeter 14A-M1B and discharge pressure on PI-2-14-048B are verified rising at Panel 20C003.
8	VERIFY MO-2-14-005B "Core Spray B Min Flow" automatically OPENS. (Cue: MO-2-14-005B green light is OFF; red light is ON.)	P	MO-2-14-005B green light is verified OFF; red light is verified ON at Panel 20C003.
9	VERIFY 2DP037 "Core Spray D Pump" is NOT rotating. (Cue: When requested, report that the Core Spray D Pump is NOT rotating.)	P	Directs Equipment Operator to verify Core Spray D Pump is NOT rotating.
*10	OPEN MO-2-14-026B "Core Spray Full Flow Test". (Cue: Acknowledge control switch operation)	P	MO-2-14-026B control switch is momentarily placed in "OPEN" at Panel 20C003.
11	VERIFYOPEN MO-2-14-026B "Core Spray Full Flow Test". (Cue: MO-2-14-026B green light is OFF; red light is ON)	P	MO-2-14-026B green light is verified OFF; red light is verified ON at Panel 20C003.
12	VERIFY MO-2-14-005B "Core Spray B Min Flow" automatically CLOSES. (Cue: MO-2-14-005B green light is ON; red light is OFF.)	P	MO-2-14-005B green light is verified ON; red light is verified OFF at Panel 20C003.

****** NOTE: ******

Time-compress by telling the examinee Core Spray B Pump has been running for 5 minutes.

Remind examinee that a second operator has successfully recorded all full flow test data on Data Sheet 1.

STEP NO	STEP	ACT	STANDARD
*13	THROTTLE MO-2-14-026B "Core Spray Full Flow Test" to obtain Rated Flow of 3125 to 3175 gpm as read on computer point H056. (Cue: Acknowledge control switch and red pushbutton operation. MO-2-14-026B green light is ON; red light is OFF. Computer point H056 indicates 0 gpm.)	P	MO-2-14-026B control switch is momentarily placed in "CLOSE" at Panel 20C003. Red pushbutton is depressed to stop valve stroke. Valve control switch and red pushbutton are operated as necessary to achieve 3125 to 3175 gpm as read on PMS computer point H056. Recognizes that the MO-2-14-026B has ramped close unexpectedly and that the green closed light is ON and that the red open light is verified OFF at Panel 20C003. Report to the CRS that the MO-2-14-026B full flow test valve for the 2B Core Spray Pump has failed to properly operate
14	VERIFY MO-2-14-005B "Core Spray B Min Flow" automatically OPENS. (Cue: MO-2-14-005B green light is ON; red light is OFF.)	P	Recognizes that the MO-2-14-005B green light is ON; red light is OFF at Panel 20C003. The Min. Flow Valve has not automatically opened. Report to the CRS that the minimum flow valve for the 2B Core Spray Pump has failed to properly operate.
*15	SHUTDOWN 2BP037 "Core Spray B Pump". (Cue: Acknowledge control switch operation. Core Spray B Pump green light is ON; red light is OFF. Pump motor amps and pump discharge pressure are zero.)	P	2B Core Spray pump control switch is momentarily placed in the "STOP" position at Panel 20C003. 2B Core Spray pump green light is verified ON, red light is verified OFF. Pump motor amps on ammeter 14A-M1B and discharge pressure on PI-2-14-048B are verified at zero at Panel 20C003.

**** NOTE: ****

As the Control room Supervisor, direct that the 2B Core Spray loop be returned to a normal lineup.

STEP NO	STEP	ACT	STANDARD
16	Open MO-2-14-011B "Core Spray Outboard Disch". (Cue: Acknowledge control switch operation)	P	MO-2-14-011B control switch is momentarily placed in "OPEN" at Panel 20C003.
17	VERIFY OPEN MO-2-14-011B "Core Spray Outboard Disch". (Cue: MO-2-14-011B green light is OFF; red light is ON)	P	MO-2-14-011B green light is verified OFF; red light is verified ON at Panel 20C003.
18	Inform Control Room Supervisor of task completion.	P	Control Room Supervisor notified MO-2-14-026B malfunction and test being aborted.
19	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 it is recognized that the Core Spray B Pump has no minimum flow protection, the pump is secured, and Core Spray B loop is returned to a normal standby lineup, as specified in the performance steps of ST-O-014-212-2, Section 6.0, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. The plant is operating at 100% power.

2. An Equipment Operator is standing by in the 2B and 2D Core Spray Pump Rooms.

3. Communications are available between the Control Room, 2B and 2D Core Spray Pump Rooms, B and D Core Spray Pump Triangle Room, and Cable Spreading Room.

4. Core Spray pump 2B oil level is between the minimum and maximum lines on the sightglass.

5. Core Spray pump 2B static pump suction pressure is 6 psig.

6. All data recording will be performed (simulated) by a second operator.

7. 2B Core Spray pump flow (Computer point H056) is displayed on XI-80187E on the C03-04 panel and on XI-80190E at the TRIP Table computer screen.

INITIATING CUE

The Control Room Supervisor directs you to perform Core Spray 2B pump capacity test for IST in accordance with ST-O-014-212-2 (provided).

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-024C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #::	008
AUTHOR:	M. J. Kelly	TYPIST:	vmb
TITLE:	PERFORM A GROUP I PCIS ISOLATION RESET (GP-8A)		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness: _____ Signature/Date	PIMS CODE:	
	PIMS ENTRY:	

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. 10, "PCIS Isolation - Group I"

2. C.O.L. GP-8.A, Rev. 8, "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. CAV (Crack Arrest Verification) System is not in operation.

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

7. There is no indication of fuel damage.

8. 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.

**** NOTE****

The C.O.L. steps for AO-2256 "Condenser Offgas to Mechanical Vacuum Pump (MVP)" and the MVP are not required to be performed and can be marked as N/A.

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.

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. CAV (Crack Arrest Verification) System is <u>not</u> in operation.

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

7. There is no indication of fuel damage.

8. There is no evidence of a steam leak.

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".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-031C
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #::	011
AUTHOR:	M. J. Kelly	TYPIST:	mda
TITLE:	EXCITING THE MAIN GENERATOR		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

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. 11, "Main Generator Synchronizing and Loading" (R)

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: 10 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. The Power System Director has been notified.

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 4.1 through 4.8 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.	P	A copy of SO 50.1.A-2 is obtained.
2	Verify "GENERATOR INSULATION OVER HEATING" annunciator is clear. (Cue: Annunciator 206 L-2 is not lit.)	P	"GENERATOR INSULATION OVER HEATING" annunciator is verified clear on alarm panel 206 L-2.
3	Verify the "Load Selector" pushbutton is selected to REMOTE/AUTO. (Cue: Load Selector REMOTE/AUTO light is on.)	P	Load Selector REMOTE/AUTO light is verified ON at panel 20C008A.
4	Verify "Reg/Transfer" switch 43-0601 in MANUAL. (Cue: "Reg/Transfer" switch is in manual, green light is on, red light is off.)	P	Regulator Transfer switch 43-0601 is verified in the MANUAL position at panel 2OC009.
5	Verify the Manual DC Volt Regulator 70-0601 set at minimum. (Cue: Manual DC Volt Regulator green and amber lights are on, red light is off.)	P	Manual DC Voltage Regulator 70-0601 green and amber lights are verified ON at Panel 20C009.
6	Direct an Equipment Operator to periodically monitor machine gas pressure on PI-4356. (Cue: Equipment Operator reports PI-4356 indicates 75 psig.)	P	Equipment Operator is directed to periodically monitor machine gas pressure on PI-4356.
*7	Close the "Alt Exc Fld Bkr" 41-0601. (Cue: Acknowledge control switch operation, Alt Exciter Field Breaker red light is on, green light is off.)	P	Alterrex Exciter Field Breaker control switch 41-0601 is momentarily placed in the CLOSE position at panel 2OC009.
8	Verify Field Volts, Amps and Generator Volts rise and red deexcitation backup light lit. (Cue: FIELD voltmeter indicates 100 volts, FIELD ammeter indicates 1400 amps, GENERATOR voltmeter indicates 17 kilovolts; DEEXCITATION backup red light is on, green light is off.)	P	FIELD AMPS and VOLTS and GENERATOR VOLTS are verified to RISE and DEEXCITATION backup red light is verified ON and green light OFF at panel 2OC009.

STEP NO	STEP	ACT	STANDARD
*9	Adjust GENERATOR output voltage to obtain 21.5 - 22.5 KV using MAN. DC VOLT REGULATOR 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 20.9 and 23.1 KV at panel 20C009.
10	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.
*11	Adjust the "Auto Voltage Reg Rheostat"(90P) to obtain a "Reg Man/Auto Deviation" voltage of Ø VDC. (Cue: Acknowledge CLOCKWISE Rheostat operation.)	P	Auto Voltage Reg Rheostat 90P is adjusted to obtain a reading within 2 volts of Ø on the Reg Man/Auto Deviation meter at panel 20C009.
12	Verify "Reg Man/Auto Deviation voltage is Ø VDC. (Cue: Reg Man/Auto Deviation meter indicates Ø VDC.)	P	Reg Man/Auto Deviation voltage is verified to be Ø VDC on the Reg Man/Auto Deviation voltmeter at panel 2OC009.
13	Verify "GEN VOLT REG AUTO TO MAN UNBALANCED" annunciator is clear. (Cue: Annunciator 220 C-3 is not lit.)	P	"GEN VOLT REG AUTO TO MAN UNBALANCED" annunciator is verified clear on alarm panel 220 C-3.
*14	Place the "Reg/Transfer" switch 43-0601 in "AUTO". (Cue: Acknowledge control switch operation.)	P	Reg/Transfer switch 43-0601 is placed in the AUTO position at panel 20C009.
15	Verify the "Reg/Transfer" lights indicate auto regulation. (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.
16	Inform the Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
17	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) <u>AND</u> 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.

TASK CONDITIONS/PREREQUISITES

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

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

3. **The Power System Director has been notified.**

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 4.1 through 4.8 of SO 50.1.A-2, "Main Generator Synchronization and Loading."

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Training	CODE #:	PLOR-004C
COURSE:	Licensed Operator Requalification	REV #::	011
AUTHOR:	J.R. Felice	TYPIST:	Jrf
TITLE:	Scram Reset		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2120090101 / PLOR-004C K/A: 212000A4.14

RO: 3.8 SRO: 3 8

TASK DESCRIPTION: SCRAM RESET

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

Key for Scram Discharge Volume High Level Bypass Switch.

C. REFERENCES

GP-11.E, Rev. 21, "Reactor Protection System - Scram and ARI Reset"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Reactor Protection System is reset and the Scram Discharge Volume Vent and Drain valves are open.

2. Estimated time to complete: 19 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to reset a scram and begin draining the Scram Discharge Volume 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 Main Turbine trip has caused a reactor scram.

2. Plant conditions have stabilized with RPV level at 23 inches.

3. RPV pressure is being maintained below 1050 psig with Bypass Valves.

4. T-100, "Scram" is complete.

5. All scram valves are open. All SDV Vent and Drain valves are shut.

6. A CRD pump is operating.

7. Both RPS buses are energized.

8. The Reactor Mode switch is in "SHUTDOWN".

9. ARI was NOT initiated.

10. No fuel damage is suspected.

G. INITIATING CUE

The Control Room Supervisor directs you to reset the scram in accordance with GP-11.E, "Reactor Protection System - Scram and ARI Reset" and begin draining the Scram Discharge Volume.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of GP-11.E, "Reactor Protection System - Scram and ARI Reset".	P	A copy of GP-11.E, "Reactor Protection System - Scram and ARI Reset" is obtained.
****** NOTE: ****** **Due to initial conditions, the examinee will begin at procedure step 3.6**			
2	Verify scram initiating signal clear or bypassed. (Cue: Annunciator 210 A-2 is lit.)	P	"TURBINE STOP VLV. CLOSURE AND CONTROL VLV. FAST CLOSURE SCRAM BYPASS" annunciator is verified lit on alarm panel 210 A-2.
*3	Place Scram Discharge Volume High Water Level Bypass Keylock Switch to "BYPASS". (Cue: Annunciator C-2 on alarm panel 210 is alarming.)	P	Key is obtained from CRS keybox, inserted into the Scram Discharge Volume High Water Level Bypass Keylock Switch 5A-S8 and placed in the "BYPASS" position at panel 20C005A.
4	Acknowledge the "SCRAM DISCHARGE VOLUME HI WATER LEVEL SCRAM BYPASS" annunciator. (Cue: Annunciator 210 C-2 is lit solid.)	P	The annunciator "ACKNOWLEDGE" pushbutton is depressed on panel 20C005A.
5	Prior to resetting a full scram, notify Radiation Protection. (Cue: Evaluator responds as Rad. Protection management and acknowledges notification.	P	Contacts Rad. Protection personnel via radio, phone, or plant page.
*6	Place Scram Reset switch in Group 1 and 4 position then Group 2 and 3 position. (Cue: Acknowledge reset switch operation.)	P	Scram Reset switch 5A-S9 is taken to the "GROUP 1 & 4", and then "GROUP 2 & 3" positions at panel 20C005A.
7	Verify the four scram group white lights are lit on both the RPS cabinets. (Cue: All of the scram group white lights are lit on both 20C015 and 20C017.)	P	All scram group white lights verified LIT on panels 20C015 and 20C017.

STEP NO	STEP	ACT	STANDARD
8	Verify: "A CHANNEL AUTO SCRAM" and "B CHANNEL AUTO SCRAM" and "A CHANNEL REACTOR MANUAL SCRAM" and "B CHANNEL REACTOR MANUAL SCRAM" annunciators are clear. (Cue: Annunciators 211 B-1, 211 C-1, 211 D-1, and 211 E-1 are not lit.)	P	"A CHANNEL REACTOR AUTO SCRAM" "B CHANNEL REACTOR AUTO SCRAM" "A CHANNEL REACTOR MANUAL SCRAM" "B CHANNEL REACTOR MANUAL SCRAM" annunciators are verified clear on alarm panels 211 B-1, 211 C-1, 211 D-1 and 211 E-1.
9	Monitor Scram Air header pressure. (Cue: PI-2-3-312 indicated 73 psig.)	P	Scram air header pressure is verified to be approximately 70 psig on PI-2-3-312 on panel 20C205R.
10	Verify "SCRAM VALVE PILOT AIR HEADER PRESS HI-LOW" annunciator is clear. (Cue: Annunciator 211 D-2 is not lit.)	P	"SCRAM VALVE PILOT AIR HEADER PRESS HI-LOW" annunciator is verified clear on alarm panel 211 D-2.
11	Verify blue scram lights are off. (Cue: All of the blue scram lights are off on the Full Core Display.)	P	All blue scram lights are verified OFF on the Full Core Display.
12	Verify "ACCUMULATOR TROUBLE" lights are clear. **(Cue: All of the "ACCUMULATOR TROUBLE" lights are clear on the Full Core Display.)**	P	All "ACCUMULATOR TROUBLE" lights are verified clear on the Full Core Display.
13	Verify "CRD ACCUMULATOR LO PRESS HI LEVEL" annunciator is clear. **(Cue: Annunciator 211 E-2 is not lit.)**	P	"CRD ACCUMULATOR LO PRESS HI LEVEL" annunciator is verified clear on alarm panel 211 E-2.
	**** NOTE **** Step 14 will take approximately 5 minutes to complete.		

STEP NO	STEP	ACT	STANDARD
14	Verify CRD System Cooling Water flow is 55 - 65 gpm. **(Cue: FI-2-03-306 indicates 60 gpm.)**	P	CRD System Cooling Water flow is verified to be 55 - 65 gpm on FI-2-03-306 on panel 20C005A.
15	Place the Rod Drift Alarm Reset switch to the "Reset" position. (Cue: Acknowledge reset switch operation.)	P	Rod Drift Alarm Reset switch 3A-S7 is momentarily placed to the "RESET" position and then released at panel 20C005A.
16	Verify the rod drift alarm lights are clear. (Cue: All of the rod drift alarm lights are clear on the full core display.)	P	All of the rod drift alarm lights are verified clear on the Full Core Display.
17	Verify "ROD DRIFT" annunciator is clear. (Cue: Annunciator 211 D-4 is not lit.)	P	"ROD DRIFT" annunciator is verified clear on alarm panel 211 D-4.
*18	Place SDV Inboard Vent and Drain Valves Switch, 5A-S14A, in "OPEN". (Cue: Acknowledge control switch operation.)	P	The SDV Inboard Vent and Drain Valve control switch 5A-S14A is momentarily placed in the "OPEN" position and then released at panel 20C005A.
19	Verify the SDV Inboard Vent and Drain Valves indicate open. (Cue: SDV Inboard Vent and Drain Valves red lights are on, green lights are off.)	P	SDV Inboard Vent and Drain Valves red lights are verified ON at panels 20C005A and 20C003-1.
*20	Place SDV Outboard Vent and Drain Valves Switch, 5A-S14B, in "OPEN". (Cue: Acknowledge control switch operation.)	P	The SDV Outboard Vent and Drain Valve control switch 5A-S14B is momentarily placed in the "OPEN" position and then released at panel 20C005A.
21	Verify the SDV Outboard Vent and Drain Valves indicate open. (Cue: SDV Outboard Vent and Drain Valves red lights are on, green lights are off.)	P	SDV Outboard Vent and Drain Valves red lights are verified ON at panel 20C005A and 20C003-1.

STEP NO	STEP	ACT	STANDARD
22	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
23	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 the scram is reset and the Scram Discharge Volume Vents and Drains are open, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. A Main Turbine trip has caused a reactor scram.

2. Plant conditions have stabilized with RPV level at 23 inches.

3. RPV pressure is being maintained below 1050 psig with Bypass Valves.

4. T-100, "Scram" is complete.

5. All scram valves are open. All SDV Vent and Drain valves are shut.

6. A CRD pump is operating.

7. Both RPS buses are energized.

8. The Reactor Mode switch is in "SHUTDOWN".

9. ARI was <u>NOT</u> initiated.

10. No fuel damage is suspected.

INITIATING CUE

The Control Room Supervisor directs you to reset the scram in accordance with GP-11.E, "Reactor Protection System - Scram and ARI Reset" and <u>begin</u> draining the Scram Discharge Volume.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-NEW
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #::	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	VERIFY ISOLATION OF DRYWELL CHILLED WATER AND RBCCW		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE: PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2130220401/ PLOR-NEW K/A: 295024EA1.07

URO: 3.8 SRO: 3 9

TASK DESCRIPTION: Verify Isolation of Drywell Chilled Water and RBCCW

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

GP-8.B, Rev. 18, "PCIS Isolation - Groups II and III" (R)

D. TASK STANDARD

1. Satisfactory task completion is indicated when the RBCCW to Drywell isolation valves MO-2373 and MO-2374 are closed AND both Recirculation Pumps are tripped.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps of GP 8.B "PCIS Isolation - Groups II and III". I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES

1. The Reactor has just been scrammed.

3. DWCW Return Header pressure as read on PI-20262 is 32 psig.

4. Drywell pressure is approximately 24 psig.

G. INITIATING CUE

The Control Room Supervisor directs you, the Plant Reactor Operator, to perform step 3.5 of GP-8.B, "PCIS Isolation - Groups II and III".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure GP-8.B.	P	A copy of procedure GP-8.B is obtained.
*2	Calculate corrected RBCCW pressure (CRP) by taking indicated RBCCW pressure on PI-2350 - 25 psig. (Cue: PI-2350 is indicating 40 psig.)	P	Indicated RBCCW pressure is checked, then 25 psig is subtracted to determine a CRP of approximately 15 psig.
3	Verify MO-20245 AND MO-20246 aligned in the "CHILLED WATER" position. (Cue: MO-20245 AND MO-20246 red "CHILLED WATER" lights are lit. MO-20245 AND MO-20246 red "RX BLDG CLG WATER" lights are out.)	P	MO-20245 AND MO-20246 red "CHILLED WATER" lights are lit. MO-20245 AND MO-20246 red "RX BLDG CLG WATER" lights are out at Panel 20C005A.
4	Compare Drywell pressure to DWCW Return Header pressure. (Cue: Comparison acknowledged)	P	Recognize that DWCW Return Header pressure is greater than Drywell pressure and DWCW isolation is not required and not performed.
*5	Compare Drywell pressure to Corrected RBCCW Pressure (CRP) to determine which pressure is greater. (Cue: PR-2508 indicates 24 psig.)	P	Corrected RBCCW Pressure (CRP) is determined to be less than PR-2508 or PR-4805 or PR-8102A(B) at panels 20C003/ 20C004C.
*6	Trip <u>BOTH</u> Recirc pumps. (Cue: Both Recirc pumps breaker green lights are on and red lights are off. Annunciators 214 C-3 and H-3 are lit.)	P	The control switches for the Drive Motor Breakers on both A and B Recirc "DRIVE MOTOR" breakers are placed in TRIP at panel 20C004A.
7	Verify <u>BOTH</u> Recirc pumps are tripped. (Cue: Both Recirc pumps breaker green lights are on and red lights are off.)	P	A and B Recirc "DRIVE MOTOR" breaker green lights are verified to be ON at panel 20C004A.
	****** NOTE: ****** **Steps 8 and 10 can be performed in parallel.**		
*8	Close MO-2373, RBCCW Isolation valve. (Cue: Acknowledge control switch operation.)	P	MO-2373 control switch is momentarily placed in the "CLOSE" position at panel 20C012.

STEP NO	STEP	ACT	STANDARD
9	Verify the MO-2373, the RBCCW Isolation valve is closed. (Cue: MO-2373 green light is on, red light is off.)	P	MO-2373 green light is verified ON and red light is verified OFF at panel 20C012.
*10	Close MO-2374, the RBCCW Isolation valve. (Cue: Acknowledge control switch operation.)	P	MO-2374 control switch is momentarily placed in the "CLOSE" position at panel 20C012.
11	Verify the MO-2374, the RBCCW Isolation valve is closed. (Cue: MO-2374 green light is on, red light is off.)	P	MO-2374 green light is verified ON and red light is verified OFF at panel 20C012.
12	Inform Control Room Supervisor of task completion. (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported.
13	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 step 3.5 of GP-8.B has been completed, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. The Reactor has just been scrammed.

2. DWCW Return Header pressure as read on PI-20262 is 32 psig.

3. Drywell pressure is 24 psig.

INITIATING CUE

The Control Room Supervisor directs you, the Plant Reactor Operator, to perform step 3.5 of GP-8.B, "PCIS Isolation - Groups II and III".

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	LICENSED OPERATOR TRAINING	CODE #:	PLOR-074P
COURSE:	LICENSED OPERATOR REQUALIFICATION	REV #::	014
AUTHOR:	M. J. Kelly	TYPIST:	mda
TITLE:	ISOLATING AND VENTING SCRAM AIR HEADER - UNIT 3 (T-214-3)		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	

Training Review for Completeness:	PIMS CODE:	
_____ Signature/Date	PIMS ENTRY:	

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2003810599 / PLOR-074P K/A: 295037EA1.03

RO: 4.1 SRO: 4.1

TASK DESCRIPTION: ISOLATING AND VENTING SCRAM AIR HEADER - UNIT 3 (T-214-3)

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. EOP Locker Key (BL 7397)

2. Copy of procedure T-214-3 "Isolating and Venting the Scram Air Header"

C. REFERENCES

Procedure T-214-3, Rev. 7, "Isolating and Venting the Scram Air Header"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Unit 3 scram air header has been isolated and vented.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to isolate and vent the Unit 3 scram air header 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. Control Rods did NOT insert on a scram condition.

2. Blue scram lights on the Full Core Display are NOT lit.

3. Scram air header PI-3-03-312 on panel 30C124 reads 70 psig.

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator to perform T-214-3, "Isolating and Venting the Scram Air Header" on Unit 3.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
*1	Obtain the key for the Emergency Operating Procedure Tool Locker. (Cue: When the examinee identifies any of the standards to the right for obtaining the EOP Tool Locker key (BL 7397), hand out the Tool Locker Key obtained from the Training Dept.)	S	Examinee identifies that obtaining the Emergency Operating Procedure Tool Locker Key (BL 7397) can be accomplished by: • recognizing that the key is carried by all Equipment Operators, or • requesting key from WECS, or • identifying the location of the WECS keybox and its associated key.
*2	Open Emergency Operating Procedure Tool Locker and obtain T-214 Tool Kit. (Cue: Equipment obtained.)	P	Tool Locker located on Radwaste Building El. 165' is unlocked, opened and T-214 Tool Kit 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 tools to be removed from the locker. Relock the locker before leaving the area.**		
*3	Close HV-3-3-123, Instr Air Header Block Vlv to Scram Pilot Valve Header. (Cue: Valve handwheel is turned [CLOCKWISE] until stem length above valve yoke lowers 1 inch then handwheel will not turn.)	S	HV-3-3-123 handwheel is turned CLOCKWISE until resistance of valve seat is felt. (Located on RB Unit 3 135', CRD Valve Nest.)
4	Verify closed IDV-3-3-312, PS-3-03-230 + PS-3-03-229 Instrument Drain Valve. (Cue: [CLOCKWISE] Valve handwheel did not move and stem length above valve yoke did not move.)	S	IDV-3-3-312 handwheel movement is attempted in the CLOCKWISE direction.
*5	Remove the cap from IDV-3-3-312. (Cue: Pipe cap is turned [COUNTERCLOCKWISE] until cap is removed.)	S	Pipewrench from Tool Kit is placed on IDV-3-3-312 pipe cap and is turned COUNTERCLOCKWISE until pipe cap is removed from pipe.
*6	Open IDV-3-3-312. (Cue: Valve is turned [COUNTER-CLOCKWISE] until stem length above valve yoke raises ¼ inch then will not turn, flow noise can be heard as valve is opened.	S	IDV-3-3-312 is turned COUNTER-CLOCKWISE until resistance of valve backseat is felt.

STEP NO	STEP	ACT	STANDARD
7	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.
8	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 the Unit 3 scram air header has been isolated and vented, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Control Rods did NOT insert on a scram condition.

2. Blue scram lights on the Full Core Display are NOT lit.

3. Scram air header PI-3-03-312 on panel 30C124 reads 70 psig.

INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator to perform T-214-3, "Isolating and Venting the Scram Air Header" on Unit 3.

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Training	CODE #:	PLOR-000C
COURSE:	Licensed Operator Requalification	REV #:	000
AUTHOR:	M. J. Kelly	TYPIST:	mjk
TITLE:	Defeat of RCIC Torus Suction Valve Auto Open Signal		

APPROVALS:

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2170280401 / PLOR-000C K/A: 217000A2.04

URO: 3.0 SRO: 3.0

TASK DESCRIPTION: Defeat of RCIC Torus Suction Valve Auto Open Signal

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. Two (2) electrical boots for HFA relay contacts (can be simulated)
2. Two blank Equipment Status tags (can be simulated)

C. REFERENCES

1. AO 13.3-2, Rev. 1, "RCIC Torus Suction Valves, Defeat of Auto Open Signal"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Unit 2 RCIC Torus suction valve auto open signal has been defeated.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to defeat the Unit 2 RCIC Torus suction valve auto open signal 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. Shift Management has given permission to perform this task.

2. The Unit 2 Reactor Operator has given permission to perform this task.

3. Annunciator 222 (A-5) LOGIC POWER BUS LOST is in alarm.

4. Shift Management has changed AO 13.3-2, Attachment 1 steps 4.1.3 and 4.1.4, from required double verification (DV) to concurrent verification (CV).

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to defeat the auto open signal to MO-2-13-39 and MO-2-13-41, RCIC Torus suction valves, by performing steps 4.1.3 through 4.1.6 of AO 13.3-2, "RCIC Torus Suction Valves, Defeat of Auto Open Signal".

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure AO 13.3-2, RCIC Torus Suction Valves, Defeat of Auto Open Signal. (Cue: When the Examinee requests the in-progress copy of AO 13.3-2 OR identifies how to obtain a controlled copy of the procedure, provide a hardcopy of procedure AO 13.3-2, RCIC Torus Suction Valves, Defeat of Auto Open Signal with Attachment 1 steps 4.1.1 and 4.1.2, for Shift Management and URO signoffs, already filled in AND steps 4.1.1 and 4.1.2 checked complete).	P	A copy procedure AO 13.3-2, RCIC Torus Suction Valves, Defeat of Auto Open Signal is obtained.
2	Obtain two electrical HFA relay contact boots and two blank Equipment Status tags (can be simulated). (Cue: two electrical relay contact boots AND two blank Equipment Status tags are obtained).	S or P	The Examinee obtains two electrical relay contact boots and two Equipment Status tags from the Main Control Room area or an alternate area such as an equipment cage or I&C instrument cage.
	******NOTE****** **Prior to booting the contacts in the next steps the examinee may have to open the back of Panel 20C034 in order to verify the appropriate relay contact locations.**		
*3	Boot contacts 1-2 of relay 13A-K55. (Cue: Contacts 1-2 of relay 13A-K55 are booted)	S	In the Cable Spreading Room, panel 20C034, the cover of relay 13A-K55 is removed. A single electrical boot is slid over contacts 1-2 (first relay finger from the right).
4	Signoff Attachment 1 step 4.1.3. (Cue: AO 13.3-2 Attachment 1 step 4.1.3 is signed off on the "Initial" line)	P	AO 13.3-2 Attachment 1 step 4.1.3 is signed off on the "Initial" line.
5	Attach an Equipment Status tag to the boot on contacts 1-2 of relay 13A-K55. (Cue: Equipment Status tag is attached to boot on contacts 1-2 of relay 13A-K55).	S	Equipment Status tag with string is placed on boot of contacts 1-2 of relay 13A-K55.

*6	Boot contacts 3-4 of relay 13A-K55. (Cue: Contacts 3-4 of relay 13A-K55 are booted)	S	A single electrical boot is slid over contacts 3-4(second relay finger from the right).
7	Signoff Attachment 1 step 4.1.4. (Cue: AO 13.3-2 Attachment 1 step 4.1.4 is signed off on the "Initial" line)	P	AO 13.3-2 Attachment 1 step 4.1.4 is signed off on the "Initial" line
8	Attach an Equipment Status tag to the boot on contacts 3-4 of relay 13A-K55.	S	Equipment Status tag with string is placed on boot of contacts 3-4 of relay 13A-K55.
9	Inform Control Room Supervisor of task completion.	P	Task completion reported using either the telephone or the plant page system.
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 Attachment 1 of AO 13.3-2 has been completed, the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Shift Management has given permission to perform this task.

2. The Unit 2 Reactor Operator has given permission to perform this task.

3. Annunciator 222 (A-5) LOGIC POWER BUS LOST is in alarm.

4. Shift Management has changed AO 13.3-2, Attachment 1 steps 4.1.3 and 4.1.4, from required double verification (DV) to concurrent verification (CV).

INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to defeat the auto open signal to MO-2-13-39 and MO-2-13-41, RCIC Torus suction valves, by performing steps 4.1.3 through 4.1.6 of AO 13.3-2, "RCIC Torus Suction Valves, Defeat of Auto Open Signal"

EXELON NUCLEAR
Nuclear Generation Group

OJT/TPE MATERIAL COVERSHEET

X	Peach Bottom		Limerick		Common

TYPE:	X JPM	QUALIFICATION MANUAL	OJT MODULE
PROGRAM:	Licensed Operator Training	CODE #:	PLOR-NEWPA
COURSE:	Licensed Operator Requalification	REV #::	001
AUTHOR:	M J. Kelly	TYPIST:	Mjk
TITLE:	Drywell Chilled Water Low Level (Alternate Path - Manual Makeup to Drywell Chilled Water System)		

APPROVALS: _____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

_____ Signature / Title Date

APPROVED FOR USE: _____ Signature / Title Date

EFFECTIVE DATE: _____/_____/_____

NAME: _____ Last First M.I.	ISSUE DATE: _____
SOC. SEC. NO. _____	COMPLETION DATE: _____
COMMENTS:	
Training Review for Completeness: _____ Signature/Date	PIMS CODE:
	PIMS ENTRY:

EXELON NUCLEAR
PEACH BOTTOM ATOMIC POWER STATION
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2200020401 / PLOR-NEWPA K/A: 295028EA1.03

URO: 3.9 SRO: 3.9

TASK DESCRIPTION: Take Actions For Drywell Chilled Water Low Level

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. ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL

C. REFERENCES

1. ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL, Rev. 3

2. T-223 "Drywell Cooler Fan Bypass"

D. TASK STANDARD

1. Satisfactory task completion is indicated when the drywell chilled water system has been restored to normal presuure.

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

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to restore the drywell chilled water system to normal pressure. 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 was manually scrammed due to rising drywell pressure.

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to perform Operator Action #3 of ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL until the annunciator is reset.

H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL. (Cue: Hand the Examinee a copy of ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL)	P	A copy of procedure ARC 217 H-5 is obtained.
2	Check drywell chilled water expansion tank pressure at PI-20265 "Chilled Water Expansion Tank". (Cue: PI-20265 "Chilled Water Expansion Tank" is indicating 20 psig)	P	Verify Drywell Chilled Water Expansion Tank 20T036 pressure reading on PI-20265, which is located on Turbine Building 165' elevation near the drywell chillers.
*3	Verify SV-20265 is OPEN. (Cue: SV-20265 is cold to the touch, there is no humming noise, and there is no flow noise. PI-20265 "Chilled Water Expansion Tank" is indicating 20 psig and is steady.)	P	Locate SV-20265 "Solenoid Operated Makeup to Chilled Water System". Attempt to verify that SV-20265 is energized by listening for humming noise, feeling that the SV is warm to the touch, and listening for system flow.
******NOTE****** **During the performance of the following steps, if the examinee performs a system leak search, cue that no leaks were identified.**			
*4	OPEN HV-2-44A-23539 "Demineralized Water Makeup Bypass To Chilled Water System". (Cue: The lock and chain have been removed. HV-2-44A-23539 has been turned in the fully counter-clockwise direction and will no longer turn. System flow noise is heard.)	S	Obtain a locked valve key (every Equipment Operator in a posted position has a locked valve key). Unlock the lock on the valve and remove the chain. Turn HV-2-44A-23539 in the counter-clockwise direction until the valve handle no longer turns.
5	Verify Drywell Chilled Water System pressure is 28 to 40 psig. (Cue: PI-20265 is indicating 30 psig and rising)	P	Locate PI-20265 for Drywell Chilled Water Expansion Tank 20T036 located on Turbine Building 165' elevation near the drywell chillers. Verify PI-20265 is reading 28 psig to 40 psig.

*6	CLOSE HV-2-44A-23539 "Demineralized Water Makeup Bypass To Chilled Water System". (Cue: HV-2-44A-23539 has been turned in the fully clockwise direction and will no longer turn. System flow noise has stopped. PI-20265 is indicating 35 psig and steady.)	S	Turn HV-2-44A-23539 in the clockwise direction until the valve handle no longer turns. Verify system pressure on PI-20265 for Drywell Chilled Water Expansion Tank 20T036
7	LOCK HV-2-44A-23539 "Demineralized Water Makeup Bypass To Chilled Water System". (Cue: The lock and chain have been reinstalled.)	S	Reinstall the lock and chain on the valve.
8	Contact main control room and ask if annunciator 217 H-5 DRYWELL CHILLED WATER LO LEVEL is reset. (Cue: Annunciator 217 H-5 DRYWELL CHILLED WATER LO LEVEL is reset.)	S	Request using hand held radio, plant page system, or telephone.
9	Inform Control Room of task completion. (Cue: Control Room acknowledges report.)	S	Task completion reported using hand held radio, plant page system, or telephone.
10	As an evaluator ensure you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) <u>AND</u> procedures	P	Positive control established.

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

I. TERMINATING CUE

When HV-2-44A-23539 has been closed after restoring the Drywell Chilled Water System to normal pressure, and the Control Room reports that Annunciator 217 H-5 is reset, the evaluator will then terminate the exercise.

TASK CONDITIONS/PREREQUISITES

1. Unit 2 was manually scrammed due to rising drywell pressure.

INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to perform Operator Action #3 of ARC 217 H-5 DRYWELL CHILLED WATER LO LEVEL until the annunciator is reset.

Scenario Outline

Simulation Facility Peach Bottom **Scenario No.** #1 (modified) **Op Test No.** 2008 NRC

Examiners _____ **Operators** _____ CRS (SRO)

_____ _____ URO (ATC)

_____ _____ PRO (BOP)

Scenario Summary

The scenario begins with a plant startup in progress at approximately 5% power following a refueling outage. During shift turnover, the crew is directed to swap CRD pumps due to a noisy bearing on the 'A' pump. Following the CRD pump swap, the 'B' drywell chiller trips, requiring the crew to place a standby drywell chiller in service in accordance with the system operating procedure.

Next, a loss of MCC E224-R-B results in a loss of the 'B' RPS MG set, a half scram and PCIS outboard Group II isolation. The crew will investigate, transfer RPS to the alternate supply and reset the half scram and PCIS isolation. Following the Tech Spec evaluation, startup level controller LCV-8091 will fail open, requiring the crew to manually restore and control RPV water level in accordance with OT-110 "Reactor High Level". This event is further complicated by an inadvertent RCIC initiation, requiring entry into OT-104 "Positive Reactivity Insertion" and manual shutdown of RCIC.

Following this, an EHC failure will cause reactor pressure to rise, requiring entry into OT-102 "Reactor High Pressure". The crew will be unable to reduce reactor pressure. The reactor will fail to automatically scram on high pressure and the crew will be required to insert a manual scram. Shortly after the scram, a leak will develop in the torus, requiring the crew to enter T-103 "Secondary Containment Control" and T-102 "Primary Containment Control". A turbine bypass valve (#1) will fail (remain) open and, due to a failure of the mode switch, will result in MSIVs closing when reactor pressure decreases below 850 psig. As torus level continues to drop, the crew will be required to perform T-112 "Emergency Blowdown".

Initial Conditions IC-71, ~5% power

Turnover See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*		Event Description
1		N	URO CRS	Swap CRD pumps
2		C	PRO CRS	Drywell chiller trip
3		C TS	URO PRO CRS	Loss of MCC E224-R-B resulting in half scram and Group II outboard isolation / transfer RPS power supplies, reset half scram and isolations
4		I	URO CRS	Startup level controller (LCV-8091) failure
5		I TS	PRO CRS	Inadvertent RCIC initiation
6		C	URO CRS	EHC failure causes rising reactor pressure / reactor scram with mode switch failure (manual scram works)
7		M	ALL	Torus leak into secondary containment (torus room) leading to emergency blowdown / turbine bypass valve fails open, causing MSIVs to close (due to failed mode switch)

* **(N)**ormal, **(R)**eactivity, **(I)**nstrument, **(C)**omponent, **(M)**ajor, **(TS)** Tech Spec

SIMULATOR OPERATOR INSTRUCTIONS FOR 2008 NRC SCENARIO #1

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.

SCENARIO SOURCE HISTORY

- This is a modified bank scenario, which originated from the 2007 Audit exam.

INITIAL SETUP

Initial Conditions

- IC-71, ~5% power
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

Blocking Tags

- None

Activate APP "2008_NRC_SCN1" or insert the following:

Event Triggers

TRG E6 RPV_PRESSURE_GT_1045

Malfunctions

IMF EHH01A (none 0 0) (turbine BPV #1 fails open)
IMF DCW02B (E1 0 0) ('B' drywell chiller trips)
IMF VAC03O (E2 0 0) (480 VAC MCC E224-R-B fault)
IMF FWC01D (E3 0 0) 99 1:00 0 (startup LCV AO-8091 failure)
IMF EHL02A (E6 0 0) ('A' EHC pressure regulator fails high)
IMF EHL02B (E6 0 0) ('B' EHC pressure regulator fails high)
IMF PCS07 (E7 0 0) 100 20:00 0 (torus leak)

Overrides

IOR ANO204CA2 (none 0 0) ALARM_OFF (overrides "RCIC IN TEST/ARMED" annunciator
IOR ZYP02A4S01 (none 0 0) RUN (mode switch fails in RUN)
IOR ZYP13A2S80A (E4 0 0) ON (inadvertent RCIC initiation)
IOR ZYP13A2S80B (E4 0 0) ARMED (inadvertent RCIC initiation)
IOR ZYP01A6A1S22 (E5 0 0) "NO DECR" (prevents lowering EHC pressure setpoint)
IOR ZYP01A6A1S23 (E5 0 0) INCR (raises EHC pressure setpoint)

Trip Overrides

MRF RPS01TO OVERRIDE (overrides RPS Auto Scram Channel A1)
MRF RPS02TO OVERRIDE (overrides RPS Auto Scram Channel A2)

Turnover Procedures

- GP-2 "Normal Plant Start-Up" complete up to step 6.2.61
- Rod Sequence Sheet is complete up to Group 16, Rod 42-11
- SO 6C.1.A-2 "'C' Reactor Feedwater Pump Startup With Vessel Level Control Established Through AO-8091" at step 4.4
- SO 3.6.A-2 "Placing the Standby Control Rod Drive Hydraulic System Pump in Service"
- SO 7B.4.A-2 "Containment Atmosphere De-Inerting And Purging Via SBGT System" at step 4.19
- SO 1B.1.A-2 "Main Turbine Startup And Normal Operations" at step 4.10
- 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 Support crew for the CRD pump swap in accordance with SO 3.6.A-2.

- When asked to perform pre-startup checks for the 2B CRD pump, report steps 4.2.1 through 4.2.8 are complete IAW SO 3.6.A-2 "Placing the Standby Control Rod Drive Hydraulic System Pump in Service."
- When asked to slowly open HV-2-3-36B, modify the remote function as follows **MRF CRH02 OPEN** and then report HV-2-3-36B is open.
- When asked to close HV-2-3-36A, modify the remote function as follows **MRF CRH01 CLOSE** and then report HV-2-3-36A is closed.

EVENT 2 Initiate a trip of the 'B' Drywell Chiller using **ET1 (IMF DCW02B)**.

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

Support placing the 2C 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 4.9 prior to starting the chiller.

EVENT 3 Initiate Loss of MCC E224-R-B using **ET2 (IMF VAC03O)**.

If directed to the E-224 Load Center for investigation, report that E-224-R-B feeder breaker tripped on instantaneous overcurrent.

If directed to "green flag" E-224-R-B, clear alarm 002 F-1 "E224 MCC FDR BKR TRIP" by inserting override **IOR ANO226BF1 OFF**.

If directed to restore Reactor Building Ventilation, run batch file **RB_VENT_RESTORE**.

If directed to reset the RWCU pump cooling water trouble alarms (215 A-5 and B-5), **MRF RWC08A RESET** and **MRF RWC08B RESET**.

EVENT 4 When RPS and PCIS are reset, initiate failure of startup level control valve AO-8091 using **ET3 (IMF FWC01D 99 1:00 0)**.

If an Equipment Operator is dispatched to AO-8091, report nothing appears abnormal with the valve.

SIMULATOR OPERATOR DIRECTIONS

EVENT 5

Once the crew has stabilized RPV water level, and at the Lead Examiner's direction, initiate an inadvertent RCIC initiation using **ET4** and verify:

- **IOR ZYP13A2S80A ON** (inadvertent RCIC initiation)
- **IOR ZYP13A2S80B ARMED** (inadvertent RCIC initiation)

If an Equipment Operator is dispatched to the RCIC room, report nothing appears to be abnormal with RCIC.

EVENT 6

Initiate a failure of the EHC pressure regulator / rising reactor pressure using **ET5** and verify:

- **IOR ZYP01A6A1S23 INCR** (raises EHC pressure setpoint)
- **IOR ZYP01A6A1S22 "NO DECR"** (prevents lowering pressure setpoint)

When reactor pressure rises above 1045 psig, verify **ET6** initiates to:

- **IMF EHL02A** ('A' EHC pressure regulator fails high)
- **IMF EHL02B** ('B' EHC pressure regulator fails high)

EVENT 7

After the crew has stabilized the plant following the reactor scram, initiate a leak in the torus using **ET7 (IMF PCS07 100 20:00 0)**.

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 and there are several inches of water on the Torus Room floor.

Verify #1 turbine bypass valve remains open when reactor pressure decreases below the EHC pressure setpoint **(IMF EHH01A 0 0)**.

TERMINATION

The scenario may be terminated when the RPV is depressurized 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 step 6.2.61. Variance steps include:
    - 6.2.44 (Drywell purge still in progress to support drywell inspections)
    - 6.2.60 (awaiting AO-8091 troubleshooting)
- Rod Sequence Sheet is complete up to and including Group 16, rod 42-11.
- Startup ON HOLD due to erratic operation of AO-8091. Troubleshooting equipment being installed. Stay on AO-8091 for RPV level control until equipment is installed, THEN transition to Auto Level Control on the Master Controller.
- Currently in Step 1 of ReMA PB2C18-1.0.

INOPERABLE EQUIPMENT/LCOs:

- The previous shift noticed erratic operation of the Startup Level Control Valve (AO-8091). Troubleshooting is in progress.

SCHEDULED EVOLUTIONS:

- Predictive Maintenance reports a noisy bearing on the 'A' CRD pump motor and has requested a swap to the 'B' CRD pump in order to install instrumentation on the 'A' pump. Place 2B CRD pump (Standby pump) in service using SO 3.6.A-2 "Placing the Standby Control Rod Drive Hydraulic System Pump in Service". 2B CRD pump has NOT been drained.

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

- None

GENERAL INFORMATION:

- Reactor level control through AO-8091 using SO 6C.1.A-2 (at step 4.4).
- Startup ON HOLD due to erratic operation of AO-8091. Troubleshooting equipment being installed. Stay on AO-8091 for RPV level control until equipment is installed, THEN transition to Auto Level Control on the Master Controller.
- Containment purge in progress using SO 7B.4.A-2 (at step 4.19).
- Chest warming in progress using SO 1B.1.A-2 (at step 4.10).

CRITICAL TASK LIST

1. **Manually scram the reactor on recognition of failure to automatically scram at 1085 psig reactor pressure, or in any case before reactor pressure exceeds 1100 psig. Recognize failure of the reactor mode switch and shutdown the reactor using the manual scram pushbuttons.**

2. **Perform an emergency blowdown in accordance with T-112 "Emergency Blowdown" before Torus level lowers below 10.5 feet.**

Operator Actions

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 1 **Page:** 1 of 16

Event Description: Swap CRD pumps

Cause: Noisy pump motor bearing on the 'A' CRD pump.

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the URO to swap CRD pumps in accordance with SO 3.6.A-2 "Placing the Standby Control Rod Drive Hydraulic System Pump in Service".
	URO	Swap CRD pumps IAW SO 3.6.A-2 "Placing the Standby Control Rod Drive Hydraulic System Pump in Service": • Contact the Equipment Operator to verify '2B' CRD pump ready for start IAW SO 3.6.A-2 Steps 4.2.1 through 4.2.8. • Start the 2B CRD pump and monitor pump amps. • Direct the Equipment Operator to slowly open HV-2-3-36B. • Shutdown the 2A CRD pump. • Direct the Equipment Operator to close HV-2-3-36A. • Check CRD system parameters IAW SO 3.8.A-2 "Control Rod Drive Hydraulic System Routine Inspection." • Inform the CRS the pump swap is complete.
	PRO	Monitor plant parameters and assist as directed.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 2 **Page:** 2 of 16

Event Description: 'B' 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" (approx. 15 minutes after chiller trip depending on restoration time)
   - 217 J-2 "A Drywell Chiller Discharge Hi Temp" (approx. 5 minutes after trip)
2. 'B' 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.
3. Drywell temperature and pressure rise accordingly.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report alarm 217 D-1 "Drywell Chiller Trouble" and enter the corresponding Alarm Response Card. Recognize and report alarm 217 J-1 "Drywell Chilled Water Hi-Lo Temp and enter the corresponding Alarm Response Card, if it alarms. Recognize and report alarm 217 J-2 "A Drywell Chiller Discharge Hi Temp" and enter the corresponding Alarm Response Card.
	CRS	Enter and execute ARC 217 D-1" Drywell Chiller Trouble": • Direct placing 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 performing SO 44A.7.F-2 "Response to a Drywell Chiller Trouble Alarm."
	PRO	Place the control switch for the 'B' 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 2C Drywell Chiller is ready for start by performing steps 4.4 through 4.9 of SO 44A.6.A-2. • Place the 'C' chilled water pump in service by placing the pump control switch in "RUN". • Place the 'C' drywell chiller in service by placing the chiller control switch in "START". Dispatch an Equipment Operator to perform SO 44.A.7.F-2 "Response to a Drywell Chiller Trouble Alarm."

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 3 **Page:** 3 of 16

Event Description: Loss of electrical power to E224-R-B

Cause: Overcurrent trip of 480 VAC MCC circuit breaker

Effects:

1. Initial Alarm: 002 F-1 "E224 MCC FDR BKR TRIP"
2. Loss of power to multiple pieces of ECCS equipment, which will ultimately result in a Tech Spec required shutdown.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report alarm 002 F-1 "E224 MCC FDR BKR Trip" and enter the corresponding Alarm Response Card. Direct an Equipment Operator to investigate the E224 MCC feeder breaker trip". Direct the Equipment Operator to "green flag" the tripped breaker by placing its local control switch to the "TRIP" position. Identify loads without power by monitoring panels, reviewing associated electrical prints and reviewing Attachment 1 of AO 56E.3-2 for E224-R-B.
	CRS	Enter and execute the alarm response card for 002 F-1 "E224 MCC BKR Trip". Review Technical Specifications and determine a 3.0.3 shutdown is required due to 'B' Core Spray and 'B' RHR inoperable. Direct transfer of 'B' RPS bus to the alternate supply IAW SO 60F.6.A-2 Direct reset of the half scram IAW GP-11.E "Reactor Protection System - Scram and ARI Reset." Direct reset of the PCIS Groups I and III outboard half isolations IAW GP-8.D "Groups I, II and III Outboard Half Isolation."
	PRO	Transfer 'B' RPS bus to the alternate supply IAW SO 60F.6.A-2. • Verify "ALT SOURCE AVAILABLE" light is lit at Panel 20C017. • Verify scram solenoid group 1-4 lights are lit at Panel 20C015. • Place the "RPS M/G SET ALT FEED TRANS SW" to "ALTERNATE.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 3 **Page:** 4 of 16

Event Description: Loss of electrical power to E224-R-B...continued

Time	Position	Applicant's Actions or Behavior
	URO	Reset the half scram IAW GP-11.E "Reactor Protection System - Scram and ARI Reset." Reset half scram IAW GP-11.E. • Place the Scram Reset switch to the "Group 1 & 4 position". • Place the Scram Reset switch to the "Group 2 & 3 position". • Verify scram solenoid group 1-4 lights are lit at Panel 20C015 and Panel 20C017. • Verify scram annunciators are reset/clear. • Place the SDV Inboard Vent and Drain Valves control switch to "OPEN" and verify the valves indicate open (NOTE: the inboard valves were open). • Place the SDV Outboard Vent and Drain Valves control switch to "OPEN" and verify the valves indicate open.
	PRO	Verify the PCIS Group III outboard half isolation IAW GP-8.D "Groups I, II and III Outboard Half Isolation." • Verify affected equipment in "Required Position" by performing COL GP-8.D. • Direct an Equipment Operator to verify the Instrument N2 compressors are shutdown. • Verify SBGT is taking suction from the Reactor Building and Refueling Floor. • Stop the Drywell Purge Fan by placing its control switch to "STOP". • Direct an Equipment Operator to verify Reactor Building and Refuel Floor ventilation fans are tripped and all fan control switches are placed in "OFF".

Event Description: Loss of electrical power to E224-R-B...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Reset the PCIS Group III outboard half isolation IAW GP-8.D "Groups I, II and III Outboard Half Isolation."

- Place control switches for the affected equipment in the "Place Switch To" position per COL GP-8.D.
  - Close AO-4235
  - Close AO-2505
  - Close SV-2978A-G
  - Close AO-2507
  - Close AO-20452
  - Close AO-20462
  - Close AO-20457
  - Close AO-20464
  - Close AO-20468
  - Open AO-00476-1
  - Open AO-00476-1
- Place the Outboard Isolation Logic Reset Switch (16A-S33) to the "GRP II / III" position.
- Verify "GROUP II / III OUTBOARD ISOL. RELAYS NOT RESET" annunciator (214 E-1) is clear.

Perform the following to reset the PCIS Group I half isolation signal:

- Place the Outboard and Inboard Isolation Reset Switches (16A-S32 and 16A-S33 on Panel 20C005A) to the "GRP I" position.
- Verify "CHANNEL B GROUP I ISOL. RELAYS NOT RESET" annunciator (211 J-1) is clear.

Event Description: Loss of electrical power to E224-R-B...continued

Time	Position	Applicant's Actions or Behavior
		NOTE: at the Lead Examiner's discretion, the next event can begin prior to completing the following actions.

	PRO	Shutdown the SBGT System IAW SO 9A.2.A "Standby Gas Treatment System Shutdown Following an Automatic Start."
		• Place the operating SBGT Fan control switch to "STOP" and let it spring return to "AUTO".
		• Close the in-service 'B' SBGT Filter Train inlet and outlet valves:
		  o AO-00476-1
		  o AO-00476-2
		• Close the following ventilation dampers:
		  o AO-20469-02
		  o AO-20470-02
		  o PO-20466

	PRO	Restore Reactor Building Ventilation IAW SO 40B.1.A-2 "Reactor Building Ventilation System Startup and Normal Operation."
		• Verify open the following dampers:
		  o AO-20453
		  o AO-20461
		  o AO-20462
		  o AO-20452
		  o AO-20458
		  o AO-20463
		  o AO-20464
		  o AO-20457
		  o AO-20467
		  o AO-20468
		• Direct an Equipment Operator to startup Reactor Building Ventilation.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 4 **Page:** 7 of 16

Event Description: Startup level controller (LCV-8091) failure

Cause: Control signal failure

Effects:

1. Alarm:
   - 210 H-2 "Reactor Hi-Lo Water Level"
2. LCV-8091 fails open, causing RPV water level to rise.

Time	Position	Applicant's Actions or Behavior

	URO	Recognize and report alarm 210 H-2 "Reactor Hi-Lo Water Level" and enter the corresponding Alarm Response Cards.
		Control RPV water level below +35 inches.
		• Recognize and report LCV-8091 has failed open.
		• Attempt to take manual control of LCV-8091; determine valve does not respond to manual control.
		• Perform either of the following actions to control the transient:
		  ○ Close MO-8090 "C RFP Bypass" and batch feed the RPV using MO-2149C "C RFP Discharge", OR
		  ○ Throttle MO-8090 "C RFP Bypass" to control feed flow through (the stuck open) AO-8091, OR
		  ○ Take manual control of 'C' reactor feed pump M/A station; control RFP speed/discharge pressure (relative to reactor pressure) to control feed flow.

	CRS	Enter and execute OT-100 "Reactor Low Level" when RPV level initially lowers. Enter and execute OT-110 "Reactor High Level" when RPV level rises. Direct maintaining RPV water level below +35 inches.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 5 **Page:** 8 of 16

Event Description: Inadvertent RCIC initiation

Cause: Initiation relay contacts short closed

Effects:
1. Alarms:
   - 227 E-3 "RCIC Relays Not Reset"
2. RCIC injection into the RPV; reactor water level and reactor power increase

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report RCIC initiation. Using at least two independent indications, verify mis-operation of RCIC and/or adequate core cooling is assured.
	URO	Control feed pump speed / discharge pressure as necessary to maintain RPV water level below +35 inches (N/A if transferred to Auto Master Level Control in previous event).
	CRS	(May) enter and execute OT-104 "Positive Reactivity Insertion." • Using at least two independent indications, verify mis-operation of RCIC and/or adequate core cooling is assured. • Direct RCIC shutdown in accordance with SO 13.2.A-2 "RCIC System Shutdown." Enter and execute OT-110 "Reactor High Level." • Direct maintaining RPV water level below +35 inches. Refer to Tech Spec 3.3.5.2 (RCIC Instrumentation), 3.5.1 and 3.5.3: • Verify HPCI operability immediately. • Declare RCIC inoperable within 1 hour. • Determine RCIC must be restored to operable within 14 days. Request troubleshooting/technical assistance through the Shift Manager.

Event Description: Inadvertent RCIC initiation...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Shutdown RCIC using RRC 13.-2 "RCIC System Operation During a Plant Event" OR SO 13.2.A-2 "RCIC System Shutdown".

Using RRC 13.-2:

- Trip the RCIC turbine by depressing the "Trip" pushbutton.
- (Attempt to) Close MO-13-021 "To Feed Line".
- Close MO-13-131 "Supply".
- Verify closed MO-13-030 "Full Flow Test".
- Place MO-4487 "Trip Throttle Vlv" to "Close".
- As time permits, refer to SO 13.2.A-2 for further direction.

Using SO 13.2.A-2:

- Trip the RCIC turbine by depressing the "Trip" pushbutton.
- (Attempt to) Close MO-13-021 "To Feed Line".
- Close MO-13-131 "Supply".
- Verify the following:
  - AO-13-034 "Drain Isol to Mn Cndr" opens.
  - AO-13-035 "Drain Isol to Mn Cndr" opens.
  - MO-13-132 "Cooling Water" closes.
- Verify closed MO-13-030 "Full Flow Test".
- Verify closed MO-23-024 "Cond Tank Return".
- Place MO-4487 "Trip Throttle Vlv" to "Close".
- Shutdown "Vac Pump" after it has run for 10-15 minutes.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 6 **Page:** 10 of 15

Event Description: Rising reactor pressure due to EHC regulator failure / reactor scram / mode switch failure

Cause: Pressure setpoint failure results in rising reactor pressure.

Effects:

1. Alarms
   - 210 G-2 "Reactor Hi Press"
2. Reactor pressure rises, requiring a reactor scram.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report alarm 210 G-2 "Reactor Hi Press" and enter corresponding Alarm Response Card. Recognize failure of the EHC pressure regulator, causing rising reactor pressure.
	CRS	Enter and execute OT-102 "Reactor High Pressure".
CT		Direct insertion of a manual scram before reactor pressure reaches the automatic scram setpoint (~ 1085 psig). Ensure compliance with Tech Spec 3.4.10.
	URO	Insert a manual scram before reactor pressure reaches the automatic scram setpoint (~ 1085 psig). Perform applicable scram actions:
CT		• Place the mode switch to "SHUTDOWN". • Recognize mode switch failure / failure to automatically scram; depress both manual scram pushbuttons. • Verify / report control rods are inserting. • Verify / report APRMs are downscale. • Restore and maintain RPV level by controlling 'C' feed pump speed / discharge pressure. • Verify all control rods are inserted.

Event Description: EHC regulator failure / reactor scram / mode switch failure...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Perform applicable scram actions: • Verify scram discharge volume vents and drains are closed. • Verify recirc pumps are at 30% speed. • Monitor instrument air header pressure and drywell pressure. • Report to the CRS instrument air header pressure is greater than drywell pressure.
	CRS	Enter and execute T-101 "RPV Control": • Direct RPV level restored and maintained between +5 and +35 inches using feedwater. • Direct instrument nitrogen restored by performing instrument nitrogen bypass (GP-8E). • Direct RPV pressure stabilized below 1050 psig.
	URO/PRO	Bypass and restore drywell instrument nitrogen IAW GP-8E. • 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.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 7 **Page:** 12 of 16

Event Description:
1. #1 turbine bypass valve fails open
2. Torus leak

Cause:
1. A ground on the servo motor
2. Rupture in the Torus shell

Effects:
1. Reactor pressure will continue to lower following the scram. Due to the mode switch failure, MSIVs will close when reactor pressure lowers below 850 psig.
2. Torus level lowers and will eventually equalize with the torus room at approximately 7 feet.
3. Alarms:
   - 224 C-5 "Torus Room Flood"
   - 226 A-4 "Torus Level Out Of Normal Range"

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report MSIV closure (due to Mode Switch failure and Reactor pressure less than 850 psig).
	CRS	Direct control of RPV level between +5 and +35 inches using HPCI. Direct control of RPV pressure (800-1000 psig) using SRVs and/or HPCI in CST-to-CST mode.
	URO/PRO	Maintain RPV level +5 to +35 inches using HPCI IAW RRC 23.1-2 "HPCI System Operation During a Plant Event". If necessary to inject with HPCI before controlling pressure with HPCI in CST-to-CST mode: • Arm and depress HPCI Manual Initiation Pushbutton. • Verify MO-23-014 "Supply" opens. • Verify Aux Oil Pump starts. • Verify MO-23-019 "To Feed Line" opens. • Verify Vacuum Pump starts. • Verify AO-23-042 and -043 "Drain Isol to Mn Cndr" close. • Adjust HPCI system flow rate as necessary to control RPV level.

Event Description:

1. #1 turbine bypass valve fails open...continued
2. Torus leak...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Control RPV pressure using SRVs and/or HPCI in CST-to-CST mode, as directed. Using SRVs IAW RRC 1G.2-2 "Relief Valve Manual Operation During a Plant Event": • Open SRV(s) until desired pressure band is reached. • Monitor RPV level and pressure, Torus level and pressure, and Drywell pressure and temperature. Using HPCI in CST-to-CST mode IAW RRC 23.1-2 "HPCI System Operation During a Plant Event": • If swapping from injection mode: o Place the Aux Oil Pump control switch in "START". o Place the Vacuum Pump control switch in "START". o Place the HPCI Manual Initiation pushbutton in "DISARM". o Depress the HPCI Initiation Signal Reset pushbutton. o Open MO-23-024 "Cond Tank Return". o Throttle MO-23-021 "Full Flow Test" until HPCI Pump discharge is approximately 200 psig below reactor pressure. o Verify AO-23-018 "Check" is closed. o If subsequent injection is required, throttle MO-23-021 until HPCI Pump discharge pressure is greater than reactor pressure <u>and</u> AO-23-018 opens. • If starting HPCI in CST-to-CST mode: o Open MO-23-024 "Cond Tank Return". o Verify closed MO-23-019 "To Feed Line". o Start the Vacuum Pump. o Throttle open MO-23-021 "Full Flow Test" for 3 to 4 seconds o <u>Simultaneously</u> start the Aux Oil Pump <u>and</u> open MO-23-014 "Steam Supply". o Verify HPCI system flow rate is 5000 gpm. o Throttle MO-23-021 and HPCI flow controller as necessary to obtain the desired pressure and flow. o If subsequent vessel injection is necessary, open MO-23-019 "To Feed Line" and throttle closed MO-23-021 until HPCI Pump discharge pressure is greater than reactor pressure <u>and</u> AO-23-018 opens.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 7 **Page:** 14 of 16

Event Description:
1. #1 turbine bypass valve fails open...continued
2. Torus leak...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report alarm 226 A-4 "Torus Level Out Of Normal Range" and enter corresponding Alarm Response Card. Direct an Equipment Operator to determine the source of the leak.
	CRS	Enter and execute T-102 "Primary Containment Control". • Direct torus level restored using T-233 "CST Makeup to the Torus Via HPCI Minimum Flow Line". • Direct torus level restored 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.
	PRO	Perform T-231 "HPSW Injection Into the Torus" as directed. • Verify 2B and 2D RHR pumps are shutdown. • Verify closed MO-10-154B "Outboard Discharge". • Verify 2B and 2D HPSW pumps are shutdown. • Verify MO-10-089B and MO-10-089D RHR Hx HPSW outlet valves CLOSED. • Verify MO-32-2344 (10-186) HPSW loop cross-tie CLOSED. • OPEN MO-10-174 and MO-10-176 HPSW/RHR cross-tie valves. • OPEN MO-10-039B "Torus Header". • Start a HPSW pump. • Throttle MO-10-034B to maintain 5,300 gpm flow rate. • Start a second HPSW pump if needed. • Throttle MO-10-034B to maintain 10,600 gpm flow rate for 2 pump operation.

Event Description: 1. #1 turbine bypass valve fails open...continued
2. Torus leak...continued

Time		Position	Applicant's Actions or Behavior
		PRO	Recognize and report alarm 224 C-5 "Torus Room Flood" and enter corresponding Alarm Response Card.
		CRS	Enter and execute T-103 "Secondary Containment Control". Direct an evacuation of the torus room in accordance with GP-15 "Local Evacuation" (make request to Shift Manager).
		CRS	Direct RPV depressurization using SRVs or HPCI in CST-to-CST mode IAW T-102 T/L-6.
		URO/PRO	Depressurize the RPV using SRVs or HPCI in CST-to-CST mode, as directed.
		URO/PRO	Recognize and report that torus level is approaching 12.5 feet. 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. Enter and execute T-112 "Emergency Blowdown". • 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	When torus level drops below 10.5 feet, if any RHR pumps are running, direct all operating RHR pumps secured.
		URO/PRO	Secure all operating RHR pumps, as directed.

Op Test No.: 1 **Scenario No.:** 1 **Event No.:** 7 **Page:** 16 of 16

Event Description:
1. #1 turbine bypass valve fails open...continued
2. Torus leak...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report that torus level is approaching 9.5 feet.
	CRS	When Torus level cannot be maintained above 9.5 feet, direct HPCI secured.
	URO/PRO	Secure HPCI when Torus level cannot be maintained above 9.5 feet.
	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 depressurized and HPSW is injecting into the torus.

Scenario Outline

Simulation Facility Peach Bottom **Scenario No.** #2 (modified) **Op Test No.** 2008 NRC

Examiners _____ **Operators** _____ CRS (SRO)

_____ _____ URO (ATC)

_____ _____ PRO (BOP)

Scenario Summary

The scenario begins with the reactor at approximately 76% power with power ascension on hold The crew will perform ST-O-001-200-2 "Turbine Stop Valve Closure and EOC-RPT Functional Test" when an RPS failure will require the crew to make a Tech Spec declaration. This will be followed by a trip of the in-service TBCCW pump with a failure of the standby pump to auto-start. The crew will be required to respond IAW ON-118 "Loss of TBCCW" and place the standby TBCCW pump in service. Following this, the 'A' SRV will inadvertently open, requiring the crew to take actions IAW OT-114 "Inadvertent Opening of a Relief Valve". Power will be reduced in accordance with GP-9-2 "Fast Power Reduction". The crew will be successful in closing the 'A' SRV by directing plant operators to pull fuses for the valve.

A small steam leak inside the primary containment will occur next. The crew will be required to take actions in accordance with OT-101 "High Drywell Pressure". When the reactor is scrammed, a hydraulic ATWS will occur, requiring the crew to enter T-101 "RPV Control" and T-117 "Level/Power Control". A failure of the Standby Liquid Control pump will require the crew to start the other pump in order to successfully lower reactor power.

The crew will also be required to enter T-102 "Primary Containment Control" due to high drywell pressure. After diagnosing the inability to spray the containment due to an instrument failure, the crew will perform T-112 "Emergency Blowdown". One ADS SRV will fail to open, requiring the opening of another SRV. The crew will need to implement T-216 "Control Rod Insertion By Manual Scram Or Individual Scram Test Switches" and T-220 "Driving Control Rods During Failure To Scram" to terminate the ATWS.

Initial Conditions IC-72, 76% power

Turnover See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*		Event Description
1		N TS	PRO CRS	Perform the main turbine stop valve functional test / RPS failure during functional test performance
2		C	URO CRS	TBCCW pump trip w/ failure of standby pump to auto-start
3		C TS	PRO CRS	SRV inadvertently opens, requiring torus cooling to be maximized / SRV closes when control power fuses are removed
4		R	URO CRS	Fast power reduction due to SRV opening
5		M	ALL	Steam leak in the primary containment / hydraulic ATWS / pressure instrument failure prevents using containment sprays
6		C	URO CRS	Standby liquid control pump trips requiring manual start of the alternate pump
7		I	PRO CRS	ADS SRV fails to open during emergency blowdown requiring an additional SRV to be opened

* **(N)**ormal, **(R)**eactivity, **(I)**nstrument, **(C)**omponent, **(M)**ajor, **(TS)** Tech Spec

SIMULATOR OPERATOR INSTRUCTIONS FOR 2008 NRC SCENARIO #2

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.

SCENARIO SOURCE HISTORY

- This is a modified bank scenario, which originated from the 2007 Audit exam.

INITIAL SETUP

Initial Conditions

- IC-72, 76% power
- Ensure recorder power is on, roll recorders as required
- Ensure annunciator horns are active
- Verify MO-2-10-13A and MO-2-10-13C keylock switches are in CLOSE

Blocking Tags

- RHR Loop 'A'

Activate APP "2008_NRC_SCN2" or insert the following:

Event Triggers

TRG E3 = DMF MSS08A (closes the 'A' SRV)
TRG E3 = MRF ADS02A REMOVE (removes 'A' SRV control power fuses)
TRG E5 REACTOR_MODE_SWITCH_NOT_IN_RUN
TRG E5 = DMF IPM03 (deletes hydraulic ATWS)

Malfunctions

IMF IPM03 (none 0 0) 80 (hydraulic ATWS)
IMF MSS08C (none 0 0) 0 ('C' SRV fails to open)
IMF TBW04B (none 0 0) ('B' TBCCW pump fails to auto-start)
IMF TBW01A (E1 0 0) ('A' TBCCW pump trip)
IMF MSS08A (E2 0 0) 40 ('A' SRV fails partially open)
IMF MSS01 (E4 0 0) 10 30:00 (steam leak inside primary containment)

Overrides

IOR ANO203BB3 (none 0 0) ALARM_OFF (simulates containment spray instrument failure)
IOR ZLORP15DS26B (none 0 0) ON (5A-DS26B light at RPS Panel 20C017 to ON)
IOR ZYP12A3S19 (none 0 0) OFF (Override Switch 10A-17B, prevents containment sprays)
IOR ZYP12A3S23 (none 0 0) CLOSE (MO-10-26B, prevents containment sprays)

Remote Functions

None

Trip Overrides

None

Batch Files

BLOCK_RHR_LOOP_A
IMF RHR01A, Pump Trip for equipment blocking
IMF RHR01C, Pump Trip for equipment blocking
IMF VED01_39, MO-10-31A Magnetic Overcurrent for equipment blocking
IMF VED01_40, MO-10-26A Magnetic Overcurrent for equipment blocking
IMF VED01_41, MO-10-25A Magnetic Overcurrent for equipment blocking
IMF VED01_42, MO-10-154A Magnetic Overcurrent for equipment blocking
IMF VED01_43, MO-10-38A Magnetic Overcurrent for equipment blocking
IMF VED01_44, MO-10-39A Magnetic Overcurrent for equipment blocking
IMF VED01_45, MO-10-34A Magnetic Overcurrent for equipment blocking
IMF VED01_46, MO-10-16A Magnetic Overcurrent for equipment blocking
IMF VED01_47, MO-10-16C Magnetic Overcurrent for equipment blocking
IMF VED01_48, MO-10-15A Magnetic Overcurrent for equipment blocking
IMF VED01_49, MO-10-15C Magnetic Overcurrent for equipment blocking
IOR ZLORH03MO1013A_1 OFF, Torus Suction MO-10-13A Green Light OFF
IOR ZLORH03MO1013C_1 OFF, Torus Suction MO-10-13C Green Light OFF
IOR ZLORH03MO1015A_1 OFF, Recirc Suction MO-10-15A Green Light OFF
IOR ZLORH03MO1015C_1 OFF, Recirc Suction MO-10-15C Green Light OFF
IOR ZLORH03MO1034A_1 OFF, Full Flow Test MO-10-34A Green Light OFF
IOR ZLORH03MO1025A_1 OFF, MO-10-25A Green Light OFF
IOR ZLORH03MO1025A_2 OFF, MO-10-25A Red Light OFF
IOR ZLORHGRPMO1034A_1 OFF, MO-10-34A Green Light OFF
IOR ZLORH032AP35_1 OFF, 2A RHR Pump Green Light OFF
IOR ZLORH032CP35_1 OFF, 2C RHR Pump Green Light OFF
IOR ZYP12A1S36 STOP, 2A RHR Pump Control Switch in STOP
IOR ZYP12A1S47 STOP, 2C RHR Pump Control Switch in STOP

Turnover Procedures

- GP-5 completed up to step 5.1.2
- SO 6C.1.C-2 completed through step 4.4.12
- ST-O-001-200-2 completed through step 6.2.1.34; next step is 6.3.1
- Provide crew with Key #18 for the turbine stop valve functional test
- TSA paperwork for RHR loop 'A' being inoperable

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 Support crew for main turbine stop valve functional test.

During the performance of ST-O-001-200-2 "Turbine Stop Valve Closure And EOC-RPT Functional" provide the crew with the following information (role play as Extra RO at Panels 20C015 and 20C017, allowing the CRS to apply Tech Specs:

- Step 6.3.7.2 – auxiliary scram relay 5A-K10A **did** de-energize.
- Step 6.3.7.3 – auxiliary scram relay 5A-K10B **did not** de-energize.
- Step 6.3.7.4 – indicating light 5A-DS26B **is lit**.
- Step 6.3.8.1 – auxiliary scram relay 5A-K10A **did** energize.
- Step 6.3.8.2 – auxiliary scram relay 5A-K10B **remained** energized.
- Step 6.3.8.3 – indicating light 5A-DS26B **is lit**.

EVENT 2 Following the Tech Spec determination, initiate **ET1 (IMF TBW01A)** to trip the 2A TBCCW pump. A pre-inserted failure **(TBW04B)** will prevent auto-start of the 2B TBCCW pump.

If sent to investigate the TBCCW pump trip, report there is no apparent cause.

If requested to perform step 4.1 of SO 34.6.A-2 "Placing Standby TBCCW System Pump In Service" to vent the 2B TBCCW pump, report the step is complete and the pump is vented.

EVENT 3 Initiate **ET2 (IMF MSS08A 40)** to cause the 'A' SRV to fail partially open (40%).

Isolate B loop RHR stayfull when requested by entering **MRF RHR02B CLOSE**.

When requested to pull fuses for the 'A' SRV, and after EHC pressure setpoint has been lowered, initiate pending events on **ET3** and verify:

- **MRF ADS02A REMOVE**
- **DMF MSS08A**

Contact the control room via telephone and inform them you have removed fuses for the 'A' SRV.

EVENT 4 Support the crew for GP-9, Fast Power Reduction; role-play as the Power System Director when called.

SIMULATOR OPERATOR DIRECTIONS

EVENT 5

After actions for the SRV opening are complete, initiate **ET4 (IMF MSS01)** to cause a steam leak at the SRV flange (10% severity on a 30-minute ramp rate).

When the mode switch is placed in SHUTDOWN (i.e., not in RUN), verify the ATWS malfunction is deleted via **ET5 (DMF IPM03)**.

When asked, report all drywell chillers are fully loaded.

When asked, report DWCW pressure is 26 psig.

When directed to perform T-223, delay placing the drywell cooler fans in SLOW speed. The objective is to be on the UNSAFE side of Figure 1 of T-223.

When requested to perform T-216-2 "Control Rod Insertion By Manual Scram Or Individual Scram Test Switch" steps 4.1 & 4.2 (lift leads to defeat ARI initiation logic and to install jumpers to bypass all RPS auto scram signals), perform the following

- Insert override **MRF ARI01TO OVERRIDE** "ARIA4-ARIA Relay Trip Override"
- Insert override **MRF ARI02TO OVERRIDE** "ARIA4-ARIB Relay Trip Override"

WAIT 10 minutes and report to the MCR by phone that step 4.1 of T-216-2 has been completed (ARI initiation logic leads lifted).

Enter the malfunction **IMF RPS05** "RPS Automatic Scram Circuit Failure".

WAIT 5 minutes and report to the MCR by phone that step 4.2 of T-216-2 has been completed (RPS auto scram bypass jumpers installed).

When directed to perform T-220, wait 5 minutes, then **MRF T220_2 CLOSE** and report to the control room that HV-2-3-56 is closed.

When directed to perform T-221-2, wait 10 minutes and then **MRF T221_1 DEFEAT**. Report T-221-2 step 4.1 complete to the control room.

When directed, provide support for T-240 as necessary (isolate ECCS stayfull).

A pre-inserted instrument failure will result in the inability of the crew to spray the torus or the drywell as evidenced by the lack of 225 B-3 "System II Drywell Pressure Permit Containment Spray".

After the crew attempts drywell sprays, raise the severity of the steam leak **(MMF MSS01 40)**.

Then, adjust the leak severity as necessary to **increase drywell temperature to 281 degrees F**.

SIMULATOR OPERATOR DIRECTIONS

EVENT 6 One minute after the A or B Standby Liquid Control Pump is placed in service, trip the running pump by entering the following malfunction:

IMF SLC01A if the A SLC Pump was placed in service.

OR

IMF SLC01B if the B SLC Pump was placed in service.

EVENT 7 Pre-inserted failure of 'C' SRV to open when crew performs an emergency blowdown **(IMF MSS08C)**.

TERMINATION The scenario may be terminated when:

- 5 SRVS are open,

  and

- The RPV is depressurized,

  and

- RPV level is under control,

  And

- The crew begins draining the Scram Discharge Volume per T-216 "Control Rod Insertion By Manual Scram Or Individual Scram Test Switch" in order to attempt another scram to insert control rods, and/or control rods are being inserted in accordance with T-220 "Driving Control Rods During Failure To Scram".

SHIFT TURNOVER

PLANT CONDITIONS:

- Approximately 76% power.
- A load was been performed for control rod sequence exchange.
- GP-5 "Power Operation" is at step 5.1.2.
- 2A RFP is in standby. SO 6C.1.C-2 "Startup of Second or Third Reactor Feedwater Pump" is complete through step 4.4.12.
- Power ascension is on hold. Power ascension ReMA and rod sequence sheets are being evaluated by the Reactor Engineer.

INOPERABLE EQUIPMENT/LCOs:

- The "A" loop of RHR is out of service due to work on RHR valve MO-2-10-154A "Outboard Discharge". Three hours into LCO 3.5.1, with expected return to service in 1 day.

SCHEDULED EVOLUTIONS:

- A routine Diesel Fuel Oil delivery is expected this shift.

SURVEILLANCES DUE THIS SHIFT:

- Perform ST-O-001-200-2 "Turbine Stop Valve Closure and EOC-RPT Functional".
  - The ST has been started and is complete through step 6.2.1.34.
  - Continue the Turbine Stop Valve functional test beginning at step 6.3.1.
  - An extra RO is available to perform steps 6.3.7.2 through 4, and 6.3.8.1 through 3. **(Provide KEY #18 to the crew during turnover.)**

ACTIVE CLEARANCES:

- RHR Loop 'A'

GENERAL INFORMATION:

- None

CRITICAL TASK LIST

1. **Perform an emergency blowdown in accordance with T-112 "Emergency Blowdown" when drywell bulk average temperature cannot be restored and maintained below 281 degrees F. Perform T-240 "Terminating and Preventing Injection" before performing an emergency blowdown.**

2. **Initiate a reactor shutdown by inserting control rods in accordance with T-216 "Control Rod Insertion by Manual Scram or Individual Scram Test Switches" and/or T-220 "Driving Control Rods During Failure to Scram" and/or shutdown the reactor by initiating Standby Liquid Control before torus temperature exceeds the limits of the Heat Capacity Temperature Limit (HCTL) curve.**

Operator Actions

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 1 **Page:** 1 of 14

Event Description: Perform the turbine stop valve functional test

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct the PRO to perform ST-O-001-200-2 "Turbine Stop Valve Closure and EOC-RPT Functional."
	PRO	Perform ST-O-001-200-2 "Turbine Stop Valve Closure and EOC-RPT Functional": • Review ST • Inform the Unit Reactor Operator that the test is going to be conducted and what indications can be expected (this may be covered during turnover and/or a CRS briefing). • At Panel 20C015 and 20C017: 1. Verify all RPS 'A' and 'B' scram solenoid group 1-4 lights are lit. 2. Verify A1 and B1 TURB STOP VALVE NORMAL lights are lit. • At Panel 20C008B, place the CV/SV test selector switch to "SV TEST". • Verify the lights on all four TSV test buttons are ON. • At Panel 20C015, place the EOC-RPT test switch in "TEST" (using KEY #18). • Verify alarm 214 D-3 SYSTEM I EOC-RPT LOGIC PWR FAIL/TEST. • At Panel 20C008B, depress and hold TSV-1 test pushbutton. 1. Verify TSV-1 position indicator moves smoothly at low speed to less than 10% open and then fast closes. 2. After 2 to 3 seconds at full close, release the test pushbutton. 3. Verify TSV-1 valve position indicator moves smoothly from closed to full open. • When the RPS relay failure is reported, STOP the functional test. 1. Place the CV/SV test selector switch to "OFF". 2. Verify the lights on all four TSV test buttons are off. 3. Place backup EHC pump to "STOP", then back to "AUTO".
	URO	Monitor plant parameters/assist as directed.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 1 **Page:** 2 of 14

Event Description: RPS failure during turbine stop valve functional test

Cause: Turbine stop valve position switch input to RPS logic fails

Effects: RPS instrumentation failure; application of Tech Specs

Time	Position	Applicant's Actions or Behavior
		NOTE: the "Extra RO" at Panels 20C015 and 20C017, role played by the Simulator Operator in the booth, will provide the crew with the following information from ST-O-001-200-2, allowing the CRS to apply Tech Specs: • Step 6.3.7.2 -- auxiliary scram relay 5A-K10A **did** de-energize. • Step 6.3.7.3 – auxiliary scram relay 5A-K10B **did not** de-energize. • Step 6.3.7.4 -- indicating light 5A-DS26B **is lit**. • Step 6.3.8.1 – auxiliary scram relay 5A-K10A **did** energize. • Step 6.3.8.2 – auxiliary scram relay 5A-K10B **remained** energized. • Step 6.3.8.3 – indicating light 5A-DS26B **is lit**.
	PRO	Stop the functional test when the RPS failure is reported. Perform system restoration IAW ST-O-001-200-2, step 6.7 (see previous page).
	CRS	Direct stopping the functional test and system restoration when the RPS failure is reported. Review Tech Spec 3.3.1.1.A (RPS Function 8 on Table 3.3.1.1-1): • Determine need to place associated trip system in TRIP within 12 hours. Review Tech Spec 3.3.4.2.A: • Determine EOC-RPT instrumentation must be restored, or channel placed in trip, within 72 hours.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 2 **Page:** 3 of 14

Event Description: TBCCW pump failure / trip with failure of the standby pump to auto-start

Cause: Overload of 2A TBCCW pump due to excessive motor bearing friction

Failure of PS-2131 to actuate on low TBCCW System pressure

Effects:

1. Alarm: 217 C-5 "TURB BLDG COOLING WATER SUPPLY LO PRESS"
2. Loss of cooling to TBCCW loads

Time	Position	Applicant's Actions or Behavior
	URO	Recognize annunciator 217 C-5 "TURB BLDG COOLING WATER SUPPLY LO PRESS" and report trip of 2A TBCCW pump. Respond IAW Alarm Response Card. Place 2A TBCCW pump control switch to "OFF". Recognize failure of 2B TBCCW pump to auto start after 20 seconds.
	CRS	Enter ON-118 "Loss of TBCCW". Direct starting the 2B TBCCW pump. Direct follow-up use of SO 34.6.A-2 "Placing Standby TBCCW System Pump In Service". Direct troubleshooting.
	URO	Place 2B TBCCW pump control switch to "RUN". Verify placing standby TBCCW pump in service IAW SO 34.6.A-2 "Placing Standby TBCCW System Pump In Service".
	PRO	Monitor plant parameters/assist as necessary.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 3 **Page:** 4 of 14

Event Description: SRV 'A' inadvertently opens

Cause: Mechanical failure of relief valve pilot

Effects:

1. Alarms:
   - 210 D-2 "Safety Relief Valve Open"
   - 227 B-4 "Blowdown Relief Valves Hi Temp"
2. Loss of Generator Load, steam flow/feed flow mismatch, heat input to the primary containment.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize, report, and take actions IAW ARC 210 D-2 "Safety Relief Valve Open" and ARC 227 B-4 "Blowdown Relief Valves Hi Temp".
	CRS	Enter/direct actions IAW OT-114 "Inadvertent Opening of a Relief Valve": • Lead crew in confirming an SRV is open. • Direct the 'B' loop of RHR placed in torus cooling. • Direct attempts to close the 'A' SRV.
	URO/PRO	Confirm the 'A' SRV is open IAW OT-114.
	PRO	Cycle the 'A' SRV control switch when directed. Monitor torus temperature. Place the 'B' loop of RHR in torus cooling IAW RRC 10.1-2 "RHR System Torus Cooling During a Plant Event" when directed. • OPEN MO-2-10-039B • OPEN MO-2-32-89B(D) • START B(D) HPSW pump • START B(D) RHR pump • OPEN MO-2-10-034B • VERIFY 11,500 to 12,200 gpm RHR flow • START remaining HPSW pump in B RHR loop • OPEN MO-2-32-89D(B) • START remaining RHR pump in B RHR loop • VERIFY >20,000 gpm RHR loop flow • Direct Equipment Operator to CLOSE stayfull injection valve HV-2-10-70B.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 3 **Page:** 5 of 14

Event Description: SRV 'A' inadvertently opens...continued

Time	Position	Applicant's Actions or Behavior
	URO	Perform a Fast Power Reduction IAW GP-9-2 when directed (**see Event #4**).
	URO/PRO	Coordinate removal of fuses by Equipment Operator and monitor valve status during attempts to close the 'A' SRV. Report to the CRS when the 'A' SRV has closed.
	CRS	Declare the 'A' SRV inoperable and verify compliance with Tech Spec 3.5.1.F. • Determine 'A' SRV must be restored within 72 hours with 'A' loop of RHR also out of service. • (May) review Tech Spec 3.4.3.A and determine no action is required (other than a PTSA).

Operator Actions

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 4 **Page:** 6 of 14

Event Description: Perform a fast power reduction

Cause: Directed from OT-114 "Inadvertent Opening of a Relief Valve"

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct a Fast Power Reduction IAW GP-9-2.
	URO	Reduce recirculation flow to 61.5 Mlbs/hr IAW GP-9-2 "Fast Power Reduction."
	CRS	When recirculation flow has been lowered IAW GP-9-2, direct EHC pressure setpoint lowered until PAM pressure is 900 psig.
	URO	Lower EHC pressure setpoint until PAM pressure is 900 psig.
	PRO	Maintain the main generator auto-manual voltage regulator balanced (when it alarms). Notify the Power System Director of the required power change.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 5 **Page:** 7 of 14

Event Description: Steam leak in the primary containment / ATWS

Cause: Steam leak at SRV 'A' mounting boss; steam cutting at break increases size of leak.

Effects:

1. Initial Alarms:
   - 210 F-2 "Drywell Hi-Lo Press"
   - 225 A-4 "Drywell Hi-Lo Press"
2. Drywell pressures and temperatures will rise at an increasing rate, eventually leading to a high drywell pressure alarm and scram if not scrammed manually. ECCS automatic start signals and PCIS isolation signals will be received. Conditions will escalate, requiring containment sprays.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report rising drywell pressure, OT-101 "High Drywell Pressure" entry condition.
	CRS	Enter/direct follow-up actions IAW OT-101: • If drywell pressure cannot be maintained below 1.2 psig, direct a GP-4 "Manual Scram". • Direct placing additional drywell cooling in service as necessary. • Direct isolation of potential leak sources.
	URO	Take scram actions when directed: • Runback recirc to minimum. • Place the mode switch to "SHUTDOWN". • Verify rods are inserting. • Report an ATWS is in progress with reactor power > 4% (T-101 entry condition).
	PRO	Take scram actions when directed: • Transfer 13 KV house loads. • Verify Group II & III isolations and SGTS initiation. • Verify HWC isolated. • Investigate sources of drywell leakage.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 5 **Page:** 8 of 14

Event Description: Steam leak in the primary containment / ATWS...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize drywell pressure/temperature are continuing to rise. Recognize and report 2 psig in the Drywell as a T-101 AND T-102 entry condition. Verify and take action for 2 psig automatic initiations and isolations: • HPCI initiation – secure HPCI (if not needed for RPV level control). • Diesel Generator auto start – verify ESW pump start. • Group II/III isolations – verify isolations.
	CRS	Enter/direct actions for T-101 "RPV Control": • Verify URO/PRO scram actions. • Direct drywell instrument nitrogen restored. • Direct RPV pressure stabilized below 1050 psig. • Direct actions for the ATWS (**see next page**).
	PRO	Bypass and restore drywell instrument nitrogen IAW GP-8E. • 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.

Operator Actions

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 5 **Page:** 9 of 14

Event Description: Anticipated transient without scram (hydraulic)

Cause: Scram condition with power above 4% or unknown due to RPS failure

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
	CRS	Direct T-101, RC/Q ATWS actions:
		• Initiation of ARI
		• Trip recirc pumps at least 10 seconds apart
CT		• T-216 "Reset Scram, Drain SDV, Insert Rods..."
CT		• T-220 "Drive Rods"
		• Enter T-117 "Level/Power Control"
		• SLC injection
	URO	Perform T-101, RC/Q actions:
		• Initiate ARI; report the scram air header is depressurized.
		• Trip Recirc pumps at least 10 seconds apart.
		• Initiate SLC by starting either SLC pump (**see Event #6**).
CT		• Direct an Equipment Operator to perform T-216 steps 4.1 and 4.2 (install jumpers in Cable Spreading Room and Main Control Room to defeat ARI Initiation Logic and bypass all RPS Auto Scram signals).
CT		• Per T-216 (on the 20C05A panel)
		○ Reset ARI by placing ARI A & B manual pushbutton collars in "Disarm".
		○ Depress the A & B ARI reset pushbuttons.
		○ Place the Scram Reset switch 5A-S9 to the "Group 1&4" and "Group 2&3" positions.
		○ Open Scram Discharge Volume inboard and outboard vents and drains.
CT		• Perform T-220 "Driving Control Rods During Failure To Scram".

Event Description: Anticipated transient without scram...continued

Time	Position	Applicant's Actions or Behavior
	CRS	Direct T-117 actions: • Inhibit ADS. • T-221 "Main Steam Isolation Valve Bypass". • T-240 "Termination And Prevention Of Injection Into The RPV".

	URO/PRO	Perform T-117 actions:
		• Inhibit ADS.
		• Direct Equipment Operator to perform T-221.
		• Perform T-240: terminate and prevent injection from all injection sources except RCIC, SLC and CRD; control RPV level below –60 inches and within the specific RPV level band directed by the CRS.
		  o Place HPCI Aux Oil Pump in the "Pull-to-Lock" position.
		  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".
		  o Direct an Equipment Operator to secure ECCS Stayfull (considered to be complete when the direction is given).
		When RPV level is below -60 inches, restore injection and maintain RPV level between -60 and -195 inches as follows:
		• Using Feedwater:
		  o Place LIC-8091 in "MAN" and close the valve.
		  o Open MO-8090 "C RFP Bypass".
		  o Raise RFP speed until discharge pressure is 75-100 psig above RPV pressure.
		  o Control RPV injection by adjusting RFPT speed, OR LIC8091 setting, OR MO-2149C "RFP C Discharge" valve position.
		• Using HPCI (with an initiation signal present):
		  o Verify the HPCI flow controller is in "AUTO".
		  o Place the Aux Oil Pump control switch in "AUTO".
		  o Adjust HPCI flow controller setpoint to the desired RPV injection rate.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 5 **Page:** 11 of 14

Event Description: Pressure instrument failure prevents using containment sprays

Cause: Drywell pressure input to spray logic permissive not functioning

Effects:

1. Alarm 225 B-3 "System II Drywell Pressure Permit Containment Spray" is NOT received
2. Prevents containment spray using 'B' loop of RHR, resulting in Drywell temperature rising toward 281 degrees F (the 'A' loop of RHR is blocked).

Time	Position	Applicant's Actions or Behavior
	CRS	Enter/direct actions for T-102 "Primary Containment Control": • Monitor primary containment conditions. • Direct manual isolation of RBCCW and Drywell Chilled Water using GP-8B. • Direct restoration of Drywell cooling IAW T-223 "Drywell Cooler Fan Bypass". • Direct Torus sprays with the 'B' loop of RHR IAW T-204 "Initiation of Containment Sprays Using RHR".
	PRO	(Attempt to) spray the Torus using the 'B' loop of RHR IAW T-204 "Initiation of Containment Sprays Using RHR": • Recognize the absence of alarm 225 B-3 "System II Drywell Pressure Permit Containment Spray". • Recognize the inability to throttle MO-38B open to obtain 1000 gpm. • Report inability to spray the containment.
	CRS	Recognize the inability to maintain drywell bulk average temperature less than 281 degrees F, which requires performing an emergency blowdown (**see Event #7**).

Operator Actions

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 6 **Page:** 12 of 14

Event Description: Standby liquid control pump trips

Cause: SLC Pump first placed into service trips on overcurrent

Effects: Standby SLC Pump must be placed into service manually to mitigate ATWS

Time		Position	Applicant's Actions or Behavior
		URO	Recognize the Standby Liquid Control (SLC) pump placed into service has tripped.
	CT		Place the standby SLC pump in service using keylock control switch on the 20C05A panel.
	CT	CRS	If not already performed, direct placing the standby SLC pump in service.

Operator Actions

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 7 **Page:** 13 of 14

Event Description: 'C' SRV fails to open

Cause: Valve is stuck on its main seat

Effects: Crew must open another SRV

Time		Position	Applicant's Actions or Behavior
	CT	CRS	Direct the PRO to terminate and prevent RPV injection IAW T-240 except for RCIC, SLC and CRD.
			Verify torus level is above 7 feet.
			Verify RPV pressure is 50 psig or more above torus pressure.
	CT		Direct the PRO to open all ADS SRVs with the exception of SRV 'A', and another non-ADS SRV, for a total of five SRVs.
	CT	PRO	Perform T-240 when directed.
	CT		Place required SRV control switches to the "OPEN" position; recognize and report the 'C' SRV fails to open.
	CT	CRS	Direct the PRO to open another SRV so that a total of 5 SRVs are open
	CT	PRO	Open an additional SRV; report 5 SRVs are open.
		CRS	When RPV pressure drops below 270 psig, direct the PRO to slowly raise RPV injection rate to restore and maintain RPV level above –195 inches.
			Re-enter T-102 on high torus temperature.
		URO	Observe control rods inserting into the core and report when all rods are fully inserted.
		CRS	Exit T-117, and enter T-101 at step RC/L-1.
			Direct RPV level restored and maintained between +5 and +35 inches.

Op Test No.: 1 **Scenario No.:** 2 **Event No.:** 7 **Page:** 14 of 14

Event Description: 'C' SRV fails to open...continued

Time	Position	Applicant's Actions or Behavior

TERMINATION CRITERIA:

The scenario may be terminated when:

- 5 SRVS are open,

  and

- The RPV is depressurized,

  and

- RPV level is under control,

  and

- The crew begins draining the Scram Discharge Volume per T-216 "Control Rod Insertion By Manual Scram Or Individual Scram Test Switch" in order to attempt another scram to insert control rods, and/or control rods are being inserted in accordance with T-220 "Driving Control Rods During Failure To Scram".

Simulation Facility Peach Bottom **Scenario No.** #3 (modified) **Op Test No.** 2008 NRC

Examiners _____ **Operators** _____ CRS (SRO)

_____ _____ URO (ATC)

_____ _____ PRO (BOP)

Scenario Summary The scenario begins with the reactor at 95% power. Immediately after shift turnover the crew will place HPCI in service for data collection/troubleshooting. While the test is in progress, the running Service Water pump will trip on overcurrent, requiring the crew to place the standby pump in service using the system operating procedure. The crew will then receive a report from the field of a HPCI system cooling water leak, requiring HPCI to be shutdown and declared inoperable. Next, a loss of DC power to an in-service RPS MG set output breaker will occur, requiring application of Tech Specs. When this is complete, the 'A' Condensate pump will trip without the expected Recirc System runback. Power must be manually reduced using recirc flow to prevent a low-level scram.

When conditions have stabilized, #2 Auxiliary Bus will trip on overcurrent, removing the remaining Condensate pumps from service. An RPS failure will prevent the automatic and manual scrams requiring entry into T-101 "RPV Control", T-117 "Level/Power Control", and the use of Alternate Rod Insertion (ARI) to shutdown the reactor. The scram discharge volume will fail to completely isolate and must be manually isolated. RCIC will trip when either started manually or automatically, which will remove the final source of high pressure feed. As level deteriorates, the crew should start available low pressure ECCS pumps and when the crew determines level cannot be restored and maintained above -195 inches, the reactor will be depressurized in accordance with T-112 "Emergency Blowdown", after terminating and preventing injection per T-240 (due to the six-rod ATWS). Low pressure ECCS will be available to recover reactor level.

Initial Conditions IC-73, 95% power

Turnover See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*		Event Description
1		N	PRO CRS	Perform HPCI System startup (for data collection/troubleshooting)
2		C	URO CRS	Service Water pump trip, requiring manual start of standby pump
3		C TS	PRO CRS	HPCI cooling water leak requires HPCI shutdown
4		TS	CRS	Loss of DC power to RPS MG set output breaker
5		R	URO CRS	Condensate pump trip with recirc runback failure / power reduction
6		M	ALL	Loss of #2 auxiliary bus / loss of condensate & feedwater / RCIC trips on over-speed during startup and cannot be reset
7		C	URO CRS	RPS failure requires ARI initiation to scram the reactor / ATWS (six control rods) requires terminating and preventing injection before emergency depressurization
8		I	PRO CRS	Two in-series scram discharge volume (SDV) vent valves fail to automatically isolate

* **(N)**ormal, **(R)**eactivity, **(I)**nstrument, **(C)**omponent, **(M)**ajor, **(TS)** Tech Spec

SIMULATOR OPERATOR INSTRUCTIONS FOR 2008 NRC SCENARIO #3

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.

SCENARIO SOURCE HISTORY

- This is a modified bank scenario, which originated from the 2005 NRC exam.

INITIAL SETUP

Initial Conditions

- IC-73, 95% power, full power rod pattern
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

Blocking Tags

- None

Activate APP "2008_NRC_SCN3" or insert the following:

Event Triggers

TRG E2 C_SW_PUMP_SWITCH_IN_START
TRG E7 ARI_A_ARMED
TRG E8 RCIC_SPEED_GT_500
TRG E9 SDV_INBD_NOT_IN_AUTO
TRG E10 SDV_OUTBD_NOT_IN_AUTO
TRG E2 = DOR ANO212LF1
TRG E6 = BAT BUS_2_OVERCURRENT_LOCKOUT
TRG E7 = MRF ARI01TO NORMAL
TRG E9 = DMF CRH09B
TRG E10 = DMF CRH09D

Malfunctions

Stick 6control rods using the following malfunctions:
IMF CRM022235
IMF CRM022259
IMF CRM022623
IMF CRM023803
IMF CRM024247
IMF CRM025831

IMF CRH09B (inboard SDV vent valve fails to isolate)
IMF CRH09D (outboard SDV vent valve fails to isolate)
IMF SWS01B (E1 0 0) ('B' Service Water pump trip)
IMF MCS05A (E5 0 0) ('A' condensate pump trip)
IMF RCI03 (E8 3:00 0) (RCIC turbine trip – 3 minutes after reaching 500 RPM)

Overrides

IOR ZYP06A521S16 FALSE (SFCS recirc runback inhibit)
IOR ANO212LF1 (E1 15 0) ALARM_ON (Service Water header low pressure – 216 F-1)
IOR ANO204BB3 (E3 30 0) ALARM_ON (HPCI oil cooler outlet high temperature – 221 B-3)
IOR ANO236RE2 (E4 0 0) ALARM_ON (simulates loss of DC to 'B' RPS MG output breaker)
IOR ZAORHTR210131005 (E3 0 0) 157 30 (ramps HPCI lube oil cooler outlet temperature on TR-131 to 157 degrees F over 30 seconds)

Trip Overrides

MRF ARI01TO OVERRIDE (prevents ARI auto-initiation on 'A' channel)
MRF RPS03TO OVERRIDE (prevents RPS B1 trip)
MRF RPS04TO OVERRIDE (prevents RPS B2 trip)
MRF RPS06TO OVERRIDE (prevents RPS C2 trip)

Batch Files (Verify the following Batch File exists – DO NOT ENTER AT THIS TIME)

BAT BUS_2_OVERCURRENT_LOCKOUT
IMF MAP06D
IMF MAP06E
IMF MAP06F
IOR ANO209LA2 ALARM_ON
IOR ANO209LC4 ALARM_OFF
IOR ZYP14A3S04 TRIP
IOR ZYP14A3S08 TRIP
IOR ZYP14A3S37 TRIP

Turnover Procedures

- GP-5, complete through step 5.3.29
- SO 23.1.B-2, complete through step 4.4.4; next step is 4.4.5
    - SBGT is in service
    - Torus cooling is in service on the 'D' RHR pump
    - Bulk torus temperature readings are in progress
    - An Equipment Operator is stationed in the Unit 2 HPCI Room area and ready to support system startup.

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 Support the crew for HPCI System startup in CST-to-CST Mode in accordance with SO 23.1.B-2 "HPCI System Manual Operation", Section 4.4.

EVENT 2 After the HPCI startup is complete and the system is stable, initiate pending events on **ET1** and verify:

- **IMF SWS01B** ('B' Service Water pump trip)
- **IOR ANO212LF1 ALARM_ON** (SW header low pressure – 216 F-1) after a 15-second time delay.

When requested to check the 'B' Service Water pump breaker, report that it tripped on instantaneous overcurrent.

Support the crew while placing the 'C' Service Water pump in service IAW SO 30.1.A-2, section 4.2.

When the URO starts the 'C' Service Water pump, verify **ET2 (DOR ANO212LF1)** initiates to delete the override on Annunciator 216 F-1.

EVENT 3 After the 'C' Service Water pump is placed in service, initiate pending events on **ET3** and verify:

- **IOR ZAORHTR210131005** (ramps HPCI lube oil cooler outlet temperature on TR-131 to 157 degrees F over 30 seconds)
- **IOR ANO204BB3 ALARM_ON** (simulates a cooling water leak at the HPCI lube oil cooler) after a 30-second time delay.

Report as the Equipment Operator there is a cooling water leak at the HPCI lube oil cooler inlet.

The crew should close the HPCI pump suction from the CST (MO-23-017) and one or both HPCI pump suction valves from the Torus (MO-23-057 and/or MO-23-058) to stop the cooling water leak. If/when asked to open the breaker for these valves, for:

- MO-23-017, **IMF VED01_13**
- MO-23-057, **IMF VED01_12**
- MO-23-058, **IMF VED01_11**

If asked the status of the leak before the crew has closed the HPCI pump suction valves, report the leak has NOT stopped. After both pump suction paths have been isolated, report the leak has "slowed to a trickle."

EVENT 4 Initiate **ET4 (IOR ANO236RE2 ALARM_ON)** to cause a loss of DC power to the 'B' RPS MG set output breaker.

SIMULATOR OPERATOR DIRECTIONS

EVENT 4 (continued)

Role play as the Equipment Operator to report, when requested, that:

- The BC757 breaker is NOT tripped in the E-22 Room (TRIP light is NOT lit)
- Any attempts to reset the alarm logic by depressing the red "RESET" pushbutton have no effect.
- DC control power from 2BD25 circuit 17 switch is ON.
- DC control power from 2DD25 circuit 19 has a blown fuse. (This will inop 1 of the 2 output breakers for the 'B' RPS MG set.)

NOTE: If the crew pursues fuse replacement, the next event will occur before the fuse can be replaced.

EVENT 5

After the Tech Spec determination for the 'B' RPS MG set output breaker, initiate a trip of the 'A' condensate pump using **ET5 (IMF MCS05A)**.

- Recirc pumps will fail to automatically runback due to a pre-inserted override **(IOR ZYP06A521S16 FALSE)**.

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 6

NOTE: Ensure the crew has placed the HPCI aux oil pump in P-T-L before initiating a loss of #2 aux bus. If not, **IOR ZYP13A1S35 PTL**.

Initiate **ET6 (BAT BUS_2_OVERCURRENT_LOCKOUT)** to cause an overcurrent lockout on #2 aux bus.

EVENT 7

RPS fails to scram automatically or manually (manual ARI works) – pre-inserted.

The 'A' ARI channel will fail to automatically initiate. When the URO arms the 'A' ARI channel, verify **ET7 (MRF ARI01TO NORMAL)** initiates to restore the 'A' ARI channel to normal.

Following manual or automatic start of RCIC, verify the RCIC turbine trips 3 minutes after turbine speed reaches 500 RPM from **ET8 (IMF RCI03)**.

When directed to close HV-2-3-56 (per T-246), **MRF T220_2 CLOSE** and report HV-2-3-56 is closed.

When directed, perform T-221 by going to the Remote Function Index under TRIP Procedures and **MRF T221_1 DEFEAT**.

WAIT 10 minutes then report to the MCR via telephone that the jumpers for T-221 (step 4.1) have been installed.

SIMULATOR OPERATOR DIRECTIONS

EVENT 8

Two SDV vent valves (AO-032B and AO-035B) fail to automatically isolate on the scram – pre-inserted.

When the crew manually isolates the SDV vent valves, verify the following:

- **TRG E9 = DMF CRH09B**
- **TRG E10 = DMF CRH09D**

TERMINATION

The scenario may be terminated after the RPV has been depressurized and level has been recovered and is controlled.

SHIFT TURNOVER

PLANT CONDITIONS:

- Unit 2 is steady at 95% power.
- GP-5 "Power Operations" is in progress, complete through step 5.3.29.

INOPERABLE EQUIPMENT/LCOs:

- None

SCHEDULED EVOLUTIONS:

- Raise power to 100% once Reactor Engineers revise ReMA guidance for returning to full power.
- Perform HPCI System startup in CST-to-CST Mode IAW SO 23.1.B-2 "HPCI System Manual Operation", Section 4.4, for data collection and troubleshooting of the flow controller.
    - The previous shift completed SO 23.1.B-2 through step 4.4.4; the next step is 4.4.5.
    - Once HPCI is started, establish 5000 gpm flow at 1260 psig pump discharge pressure

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

- None

GENERAL INFORMATION:

- In accordance with GP-5 "Power Operations" power was lowered to 90% under the Reactor Engineers guidance to perform a rod pattern adjustment. Rod manipulations are complete and power has been raised to 95%. The Reactor Engineers are running predictors and will revise ReMA guidance for returning to full power.

CRITICAL TASK LIST

1. **Recognize failure of the Reactor Protection System to shutdown the reactor and initiate Alternate Rod Insertion (ARI) in accordance with T-101 "RPV Control" and RRC 3B.1-2 "Alternate Rod Insertion During A Plant Event".**

2. **Manually isolate the Scram Discharge Volume (SDV) vent valves following their failure to automatically isolate.**

3. **Perform an emergency blowdown in accordance with T-112 "Emergency Blowdown" when RPV water level cannot be restored and maintained above -195 inches.**

Operator Actions

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 1 **Page:** 1 of 12

Event Description: HPCI System startup for data collection/troubleshooting

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct PRO to startup HPCI in CST-to-CST Mode IAW SO 23.1.B-2 "HPCI System Manual Operation". • Direct PRO to establish 5000 gpm flow at 1260 psig pump discharge pressure (per shift turnover).
	PRO	Startup HPCI in CST-to-CST Mode IAW SO 23.1.B-2, Section 4.4, beginning at step 4.4.5: • Start 20K002 "Vac Pump". • Throttle open MO-2-23-021 "Full Flow Test" for 3 to 4 seconds. • Open MO-2-23-024 "Cond Tank Return". • Simultaneously start the Aux Oil Pump and open MO-2-23-014 "Steam Supply". • Verify HPCI system flow rate is 5000 gpm. • Throttle MO-2-23-021 and HPCI flow controller as necessary to obtain 5000 gpm flow at 1260 psig pump discharge pressure. NOTE: the next events will occur after the HPCI startup is complete and the system is stable.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 2 **Page:** 2 of 12

Event Description: 'B' Service Water pump trips on overcurrent

Cause: Motor winding failure

Effects:

1. Alarms:
   - 216 H-1 "'B' Service Water Pump Trip"
   - 216 H-2 "'B' Service Water Pump OVLD"
   - 216 F-1 "Service Water Header Lo Press" (instructor override)
2. Loss of 'B' Service Water pump, requiring manual start of 'C' Service Water pump.

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report the following alarms and enter corresponding Alarm Response Cards: • 216 H-1 "'B' Service Water Pump Trip" • 216 H-2 "'B' Service Water Pump OVLD" • 216 F-1 "Service Water Header Lo Press" Recognize and report trip of the 2B Service Water pump. Green flag the 2B Service Water pump control switch. Dispatch an Equipment Operator to investigate the pump and breaker.
	CRS	Enter and direct actions of Alarm Response Cards 216 F-1, 216 H-1 and 216 H-2. Direct placing the 2C Service Water pump in service IAW SO 30.1.A-2 "Unit 2 Service Water System Normal Operations".
	PRO	Place the 2C Service Water pump in service IAW SO 30.1.A-2 as follows: • Direct an Equipment Operator to prepare the 2C Service Water pump for start IAW SO 30.1.A-2, steps 4.2.3 and 4.2.4. • Start the 2C Service Water pump by placing the pump control switch in "Run". • Verify Service Water pump discharge pressure is 65-95 psig (both in the Control Room and locally).
	CRS	Request troubleshooting/technical assistance through the Shift Manager.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 3 **Page:** 3 of 12

Event Description: HPCI cooling water leak

Cause: Cooling water pipe rupture at the inlet to the lube oil cooler

Effects:
1. Alarm: 221 B-3 "HPCI Turb Oil Cooler Disch Oil Temp High"
2. Rising HPCI lube oil temperature and cooling water system leak, requiring HPCI shutdown.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report alarm 221 B-3 "HPCI Turb Oil Cooler Disch Oil Temp High" and enter corresponding Alarm Response Card.
	CRS	Enter and direct actions of Alarm Response Card 221 B-3. Direct HPCI System shutdown IAW SO 23.2.A-2 "HPCI System Shutdown".
	PRO	Shutdown the HPCI System IAW SO 23.2.A-2 "HPCI System Shutdown" as follows: • Verify the Aux Oil Pump control switch is in "Start". • Verify the Vacuum Pump control switch is in "Start". • Depress and hold the HPCI System "Remote Trip" pushbutton. • Verify the Aux Oil Pump starts as turbine slows down (1200-1500 RPM). • Close MO-2-23-014 "Supply". • Verify closed MO-2-23-019 "To Feed Line". • When MO-2-23-014 is fully closed, release the "Remote Trip" pushbutton. • Close MO-2-23-021 "Full Flow Test". • Close MO-2-23-024 "Cond Tank Return". • After verifying the HPCI turbine shaft is stopped, place the Aux Oil Pump control switch in "Stop". NOTE: the crew should place the AOP in "Pull-to-Lock" to prevent HPCI startup.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 3 **Page:** 4 of 12

Event Description: HPCI cooling water leak...continued

Time	Position	Applicant's Actions or Behavior
	CRS	Direct closing the following valves to stop the cooling water leak: • MO-2-23-017 "Cond Tank Suction", AND either • MO-2-23-057 "Torus Suction Outboard", OR • MO-2-23-058 "Torus Suction Inboard" Reference Tech Spec. 3.5.1 Condition C and determine that with HPCI inoperable: • RCIC must be verified operable immediately by administrative means AND • HPCI System must be restored to operable status within 14 days OR • The plant must be in MODE 3 within 12 hours and reactor steam dome pressure must be <150 psig within 36 hours.
	PRO	Close the following valves, as directed: • MO-2-23-017 "Cond Tank Suction", AND either • MO-2-23-057 "Torus Suction Outboard", OR • MO-2-23-058 "Torus Suction Inboard" NOTE: the crew may direct an Equipment Operator to open the breakers for MO-2-23-017 and MO-2-23-057 and/or MO-2-23-058.
	CRS	Request troubleshooting/technical assistance through the Shift Manager

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 4 **Page:** 5 of 12

Event Description: Loss of DC power to the 'B' RPS MG set output breaker

Cause: Loss of DC power from 2DD25, circuit 19, to breaker BC757

Effects:
1. Alarm: 208 E-2 "RPS 'B' M-G Set Trouble or in Test"
2. Loss of trip capability for one of the two 'B' RPS MG set output breakers

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report alarm 208 E-2 "RPS 'B' M-G Set Trouble or in Test" and enter corresponding alarm response card. Recognize that RPS 'B' is NOT tripped.
	CRS	Enter and execute ARC 208 E-2: • Recognize that 2BC757 breaker is not tripped since RPS did not trip • Direct an Equipment Operator dispatched to verify the status of DC control power at 2BD25, circuit 17, and 2DD25, circuit 19.
	PRO	Use the alarm response card to assist in troubleshooting the annunciator, as directed.
	URO	Monitor plant parameters/assist as directed or requested.
	CRS	Reference Tech Spec 3.3.8.2 Condition A to make the following determination: • With DC power and therefore trip capability lost for one of the two 'B' RPS MG set output breakers, the 'B' RPS MG set must be removed from service within 72 hours.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 5 **Page:** 6 of 12

Event Description: 'A' Condensate pump trip with automatic Recirc runback failure / power reduction

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 RPV level and requiring manual recirc flow reduction to control RPV level.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report trip of the 'A' Condensate pump. Recognize and report the 45% Recirc pump runback failed to occur. Recognize and announce entry into the OT-100 "Reactor Low Level": • Recognize the RPV water level drop is caused by a lack of makeup capability, requiring power to be lowered with Recirculation. • Reduce power by lowering the 'A' and 'B' Recirc pump speed controllers to a speed demand of 45% (NOTE: this must be done in a controlled manner that does not result in level swell and a high level trip of the Reactor Feed pumps). Monitor for Thermal Hydraulic Instabilities (THI).
	CRS	Enter / direct actions of ARC 203 E-2 "A Condensate Pump BKR Trip": • Direct the URO to lower power by lowering Recirc flow manually to 45% speed. (May) refer to GP-5 "Power Operations" to determine power must be limited to <80% total feedwater flow with 2 Condensate and 3 Reactor Feedwater pumps. Enter and direct actions IAW OT-112 "Unexpected/Unexplained Change in Core Flow". • Determine position on the PBAPS Power Flow Operation Map. • Direct monitoring for Thermal Hydraulic Instability (THI). (May) enter OT-100 "Reactor Low Level" – no additional actions required.
	PRO	Investigate the cause of the 'A' Condensate pump trip using the applicable alarm response cards. Direct an Equipment Operator to investigate the breaker and pump. Green flag the 'A' Condensate pump control switch.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 6 **Page:** 7 of 12

Event Description: Loss of #2 Auxiliary Bus / loss of Condensate and Feedwater / RCIC trips or over-speed during startup and cannot be reset

Cause: Failure in the bus work results in an overcurrent condition and a bus lockout / RCIC trip throttle valve failure

Effects:

1. Alarms:
   - 219 A-2 "2 Aux Bus Overcurrent Relays"
   - 219 B-2 "2 Aus Bus Lo Voltage"
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 RPV water level to drop rapidly.
4. RCIC will attempt to start and then will trip when it reaches 500 RPM, removing the last source of high-pressure injection to the RPV.

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. Attempt to manually scram the Reactor by placing the Mode Selector Switch in "Shutdown". Attempt to scram 'B' RPS by depressing the manual scram pushbutton.
	CRS	Recognize a failure to scram condition exists; enter and execute T-101 "RPV Control" (**see Event #7**).
	PRO	Perform applicable scram actions: • Transfer 13 KV house loads (#1 bus only). • Trip main turbine at approximately 50 MWe. • Verify main generator lockout. • Verify Group II & III isolations and SGTS initiation. • Verify SDV vent and drain valves are closed (**see Event #8**). • Verify HWC isolated. • Verify recirc pumps are tripped. • Monitor instrument air header pressure and drywell pressure; report instrument air header pressure is greater than drywell pressure. Recognize and report RCIC has tripped and is NOT injecting.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 7 **Page:** 8 of 12

Event Description: RPS failure requires ARI initiation to scram the reactor / ATWS (six control rods) requires terminating and preventing injection before emergency blowdown

Cause: RPS 'B' automatic and manual channel failure / six control rods are mechanically stuck in the full out position

Effects:

1. Full Reactor scram does not occur; manual ARI initiation is required.
2. Reactor level drop is greater because more time is spent under power conditions with no high-pressure injection.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report an RPS scram has failed to occur. Report entry into T-101 "RPV Control" for the ATWS condition.
	CRS	Enter and execute T-101 "RPV Control".
CT		• Direct initiation of Alternate Rod Insertion (ARI). • Direct instrument nitrogen bypassed and restored IAW GP-8E. • Direct RPV pressure stabilized below 1050 psig.
	URO	Initiate ARI IAW RRC 3B.1-2 "Alternate Rod Insertion During a Plant Event":
CT		• Rotate the "A" and "B" ARI pushbutton collars to "Armed".
CT		• Depress the "A" and "B" ARI pushbuttons.

		• Verify the following ARI solenoid valves open:
		  ○ SV-2-03-141A
		  ○ SV-2-03-142A
		  ○ SV-2-03-141B
		  ○ SV-2-03-142B

		• Verify and report the scram air header is depressurizing. • Monitor and report when control rods begin to insert. • Verify APRMs are downscale and report to the CRS. • Recognize and report six control rods did NOT insert on the scram. Announce an additional entry condition for T-101 based on Reactor level below -48 inches.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 7 **Page:** 9 of 12

Event Description: RPS failure requires ARI initiation to scram the reactor / ATWS (six control rods) requires terminating and preventing injection before emergency blowdown...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Bypass and restore drywell instrument nitrogen IAW GP-8E, as directed • Place both instrument nitrogen valve control switches to "Close". • Place both keylock switches in "Bypass". • Place both instrument nitrogen valve control switches to "Open". NOTE: this activity may be coordinated between the URO and the PRO
	CRS	Enter and direct actions of T-117 "Level/Power Control": • Inhibit ADS. • T-221 "Main Steam Isolation Valve Bypass" (if RPV level is greater than -160 inches). • Inject with CRD using T-246 "Maximizing CRD Flow to the Reactor Vessel".
	URO	Maximize CRD flow using T-246 as follows: • Direct an Equipment Operator to bypass the CRD pump suction filter IAW T-246, step 4.3. • Direct an Equipment Operator to check the standby CRD pump for startup IAW T-246, step 4.4. • Start the standby CRD pump by placing the pump control switch to "Start". • Direct an Equipment Operator to slowly open the standby CRD pump discharge valve IAW T-246, step 4.6. • Direct an Equipment Operator to fully open the drive water filter inlet valve IAW T-246, step 4.7. • Direct an Equipment Operator to place the standby drive water filter in service IAW T-246, step 4.8. • Verify MO-2-03-020 "Drive Wtr Press" is fully open. • Close Recirc pump seal purge valves MO-2-2A-8029A and 8029B. • Place the CRD flow controller in "Man" and, while monitoring CRD pump amps, open the flow control valve. • Direct an Equipment Operator to close HV-2-3-56 IAW T-246, step 4.13.

Event Description: RPS failure requires ARI initiation to scram the reactor / ATWS (six control rods) requires terminating and preventing injection before emergency blowdown...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Perform T-117 actions: • Inhibit ADS by placing keys in both "ADS Auto Inhibit" keylock switches and placing them in the "INHIBIT" position. • Direct Equipment Operator to perform T-221.
	CRS	Request outside assistance (through Shift Manager) in recovering RCIC for injection. Per T-101, direct manual insertion of control rods using T-220 "Driving Control Rods During a Scram".
	URO	Attempt insertion of the control rods IAW T-220: • Bypass the Rod Worth Minimizer. • Attempt to insert control rods using the "Emergency In/Notch Override" switch. • Report to the CRS unable to insert the control rods.
	CRS	Determine that RPV water level cannot be restored and maintained above -195 inches. Direct terminating and preventing injection IAW T-240 (ATT. 1, Fig. 3).
	URO/PRO	When directed, perform T-240 to terminate and prevent injection into the RPV: • Verify Condensate / Feedwater is not injecting: o Close MO-2149A "2A RFP Discharge". o Close MO-2149C "2C RFP Discharge". NOTE: due to the loss of #2 Aux Bus, the 2B RFP Discharge does not have power, requiring its associated load center to be cross-tied to #1 Aux Bus. o Cross-tie 480V Load Center 2T4 by closing Tie Breaker 2-1T4 IAW RRC 55.1-2 "Cross-tie of 480V Load Centers During a Plant Event". o Close MO-2149B "2B RFP Discharge".

Event Description: RPS failure requires ARI initiation to scram the reactor / ATWS (six control rods) requires terminating and preventing injection before emergency blowdown...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	When directed, perform T-240 to terminate and prevent injection into the RPV (continued): • Verify HPCI is not injecting. • Prevent injection from Core Spray by placing all Core Spray pump control switches in "STOP" (if running). • Prevent injection from RHR/LPCI by placing all RHR/LPCI pump control switches in "STOP" (if running). • Contact the floor operator and direct isolation of Stayfull from RHR and Core Spray. NOTE: this step should be directed but actual isolation does not need to be completed prior to the blowdown.
	CRS	Enter T-112 "Emergency Blowdown".
CT		Direct all five ADS SRVs opened. When Reactor pressure lowers below 270 psig, direct slowly raising RPV injection with RHR and/or Core Spray to control RPV water level between -195 and +35 inches.
CT	PRO	When directed, open ALL five ADS SRVs to perform an Emergency Blowdown. When directed, slowly raise RPV injection with RHR and/or Core Spray to control RPV water level in the band specified by the CRS.

Op Test No.: 1 **Scenario No.:** 3 **Event No.:** 8 **Page:** 12 of 12

Event Description: Two in-series scram discharge volume (SDV) vent valves fail to automatically isolate

Cause: RPS failure in conjunction with an air header malfunction, which prevents air from venting off two SDV vent valves (common air supply).

Effects: A failure of the SDV vent valves is effectively a primary to secondary containment leak. This requires manual isolation of the SDV vent valves.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report failure of two SDV vent valves (AO-032B and AO-035B) to automatically isolate.
		Upon recognizing failure to isolate, the PRO should:
CT		• Manually isolate the valves by moving the SDV isolation hand-switches counter-clockwise to the "Close" position.
		• Verify all vent and drain valves are closed.
		• Inform the CRS as conditions permit.
	CRS	Acknowledge SDV vent valve isolation failure.
CT		Direct manual isolation of the SDV vent valves, if not already isolated.

TERMINATION CRITERIA:

The scenario may be terminated when the RPV has been depressurized and reactor level has been recovered and controlled.

Scenario Outline

Simulation Facility Peach Bottom **Scenario No.** #4 (modified) **Op Test No.** 2008 NRC

Examiners _____ **Operators** _____ CRS (SRO)

_____ _____ URO (ATC)

_____ _____ PRO (BOP)

Scenario Summary

The scenario begins with the reactor at 82% power and a plant shutdown in progress. The crew will lower reactor power using reactor recirculation flow and once below 80% power, the crew will secure a condensate pump. Following the condensate pump shutdown, the 2SU-E feeder will trip. The E12 bus will not fast transfer to the other startup feed, causing the E-1 diesel to start and its breaker to automatically close onto the bus. Automatic cooling to the diesel will not occur, requiring the crew to establish cooling manually. The crew will be required to make a Tech Spec declaration for the electrical failure.

This will be followed by a trip of the 'B' recirc pump due to a failed RPT breaker. The crew should carry out the actions of OT-112 "Unexplained/Unexpected Change in Core Flow", which includes establishing single loop operation and consulting Technical Specifications. A loss of offsite power will occur next, requiring entry into SE-11 "Loss of Off-Site Power". The crew should stabilize plant parameters using T-100 "Scram" and should recognize and respond to a failure of the HPCI flow controller to operate in automatic. The E-4 diesel generator will fail to automatically start, and the E-3 diesel generator will not start at all. The crew will be required to manually start the E-4 diesel generator using the quick-start pushbutton in order to spray the Drywell later in the scenario.

Following this event, a steam leak will develop in the drywell, requiring the crew to take actions in accordance with OT-101 "High Drywell Pressure", and execute T-101 "RPV Control" and T-102 "Primary Containment Control". The high drywell pressure condition will prevent HPCI from being used to control reactor pressure, resulting in further challenge to the primary containment.

Initial Conditions IC-74, 82% power

Turnover See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*		Event Description
1		R	URO CRS	Lower reactor power with reactor recirculation flow
2		N	PRO CRS	Secure a condensate pump
3		C TS	PRO CRS	Loss of 2SU-E startup feed with failure of the E12 bus to fast transfer / E1 EDG auto starts with failure of ESW cooling to diesel auxiliaries
4		C TS	URO CRS	Recirc RPT breaker trip / single loop operation
5		M	ALL	Loss of off-site power / steam leak in the drywell
6		C	PRO CRS	E-4 diesel generator fails to auto start
7		I	URO CRS	HPCI flow controller fails in automatic

* **(N)**ormal, **(R)**eactivity, **(I)**nstrument, **(C)**omponent, **(M)**ajor, **(TS)** Tech Spec

SIMULATOR OPERATOR INSTRUCTIONS FOR 2008 NRC SCENARIO #4

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.

SCENARIO SOURCE HISTORY

- This is a modified bank scenario, which originated from the 2007 NRC Initial License Exam (spare scenario).

INITIAL SETUP

Initial Conditions

- IC-74, 82% power
- Ensure recorder power is on, roll recorders as required

Blocking Tags

- E-232 Breaker

Activate APP "2008_NRC_SCN4" or insert the following:

Event Trigger

TRG E3 = BAT LOOP

Malfunctions

IMF DGA01C (none 0 0) (diesel generator 'C' fails to start)
IMF DGA04D (none 0 0) (diesel generator 'D' fails to auto start)
IMF ECW03 (none 0 0) (ECW pump fails to auto-start)
IMF ESW02A (none 0 0) ('A' ESW pump fails to auto-start)
IMF ESW02B (none 0 0) ('B' ESW pump fails to auto-start)
IMF HPC04 (none 0 0) (HPCI flow controller failure)
IMF MAP08A (none 0 0) (E12 bus fails to auto-transfer)
IMF RRS29B (E2 0 0) (A3402 RPT breaker trip – 'A' recirc pump trips)
IMF MSS01 (E4 0 0) 25 20:00 0 (steam leak inside primary containment)

Overrides

IOR ZLOED6C21521708_1 (none 0 0) OFF (E-232 breaker lights)
IOR ZYP14A2S23 (E1 0 0) TRIP (trips 2SU-E breaker)
IOR ANO224I1 (E1 0 0) ALRAM_ON (provides "2SU-E BKR TRIP" alarm)

Trip Overrides

None

Batch Files (Verify the following Batch File exists – DO NOT ENTER AT THIS TIME)

LOOP
IMF MAP02A
IMF MAP02B
IMF MAP02C
IMF MAP02D
IMF MAP02E
IMF MAP02F

Turnover Procedures

- GP-3 "Normal Plant Shutdown" completed through step 6.10
- NF-AB-720-F-1 control rod sequence sheets
- REMA for plant shutdown (recirc flow reduction to 80% power)
- SO 5.2.A-2 "Condensate System Condensate Pump Shutdown"

SIMULATOR OPERATOR DIRECTIONS

EVENT 1 Support the crew for the power reduction.

EVENT 2 Support the crew for the condensate pump shutdown.

If equipment operator is dispatched to close the condensate seal water supply valve, report the valve is closed.

EVENT 3 After the condensate pump is shutdown, or when directed by the Lead Examiner, initiate a loss of startup feed 2SU-E by activating **ET1** and verifying:

IOR ZYP14A2S23 TRIP (trips 2SU-E breaker)

IOR ANO224I1 ALRAM_ON (provides "2SU-E BKR TRIP" alarm)

If requested to shutdown the diesel-driven fire pump, **MRF FPR02 STOP**, then **MRF FPR02 AUTO**.

NOTE: with concurrence from the Lead Examiner, initiate the next event after the power reduction but before the crew performs follow-up actions for the loss of feedwater heating.

EVENT 4 After the crew responds to the loss of 2SU-E startup feed, as directed by the Lead Examiner, activate **ET2 (IMF RRS29B)** to initiate a trip of Recirc RPT breaker A3402 ('A' RRP).

EVENT 5 After the crew responds to the tripped recirc pump, as directed by the Lead Examiner, activate **ET3 (BAT LOOP)** and verify the following malfunctions and overrides:

- **IMF MAP02A**
- **IMF MAP02B**
- **IMF MAP02C**
- **IMF MAP02D**
- **IMF MAP02E**
- **IMF MAP02F**

If contacted as the Power System Director, report the cause of the loss of power is unknown and you will get back to the plant when more information becomes available.

If directed to perform T-261, wait 20 minutes then enter **MRF T261_1 OPEN**.

EVENT 6 Support crew as necessary for failure of the diesel generators.

If directed to perform SE-11 Attachment B for the E-3 Diesel, wait 15 minutes and report starting air system pressure is 0 psig.

SIMULATOR OPERATOR DIRECTIONS

EVENT 7

Pre-inserted malfunction **(HPC04 0)** will cause the HPCI flow controller to fail in the automatic mode.

If an equipment operator is sent to investigate HPCI, report back that nothing unusual was found.

After the E-4 diesel has been quick started, the E-42 breaker has been closed, and HPCI flow has been restored, as directed by the Lead Examiner, activate **ET4 (IMF MSS01 25 20:00)** to initiate a steam leak inside the drywell.

If requested to report DWCW header pressure, report pressure on PI-2-0262 (on Turbine Building 165') is 7 psig.

Modify the severity of MSS01 as necessary to drive drywell temperature toward 281 degrees F.

NOTE: the crew is expected to spray the drywell before drywell temperature cannot be restored and maintained below 281 degrees F, thereby avoiding an emergency blowdown.

TERMINATION

The scenario may be terminated when all Primary Containment parameters, RPV pressure and level, are stable and under control.

SHIFT TURNOVER

PLANT CONDITIONS:

- Unit 2 at 82% power with a shutdown in progress IAW GP-3 "Normal Plant Shutdown"

INOPERABLE EQUIPMENT/LCOs:

- Breaker E-232 blocked for PM.

SCHEDULED EVOLUTIONS:

- Continue with plant shutdown IAW GP-3 "Normal Plant Shutdown"
- Reduce reactor power to 80%; remove the 'C' condensate pump from service due to excessive bearing oil leakage
- ReMA PB2C17-58.0 in effect at step 1 – reduce to 80% power with recirc flow

SURVEILLANCES DUE THIS SHIFT:

- None

ACTIVE CLEARANCES:

- Breaker E-232

GENERAL INFORMATION:

- GP-3 is complete through step 6.10

CRITICAL TASK LIST

1. **Restore diesel generator cooling prior to diesel generator failure.**

2. **Spray the drywell in accordance with T-204 "Initiation of Containment Sprays Using RHR" when conditions permit, but before drywell temperature exceeds 281 degrees F. (This requires the crew to re-energize the E-42 bus from its respective diesel generator)**

Operator Actions

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 1 **Page:** 1 of 14

Event Description: Lower reactor power with reactor recirculation flow

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	Direct URO to continue power reduction to ~70 MLB/HR (or as necessary to reduce reactor power to ≤ 80%) IAW GP-3.
	URO	Reduce recirculation pump speeds to reduce total core flow to ~70 MLB/HR (or as necessary to reduce reactor power to ≤ 80%). • Verify both Moore Controllers are set to monitor the 'V' (% output) variable. • Slowly reduce Moore controller demand signals for 'A' and 'B' recirc pumps. • Observe recirc system response for approximately 30 seconds before making additional speed changes.
	PRO	Monitor plant equipment during power reduction.

Op Test No.:	1	Scenario No.:	4	Event No.:	2	Page:	2 of 14

Event Description: Secure a condensate pump

Cause: N/A

Effects: N/A

Time	Position	Applicant's Actions or Behavior
	CRS	When reactor power drops to approximately 80%, direct the PRO to shutdown the 'C' condensate pump in accordance with SO 5.2.A-2 "Condensate System Condensate Pump Shutdown".
	PRO	Review SO 5.2.A-2 and ensure prerequisites are met. Secure the 'C' condensate pump, as directed: • Close discharge valve MO-2098 C. • Stop the selected pump by turning the control switch to "STOP" (within 2 minutes of closing the discharge valve). • Direct an Equipment Operator to close the Seal Water Supply Valve for the 'C' condensate pump.
	URO	Monitor reactor parameters during condensate pump shutdown.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 3 **Page:** 3 of 14

Event Description: Loss of 2SU-E startup feed with failure of the E12 bus to fast transfer / E1 EDG auto starts with failure of ESW cooling to diesel generators.

Cause: Various

Effects:

1. Alarms: various
2. Momentary loss of the E12 bus; auto start of the E1 EDG without cooling, requiring the crew to manually start ESW to provide diesel generator cooling.

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report alarm 006 J-1 "2SU-E Bkr Trip" and enter the corresponding Alarm Response Card. Dispatch an Equipment Operator to investigate the loss of 2SU-E. Red flag all closed breakers and green flag all tripped breakers. Refer to SO 54.7.A "4KV Fast Transfer Load Shedding and Sequential Loading on Bus Undervoltage". Make a list of affected control room systems/loads (MOV's, etc.).
	CRS	(May) enter and direct actions of ARC 006 J-1 "2SU-E Bkr Trip". Enter and direct actions of ARC 001 D-1 "E12 Bus Undervoltage". Direct SO 54.7.E "4KV Diesel Generator Auto Start and Loading". Direct reset of Group II/III isolations IAW GP8.C.
	PRO	Recognize and report alarm 001 D-1 "E12 Bus Undervoltage" and enter the corresponding Alarm Response Card. Verify the E-1 diesel output breaker auto closed. Verify the E-12 bus is re-energized. Inform the CRS the E-12 bus has been restored.
CT		Recognize failure of ESW cooling to automatically start; place the 'A' or 'B' ESW pump in service by placing the pump control switch to "START" Direct an Equipment Operator to perform running inspection of the E-1 diesel generator.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 3 **Page:** 4 of 14

Event Description: Loss of 2SU-E startup feed and associated failures...continued

Time	Position	Applicant's Actions or Behavior
	CRS	Recognize entry into Tech Spec 3.8.1.A. Determine the following are required to meet the LCO: • Perform SR 3.8.1.1 (ST-O-054-950-2) within 1 hour. • Restore the offsite circuit to OPERABLE within 7 days. Recognize entry into Tech Spec 3.8.7.C for E12 bus inoperability (EDG is the only source of power to the bus). Determine the following are required to meet the LCO: • Restore the electrical power distribution subsystem to OPERABLE within 8 hours.
	URO/PRO	Recognize and report a loss of Feedwater heating.
	CRS	Enter and direct actions IAW OT-104 "Positive Reactivity Insertion". • Direct a power reduction to 10% below the pre-transient level, IAW GP-9-2 "Fast Reactor Power Reduction". • Plot position on the Power-Flow Map; verify operation is outside of Region 2. • Monitor position on OT-104 Figure 1 "Feedwater Temperature Limits".
	URO	Reduce power IAW GP-9-2 as necessary to reduce power to at least 10% below the pre-transient power level, as directed. NOTE: the next event should be inserted before the crew performs follow-up actions for the loss of Feedwater heating.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 4 **Page:** 5 of 14

Event Description: Recirc RPT breaker trip ('A' recirc pump)

Cause: Failure of breaker control logic

Effects:

1. Alarms:
   - 214 A-3 "A Recirc Pump RPT Trip"
   - 214 B-4 "A Recirc Pump Low Diff Press"
   - 214 C-2 "A Recirc Gen Lockout Trip"
   - 214 C-3 "A Recirc Drive Motor Trip"
2. Trip of the 'A' recirc pump, causing reduction in core flow and reactor power

Time	Position	Applicant's Actions or Behavior
	URO	Recognize and report trip of the 'A' reactor recirc pump and entry into OT-112 "Unexpected/Unexplained Change in Core Flow". Enter the corresponding Alarm Response Cards for alarms 214 A-3 "A Recirc Pump RPT Trip", 214 C-2 "A Recirc Gen Lockout Trip" and 214 C-3 "A Recirc Drive Motor Trip" (as time permits).
	URO/PRO	Remove a reactor feedwater pump from service, as necessary, by depressing "EMERGENCE STOP" for the selected pump.
	CRS	Enter / execute OT-112 "Unexpected/Unexplained Change in Core Flow". Direct insertion of ALL GP-9-2 control rods. Determine current operating point on Power-Flow Operation Map. Direct monitoring for THI. Direct closing 'A' recirc pump discharge valve MO-053A (or suction valve MO-43A), then re-opening valve after 5 minutes. Direct performing SO 2A.2.A-2 "Recirculation System Shutdown".
	URO	Insert ALL GP-9-2 control rods. Monitor for THI.
	URO/PRO	Close 'A' recirc pump discharge valve MO-053A (or suction valve MO-43A); re-open after 5 minutes. Perform SO 2A.2.A-2 "Recirculation System Shutdown" (as time permits).

Op Test No.:	1	Scenario No.:	4	Event No.:	4	Page:	6 of 14

Event Description: Recirc RPT breaker trip ('A' recirc pump)...continued

Time	Position	Applicant's Actions or Behavior
	CRS	Perform AO 2A.1-2 "Recirculation System Single Loop Operation". Refer to Tech Spec 3.4.1 and determine requirements for operating in single loop. NOTE: since OT-112 and Tech Spec 3.4.1 allow up to 12 hours for transitioning to single loop, these actions may be assessed as follow-up questions after the scenario is complete.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 5 **Page:** 7 of 14

Event Description: Loss of off-site power

Cause: Loss of the grid

Effects: Reactor scrams, emergency diesels receive start signal, emergency buses transfer to the diesels when available

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize and report the loss of off-site power.
	URO	Perform scram actions: • Verify control rods are inserting. • Place the mode switch in "Shutdown". • Verify APRMs are downscale (when power is available). • Report to the CRS that the mode switch is in "Shutdown", control rods are inserting, and the APRMs are downscale (when power is available). • Verify all control rods are fully inserted.
	CRS	Recognize and report the event is an entry condition for T-100 "Scram". Enter and execute T-100: • Direct the URO to maintain RPV level between +5 to +35 inches using RCIC and/or HPCI. • Direct the URO to stabilize RPV pressure below 1050 psig using SRVs and/or HPCI in CST-to-CST mode. Direct placing torus cooling in service.
	PRO	Recognize and report the E-3 and E-4 diesel generators failed to start (**see Event #6**).
	CRS	Recognize and report the loss of off-site power as an entry into SE-11 "Loss of Off-Site Power". Enter and execute SE-11.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 5 **Page:** 8 of 14

Event Description: Loss of off-site power...continued

Time	Position	Applicant's Actions or Behavior
	PRO	Perform scram actions: • Verify main turbine trip and generator lockout. • Verify Group I, II, and III isolations and verify SGTS initiation, as applicable. • Verify scram discharge volume vents and drains are closed. • Verify Hydrogen Water Chemistry is isolated. • Verify recirc pumps are tripped. • Monitor Instrument Air header pressure and drywell pressure.
	URO	Maintain RPV level +5 to +35 inches using RCIC. Verify RCIC automatically starts at -48 inches, or place RCIC in service IAW RRC 13.1-2: • Arm and depress RCIC Manual Initiation Pushbutton. • Verify MO-131, MO-021, MO-132 open. • Verify AO-034 and AO-035 close. • Verify vacuum pump starts. • Verify RCIC system flow rate is 600 gpm. • Place RCIC Manual Initiation Pushbutton in DISARM.
	URO/PRO	Place torus cooling in service IAW RRC 10.1-2: • Open MO-039A(B). • Open MO-089A(B). • Verify associated diesel load is ≤ 1400 KW. • Start RHR pump. • Open MO-034A(B) while verifying diesel loading. • Verify flow is 11,500-12,200 gpm for one RHR pump in service. • Verify associated diesel load is ≤ 2300 KW. • Start HPSW pump in each loop to be used for torus cooling. • Start additional RHR and HPSW pumps as necessary/directed (verifying diesel generator load as indicated above). • Verify flow is ≥ 20,000 gpm for two RHR pumps in service. • Direct an Equipment Operator to close stay full injection valve(s) for the RHR loop(s) in service.

Event Description: Loss of off-site power...continued

Time	Position	Applicant's Actions or Behavior
	URO	Stabilize RPV pressure below 1050 psig using SRVs and/or HPCI in CST to CST mode for pressure control IAW RRC 23.1-2 Section D: • Open MO-2-23-24 "Cond Tank Return". • Verify closed MO-2-23-19 "To Feed Line". • Start the Vacuum Pump. • Throttle OPEN MO-2-23-21 "Full Flow Test" for 3 to 4 seconds. • Simultaneously START Aux Oil Pump AND OPEN MO-2-23-14 "Steam Supply". • Verify HPCI system flow rate is 5000 gpm (**see Event #7**).
	CRS	Direct restoration of instrument nitrogen using either: • Backup Instrument Nitrogen to ADS using SO 16A.7.A-2, or • T-261 "Placing the Backup Instrument Nitrogen Supply From the CAD Tank in Service".

	URO	Restore drywell instrument nitrogen as directed.
		• If directed to use Backup Instrument Nitrogen to ADS using SO 16A.7.A-2:
		  o Place SV-8130B control switch on panel 20C003-03 to "RESET" and then in "AUTO/OPEN".
		  o Verify open SV-8130B.
		  o Verify PI-8142 "Backup N2" on the 20C003-03 panel is ≥ 85 psig
		• If directed to perform T-261 "Placing the Backup Instrument Nitrogen Supply From the CAD Tank in Service":
		  o Verify closed AO-2969B on panel 20C003-03.
		  o Dispatch an Equipment Operator to the CAD Building perform step 4.2 (manual valving).

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 5 **Page:** 10 of 14

Event Description: Steam leak in the primary containment

Cause: Unknown

Effects: Various

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Recognize and report the rise in drywell pressure. Recognize and report the condition as an entry into OT-101 "High Drywell Pressure".
	CRS	Enter and execute OT-101: • Direct maximizing drywell cooling, as necessary.
	URO/PRO	Recognize and report drywell pressure > 2 psig as an entry condition for T-101 "RPV Control" and T-102 "Primary Containment Control". Perform a short-term shutdown of HPCI IAW RRC 23.1-2: • Verify the Aux Oil Pump control switch is in "Start". • Verify the Vacuum Pump control switch is in "Start". • Depress and hold the HPCI System "Remote Trip" pushbutton. • When turbine speed reaches ~0 RPM, place the Aux Oil Pump control switch in "Pull-to-Lock". • Release the "Remote Trip" pushbutton.
	CRS	Enter and execute T-101. Enter and execute T-102: For PC/P: • Direct manual isolation of RBCCW and DWCW, as necessary IAW GP-8B. • Direct torus sprays initiated IAW T-204 "Initiation of Containment Sprays Using RHR". For DW/T: • (May) direct maximizing drywell cooling by performing T-223 "DW Cooler Fan Bypass" (NOTE: due to DWCW and RBCCW/Service Water unavailability, there will be no benefit to performing T-223). For PC/G: • Direct CAD placed in service.

Event Description: Steam leak in the primary containment...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Monitor T-102 parameters (torus temperature, torus level, drywell pressure, torus pressure, drywell temperature) and provide trends to the CRS, as appropriate. Perform GP-8B "Manual Isolation of RBCCW and DWCW" (no isolation actions are required, however the Operator may modify system flow paths due to RBCCW system pressure/flow oscillations).
	URO/PRO	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-S18B in "MANUAL OVERRIDE". • Momentarily place switch 10A-S17B in "MANUAL". • Open or verify open MO-2-10-39B "Torus Header". • Open or verify open MO-2-10-89B(D) HPSW Hx Outlet". • Verify load on EDG supplying selected pumps is below 1400 KW. • Start B(D) RHR Pump. • Start B(D) HPSW Pump. • Close or verify closed MO-2-10-34B "Full Flow Test". • Throttle open MO-2-10-38B "Torus Spray" to obtain 1,000 gpm on FI-2-10-136B.
	URO/PRO	If directed, maximize drywell cooling by performing T-223 "DW Cooler Fan Bypass": • Verify operation on safe side of Figure 1 "DWCW Saturation Curve". • Place all Drywell Cooler Fan control switches to "OFF" at panel 20C012. • Momentarily place DW Cooler Fans control switch 43-S-J165 in "BYPASS" and let it spring return to "NORMAL" at panel 20C05A. • Direct Equipment Operator to place Drywell Cooler Fan speed control switches to "SLOW" at their respective MCC in the Reactor Building. • Operate Drywell Cooler Fans to reduce drywell temperature and pressure.

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 5 **Page:** 12 of 14

Event Description: Steam leak in the primary containment...continued

Time	Position	Applicant's Actions or Behavior
	URO/PRO	Place CAD in service when directed.
	CRS	Direct reducing RPV pressure to ~500 psig using SRVs.
	URO/PRO	Reduce RPV pressure to ~500 psig using SRVs, as directed.
	CRS	Before drywell temperature reaches 281 degrees F, and when drywell
CT		pressure and temperature plot within the safe region of the Drywell Spray Initiation Limit Curve, direct:
		• Drywell cooling fans shut down.
CT		• Drywell sprays initiated per T-204 "Initiation of Containment Sprays Using RHR".
	URO/PRO	When directed, shutdown the drywell cooler fans by placing all fan control switches in "OFF".
	URO/PRO	Spray the drywell in accordance with T-204 "Initiation of Containment Sprays Using RHR".
		• Verify Recirc Pumps are tripped.
		• Verify all Drywell coolers are OFF.
CT		• Open MO-2-10-31B "DW Spray Inboard".
CT		• Open MO-2-10-26B "DW Spray Outboard".
CT		• Close or verify closed MO-2-10-34B "Full Flow Test".
		• Monitor containment pressure.
		• Throttle MO-2-10-26B to adjust spray flow as required to reduce drywell pressure, while maintaining drywell pressure > 2 psig.
		• Throttle MO-2-10-34B as required to maintain RHR System flow at least 4,000 gpm.

Operator Actions

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 6 **Page:** 13 of 14

Event Description: E-3 diesel generator start failure
E-4 diesel generator auto start failure

Cause: Various

Effects: E-3 diesel generator cannot be started.
E-4 diesel generator fails to start automatically but can be manually started.

Time		Position	Applicant's Actions or Behavior
		PRO	Recognize the E-3 diesel generator failed to start.
			Attempt a quick start of the E-3 diesel by depressing the QUICK START pushbutton.
			Report the E-3 diesel failed to start from the control room.
			Dispatch an Equipment Operator to the E-3 diesel generator.
			Perform SE-11, Attachment B "Responding to a Diesel Generator Trip or Failure to Start".
		PRO	Recognize the E-4 diesel generator failed to start.
	CT		Attempt a quick start of the E-4 diesel by depressing the QUICK START pushbutton.
			Recognize E-4 diesel starts and loads its busses.
	CT		Recognize failure of ESW cooling to automatically start; place the 'A' or 'B' ESW pump in service by placing the pump control switch to "START"
			Direct an Equipment Operator to perform running inspection of the E-2 and E-4 diesel generators.
		CRS	Direct the E-3 diesel quick started, if not done.
	CT		Direct the E-4 diesel quick started, if not done.

Operator Actions

Op Test No.: 1 **Scenario No.:** 4 **Event No.:** 7 **Page:** 14 of 14

Event Description: HPCI flow controller fails in automatic

Cause: Instrument failure

Effects: When HPCI is initiated, it will not reach sufficient speed to inject water into the reactor due to the flow controller failure. Operator action will be required in order to inject and/or control RPV pressure with HPCI.

Time	Position	Applicant's Actions or Behavior
	URO	Recognize HPCI is not injecting after system startup.
		Respond to the failure by taking manual control of the HPCI flow controller and raising turbine speed.
		Manually control HPCI turbine speed as necessary to establish and control HPCI injection/RPV level.
		Report the HPCI flow control failure and current status of HPCI to CRS.

TERMINATION CRITERIA:

The scenario may be terminated when all Primary Containment parameters, RPV pressure and level are stable and under control.