

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR -337CA
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	001
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	mda
<b>TITLE:</b>	Lineup Standby Gas Treatment System for Automatic Operation – Alternate Path (Switches Are Out of Position)		

**APPROVALS:**

_____ Signature / Title	_____ Date
_____ Signature / Title	_____ Date
_____ Signature / Title	_____ Date
_____ Signature / Title	_____ Date

**APPROVED FOR USE:**

_____ Signature / Title	_____ Date
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**EFFECTIVE DATE:** \_\_\_\_/\_\_\_\_/\_\_\_\_

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2610030101 – PLOR-337CA      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
<p align="center"><b>****NOTE TO EVALUATOR****</b></p> <p align="center"><b>Hand partial of COL 9A.1.A " Standby Gas Treatment System Automatic Operation" to the Examinee to start this JPM.</b></p>			
1	Verify Standby Gas Treatment Fan 'A' (0AV020) control switch is in "AUTO".	P	<p>On panel 20C012 verify Standby Gas Treatment Fan 'A' (0AV020) control switch is in "AUTO" position.</p> <p>Initial and date the check off list step.</p>
*2	<p>Verify Standby Gas Treatment Fan 'B' (0BV020) control switch is in "AUTO".</p> <p>(Cue: If notified that the Fan 'B' (0BV020) control switch is NOT in "AUTO" position, acknowledge report. If necessary, direct candidate to continue task and report all discrepancies upon completion of task.)</p>	P	<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.</p> <p>May report to the Control Room Supervisor that the switch is out of target position now or report all mispositionings after COL is completed.</p> <p>Annotate as-found position of switch.</p>
3	Verify AO-2507 "Drywell Outboard 18" Vent" is in "CLOSED" position.	P	<p>On panel 20C003-3 verify that AO-2507 "Drywell Outboard 18" Vent" is in "CLOSED" position.</p> <p>Initial and date the check off list step.</p>
4	Verify AO-2512 "Torus Outboard 18" Vent" is in "CLOSED" position.	P	<p>On panel 20C003-3 verify that AO-2512 "Torus Outboard 18" Vent" is in "CLOSED" position.</p> <p>Initial and date the check off list step.</p>
5	Verify AO-2514 "Torus Outboard 2" Vent" is in "CLOSED" position.	P	<p>On panel 20C484A verify that AO-2514 "Torus Outboard 2" Vent" is in "CLOSED" position.</p> <p>Initial and date the check off list step.</p>

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

STEP NO	STEP	ACT	STANDARD
10	Verify AO-00476-02 "Standby Gas Treatment B Filter Outlet" is in "AUTO" position.	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.	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.	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.	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.	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.	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.	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

STEP NO	STEP	ACT	STANDARD
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 NOT manipulate any components.**

# PARTIAL IV PERFORMANCE

COL 9A.1.A  
Rev. 10  
Page 1 of 10  
MTW:mtw

## COL 9A.1.A STANDBY GAS TREATMENT SYSTEM AUTOMATIC OPERATION

Purpose: Lineup the Standby Gas Treatment System for Automatic Operation.

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
1.	Throttle HV-0-36B-18870A and verify FI-7130A, "SBGTS A Train Purge Air Flow", located on the side of A SBT filter train, indicates 30-40 SCFH.			N/A	
2.	Throttle HV-0-36B-18870B and verify FI-7130B, "SBGTS B Train Purge Air Flow", located on the side of B SBT filter train, indicates 30-40 SCFH.			N/A	
3.	HCS 00522-01 Standby Gas Bypass PO Control	Open	OBC452	N/A	
4.	HCS 00530 Standby Gas Vortex PO Control	Closed	OBC452	N/A	
5.	Verify Standby Gas Treatment A Fan OAV020 control switch, located on Panel 20C012, is in "AUTO".				
6.	Verify Standby Gas Treatment B Fan OBV020 control switch, located on Panel 20C012, is in "AUTO".				
7.	Verify Standby Gas Treatment C Fan OCV020 control switch, located on Panel 30C012, is in "AUTO".			N/A	
8.	AO 2507 Drywell Outbd 18" Vent	Closed	20C003-3		

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
9.	AO 2512 Torus Outbd 18" Vent	Closed	20C003-3		
10.	AO 2514 Outbd 2" Torus Vent	Closed	20C484A		
11.	AO 2510 Outbd 2" Drywell Vent	Closed	20C484B		
12.	AO 3507 Drywell Outbd 18" Vent	Closed	30C003-3	N/A	
13.	AO 3512 Torus Outbd 18" Vent	Closed	30C003-3	N/A	
14.	AO 3514 Outbd 2" Torus Vent	Closed	30C484A	N/A	
15.	AO 3510 Outbd 2" Drywell Vent	Closed	30C484B	N/A	
16.	AO 00475-01 Standby Gas Treatment A Filter Inlet	Auto	20C012		
17.	AO 00475-02 Standby Gas Treatment A Filter Outlet	Auto	20C012		
18.	AO 00476-01 Standby Gas Treatment B Filter Inlet	Auto	20C012		
19.	AO 00476-02 Standby Gas Treatment B Filter Outlet	Auto	20C012		
20.	AO 20469-01 Standby Gas Treatment D/W Rx Bldg Equip Exh	Closed	20C012		
21.	AO 20469-02 Standby Gas Treatment D/W Rx Bldg Equip Exh	Closed	20C012		

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
22.	AO 20470-01 Standby Gas Treatment Refuel Flr Exh	Closed	20C012		
23.	AO 20470-02 Standby Gas Treatment Refuel Flr Exh	Closed	20C012		
24.	PO 20465 Exh to Stby Gas Treat Equip Cell	Closed	20C012		
25.	PO 20466 Exh to Stby Gas Treat Rx Bldg	Closed	20C012		
26.	AO 30469-01 Standby Gas Treatment D/W Rx Bldg Equip Exh	Closed	30C012		
27.	AO 30469-02 Standby Gas Treatment D/W Rx Bldg Equip Exh	Closed	30C012		
28.	AO 30470-01 Standby Gas Treatment Refuel Flr Exh	Closed	30C012		
29.	AO 30470-02 Standby Gas Treatment Refuel Flr Exh	Closed	30C012		
30.	PO 30465 Exh to Stby Gas Treat Equip Cell	Closed	30C012		
31.	PO 30466 Exh to Stby Gas Treat Rx Bldg	Closed	30C012		
32.	BKR 52-5923 Stby Gas Treatment Fan OAV20	Closed	E124-T-B		
33.	BKR 52-5944 Stby Gas Treatment Exht Ht OAE65	Closed	E124-T-B		
34.	BKR 52-6043 B Emer Stby Gas Treat Fan 0BV20	Closed	E224-T-B		

N/A

N/A

7/10/04  
7/15/04

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
35.	BKR 52-6023 Stand-by Gas Treatment Exhaust Preheat OBE65	Closed	E234-T-B	N/A	
36.	BKR 52-3894 Stand-by Gas Treat Exh OCV20	Closed	E334-R-B		
37.	RTV 0 9A 20008H FT-20008 Hi	Open	R/W-8		
38.	RTV 0 9A 20008L FT-20008 Low	Open	R/W-8		
39.	RTV 0 9A 668H DPI-00668-01 + DPI-00668-02 Exhaust to Stack FE-20008	Open	OCC452		
40.	RTV 0 9A 668L DPI-00668-01 + DPI-00668-02 Exhaust to Stack FE-20008	Open	OCC452		
41.	RTV 0 9A 20001H DPS-20001/DPT-20001 Hi Filter Train A Inlet Plenum	Open	R/W-1		
42.	RTV 0 9A 20001L DPS-20001/DPT-20001 Lo Fltr Train A Outlet Plenum	Open	R/W-1		
43.	RTV 0 9A 20002-01 DPI-20002-01 Lo + 20002-02 Hi Dnstrm OBF034 Upstrm OBF035	Open	R/W-1		
44.	RTV 0 9A 20002-02 DPI-20002-02 Lo + 20002-03 Hi Dnstrm OBF035 Upstrm OBF036	Open	R/W-1		
45.	RTV 0 9A 20002-03 DPI-20002-03 Lo + 20002-04 Hi Dnstrm OBF036 Upstrm OBF037	Open	R/W-1	N/A	

10/2/84

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
46.	RTV 0 9A 20002H DPS-20002/DPT-20002 Hi Filter Train B Inlet Plenum	Open	R/W-1	N/A	
47.	RTV 0 9A 20002L DPS-20002/DPT-20002 Lo Fltr Train B Outlet Plenum	Open	R/W-1		
48.	HV-0-09A-11428A SBGT Exhaust Fan A Disch Spare	Closed & Capped	R/W-1		
49.	HV-0-09A-11427A SBGT Exhaust Fan A Suction Spare	Closed & Capped	R/W-1		
50.	HV-0-09A-11428C SBGT Exhaust Fan C Disch Spare	Closed & Capped	R/W-1		
51.	HV-0-09A-11427C SBGT Exhaust Fan C Suction Spare	Closed &	R/W-1		
52.	RTV 0 9A 20001-01 DPI-20001-01 Lo + 20001-02 Hi Dnstrm 0AF034 Upstrm 0AF035	Open	R/W-1		
53.	RTV 0 9A 20001-02 DPI-20001-02 Lo + 20001-03 Hi Dnstrm 0AF035 Upstrm 0AF036	Open	R/W-1		
54.	RTV 0 9A 20001-03 DPI-20001-03 Lo + 20001-04 Hi Dnstrm 0AF036 Upstrm 0AF037	Open	R/W-1		
55.	HV 2 36B 20475-01 Hi-Rad Opening A/S Blocked to DPC-20479-01 + PO-20477-01	Open	R2-53	✓	
56.	HV 2 36B 20476-01 Hi-Rad Opening A/S Metering Valve to PO-20477-01	Open	R2-53	N/A	

7/20/04  
TJ  
Today

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
57.	HV 2 36B 20475-02 Hi-Rad Opening A/S Block to DPC-20479-02 + PO-20477-02	Open	R2-52	N/A	
58.	HV 2 36B 20476-02 Hi-Rad Opening A/S Metering Valve to PO-20477-02	Open	R2-52		
59.	HV 3 36B 30475-01 Hi-Rad Opening A/S Block to DPC-30479-01 + PO-30477-01	Open	R3-53		
60.	HV 3 36B 30476-01 Hi-Rad Opening A/S Metering Valve to PO-30477-01	Open	R3-53		
61.	HV 3 36B 30475-02 Hi-Rad Opening A/S Block to DPC-30479-02 + PO-30477-02	Open	R3-52		
62.	HV 3 36B 30476-02 Hi-Rad Opening A/S Metering Valve to PO-30477-02	Open	R3-52		
INSTRUMENT VALVES					
63.	IIV 0 9A 20001H DPS-20001 High Process Side Filter Train A Inlet Plenum	Open	R/W-1		
64.	IIV 0 9A 20001L DPS-20001 Low Process Side Fltr Train A Outlet Plenum	Open	R/W-1	V	
65.	IIV 0 9A 20002H DPS-20002 High Process Side Filter Train B Inlet Plenum	Open	R/W-1	N/A	

9/20/04  
TJ  
10/04

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
66.	IIV 0 9A 20002L DPS-20002 Low Process Side Fltr Train B Outlet Plenum	Open	R/W-1		N/A
67.	IIV 0 9A 11429H DPT-20002 High Process Side Filter Train B Inlet Plenum	Open	R/W-1		
68.	IIV 0 9A 11429L DPT-20002 Low Process Side Fltr Train B Outlet Plenum	Open	R/W-1		
69.	ISV-2-9A-20003-01L DPT-20003-01 Low Side Instrument Shutoff Valve	Open	R2-53		
70.	ISV-2-9A-20003-01H DPT-20003-01 High Side Instrument Shutoff Valve	Open	R2-53		
71.	IEV-2-9A-20003-01 DPT-20003-01 Equalization Valve	Closed	R2-53		
72.	IDV-2-9A-20003-01H DPT-20003-01 High Side Instrument Drain Valve	Closed & Capped	R2-53		
73.	IDV-2-9A-20003-01L DPT-20003-01 Low Side Instrument Drain Valve	Closed & Capped	R2-53		
74.	ISV-2-9A-20003-02L DPT-20003-02 Low Side Instrument Shutoff Valve	Open	R2-56		
75.	ISV-2-9A-20003-02H DPT-20003-02-High Side Instrument Shutoff Valve	Open	R2-56		N/A

7/10/04  
HJ  
10/1/04



STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
76.	IEV-2-9A-20003-02 DPT-20003-02 Equalization Valve	Closed	R2-56	N/A	
77.	IDV-2-9A-20003-02H DPT-20003-02 High Side Instrument Drain Valve	Closed & Capped	R2-56		
78.	IDV-2-9A-20003-02L DPT-20003-02 Low Side Instrument Drain Valve	Closed & Capped	R2-56		
79.	ISV-3-9A-30003-01L DPT-30003-01 Low Side Instrument Shutoff Valve	Open	R3-53		
80.	ISV-3-9A-30003-01H DPT-30003-01 High Side Instrument Shutoff Valve	Open	R3-53		
81.	IEV-3-9A-30003-01 DPT-30003-01 Equalization Valve	Closed	R3-53		
82.	IDV-3-9A-30003-01H DPT-30003-01 High Side Instrument Drain Valve	Closed & Capped	R3-53		
83.	IDV-3-9A-30003-01L DPT-30003-01 Low Side Instrument Drain Valve	Closed & Capped	R3-53		
84.	ISV-3-9A-30003-02L DPT-30003-02 Low Side Instrument Shutoff Valve	Open	R3-57		
85.	ISV-3-9A-30003-02H DPT-30003-02 High Side Instrument Shutoff Valve	Open	R3-57		
86.	IEV-3-9A-30003-02 DPT-30003-02 Equalization Valve	Closed	R3-57	N/A	

4  
6/24/10  
10/24/10

STEP #	APPARATUS	TARGET POSITION	LOCATION	CHECKED BY	DATE
87.	IDV-3-9A-30003-02H DPT-30003-02 High Side Instrument Drain Valve	Closed & Capped	R3-57	<i>n/A</i>	
88.	IDV-3-9A-30003-02L DPT-30003-02 Low Side Instrument Drain Valve	Closed & Capped	R3-57	<i>n/A</i>	

Glossary:

20C003-3	- U/2 CS, RHR, Isol & Blowdown Ctrl Board
20C012	- Plant Services Console
20C484A	- Unit 2 CAD Control Board
20C484B	- Unit 2 CAD Control Board
30C003-3	- U/3 CS, RHR, Isol & Blowdown Ctrl Board
30C012	- Plant Services Console
30C484A	- Unit 3 CAD Control Board
30C484B	- Unit 3 CAD Control Board
E124-T-B	- Unit 2 Turbine Bldg Across from E12 Bus
E224-T-B	- Unit 2 Turbine Bldg Near E22 Bus Room
E234-T-B	- Unit 3 Turbine Building
E334-R-B	- Unit 3 Northwest Corner Reactor Bldg
0BC452	- SBGT Exhaust Fan Bypass Damper/Vortex Vane Control Panel
0CC452	- SBGT Room Panel
R/W-1	- Standby Gas Treatment Room
R/W-8	- Waste and Floor Drain Surge Tank Room
R2-52	- Reactor Building Fan Area - Elev. 214'
R2-53	- Rx Bldg Hallway - Elevation 195 ft.
R3-52	- Reactor Building Fan Area - Elev. 214'
R3-53	- Rx Bldg Hallway - Elevation 195 ft.
R2-56	- Rx Bldg SE General Area - Elevation 234 ft.
R3-57	- Rx Bldg NE General Area - Elevation 234 ft.
AO	- Air Operated Valve
BKR	- Breaker Compartment
HCS	- Hand Control Switch
IDV	- Instrument Drain Valve
IEV	- Instrument Equalizing Valve
IIV	- Instrument Isolation Valve
ISV	- Instrument Shutoff Valve
RMS	- Control Room Hand Switch (Remote)
RTV	- Root Valve

SIGNATURE SECTION:

<u>PRINT NAME</u>	<u>INITIALS</u>	<u>DATE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REVIEW:

Completed Lineup reviewed in accordance with the  
Operators Manual, "Procedure Use" Section.

by \_\_\_\_\_  
Shift Management Date/Time

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> <b>X</b>	JPM	<input type="checkbox"/>	QUALIFICATION MANUAL	<input type="checkbox"/>	OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING				<b>CODE #:</b>	PLOR -279
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION				<b>REV #:</b>	000
<b>AUTHOR:</b>	J. A. Verbillis				<b>TYPIST:</b>	jav
<b>TITLE:</b>	Evaluate Overtime Work Request					
<b>APPROVALS:</b>						
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
<b>APPROVED FOR USE:</b>						
			_____ Signature / Title		_____ Date	
<b>EFFECTIVE DATE:</b> ____ / ____ / ____						

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2991120301 – PLOR-279C

K/A: G2.1.5

URO: 2.9    SRO: 3.9

TASK DESCRIPTION:      Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, 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. LS-AA-119 "Fatigue Management and Work Hour Limits"

**C. REFERENCES**

1. LS-AA-119 "Fatigue Management and Work Hour Limits" Rev 9

**D. TASK STANDARD**

1. Satisfactory task completion is indicated when the candidate successfully assesses the work hour limits and documents findings on the cue sheet.
2. Estimated time to complete: 20 minutes Non-Time Critical

**E. DIRECTIONS TO EXAMINEE**

When given the initiating cue, perform necessary steps to review the work history provided, determine whether or not you are able to cover the requested shift AND determine if any work hour limits have already been violated, using appropriate procedures. I will describe initial conditions and provide you access to the materials required to complete this task.

**F. TASK CONDITIONS/PREREQUISITES**

1. Shift supervision has contacted you on Saturday, 2/16 (a scheduled day off), requesting you cover a 12 hour overtime shift from 0700 to 1900.
2. You were on vacation for two weeks, returning to work on Sunday, 2/3.
3. Your work history for the previous two weeks is as follows, with all hours having been in posted Licensed Reactor Operator positions.

<b>Sunday 2/3</b>	<b>Monday 2/4</b>	<b>Tuesday 2/5</b>	<b>Wednesday 2/6</b>	<b>Thursday 2/7</b>	<b>Friday 2/8</b>	<b>Saturday 2/9</b>
Worked 1900 – 0700	Worked 1900 - 0700	OFF	OFF	Worked 1900 - 1100	Worked 1900 - 0700	OFF
<b>Sunday 2/10</b>	<b>Monday 2/11</b>	<b>Tuesday 2/12</b>	<b>Wednesday 2/13</b>	<b>Thursday 2/14</b>	<b>Friday 2/15</b>	<b>Saturday 2/16</b>
Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Request: 0700 to 1900

**G. INITIATING CUE**

Using the work history provided:

1. Determine whether or not you are able to cover the requested shift AND whether any work hours limits have already been violated.
2. Document your results on the Cue sheet provided.

## H. PERFORMANCE CHECKLIST

<b>Evaluator Cue:</b>  <b>Provide candidate with copy of LS-AA-119 "Fatigue Management and Work Hour Limits" procedure and Cue Sheet.</b>			
1	Review work history and LS-AA-119 to determine if able to work requested shift.	P	Candidate reviews procedure for Work Hour limits and reviews work history provided.
*2	Determine that working the requested overtime shift will result in exceeding work hour limits.	P	Determine that working the requested shift would result in exceeding 72 hours in any 7-day period (Sunday, 2/10 through Friday, 2/15 shows 72 hours worked. Working Saturday would result in exceeding 72 hours in the 7-day period)
*3	Determine that the previously worked schedule violates additional work hour rules. <b>(Cue: <u>If asked</u>, report that the transition from 2/7 to 2/8 is <u>NOT</u> a scheduled transition for the crew)</b>	P	Determine that the break between shifts from Thursday 2/7 to Friday 2/8 was less than the required 10 hours.
4	Inform supervision (via documenting on cue sheet) that you are not able to work the requested overtime shift due to	P	Document findings on cue sheet.
5	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

## I. TERMINATING CUE

When review is complete and supervision has been notified (cue sheet complete) the evaluator will terminate the exercise.

## TASK CONDITIONS/PREREQUISITES

1. Shift supervision has contacted you on Saturday, 2/16 (a scheduled day off), requesting you cover a 12 hour overtime shift from 0700 to 1900.
2. You were on vacation for two weeks, returning to work on Sunday, 2/3.
3. Your work history for the previous two weeks is as follows, with all hours having been in posted Licensed Reactor Operator positions.

Sunday 2/3	Monday 2/4	Tuesday 2/5	Wednesday 2/6	Thursday 2/7	Friday 2/8	Saturday 2/9
Worked 1900 – 0700	Worked 1900 - 0700	OFF	OFF	Worked 1900 - 1100	Worked 1900 - 0700	OFF
Sunday 2/10	Monday 2/11	Tuesday 2/12	Wednesday 2/13	Thursday 2/14	Friday 2/15	Saturday 2/16
Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Worked 0700 - 1900	Request: 0700 to 1900

## INITIATING CUE

Using the work history provided:

1. Determine whether or not you are able to cover the requested shift AND whether any work hours limits have already been violated.
2. Document your results below.

+++++  
**Circle One : CAN / CANNOT work the requested shift.**

**Reason:**

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**Additional Violations (if any):**

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**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> <b>X</b>	JPM	<input type="checkbox"/>	QUALIFICATION MANUAL	<input type="checkbox"/>	OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING				<b>CODE #:</b>	PLOR-274C
<b>COURSE:</b>	Licensed Operator Requalification				<b>REV #:</b>	000
<b>AUTHOR:</b>	C. N. Croasmun				<b>TYPIST:</b>	cnc
<b>TITLE:</b>	ISOLATING THE 3B RBCCW HEAT EXCHANGER DUE TO A LEAK					
<b>APPROVALS:</b>						
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
<b>APPROVED FOR USE:</b>						
			_____ Signature / Title		_____ Date	
<b>EFFECTIVE DATE:</b> ____/____/____						

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2002300401 / PLOR-274C K/A: G2.2.41  
RO: 3.5

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. A Full Set of each of the following P & IDs:
  - a. M-314 series
  - b. M-315 series
  - c. M-316 series

## C. REFERENCES

1. P&ID M-316 sheet 3, Rev. 52
2. P&ID M-314 sheet 8, Rev. 65
3. P&ID M-315 sheet 4, Rev. 54
4. OP-AA-108-101 "Control of Equipment and System Status"

## D. TASK STANDARD

1. Satisfactory task completion is indicated when the isolation points and vent/drain paths for the RBCCW, Service Water, and Emergency Service Water side of the 3B RBCCW 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 3B RBCCW heat exchanger.

## F. TASK CONDITIONS/PREREQUISITES

A suspected tube leak has been identified on the standby 3B Reactor Building Closed Cooling Water (RBCCW) heat exchanger 3BE018. The Work Control Supervisor will be developing an Abnormal Component Position Sheet for isolation, venting, and draining of the 3B RBCCW heat exchanger.

## G. INITIATING CUE

The Control Room Supervisor directs you to identify the components and their required positions to isolate, vent and drain the tube and shell side of the 3B RBCCW heat exchanger. Document your results on the CUE SHEET.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	<p>Locate the component that is leaking on P&amp;ID drawings M-316 sheet 3 (RBCCW side) and M-314 sheet 8 (Service Water side).</p> <p>(Cue: Provide the candidate(s) with a full set of the M-314, M-315 and M-316 series P &amp; IDs)</p> <p>(Cue: If asked, inform candidate(s) that PIMS is down for IT maintenance)</p>	P	Locate 3BE018 on M-316 sheet 3, (Coordinates B-3) and on M-314 sheet 8 (Coordinates F-3).
<p style="text-align: center;"><b>*** NOTE ***</b></p> <p><b>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 RBCCW and Service Water sides of the heat exchanger.</b></p>			
*2	Close HV-3-35-34205B "RBCCW HX 3BE018 Inlet Block Valve".	P	Identifies that HV-3-35-34205B "RBCCW HX 3BE018 Inlet Block Valve" must be CLOSED in order to ISOLATE RBCCW to the heat exchanger.
*3	Close HV-3-35-34210B "RBCCW HX 3BE018 Outlet Block Valve".	P	Identifies that HV-3-35-34210B "RBCCW HX 3BE018 Outlet Block Valve" must be CLOSED in order to ISOLATE RBCCW to the heat exchanger.
*4	Open HV-3-35-34206B "RBCCW HX 3BE018 Drain Valve"	P	Identifies that HV-3-35-34206B "RBCCW HX 3BE018 Drain Valve" must be OPENED in order to DRAIN the RBCCW side of the 3B RBCCW heat exchanger.

*5	<p>Open HV-3-35-34209B "RBCCW HX 3BE018 Lower Vent Valve"</p> <p>AND / OR</p> <p>Open HV-3-35-34207B "RBCCW HX 3BE018 Upper Vent Valve"</p>	P	<p>Identifies that HV-3-35-34209B "RBCCW HX 3BE018 Lower Vent Valve" must be OPENED in order to VENT the lower section of the 3B RBCCW heat exchanger</p> <p>AND / OR</p> <p>HV-3-35-34207B "RBCCW HX 3BE018 Upper Vent Valve" must be OPENED in order to VENT the upper section of the 3B RBCCW heat exchanger.</p>
*6	Close HV-3-30-31866B "Service Water Inlet to B RBCCW HX Block Valve".	P	Identifies that HV-3-30-31866B "Service Water Inlet to B RBCCW HX Block Valve" must be CLOSED in order to ISOLATE Service Water to the heat exchanger.
*7	Close HV-3-30-31867B "Service Water Outlet from B RBCCW HX Block Valve".	P	Identifies that HV-3-30-31867B "Service Water Outlet from B RBCCW HX Block Valve" must be CLOSED in order to ISOLATE Service Water to the heat exchanger.
*8	Close HV-3-33-520B "ESW to RBCCW HX 3BE018 Inlet Block Valve".		Identifies that HV-3-33-520B "ESW to RBCCW HX 3BE018 Inlet Block Valve" must be CLOSED in order to ISOLATE Emergency Service Water to the heat exchanger.
*9	Open HV-3-30-31868B "B RBCCW HX Tube Side Inlet Drain Valve"	P	Identifies that HV-3-30-31868B "B RBCCW HX Tube Side Inlet Drain Valve" must be OPENED in order to DRAIN the Service Water side of the 3B RBCCW heat exchanger.
*10	Open HV-3-30-31869B "B RBCCW HX Tube Side Low Point Drain Valve"	P	Identifies that HV-3-30-31869B "B RBCCW HX Tube Side Low Point Drain Valve" must be OPENED in order to DRAIN the Service Water side of the 3B RBCCW heat exchanger.
*11	Open HV-3-30-70B "B RBCCW HX Tube Side High Point Drain Valve"	P	Identifies that HV-3-30-70B "B RBCCW HX Tube Side High Point Drain Valve" must be OPENED in order to DRAIN the Service Water side of the 3B RBCCW heat exchanger.

*12	Open HV-3-30-71B "B RBCCW HX Tube Side Vent Valve"	P	Identifies that Open HV-3-30-71B "B RBCCW HX Tube Side Vent Valve" must be OPENED in order to VENT the Service Water side of the 3B RBCCW heat exchanger.
13	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.
14	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 RBCCW, Service Water and Emergency Service Water isolation points, vent paths, and drain paths to the 3B RBCCW heat exchanger have been identified, and the Control Room Supervisor informed, the evaluator will terminate the exercise.

**A suspected tube leak has been identified on the standby 3B Reactor Building Closed Cooling Water (RBCCW) heat exchanger 3BE018. The Work Control Supervisor will be developing an Abnormal Component Position Sheet for isolation, venting, and draining of the 3B RBCCW heat exchanger.**

**The Control Room Supervisor directs you to identify the components and their required positions to isolate, vent and drain the tube and shell side of the 3B RBCCW heat exchanger. Document your results on this CUE SHEET:**

[illegible]

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR-244C
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	002
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	PERFORM REACTOR COOLANT LEAKAGE SURVEILLANCE		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>			
		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____/____/____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
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EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2690010201 / PLOR-244C

K/A: G2.3.14

URO: 3.4    SRO: 3.8

TASK DESCRIPTION: PERFORM REACTOR COOLANT LEAKAGE TEST

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. AT2 – In-progress ST-O-020-560-2, Rev. 13, “Reactor Coolant Leakage Test”
2. Calculator

C. REFERENCES

1. ST-O-020-560-2, Rev. 13, “Reactor Coolant Leakage Test”
2. AT3 – ST-O-020-560-2 Data Sheet 1 ANSWER KEY

D. TASK STANDARD

1. Satisfactory task completion is indicated when reactor coolant leakage has been calculated using Data Sheet 1 of ST-O-020-560-2 “Reactor Coolant Leakage Test”.
2. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to calculate reactor coolant leakage using ST-O-020-560-2 “Reactor Coolant Leakage Test”. I will describe initial plant conditions and provide you access to the materials required to complete this task.

F. TASK CONDITIONS/PREREQUISITES







1. Unit 2 is at 100% power.
2. The Unit 2 Drywell Sump Monitoring System is operable.
3. Unit 2 Drywell Floor Drain Sump valves and pumps are lined up in accordance with SO 20A.1.A, “Floor Drain Sumps Startup and Normal Operation”.
4. Unit 2 Drywell Equipment Drain Sump valves and pumps are lined up in accordance with SO 20C.1.D, “Equipment Drain Sumps Startup and Normal Operation”.
5. AO 2A.16-2 “Manual Adjustment of Recirculation Pump Seal Second Stage Pressure” has NOT been performed.
6. The previous week’s flow data readings of Drywell Floor and Equipment Drain Sumps have been entered on Data Sheet 1 of ST-O-020-560-2, “Reactor Coolant Leakage Test”.
7. The current 4-hour Drywell Floor Drain and Equipment Drain sump integrator readings have already been documented on Data Sheet 1 of ST-O-020-560-2, “Reactor Coolant Leakage Test”.
8. All steps of ST-O-020-560-2, “Reactor Coolant Leakage Test”, up to and including step 4.4.15, have been completed satisfactorily.

## G. INITIATING CUE

The Control Room Supervisor directs you to determine the Unit 2 reactor coolant leakage flow rate by performing steps 6.1 through 6.4 of ST-O-020-560-2, "Reactor Coolant Leakage Test".

# ANSWER KEY – DO NOT HAND OUT TO CANDIDATE

**DATA SHEET 1**  
**DRYWELL FLOOR AND EQUIPMENT DRAIN SUMP LEAKAGE**

Date	Day / time	Floor Drain Sump  Flow Integ Reading	(a) 4 hr Integ Diff	(b) Flow gpm  * ≤ 5 gpm	(c) 24 Hr Runn Avg. Flow	(d) 24 Hrs Runn Avg. Flow for 24 Hrs Ago	(e) 24 hr Runn avg Diff * ≤ 2 gpm	Equip Drain Sump  Flow Integ Reading	(f) 4 hr Integ Diff	(g) Flow gpm	(h) Total Leakage 24 hr avg * ≤ 25 gpm	All Data Within Accep Crit (Initial) <u>Sat unsat</u>	All Calcs Verif Correct  (Initial)
<u>    </u> / <u>    </u> / <u>    </u>	Sat/0000	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Sat/0400	N/A	N/A	0	0	N/A	N/A	N/A	N/A	1.42	N/A	N/A	N/A
	Sat/0800	N/A	N/A	0	0	N/A	N/A	N/A	N/A	1.33	N/A	N/A	N/A
	Sat/1200	N/A	N/A	0	0	N/A	N/A	N/A	N/A	1.42	N/A	N/A	N/A
	Sat/1600	N/A	N/A	0	0	N/A	N/A	N/A	N/A	1.67	N/A	N/A	N/A
	Sat/2000	904078	N/A	0	0	N/A	N/A	1400761	N/A	0.83	N/A	N/A	N/A
<b>TODAY</b>	Sun/0000	904078	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	1400780	<b>19</b>	<b>1.58</b>	<b>1.38</b>	* <b>INT</b> 	<u>    </u> IV
	Sun/0400											* <u>    </u> 	<u>    </u> IV
	Sun/0800											* <u>    </u> 	<u>    </u> IV
	Sun/1200											* <u>    </u> 	<u>    </u> IV
	Sun/1600											* <u>    </u> 	<u>    </u> IV
	Sun/2000											* <u>    </u> 	<u>    </u> IV

**ANSWER KEY – DO NOT HAND OUT TO CANDIDATE**

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	<b>Cue: Hand the Candidate AT2, in-progress ST-O-020-560-2, "Reactor Coolant Leakage Test" with some data recorded on Data Sheet 1</b>	P	
*2	Calculate and record Drywell Floor Drain 4-hour integrator difference.	P	Subtract the latest Floor Drain Sump Integrator reading from the previous 4-hour reading. Place a "0" in column (a) of Data Sheet 1.
*3	Calculate and record Drywell Floor Drain flow in gallons per minute.	P	Divide the number from column (a) of Data Sheet 1 by 12. Place a "0" in column (b) of Data Sheet 1.
*4	Calculate and record the Drywell Floor Drain 24-hour running average flow.	P	Add the six flow numbers from Column (b) and divide by 6. Place a "0" in column (c) of Data Sheet 1.
*5	Record 24 hour running average flow Drywell Floor Drain for 24 hour ago.	P	Record a "0" in column (d) of Data Sheet 1.
*6	Calculate and record the Drywell Floor Drain 24-hour running average difference.	P	Subtract column (d) from column (c) on Data Sheet 1. Place a "0" in column (e) on Data Sheet 1.
*7	Calculate and record Equipment Floor Drain 4-hour integrator difference.	P	Subtract the latest Equipment Drain Sump Integrator reading from the previous 4-hour reading. Place a "19" in column (f) of Data Sheet 1.
*8	Calculate and record Drywell Equipment Drain flow in gallons per minute.  <b>Cue: If examinee stalls here (step 6.2.3 of the surveillance test) state "You have adequate information on task conditions."</b>	P	Divide the number from column (f) of Data Sheet 1 by 12. Place a "1.58" in column (g) of Data Sheet 1.
*9	Calculate and record Total Drywell Leakage.	P	Add the six Floor Drain numbers from column (b) to the six Equipment Drain numbers from column (g) of Data Sheet 1.  Divide the above number by 6 and place a "1.38" in column (h) of Data Sheet 1.

STEP NO	STEP	ACT	STANDARD
*10	Verify the following data is acceptable:  Column (b) is $\leq$ 5.0 gpm  Column (e) is $\leq$ 2.0 gpm  Column (h) is $\leq$ 25.0 gpm	P	Verify all data is below the specified limits and initial "All Data Within Accep Crit" Column of Data Sheet1 as SAT.
11	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 step 6.4 of ST-O-020-560-2, "Reactor Coolant Leakage Test" has been completed the Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

## **TASK CONDITIONS/PREREQUISITES**

- 1. Unit 2 is at 100% power.**
- 2. The Unit 2 Drywell Sump Monitoring System is operable.**
- 3. Unit 2 Drywell Floor Drain Sump valves and pumps are lined up in accordance with SO 20A.1.A, "Floor Drain Sumps Startup and Normal Operation".**
- 4. Unit 2 Drywell Equipment Drain Sump valves and pumps are lined up in accordance with SO 20C.1.D, "Equipment Drain Sumps Startup and Normal Operation".**
- 5. AO 2A.16-2 "Manual Adjustment of Recirculation Pump Seal Second Stage Pressure" has NOT been performed.**
- 6. The previous week's flow data readings of Drywell Floor and Equipment Drain Sumps have been entered on Data Sheet 1 of ST-O-020-560-2,"Reactor Coolant Leakage Test".**
- 7. The current 4-hour Drywell Floor Drain and Equipment Drain sump integrator readings have already been documented on Data Sheet 1 of ST-O-020-560-2,"Reactor Coolant Leakage Test".**
- 8. All steps of ST-O-020-560-2,"Reactor Coolant Leakage Test", up to and including step 4.4.15, have been completed satisfactorily.**

## **INITIATING CUE**

**The Control Room Supervisor directs you to determine the Unit 2 reactor coolant leakage flow rate by performing steps 6.1 through 6.4 of ST-O-020-560-2,"Reactor Coolant Leakage Test".**

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
--	---------------------	--------------------------	-----------------	--------------------------	---------------

<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR-259C
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	003
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	Review and Evaluate Reactor Coolant Chemistry Limits		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____ / ____ / ____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____	
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____	
<b>COMMENTS:</b>		
<b>Training Review for Completeness:</b>  _____ Signature/Date	<b>LMS CODE:</b>	
	<b>LMS ENTRY:</b>	



EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 3443100402 / PLOR-259C

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"
  - Provide candidate blank copy of procedure
  - 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. 16, "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 Non-Time Critical

## 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.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
<p align="center"><b>****NOTE TO EVALUATOR****</b></p> <p align="center"><b>Provide all four CH-10-1 forms to the Examinee at the start of the JPM.</b></p>			
<p align="center"><b>****NOTE TO EVALUATOR****</b></p> <p align="center"><b>The following steps can be performed in any order.</b></p>			
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".  (Cue: If requested, report conductivities on CRS-2-12-132 are rising)	P	Recognize that condensate pump discharge conductivity > 0.4 $\mu\text{S}/\text{cm}$ 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	<p>Verify, immediately, by administrative methods that Reactor Coolant System chloride concentration has not been &gt; 0.2 ppm for &gt; 2 weeks in the last calendar year.</p> <p>(Cue: if asked to assist with administrative check of chloride concentration, reply as the Chemistry Manager and report that chloride concentration has been &lt; 0.2 ppm for the last calendar year.</p>	P	<p>Recognize that Reactor Coolant System chloride concentration is &gt; 0.2 ppm (actual is 0.22 ppm) limit in TRM Table 3.9-1, therefore, TRM 3.9.B applies.</p> <p>TRM 3.9.B applies. Verify that Reactor Coolant System chloride concentration has not been &gt; 0.2 ppm for &gt; 2 weeks in the last calendar year.</p>
6	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 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.**

ATTACHMENT CH-10-1

ATTACHMENT CH-10-1

EXAMPLE ONLY  
CHEMISTRY RECOMMENDATION (CR)

CR # **3659-13**

FROM: CHEMISTRY  
TO: SHIFT SUPERVISOR  
SUBJECT: CHEMISTRY RECOMMENDATION

.....  
SECTION A \*\* COMPLETED BY SHIFT CHEMIST \*\*  
.....

DATE/TIME	SYSTEM	PARAMETER	LIMITS	VALUE FOUND
To-da-y / Now	Unit 2 Condensate	2A Condensate Pump Discharge Conductivity	0.4 µS/cm	0.065 µS/cm

IS THIS CR A FOLLOW-UP TO A VERBAL NOTIFICATION? YES NO

IF YES, DATE/TIME AND PERSON NOTIFIED. N/A  
DATE / TIME

N/A  
PERSON NOTIFIED

CORRECTIVE ACTION REQUIRED: Confirm, investigate, and determine corrective actions, if any.

.....  
SECTION B \*\* COMPLETED BY SHIFT OPERATIONS PERSONNEL \*\*  
.....

THE FOLLOWING CORRECTIVE ACTION WAS TAKEN: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DATE / TIME CORRECTIVE ACTION TAKEN: \_\_\_\_\_  
\_\_\_\_\_

SHIFT OPERATOR

VERBALLY NOTIFY CHEMISTRY AFTER CORRECTIVE ACTION IS COMPLETED

PERSON NOTIFIED: \_\_\_\_\_ DATE/TIME \_\_\_\_\_

\*\*\*\*\* RETURN THIS SHEET TO CHEMISTRY \*\*\*\*\*  
.....

CHEMISTRY REVIEW: \_\_\_\_\_  
DATE

ATTACHMENT CH-10-1

EXAMPLE ONLY  
CHEMISTRY RECOMMENDATION (CR)

CR # **3660-13**

FROM: CHEMISTRY  
TO: SHIFT SUPERVISOR  
SUBJECT: CHEMISTRY RECOMMENDATION

.....  
SECTION A \*\* COMPLETED BY SHIFT CHEMIST \*\*  
.....

DATE/TIME	SYSTEM	PARAMETER	LIMITS	VALUE FOUND
To-da-y / Now	Unit 2 Condensate	2B Condensate Pump Discharge Conductivity	0.4 µS/cm	0.065 µS/cm

IS THIS CR A FOLLOW-UP TO A VERBAL NOTIFICATION? YES NO

IF YES, DATE/TIME AND PERSON NOTIFIED. N/A  
DATE / TIME

N/A  
PERSON NOTIFIED

CORRECTIVE ACTION REQUIRED: Confirm, investigate, and determine corrective actions, if any.

.....  
SECTION B \*\* COMPLETED BY SHIFT OPERATIONS PERSONNEL \*\*  
.....

THE FOLLOWING CORRECTIVE ACTION WAS TAKEN: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DATE / TIME CORRECTIVE ACTION TAKEN: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
SHIFT OPERATOR

VERBALLY NOTIFY CHEMISTRY AFTER CORRECTIVE ACTION IS COMPLETED

PERSON NOTIFIED: \_\_\_\_\_ DATE/TIME \_\_\_\_\_

\*\*\*\*\* RETURN THIS SHEET TO CHEMISTRY \*\*\*\*\*  
.....

CHEMISTRY REVIEW: \_\_\_\_\_  
DATE



CHEMISTRY REVIEW: \_\_\_\_\_ DATE \_\_\_\_\_

ATTACHMENT CH-10-1  
EXAMPLE ONLY  
CHEMISTRY RECOMMENDATION (CR)

CR # **3662-13**

FROM: CHEMISTRY  
TO: SHIFT SUPERVISOR  
SUBJECT: CHEMISTRY RECOMMENDATION

.....  
SECTION A \*\* COMPLETED BY SHIFT CHEMIST \*\*  
.....

DATE/TIME	SYSTEM	PARAMETER	LIMITS	VALUE FOUND
To-da-y / Now	Unit 2 Reactor Coolant	Chlorides	$\leq 0.2$ ppm	0.22 ppm
		Conductivity	$< 1.0$ $\mu\text{S/cm}$	0.97 $\mu\text{S/cm}$

IS THIS CR A FOLLOW-UP TO A VERBAL NOTIFICATION? YES

NO

IF YES, DATE/TIME AND PERSON NOTIFIED. \_\_\_\_\_

**N/A**

DATE / TIME

**N/A**

PERSON NOTIFIED

CORRECTIVE ACTION REQUIRED: **Confirm, investigate, and determine corrective actions, if any.**

.....  
SECTION B \*\* COMPLETED BY SHIFT OPERATIONS PERSONNEL \*\*  
.....

THE FOLLOWING CORRECTIVE ACTION WAS TAKEN: \_\_\_\_\_  
\_\_\_\_\_

DATE / TIME CORRECTIVE ACTION TAKEN: \_\_\_\_\_  
\_\_\_\_\_

SHIFT OPERATOR

VERBALLY NOTIFY CHEMISTRY AFTER CORRECTIVE ACTION IS COMPLETED

PERSON NOTIFIED: \_\_\_\_\_ DATE/TIME \_\_\_\_\_

\*\*\*\*\* RETURN THIS SHEET TO CHEMISTRY \*\*\*\*\*  
.....

CHEMISTRY REVIEW: \_\_\_\_\_

DATE

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	Licensed Operator Training	<b>CODE #:</b>	PLOR-347CA
<b>COURSE:</b>	Licensed Operator Requalification	<b>REV #:</b>	001
<b>AUTHOR:</b>	J. A. Verbillis	<b>TYPIST:</b>	jav
<b>TITLE:</b>	Evaluation of High CRD Temperature on Control Rod Scram Time (SRO)		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____ / ____ / ____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____
<b>EMPLOYEE ID NO.</b> _____	<b>COMPLETION DATE:</b> _____
<b>COMMENTS:</b>          	
<b>Training Review for Completeness:</b>  _____ Signature/Date	<b>LMS CODE:</b> _____
	<b>LMS ENTRY:</b> _____

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Senior Reactor Operator

TASK-JPM DESIGNATOR: 2011050402 / PLOR-347CA

K/A: G2.1.32

SRO: 4.0

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

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Calculator
2. Unit 3 Tech Spec 3.1.3, 3.1.4 and Bases
3. AT2 – In-progress AO 3.8, with data recorded – Required
4. AT3 - Core Map (NF-PB-721, At 7) – Optional – for classroom setting

C. REFERENCES

1. AO 3.8 Rev 0, "Evaluation of High CRD Temperature on Control Rod Scram Time"
2. Tech Spec 3.1.3, 3.1.4 and Bases
3. Core Map, such as NF-PB-721 At 7

D. TASK STANDARD

1. Satisfactory task completion is indicated when Control Rod 18-55 is declared SLOW or INOPERABLE and AO 3.8 is complete.
2. Estimated time to complete: 20 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. Unit 3 is at 100% power.
2. Eight Control Rods (10-35, 14-43, 14-55, 18-59, 22-35, 30-27, 34-51, 42-43) are currently classified as SLOW.
3. Control Rod 18-55 temperature is 405 °F and cannot be lowered.
4. System Manager has provided the latest Scram Time data for CR 18-55:  
  
Position 46 – 0.343 Sec  
Position 36 – 0.844 Sec  
Position 26 – 1.396 Sec  
Position 06 – 2.599 Sec
5. AO 3.8 has been completed up through Step 4.7, including Attachment 1.

## G. INITIATING CUE

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

## H. PERFORMANCE CHECKLIST

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

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

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

#### I. TERMINATING CUE

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



## **TASK CONDITIONS/PREREQUISITES**

- 1. Unit 3 is at 100% power.**
- 2. Eight Control Rods (10-35, 14-43, 14-55, 18-59, 22-35, 30-27, 34-51, 42-43) are currently classified as SLOW.**
- 3. Control Rod 18-55 temperature is 405 °F and cannot be lowered.**
- 4. System Manager has provided the latest Scram Time data for CR 18-55:**  
  
**Position 46 – 0.343 Sec**  
**Position 36 – 0.844 Sec**  
**Position 26 – 1.396 Sec**  
**Position 06 – 2.599 Sec**
- 5. AO 3.8 “Evaluation of High CRD Temperature on Control Rod Scram Time” has been completed up through Step 4.7, including Attachment 1.**

## **INITIATING CUE**

**As the Control Room Supervisor, review Attachment 1 of AO 3.8, “Evaluation of High CRD Temperature on Control Rod Scram Time” for Unit 3 Control Rod 18-55 and complete AO 3.8. Identify Technical Specification compliance issues and required actions, if any. (Document your results on the back of this cue sheet.)**

[illegible]

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR-273C
<b>COURSE:</b>	Licensed Operator Requalification	<b>REV #:</b>	000
<b>AUTHOR:</b>	C. N. Croasmun	<b>TYPIST:</b>	cnc
<b>TITLE:</b>	Compensatory Actions for an Inoperable Fire Door		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____/____/____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____	
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____	
<b>COMMENTS:</b>          		
<b>Training Review for Completeness:</b>  _____ Signature/Date	<b>LMS CODE:</b>	
	<b>LMS ENTRY:</b>	

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 3410170302 / PLOR-273C

K/A: G2.2.40

SRO: 4.7

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

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. A copy of ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System"
2. Drawing A-486 "Barrier Plan" Elev. 135'
3. Technical Requirements Manual section 3.14

C. REFERENCES

1. ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System"
2. Drawing A-486 "Barrier Plan" Elev. 135'
3. Technical Requirements Manual section 3.14

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Technical Requirements Manual compensatory measures have been identified.
2. Estimated time to complete: 15 minutes Non-Time Critical.

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. Fire Door supervisory alarm testing is in progress in accordance with ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System".
2. You have just been notified that Fire Door #217 has been fully open for eleven minutes, and has failed to alarm.
3. Previous fire surveillance testing has determined that all smoke detectors on Turbine Building 135' are operable.

G. INITIATING CUE

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

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System".  (Cue: Provide the candidate with a copy of ST-O-037-390-2)	P	ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System" obtained.
2	Determine Fire Door location.	P	Review ST-O-037-390-2 Data Sheet 1, and determine Fire Door 217 is located on TB2 elevation 135' in the 2A & 2C Battery Room.
3	Review ST-O-037-390-2 sections 4 and 5.	P	Review ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System" for Precautions, Limitations, General Instructions, and Acceptance Criteria.
*4	Identify Fire Door #217 classification.	P	Review ST-O-037-390-2 section 4 and determine Fire Door #217 is a Safety Related door identified by an * on Data Sheet 1.
5	Review ST-O-037-390-2 Performance Steps and Corrective actions.	P	Review ST-O-037-390-2 section 6 for Test Requirements and Corrective Actions.
*6	Identify alarm requirements for Fire Door #217.	P	Determine Fire Door #217 is required to alarm in less than or equal to 10 minutes, and is INOPERABLE.
7	Obtain a copy of the Unit 2 Technical Requirements Manual.  (Cue: Provide the candidate with a copy of the Unit 2 Technical Requirements Manual.)	P	Obtain a copy of the Unit 2 Technical Requirements Manual and review section 3.14 Fire Protection Systems.
*8	Determine Unit 2 Technical Requirements Manual required action.	P	Review Technical Requirements Manual section 3.14.8 condition A and establish a Fire Watch Patrol within 1 hour and once per hour there after for Unit 2 TB 135' 2A & 2C Battery Room.

9	Inform the Evaluator of task completion. (Cue: The Control Room Supervisor acknowledges the report.)	P	The operator informs the Evaluator of task completion.
10	As an evaluator ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) <u>AND</u> procedures.	P	Positive control established.

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

#### I. TERMINATING CUE

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

## **TASK CONDITIONS/PREREQUISITES**

1. Fire Door supervisory alarm testing is in progress in accordance with ST-O-037-390-2 "Fire Door Electrical Supervisory Alarm System".
2. You have just been notified that Fire Door #217 has been fully open for eleven minutes, and has failed to alarm.
3. Previous fire surveillance testing has determined that all smoke detectors on Turbine Building 135' are operable

## **INITIATING CUE**

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

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**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR-256C
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	002
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	Jav
<b>TITLE:</b>	REVIEW AND APPROVE PRIMARY CONTAINMENT PURGE/VENT ISOLATION VALVE CUMULATIVE HOUR LOG		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____/____/____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2270140201 / PLOR-256C

K/A: G2.3.13

SRO: 3.8

TASK DESCRIPTION: Perform Primary Containment Purge/Vent Isolation Valve Cumulative Log.

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".
3. 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 Non-Time Critical

## 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 Control Supervisor. Perform the Plant Staff review and approval of ST-O-007-560-2, "Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log". Initial to annotate "Sat/Unsat" for each of the five entries on Data Sheet 1.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	<b>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.</b>		
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	<p>Recognizes the following calculation errors on Data Sheet 1:</p> <ol style="list-style-type: none"> <li>1. Second row of the "Flow Path Open Total Time" column should be 17 Hr, 4 Min versus 5 Hr, 4 Min.</li> <li>2. Fourth row of the "Accumulated Total Time Since Beginning of Calendar Year" column total is incorrect...one additional hour should be added.</li> </ol> <p><b>NOTE:</b> the "critical" part of this step is to recognize the first error and the fact that the accumulated total time has exceeded 90 hours.</p>
*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	<p>Notify Shift Management of unsatisfactory test results.</p> <p>(Cue: Acknowledge report.)</p>	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, 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, the evaluator will terminate the exercise.

## **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 Control Supervisor.**

**Complete the Plant Staff review and approval of ST-O-007-560-2, “Primary Containment Purge/Vent Isolation Valve Cumulative Hour Log”.**

**Initial to annotate “Sat/Unsat” for each of the five entries on Data Sheet 1.**

**DATA SHEET 1**  
**6" AND 18" FLOW PATH TOTAL HOUR LOG**

Any 6" or 18" Flow Path Open OR Req'd Conditions Exist for Timing with Valves Open		ALL 6" or 18" Flow Paths Closed OR Required Conditions No Longer Exists		Flow Path Open Total Time  (Hours & Minutes)	Accumulated Total Time Since Beginning of Calendar Year (Note 1)	Accumulated Total Time Since Beginning of Calendar Year < 90 hrs  Initial Sat    Unsat
TIME	DATE	TIME	DATE		Total Fwd: 61 Hr, 28 Min	
0131	12/19/08	0411	12/19/08	2 Hr, 40 Min	64 Hr, 8 Min	R <input type="checkbox"/>
0428	12/19/08	2132	12/19/08	5 Hr, 4 Min	69 Hr, 12 Min	R <input type="checkbox"/>
2147	12/19/08	2319	12/19/08	1 Hr, 32 Min	70 Hr, 44 Min	R <input type="checkbox"/>
0916	12/23/08	1706	12/23/08	7 Hr, 50 Min	77 Hr, 34 Min	R <input type="checkbox"/>
1154	12/24/08	1442	12/24/08	2 Hr, 48 Min	80 Hr, 22 Min	R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>
						R <input type="checkbox"/>

NOTE 1: **IF** "Accumulated Total Time Since Beginning of Year" is greater than or equal to 80 hrs, **THEN NOTIFY** SMgt.

## DATA SHEET 2

DAY / SHIFT	DATE	FLOW PATHS USED (See below)								Initial Sat    Unsat	
		1	2	3	4	5	6	7			
MON            D	12/18/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
N	"	N/A	N/A	√	√	√	√	N/A	N/A	_____	_____
TUE            D	12/19/08	N/A	N/A	N/A	√	N/A	√	N/A	N/A	_____	_____
N	"	N/A	N/A	√	√	√	√	N/A	N/A	_____	_____
WED            D	12/20/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
N	"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
THUR           D	12/21/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
N	"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
FRI            D	12/22/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
N	"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
SAT            D	12/23/08	N/A	√	N/A	N/A	√	N/A	N/A	N/A	_____	_____
N	"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____
SUN            D	12/24/08	√	√	N/A	N/A	√	√	N/A	N/A	_____	_____
N	"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_____	_____

1. AO-2-07B-2519 and AO-2-07B-2520 OPEN in a Drywell N2 Purge Flowpath
2. AO-2-07B-2519 and AO-2-07B-2521B OPEN in a Torus N2 Purge Flowpath
3. AO-2-07B-2505 and AO-2-07B-2520 OPEN in a Drywell Purge Supply Flowpath
4. AO-2-07B-2521A and AO-2-07B-2521B OPEN in a Torus Purge Supply Flowpath
5. AO-2-07B-2506 and AO-2-07B-2507 OPEN in a Drywell Exhaust Flowpath
6. AO-2-07B-2511 and AO-2-07B-2512 OPEN in a Torus Exhaust Flowpath
7. Abnormal Flowpath.

Description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

D = Day Shift - 6:30a - 6:30p  
 N = Night Shift - 6:30p - 6:30a



**EXELON NUCLEAR**  
Nuclear Generation Group

**OJT/TPE MATERIAL COVERSHEET**

<b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	PLOR-230C
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #::</b>	003
<b>AUTHOR:</b>	J. T. Hanley	<b>TYPIST:</b>	jth
<b>TITLE:</b>	EAL CLASSIFICATION WITH STATE AND LOCAL NOTIFICATIONS (FS1, wind from 0 degrees, airborne release in progress)		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
EFFECTIVE DATE: ____/____/____			

<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE I.D. NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ <div style="text-align: center;">Signature/Date</div>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>LMS CODE:</b></td> <td style="width:50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE:	Senior Reactor Operator	
TASK-JPM DESIGNATOR:	<u>2007540502 / PLOR-230C</u>	K/A: <u>2.4.40</u> SRO: 4.5
TASK DESCRIPTION:	<u>Emergency Director</u>	

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. 011, "Control Room Operations"
2. EP-AA-111, Rev. 018, "Emergency Classification and Protective Action Recommendations"
3. EP-MA-114-100, Rev. 018, "Mid-Atlantic State/Local Notifications"
4. EP-MA-114-100-F-01, Rev L, "State/Local Notification Form"
5. EP-AA-112-100-F-01, Rev. P, "Shift Emergency Director Checklist"
6. EP-AA-1007, Table PBAPS 3-1, Rev. 26, "Emergency Action Level (EAL) Matrix"
7. EP-AA-114-F-02, Rev. A, "BWR Release in Progress Determination Guidance"
8. EP-AA-125-1002, Rev 008, "ERO Performance – Performance Indicators Guidance"

## D. TASK STANDARD

1. Performance Location: Simulator
2. Satisfactory task completion is indicated when 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. 008, "ERO Performance - Performance Indicators Guidance".)

3. Estimated time to complete: TIME CRITICAL
  - Event Classification: 15 minutes
  - State/Local Notification Form: 13 minutes

## E. DIRECTIONS TO EXAMINEE

When given the initiating cue, make the Emergency Classification and complete the State/Local Notifications, if required. I will describe initial plant conditions and provide you access to the materials required to complete this task.

## F. TASK CONDITIONS/PREREQUISITES

1. A plant event occurred 15 minutes ago that resulted in damage to the reactor fuel on Unit 2.
2. A Main Steam Line (MSL) HI-HI radiation signal generated a Group I isolation signal.

3. Six of the eight MSIVs closed.
4. The "A" MSL inboard and outboard MSIVs failed to close.
5. A full reactor scram occurred; all rods are in.
6. RPV level and pressure are normal, being maintained with HPCI, RCIC, and SRVs.
7. 2 VENT EXH STACK RAD MONITOR HI-HI B (218 C-4) annunciator is in alarm.
8. Vent Stack release rate has been  $4.5 \text{ E}+6 \text{ uCi/sec}$  for the last 15 minutes as read on RI-2979A and B.
9. A sample of the Reactor coolant has an activity of  $265 \text{ uCi/gm I-131}$  dose equivalent.
10. A steam leak has just been identified in the Turbine Building.
11. Wind Speed: 3 mph, Wind Direction: 000

G. INITIATING CUE

As Emergency Director, make the EAL Classification, if required, and complete EP-MA-114-100-F-01, State/Local Notification Form.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
<b>*** NOTE ***</b>			
<b>Record the time using the clock above the Full Core Display. Time = _____</b>			
1	Obtain a copy of EP-AA-112-100-F-01 and EP-AA-1007.	P	Copies of EP-AA-112-100-F-01 and EP-AA-1007 are obtained.
2	Determine that the Vent Stack release rate is greater than the ALERT level threshold but less than the SITE AREA EMERGENCY level threshold.	P	Radiological Effluent EAL RA1 is reviewed. Vent Stack release rate is determined to be above the ALERT level ( $>3.83 \text{ E}+6 \text{ uCi/sec}$ ) but less than the SITE AREA EMERGENCY level ( $<3.36 \text{ E}+7 \text{ uCi/sec}$ ).
3	Determine that the reactor coolant activity level is greater than the UNUSUAL EVENT level but less than the threshold value for a LOSS of FUEL CLAD BARRIER.	P	Abnormal Rad Level EAL RU3 and Fission Product Barrier Matrix is reviewed. Reactor Coolant activity is determined to be above the UNUSUAL EVENT level ( $> 4.0 \text{ uCi/gm}$ ).
*4	Determine that the failure of the "A" MSL to isolate exceeds the Fission Product Barrier Matrix thresholds resulting in a LOSS of both the REACTOR COOLANT SYSTEM BARRIER and the PRIMARY CONTAINMENT BARRIER.	P	The failure of the "A" MSL to isolate exceeds the Fission Product Barrier Matrix thresholds resulting in a LOSS of both the REACTOR COOLANT SYSTEM BARRIER and the PRIMARY CONTAINMENT BARRIER.
*5	Using the Fission Product Barrier Matrix, identify that these losses constitute a SITE AREA EMERGENCY (SAE) declaration (FS1)	P	A SAE ( <b>FS1</b> ) is declared based on the two losses identified in the Fission Product Barrier Matrix.
6	Announce the event classification to the facility staff.	S	SAE is announced.
<b>*** NOTE ***</b>			
<b>Record the time using the clock above the Full Core Display. Time = _____</b>			
<b>*** NOTE ***</b>			
Inform the examinee that the Public Address Announcement and the ERO Notification required by EP-AA-112-100-F-01, Shift Emergency Director Checklist, are <b>NOT</b> required for this JPM.			
<b>*** NOTE ***</b>			
The following steps are associated with completion of EP-MA-114-100-F-01, "State/Local Event Notification Form."			
*7	Check the call status.	P	"This is a drill" line is checked in Block #1.
*8	Check the affected station.	P	"Peach Bottom" is checked in Block #2.

STEP NO	STEP	ACT	STANDARD
*9	Check the event classification.	P	"SITE AREA EMERGENCY" classification is checked in Block #3a.
*10	Check the affected unit.	P	Unit "Two" is checked in Block #3b.
*11	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.
*12	Check the applicable change in classification status.	P	"Initial Declaration" is checked in Block #3d.
*13	Enter the EAL number declared <u>AND/OR</u> provide a brief non-technical description of event.	P	EAL# "FS1" is annotated in Block #4a <u>AND</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.
*14	Check the non-routine radiological release status.	P	"AIRBORNE radiological release in-progress" is checked (Block #5b). EP-AA-114-F-01, "Release in Progress Determination Guidance" may be referenced.
*15	Enter the wind direction "degrees from."  (Cue: Wind direction is from 0 degrees.)	P	"0" is entered as the wind direction degrees from in Block #6a.
*16	Enter the wind speed.  (Cue: Wind speed is 3 mph.)	P	Wind speed is entered as "3" miles per hour in Block #6b.
*17	Check the utility Protective Action Recommendation.	P	7a, NOT APPLICABLE is checked.
*18	Check the appropriate conclusion.	P	"This is a drill" line is checked in Block #8.
19	Approve the event notification form.	P	The event notification form is signed in the form's header area by the Emergency Director.

\*\*\* NOTE \*\*\*

**WHEN the examinee completes the Event Notification form,  
THEN record the time using the clock above the Full Core Display. Time = \_\_\_\_  
Determine if the elapsed time since the classification exceeds 13 minutes.**

STEP NO	STEP	ACT	STANDARD
20	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 EP-MA-114-100-F-01, "State/Local Event Notification Form" has been completed, the evaluator will terminate the exercise.

## **TASK CONDITIONS/PREREQUISITES**

1. **A plant event occurred 15 minutes ago that resulted in damage to the reactor fuel on Unit 2.**
2. **A Main Steam Line (MSL) HI-HI radiation signal generated a Group I isolation signal.**
3. **Six of the eight MSIVs closed.**
4. **The “A” MSL inboard and outboard MSIVs failed to close.**
5. **A full reactor scram occurred; all rods are in.**
6. **RPV level and pressure are normal, being maintained with HPCI, RCIC, and SRVs.**
7. **2 VENT EXH STACK RAD MONITOR HI-HI B (218 C-4) annunciator is in alarm.**
8. **Vent Stack release rate has been 4.5 E+6 uCi/sec for the last 15 minutes as read on RI-2979A and B.**
9. **A sample of the Reactor coolant has an activity of 265 uCi/gm I-131 dose equivalent.**
10. **A steam leak has just been identified in the Turbine Building.**
11. **Wind Speed: 3 mph, Wind Direction: 000**

## **INITIATING CUE**

**As Emergency Director, make the EAL Classification, if required, and complete EP-MA-114-100-F-01, State/Local Notification Form.**



**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	CR_Sys_a
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	000
<b>AUTHOR:</b>	J. A. Verbillis	<b>TYPIST:</b>	jav
<b>TITLE:</b>	HPSW Injection into the Fuel Pool (ALTERNATE PATH: HPSW Pump Overcurrent, Use Other Pump)		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____/____/____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE I.D. NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2770390401 / PLOR-376CA K/A: 233000A2.02  
RO: 3.1 SRO: 3.3

TASK DESCRIPTION: HPSW Injection into the Fuel Pool

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. Keys for MO-174 and MO-176

C. REFERENCES

Procedure AO 32.3-2, Rev. 2, HPSW Injection into the Fuel Pool

D. TASK STANDARD

1. Performance Location: Simulator
2. Satisfactory task completion is indicated when HPSW is injecting into the Fuel Pool via RHR using "B" HPSW pumps.
3. Estimated time to complete: 15 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to inject HPSW into the Fuel Pool using the 2B HPSW pumps 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 Fuel Pool level is lowering, and use of AO 32.3-2, "HPSW Injection into the Fuel Pool" has been directed by Shift Management.
2. All of the 4 KV busses are receiving power from the off-site startup source.
3. Unit 2 is in Mode 3.
4. 2B, D HPSW pumps are available.
5. RHR to FPC 16" Spool Piece is installed.
6. Access is available to:
  - Fuel Pool Service Water Booster Pump Area, Elev. 165', Reactor Bldg.
  - North Isolation Valve Room, Elev. 135', Reactor Bldg.
  - MCC E324-R-B, Elev. 135', Reactor Bldg.
7. Shift Manager has authorized delaying installation of Equipment Status Tags as permitted by Precaution 3.1 of the referenced procedure.
8. Unit 2 Reactor Operator has authorized use of B loop of HPSW for injection into the Fuel Pool.

## G. INITIATING CUE

The Control Room Supervisor directs you to inject HPSW into the Fuel Pool using the "B" Loop of HPSW per AO 32.3-2, "HPSW Injection into the Fuel Pool", starting at Step 4.1.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Verify 2BP035 "B RHR Pump" shutdown.	P	B RHR pump 2BP035 green light verified ON at panel 20C003
2	Verify 2DP035 "D RHR Pump" shutdown.	P	D RHR pump 2DP035 green light verified ON at panel 20C003
3	Verify 2BP042 "B HPSW Pump" shutdown.	P	HPSW pump 2BP042 green light verified ON at panel 20C003-02.
4	Verify 2DP042 "D HPSW Pump" shutdown.	P	HPSW pump 2DP042 green light verified ON at panel 20C003-02.
5	Verify MO-2-10-89B, 2B HPSW HX Outlet valve closed.	P	MO-2-10-89B, green light verified ON at panel 20C003.
6	Verify MO-2-10-89D, 2D HPSW HX Outlet valve closed.	P	MO-2-10-89D, green light verified ON at panel 20C003.
7	Verify MO-2-10-039B, "Torus Header Valve" closed.	P	MO-2-10-039B, green light verified ON at panel 20C003.
8	Verify MO-2-10-025B, "LPCI Injection Valve" closed.	P	MO-2-10-025B, green light verified ON at panel 20C003.
9	Verify MO-2-10-026B, "Containment Spray Valve" closed.	P	MO-2-10-026B, green light verified ON at panel 20C003.
<p style="text-align: center;"><b>*** NOTE ***</b></p> <p><b>Procedure requires MO-013B(D) be "verified" closed – since the normal position is OPEN, the candidate is expected to use the definition of the word "verified" as direction to manipulate the valve. A short discussion of this with supervision would be expected, and the Evaluator should role play as required without cuing the candidate.</b></p>			
*10	CLOSE MO-2-10-013B, "B RHR Suction Valve".	P	Key is obtained from SSV key box and inserted into the MO-2-10-13B keylock switch. Key lock switch is taken to the CLOSED position.
11	Verify MO-2-10-013B, "B RHR Suction Valve" closed.	P	MO-2-10-013B, green light verified ON at panel 20C003.

STEP NO	STEP	ACT	STANDARD
12	Verify MO-2-10-015B, "B RHR Suction Valve" closed.	P	MO-2-10-015B, green light verified ON at panel 20C003.
*13	CLOSE MO-2-10-013D, "D RHR Suction Valve".	P	Key is obtained from SSV key box and inserted into the MO-2-10-13D keylock switch. Key lock switch is taken to the CLOSED position.
14	Verify MO-2-10-013D, "D RHR Suction Valve" closed.	P	MO-2-10-013D, green light verified ON at panel 20C003.
15	Verify MO-2-10-015D, "D RHR Suction Valve" closed.	P	MO-2-10-015D, green light verified ON at panel 20C003.
16	Verify MO-2-32-2344 (10-186) "HPSW Loop Cross Tie" closed.	P	MO-2-32-2344 (10-186), green light verified ON at panel 20C003-03.
<p style="text-align: center;"><b>*** NOTE ***</b></p> <p style="text-align: center;"><b>Simulator Operator action is required for the following step.</b></p>			
17	Direct an Operator to Close or Verify Closed HV-2-10-70B, RHR Pressurizing Line Block Valve To RHR Loop B" (Cue: HV-2-10-70B is CLOSED)	P	Operator dispatched to manipulate valve as directed, candidate does not proceed until report of valve status is received.
*18	Direct an Operator to Unlock and Open HV-2-10-180, "RHR Discharge to Fuel Pool Block Valve" (Cue: HV-2-10-180 is OPEN)	P	Operator dispatched to manipulate valve as directed, candidate does not proceed until report of valve status is received.
*19	Direct an Equipment Operator to throttle open throttle open <u>EITHER</u> HV-2-19-24457A <u>OR</u> HV-2-19-24457B, "RHR to Fuel Storage Pool Diffuser Block Valve" (Cue: HV-2-19-24457A is THROTTLED OPEN)	P	Operator dispatched to manipulate valve as directed, candidate does not proceed until report of valve status is received.

**\*\*\* NOTE \*\*\***

**Simulator Operator action is required for the following step.**

*20	Direct an Equipment Operator to CLOSE E324-R-B (3863), "Emerg Intertie Valve MO-2-10-176" (Cue: E324-R-B (3863) is CLOSED)	P	Operator dispatched to manipulate breaker as directed, candidate does not proceed until report of breaker status is received.
21	Verify position indication for MO-2-10-176, "HPSW to RHR Emergency Outer Cross-Tie" is ON at Panel 20C003-03.	P	MO-2-10-176, green light verified ON at panel 20C003-03
*22	Open MO-2-10-174, "HPSW/ RHR Inner Cross Tie" valve.	P	Key is obtained from SSV keybox, inserted into MO-2-10-174, keylock switch and placed in the OPEN position at panel 20C003-03.
23	Verify MO-2-10-174, "HPSW/RHR Inner Cross Tie" valve open.	P	MO-2-10-174, red light verified ON at panel 20C003-03.
*24	Open MO-2-10-176, "HPSW/RHR Outer Cross Tie" valve.	P	Key is obtained from SSV keybox, inserted into MO-2-10-176, keylock switch and placed in the OPEN position at panel 20C003-03.
25	Verify MO-2-10-176, "HPSW/RHR Outer Cross Tie" valve open.	P	MO-2-10-176, red light verified ON at panel 20C003-03.
26	Notify Shift Management that the "B" HPSW Loop Pre-injection lineup is complete.	P	Notification made.
27	Perform GP-15 evacuation of Reactor Bldg.	S	GP-15 evacuation requirement recognized and discussed with Evaluator.

**\*\*NOTE\*\***

**Alternate Path starts with next step.**

**\*\*NOTE\*\***

**Whichever HPSW pump is initially selected for start will exhibit Overcurrent indications. Candidate is expected to respond by tripping the pump. IF candidate fails to take this action, the pump will trip automatically after 60 seconds. Automatic trip will require Simulator Operator action to remove trip function from other HPSW pump.**

STEP NO	STEP	ACT	STANDARD
28	Start the "2B" or "2D" HPSW pump.  (Cue: Inform candidate that HPSW System Flow on FI-2-10-132B is 4000 gpm)	P	"2B" or "2D" HPSW pump control switch is momentarily placed in the START position at panel 20C003-04.
29	Identify HPSW pump overcurrent condition.	P	Recognizes ammeter indicates overcurrent condition, acknowledges 225 E-5 or 226 E-3 pump overcurrent alarm.
*30	Secure the running HPSW pump.	P	"2B" or "2D" HPSW pump control switch is momentarily placed in the STOP position at panel 20C003-04.
*31	Start the "2B" or "2D" HPSW pump.	P	"2B" or "2D" HPSW pump control switch is momentarily placed in the START position at panel 20C003-04.
32	Verify proper start of the running HPSW pump.  (Cue: Inform candidate that HPSW System Flow on FI-2-10-132B is 4000 gpm)	P	HPSW pump red light is ON, pump motor amps are ~70 on ammeter 10A-A2B(D).
33	Verify fuel pool level is rising by requesting observation of fuel pool level or indirectly by monitoring Fuel Floor and/or Fuel Pool Rad levels.  (Cue: IF EO is dispatched to check Fuel Pool level, report that Fuel Pool level is rising)	S	Candidate discusses need to monitor Fuel Pool level for effect of injection either by direct observation or by indirect observation using Rad levels as described in AO 32.3-2 Step 4.3.15. The candidate may discuss requirement to secure pump to control Fuel Pool level as described in Step 4.3.16.
34	Inform the Control Room Supervisor of task completion.	P	Task completion reported.
35	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 either the "2B" or "2D" HPSW pump is injecting into the fuel pool, the Control Room Supervisor should be informed. The candidate should make effort to ascertain effect of HPSW injection per procedure guidance. The evaluator will then terminate the exercise.

## **TASK CONDITIONS/PREREQUISITES**

1. Unit 2 Fuel Pool level is lowering, and use of AO 32.3-2, "HPSW Injection into the Fuel Pool" has been directed by Shift Management.
2. All of the 4 KV busses are receiving power from the off-site startup source.
3. Unit 2 is in Mode 3.
4. 2B, D HPSW pumps are available.
5. RHR to FPC 16" Spool Piece is installed.
6. Access is available to:
  - Fuel Pool Service Water Booster Pump Area, Elev. 165', Reactor Bldg.
  - North Isolation Valve Room, Elev. 135', Reactor Bldg.
  - MCC E324-R-B, Elev. 135', Reactor Bldg.
7. Shift Management has authorized delaying installation of Equipment Status Tags as permitted by Precaution 3.1 of the referenced procedure.
8. Unit 2 Reactor Operator has authorized use of B loop of HPSW for injection into the Fuel Pool.

## **INITIATING CUE**

The Control Room Supervisor directs you to inject HPSW into the Fuel Pool using the "B" Loop of HPSW per AO 32.3-2, "HPSW Injection into the Fuel Pool", starting at Step 4.1.

**EXELON NUCLEAR**  
Nuclear Generation Group

**OJT/TPE MATERIAL COVERSHEET**

<b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING		<b>CODE #:</b> CR_Sys_b
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION		<b>REV #:</b> 000
<b>AUTHOR:</b>	M. J. Kelly		<b>TYPIST:</b> mjk
<b>TITLE:</b>	RAISE HPCI FLOW (ALTERNATE PATH - SUCTION VALVES FAIL TO AUTO SWAP ON LOW CST LEVEL)		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>			
		_____ Signature / Title	_____ Date
EFFECTIVE DATE: ____/____/____			

<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ <div style="text-align: center;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

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

TASK DESCRIPTION: Transfer of HPCI Suction From CST To Torus

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

None

C. REFERENCES

1. Alarm Response Card 221 C-3, Rev. 4, Condensate Storage Tank Level Low-Low
2. Procedure SO 23.7.B-2, Rev. 7, "Transfer of HPCI Pump Suction from CST to Torus" (R)

D. TASK STANDARD

1. Satisfactory task completion is indicated when HPCI flow has been raised to 5000 gpm and pump suction is manually transferred from the CST to the Torus (Torus suction valves open and CST suction valve closed) without adverse effects on RPV injection.
2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. HPCI is injecting into the RPV at 4000 gpm in response to a low RPV level transient.
2. RCIC is isolated.
3. Torus Cooling is in service per RRC 10.1-2, "RHR System Torus Cooling During a Plant Event."

G. INITIATING CUE

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

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Raise HPCI Flow Rate to 5000 gpm.	P	The HPCI Flow Controller knob is adjusted in the clockwise direction to raise the flow rate setting from 4000 gpm to 5000 gpm.
2	HPCI Flow is verified to rise toward 5000 gpm.	P	FI-2-23-108 is monitored to verify that the actual flow rate rises to 5000 gpm.
<p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;">Approximately 15 seconds after flow has been raised to 4950 gpm, Annunciator 221 C-3 "CONDENSATE STOR TANK LEVEL LOW - LOW" will be received initiating the next part of the JPM.</p>			
3	Recognize the Condensate Storage Tank Low Level Condition alarm.	P	Recognize by reporting annunciator 221 C-3 is alarming indicating a Low CST Level condition.
4	Obtain a copy of Alarm Response Card 221 C-3.	P	Candidate references ARC 221 C-3, CONDENSATE STOR TANK LEVEL LOW - LOW.
5	Verify the Low CST Level Condition.	P	Candidate verifies that CST Level is low by referencing LR-2217 on 20C007A or LI-2217 OR LI-8453 on 20C004. (The candidate may also send an EO to verify level on LI-2210.)
6	Recognize that HPCI failed to automatically swap suction paths on low CST level.	P	Candidate will recognize by reporting that the HPCI suction path failed to automatically swap. (A RCIC suction swap is not required due to RCIC being isolated.)
7	Obtain a copy of procedure SO 23.7.B-2 OR Implement auto actions of ARC 221 C-3.	P	A copy of procedure SO 23.7.B-2, "Transfer of HPCI Pump Suction from CST to Torus", is obtained. Steps 4.6 through 4.9,  OR  The auto actions of ARC 221 C-3 should be referenced for transient conditions.
*8	Open MO-2-23-057 HPCI Torus Suction valve.	P	MO-2-23-057 control switch is momentarily placed in the OPEN position then released at panel 20C004B.

STEP NO	STEP	ACT	STANDARD
*9	Open MO-2-23-058, HPCI Torus Suction valve.	P	MO-2-23-058 control switch is momentarily placed in the OPEN position then released at panel 20C004B.
10	Verify MO-2-23-057 and MO-2-23-058, HPCI Torus Suction valves are open.	P	MO-2-23-057 and MO-2-23-058 red lights are verified ON, and green lights OFF at panel 20C004B.
11	Verify MO-2-23-017 Cond Tank Suction valve automatically closes when MO-2-23-057 and MO-2-23-058 are full open.	P	Recognize that MO-2-23-017 failed to close as indicated by the green light verified OFF and red light verified ON at panel 20C004B.
*12	Close MO-2-23-017, Cond Tank Suction valve.	P	MO-2-23-017 control switch is momentarily placed in the CLOSE position then released at panel 20C004B.
13	Verify MO-2-23-017, Cond Tank Suction valve is closed.	P	MO-2-23-017 green light is verified ON, and red light OFF at panel 20C004B.
14	Check Level Switches responsible for the automatic swap.	P	Direct that LS-2-23-74 and LS-2-23-75 be checked for proper operation due to the failed auto transfer.
15	Inform Control Room Supervisor of task completion.	P	Task completion reported.
16	As an evaluator, ensure that you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) AND procedures.	P	Positive control established.

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

#### I. TERMINATING CUE

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

## **TASK CONDITIONS/PREREQUISITES**

- 1. HPCI is injecting into the RPV at 4000 gpm in response to a low RPV level transient.**
- 2. RCIC is isolated.**
- 3. Torus Cooling is in service per RRC 10.1-2, "RHR System Torus Cooling During a Plant Event."**

## **INITIATING CUE**

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



**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<input type="checkbox"/> <b>Peach Bottom</b>	<input type="checkbox"/>	<input type="checkbox"/> <b>Limerick</b>	<input type="checkbox"/>	<input type="checkbox"/> <b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	Licensed Operator Training	<b>CODE #:</b>	CR_Sys_c
<b>COURSE:</b>	Licensed Operator Requalification	<b>REV #:</b>	000
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	Reopen The Main Steam Isolation Valves After a GP I Isolation		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
<b>EFFECTIVE DATE:</b> ____/____/____			

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____	
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____	
<b>COMMENTS:</b>          		
<b>Training Review for Completeness:</b>  _____ Signature/Date	<b>LMS CODE:</b>	
	<b>LMS ENTRY:</b>	

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. 10, "Main Steam Isolation Valve Bypass"

D. TASK STANDARD

1. Satisfactory task completion is indicated when Inboard MSIVs are open.
2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. Use of this procedure has been directed by the TRIP procedures.
2. Main Condenser is available.
3. RPV level is known.
4. There is no indication of gross fuel failure.
5. There is no indication of a Main Steam Line break.
6. All T-221 Tool Packages have been obtained.
7. Inboard and Outboard MSIVs are closed.
8. Steps 4.1 thru 4.5 of T-221-2, "Main Steam Isolation Valve Bypass" are complete.

G. INITIATING CUE

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

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure T-221-2.	P	A copy of procedure T-221-2 is obtained.
*2	Open AO-2-02-086A "A" Outboard MSIV.	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.	P	AO-2-02-086A red light is verified ON at panel 20C003-01.
*4	Open AO-2-02-086B "B" Outboard MSIV.	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.	P	AO-2-02-086B red light is verified ON at panel 20C003-01.
*6	Open AO-2-02-086C "C" Outboard MSIV.	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.	P	AO-2-02-086C red light is verified ON at panel 20C003-01.
*8	Open AO-2-02-086D "D" Outboard MSIV.	P	AO-2-02-086D control switch is placed in the "AUTO/OPEN" position at panel 20C003-01.
9	Verify AO-2-02-086D "D" Outboard MSIV is open.	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.	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.	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.	P	MO-2-02-074 control switch is momentarily placed in the "OPEN" position at panel 20C003-03.

STEP NO	STEP	ACT	STANDARD
13	Verify MO-2-02-074 Inboard Main Steam Drain valve is open.	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.	P	MO-2-02-079 green light is verified ON at panel 20C003-03.
*15	Open MO-2-02-078, Downstream Drain valve.	P	MO-2-02-078 control switch is momentarily placed in the "OPEN" position at panel 20C003-03.
16	Verify MO-2-02-078 Downstream Drain valve is open.	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.	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.	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.	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.	P	AO-2-02-080A red light is verified ON at panel 20C003-01.
*21	Open AO-2-02-080B "B" Inboard MSIV.	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.	P	AO-2-02-080B red light is verified ON at panel 20C003-01.
*23	Open AO-2-02-080C "C" Inboard MSIV.	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.	P	AO-2-02-080C red light is verified ON at panel 20C003-01.

STEP NO	STEP	ACT	STANDARD
*25	Open AO-2-02-080D "D" Inboard MSIV.	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.	P	AO-2-02-080D red light is verified ON at panel 20C003-01.
27	Inform Control Room Supervisor of task completion.	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) <u>AND</u> 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**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	CR_Sys_d
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	000
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	PERFORM CORE SPRAY B PUMP CAPACITY TEST FOR IST (Alternate Path – Minimum Flow Valve Fails to Open)		

**APPROVALS:**

_____	Date
Signature / Title	
_____	Date
Signature / Title	
_____	Date
Signature / Title	
_____	Date
Signature / Title	

**APPROVED FOR USE:**

_____	Date
Signature / Title	

EFFECTIVE DATE: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ <div style="text-align: center;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
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<b>LMS ENTRY:</b>					



EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2090140101 / PLOR-335CA

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. 2, "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 Non-Time Critical

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 TRIP Table left-side 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.	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".	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".	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".	P	Verifies that MO-2-14-011B green light is ON; red light is OFF at Panel 20C003.
<p align="center"><b>**** NOTE: ****</b></p> <p><b>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.</b></p>			
*6	START 2BP037 "Core Spray B Pump".	P	<p>"Starting 2B Core Spray pump" is announced on plant page prior to starting Core Spray pump 2B.</p> <p>2B Core Spray pump control switch is momentarily placed in the "START" position at Panel 20C003.</p>
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".	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.	P	MO-2-14-005B green light is verified OFF; red light is verified ON at Panel 20C003.

STEP NO	STEP	ACT	STANDARD
9	VERIFY 2DP037 "Core Spray D Pump" is NOT rotating.  (Cue: When requested, report that the Core Spray D Pump is NOT rotating and its discharge check valve indicates closed.)	P	Directs Equipment Operator to verify Core Spray D Pump is NOT rotating.
*10	OPEN MO-2-14-026B "Core Spray Full Flow Test".	P	MO-2-14-026B control switch is momentarily placed in "OPEN" at Panel 20C003.
11	VERIFY OPEN MO-2-14-026B "Core Spray Full Flow Test".	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.	P	MO-2-14-005B green light is verified ON; red light is verified OFF at Panel 20C003.
<p style="text-align: center;"><b>**** NOTE: ****</b></p> <p><b>Time-compress by telling the examinee Core Spray B Pump has been running for 5 minutes.</b></p> <p><b>Remind examinee that a second operator has successfully recorded all full flow test data on Data Sheet 1.</b></p>			

**\*\*\*\* NOTE: \*\*\*\***

**The Alternate Path portion of this JPM begins with the next step.**

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.	P	<p>MO-2-14-026B control switch is momentarily placed in "CLOSE" at Panel 20C003. Red pushbutton is depressed to stop valve stroke. Attempt made to operate valve control switch and red pushbutton to achieve 3125 to 3175 gpm as read on PMS computer point H056.</p> <p>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.</p> <p>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</p>
14	VERIFY MO-2-14-005B "Core Spray B Min Flow" automatically OPENS.	P	<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.</p> <p>Report to the CRS that the minimum flow valve for the 2B Core Spray Pump has failed to properly operate.</p>

**\*\*\* NOTE: \*\*\***

**IF after 2 minutes, a flowpath is not established AND the Core Spray pump has not been secured, THEN the Simulator Operator will TRIP the Core Spray pump, resulting in inability to successfully complete the critical step and the candidate will FAIL this JPM.**

*15	SHUTDOWN 2BP037 "Core Spray B Pump".  OR  Re-open MO-2-14-026B "Core Spray Full Flow Test".	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.  OR  MO-2-14-026B control switch is momentarily placed in "OPEN" at Panel 20C003. Verifies valve is full open.
16	Inform Control Room Supervisor of task completion.	P	Control Room Supervisor notified MO-2-14-026B malfunction and test being aborted.
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 it is recognized that the Core Spray B Pump has no minimum flow protection and the pump is secured, 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 left-side 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**

<b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	CR_Sys_e
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	000
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	PERFORM A GROUP I PCIS ISOLATION RESET (GP-8A)		
<b>APPROVALS:</b>			
		Signature / Title	Date
		Signature / Title	Date
		Signature / Title	Date
		Signature / Title	Date
<b>APPROVED FOR USE:</b>			
		Signature / Title	Date
EFFECTIVE DATE: ____/____/____			

<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID#:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ <div style="text-align: center;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

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, and the isolation signal is clear.
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.
<p align="center"><b>** NOTE**</b></p> <p align="center"><b>Provide examinee with the marked up COL GP-8A.</b></p>			
*2	Place switch to "CLOSE" for AO-2-02-080A.	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.	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.	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.	P	AO-2-02-080D control switch placed in the "CLOSE" position at panel 20C003-01.
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.	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.	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.	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.	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.
18	Verify switch in "CLOSE" for AO-2-02-039.	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.	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.	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.	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.	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.
28	Verify MO-2-02-077 is CLOSED.	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.	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.	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.	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.	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.
38	Verify switch in "CLOSE" for AO-8098B	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.	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.	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.	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.
<p align="center"><b>** NOTE**</b></p> <p><b>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.</b></p>			

*46	Place the Inboard PCIS Reset Switch, 16A-S32, in the "GRP I" position.	P	The Inboard PCIS Reset Switch is momentarily placed in the "GRP I" position at panel 20C005A.
*47	Place the Outboard PCIS Reset Switch, 16A-S33, in the "GRP I" position.	P	The Outboard PCIS Reset Switch is momentarily placed in the "GRP I" position at panel 20C005A.
48	Verify "CHANNEL A and B GROUP I ISOLATION RELAYS NOT RESET" annunciators clear.	P	The "CHANNEL A and B GROUP I ISOLATION RELAYS NOT RESET" annunciators 211 H-1 and 211 J-1 are verified not lit.
49	Inform Control Room Supervisor of task completion.	P	Task completion reported.
50	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 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, and the isolation signal is clear.**
- 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.**

## **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**

<b>TYPE:</b>	<input checked="checked" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	CR_Sys_f
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	000
<b>AUTHOR:</b>	M. J. Kelly	<b>TYPIST:</b>	jav
<b>TITLE:</b>	EXCITING THE MAIN GENERATOR		

<b>APPROVALS:</b>	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Signature / Title	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Date
	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Signature / Title	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Date
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	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Signature / Title	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Date

<b>APPROVED FOR USE:</b>	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Signature / Title	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> Date
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<b>EFFECTIVE DATE:</b> ____/____/____
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<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____
<b>Employee ID NO.</b> _____	<b>COMPLETION DATE:</b> _____
<b>COMMENTS:</b>	

<b>Training Review for Completeness:</b>  <div style="border-bottom: 1px solid black; margin-top: 10px;"></div> <div style="text-align: center; margin-top: 5px;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					

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. 16, "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 4.10 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.	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.	P	Load Selector REMOTE/AUTO pushbutton is depressed and the light is verified ON at panel 20C008A.
4	Verify "Reg/Transfer" switch 43-0601 in MANUAL.	P	Regulator Transfer switch 43-0601 is verified in the MANUAL position at panel 20C009.
5	Verify the Manual DC Volt Regulator 70-0601 set at minimum.	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.	P	Equipment Operator is directed to periodically monitor machine gas pressure on PI-4356.
*7	Close the "Alt Exc Fld Bkr" 41-0601.	P	Alterrex Exciter Field Breaker control switch 41-0601 is momentarily placed in the CLOSE position at panel 20C009.
8	Verify Field Volts, Amps and Generator Volts rise and red deexcitation backup light lit.	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 20C009.
*9	Adjust GENERATOR output voltage to obtain 21.5 - 22.5 KV using MAN. DC VOLT REGULATOR 70-0601.	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.	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 0 VDC.	P	Auto Voltage Reg Rheostat 90P is adjusted to obtain a reading within 2 volts of 0 on the Reg Man/Auto Deviation meter at panel 20C009.

STEP NO	STEP	ACT	STANDARD
12	Verify "Reg Man/Auto Deviation voltage is 0 VDC.	P	Reg Man/Auto Deviation voltage is verified to be 0 VDC on the Reg Man/Auto Deviation voltmeter at panel 20C009.
13	Verify "GEN VOLT REG AUTO TO MAN UNBALANCED" annunciator is clear.	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".	P	Reg/Transfer switch 43-0601 is placed in the AUTO position at panel 20C009.
15	Verify the "Reg/Transfer" lights indicate auto regulation.	P	Reg/Transfer red light is verified ON and green light verified OFF at panel 20C009.
16	Verify generator speed control.	P	Candidate operates the Load Selector pushbuttons to Raise freq by 0.5 hz, then Lower freq by 0.5 hz (below initial value) then raise freq to initial value.
17	Verify generator voltage control.	P	Candidate operates the Auto Voltage Reg Rheostat to Raise voltage by 0.5 KV, then Lower voltage by 0.5 KV (below initial value) then raise voltage to initial value.
18	Inform the Control Room Supervisor of task completion.	P	Task completion reported.
19	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, the automatic voltage regulator is in service, and frequency and voltage control is verified, 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 4.10 of SO 50.1.A-2, “Main Generator Synchronization and Loading.”**

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> <b>X</b>	JPM	<input type="checkbox"/>	QUALIFICATION MANUAL	<input type="checkbox"/>	OJT MODULE
<b>PROGRAM:</b>	Licensed Operator Training				<b>CODE #:</b>	CR_Sys_g
<b>COURSE:</b>	Licensed Operator Requalification				<b>REV #:</b>	000
<b>AUTHOR:</b>	M. J. Kelly				<b>TYPIST:</b>	Jav
<b>TITLE:</b>	Scram Reset					
<b>APPROVALS:</b>						
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
<b>APPROVED FOR USE:</b>						
			_____ Signature / Title		_____ Date	
EFFECTIVE DATE: ____/____/____						

<b>NAME:</b> _____ Last First M.I.	<b>ISSUE DATE:</b> _____				
<b>EMPLOYEE ID #:</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ Signature/Date	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%;"><b>LMS CODE:</b></td><td style="width: 50%;"></td></tr><tr><td><b>LMS ENTRY:</b></td><td></td></tr></table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					



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.
<p align="center"><b>**** NOTE: ****</b></p> <p align="center"><b>Due to initial conditions, the examinee will begin at procedure step 3.6</b></p>			
2	Verify scram initiating signal clear or bypassed.	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".	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.	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.	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.	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.	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.	P	Scram air header pressure is verified to be approximately 70 psig on PI-2-3-312 on panel 20C124.
10	Verify "SCRAM VALVE PILOT AIR HEADER PRESS HI-LOW" annunciator is clear.	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.	P	All blue scram lights are verified OFF on the Full Core Display.
<p align="center"><b>** NOTE **</b></p> <p align="center">Steps 12 and 13 will take 20-30 minutes to clear.</p> <p align="center">Evaluator may time compress by providing indicated cues to candidates.</p>			
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.

Evaluator may time compress by providing indicated cue to candidates.

14	Verify CRD System Cooling Water flow is 55 - 65 gpm. (Cue: CRD Cooling Water flow as read on FI-2-03-306 is 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.	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.	P	All of the rod drift alarm lights are verified clear on the Full Core Display.
17	Verify "ROD DRIFT" annunciator is clear.	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".	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.	P	SDV Inboard Vent and Drain Valves red lights are verified ON, green lights are OFF at panel 20C005A.
*20	Place SDV Outboard Vent and Drain Valves Switch, 5A-S14B, in "OPEN".	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.	P	SDV Outboard Vent and Drain Valves red lights are verified ON, green lights are OFF at panel 20C005A.
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) <u>AND</u> procedures.	P	Positive control established.
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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 NOT 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 begin draining the Scram Discharge Volume.**

**EXELON NUCLEAR**  
**Nuclear Generation Group**  
**OJT/TPE MATERIAL COVERSHEET**

<b>TYPE:</b>	<input checked="checked" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE
<b>PROGRAM:</b>	LICENSED OPERATOR TRAINING	<b>CODE #:</b>	CR_Sys_h
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION	<b>REV #:</b>	000
<b>AUTHOR:</b>	J. E. McClintock	<b>TYPIST:</b>	jav
<b>TITLE:</b>	VERIFY ISOLATION OF DRYWELL CHILLED WATER AND RBCCW (ALTERNATE PATH - RBCCW IS SUPPLYING DRYWELL CHILLED WATER LOADS)		
<b>APPROVALS:</b>			
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
		_____ Signature / Title	_____ Date
<b>APPROVED FOR USE:</b>		_____ Signature / Title	_____ Date
EFFECTIVE DATE: ____/____/____			

<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 80%; margin: 0 auto;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>Employee ID NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  _____ <div style="text-align: center;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
<b>LMS CODE:</b>					
<b>LMS ENTRY:</b>					



EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2130220401/ PLOR-310CA K/A: 400000 A4.01  
RO: 3.1 SRO: 3.0

TASK DESCRIPTION: Verify Isolation of Drywell Chilled Water and RBCCW (Alternate Path - RBCCW is Supplying Drywell Chilled Water Loads)

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 all of the following valves are closed:
  - Drywell Chilled Water isolation valves, MO-2200A & B and MO-2201A & B
  - RBCCW isolation valves, MO-2373 and MO-2374.
2. Estimated time to complete: 12 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform step 3.5 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.
2. The Drywell Chilled Water System has been shutdown due to system leakage.
3. RBCCW is supplying DWCW loads.
4. DWCW return header pressure is 10 psig.
5. Drywell pressure is approximately 17 psig.

G. INITIATING CUE

The Control Room Supervisor directs you 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	Verify MO-20245 AND MO-20246 aligned in the "RX BLDG CLG WATER" position.	P	MO-20245 AND MO-20246 red "RX BLDG CLG WATER" lights are lit. MO-20245 AND MO-20246 red "CHILLED WATER" lights are out at Panel 20C005A.
3	Calculate Corrected RBCCW Pressure (CRP) by taking indicated RBCCW pressure on PI-2350 - 25 psig.	P	Indicated RBCCW pressure is checked, then 25 psig is subtracted to determine a CRP of approximately 10 psig.
<p align="center"><b>**NOTE**</b></p> <p align="center"><b>Alternate Path starts with next step.</b></p>			
4	Compare Drywell pressure to Corrected RBCCW Pressure (CRP) to determine which pressure is greater.	P	Corrected RBCCW Pressure (CRP) is determined to be lower than PR-2508 or PR-4805 or PR-8102A(B) at panels 20C003/ 20C004C.
*5	Trip <u>BOTH</u> Recirc pumps.	P	A and B Recirc "DRIVE MOTOR" breaker green lights are verified ON at panel 20C004A.
*6	Close MO-2200A, Drywell Chilled Water Header Supply isolation valve.	P	MO-2200A control switch is momentarily placed in the "CLOSE" position at panel 20C012.
7	Verify the MO-2200A, Drywell Chilled Water Header Supply valve is closed.	P	MO-2200A green light is verified ON and red light is verified OFF at panel 20C012.
*8	Close MO-2200B, Drywell Chilled Water Header Supply isolation valve.	P	MO-2200B control switch is momentarily placed in the "CLOSE" position at panel 20C012.
9	Verify the MO-2200B, Drywell Chilled Water Header Supply valve is closed.	P	MO-2200B green light is verified ON and red light is verified OFF at panel 20C012.
*10	Close MO-2201A, Drywell Chilled Water Header Return isolation valve.	P	MO-2201A control switch is momentarily placed in the "CLOSE" position at panel 20C012.
11	Verify the MO-2201A, Drywell Chilled Water Header Return valve is closed.	P	MO-2201A green light is verified ON and red light is verified OFF at panel 20C012.

STEP NO	STEP	ACT	STANDARD
*12	Close MO-2201B, Drywell Chilled Water Header Return isolation valve.	P	MO-2201B control switch is momentarily placed in the "CLOSE" position at panel 20C012.
13	Verify the MO-2201B, Drywell Chilled Water Header Return valve is closed.	P	MO-2201B green light is verified ON and red light is verified OFF at panel 20C012.
*14	Close MO-2373, RBCCW ISOL valve.	P	MO-2373 control switch is momentarily placed in the "CLOSE" position at panel 20C012.
15	Verify MO-2373, RBCCW ISOL valve is closed.	P	MO-2373 green light is verified ON and red light is verified OFF at panel 20C012.
*16	Close MO-2374, RBCCW ISOL valve.	P	MO-2374 control switch is momentarily placed in the "CLOSE" position at panel 20C012.
17	Verify MO-2374, RBCCW ISOL valve is closed.	P	MO-2374 green light is verified ON and red light is verified OFF at panel 20C012.
18	Verify all the Drywell cooler fans are tripped.	P	The following Drywell cooler fan green lights are verified ON at panel 20C012: 2AV026A, 2AV026B 2BV026A, 2BV026B 2CV026A, 2CV026B 2DV026A, 2DV026B 2EV026A, 2EV026B 2FV026A, 2FV026B 2GV026A, 2GV026B
19	Inform Control Room Supervisor of task completion.	P	Task completion reported.
20	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

#### 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. The Drywell Chilled Water System has been shutdown due to system leakage.**
- 3. RBCCW is supplying DWCW loads.**
- 4. DWCW return header pressure is 10 psig.**
- 5. Drywell pressure is approximately 17 psig.**

## **INITIATING CUE**

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

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> <b>X</b>	JPM	<input type="checkbox"/>	QUALIFICATION MANUAL	<input type="checkbox"/>	OJT MODULE
<b>PROGRAM:</b>	Licensed Operator Requalification				<b>CODE #:</b>	IP_Sys_i
<b>COURSE:</b>	Licensed Operator Requalification				<b>REV #:</b>	001
<b>AUTHOR:</b>	J. W. Lyter				<b>TYPIST:</b>	jav
<b>TITLE:</b>	Defeat of RCIC Interlocks (Unit 2)					
<b>APPROVALS:</b>						
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
<b>APPROVED FOR USE:</b>						
			_____ Signature / Title		_____ Date	
EFFECTIVE DATE: ____/____/____						

<b>NAME:</b> _____ Last First M.I.		<b>ISSUE DATE:</b> _____	
<b>Employee ID. NO.</b> _____		<b>COMPLETION DATE:</b> _____	
<b>COMMENTS:</b>			
<b>Training Review for Completeness:</b>  _____ Signature/Date		<b>PIMS CODE:</b>	
		<b>PIMS ENTRY:</b>	

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2002200501 / PLOR-156P K/A: 210000 A4.07  
URO: 3.9 SRO: 3.8

TASK DESCRIPTION: DEFEAT OF RCIC INTERLOCKS (UNIT 2)

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. T-251 Tool Package
2. EOP Tool Locker Key

C. REFERENCES

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

D. TASK STANDARD

1. Satisfactory task completion is indicated when Relay contacts have been booted per Step 4.1 of T-251-2.
2. Estimated time to complete: 12 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. Unit 2 scrambled.
2. Use of this procedure has been directed by TRIP procedures.
3. Water is available from the CST and RCIC suction is aligned to the CST.
4. RCIC is available.

G. INITIATING CUE

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



## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
*1	Obtain the key for the Emergency Operating Procedure Tool Locker. (Cue: When examinee requests EOP Tool Locker key from WECS <u>OR</u> examinee identifies the location of the WECS key box and its associated key then evaluator should provide the EOP Tool Locker key.)	S	Emergency Operating Procedure Tool Locker Key requested from WECS <u>OR</u> examinee identifies the location of the WECS key box and its associated key.
*2	Open Emergency Operating Procedure Tool Locker and obtain T-251 Tool Kit. (Cue: Equipment obtained.)	P	Tool Locker located on Radwaste Building El. 165' is unlocked, opened and T-251 Tool Kit is located.
<p style="text-align: center;"><b>****NOTE****</b></p> <p><b>When examinee locates tool kit, inform him that he now has the tools to perform the procedure. Provide the examinee with a copy of the T-200 procedure which corresponds to the tool kit that has been chosen. <u>DO NOT</u> allow equipment to be removed from the locker. Relock the locker before leaving the area.</b></p>			
3	Remove front cover from relay 13A-K1. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 13A-K1 at panel 20C34 [FRONT] in the Cable Spreading Room.
*4	Boot contact 5-6 on relay 13A-K1. (Cue: Boot is installed.)	S	The THIRD FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
*5	Boot contact 11-12 on relay 13A-K1. (Cue: Boot is installed.)	S	The FAR LEFT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
6	Replace front cover on relay 13A-K1. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.

STEP NO	STEP	ACT	STANDARD
7	Remove front cover from relay 23A-K1. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 23A-K1 at panel 20C39 [FRONT] in the Cable Spreading Room.
*8	Boot contact 3-4 on relay 23A-K1. (Cue: Boot is installed.)	S	The SECOND FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
9	Replace front cover on relay 23A-K1. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.
10	Remove front cover from relay 23A-K4. (Cue: Cover is removed.)	S	The two front cover fasteners are turned COUNTERCLOCKWISE until loose, front cover is then pulled from the face of relay 23A-K4 at panel 20C39 [FRONT] in the Cable Spreading Room.
*11	Boot contact 5-6 on relay 23A-K4. (Cue: Boot is installed.)	S	The THIRD FROM THE RIGHT relay contact arm is moved away from its mating contact and a boot from the tool kit is placed over the contact arm.
12	Replace front cover on relay 23A-K4. (Cue: Cover is replaced.)	S	Front cover is held in place while turning the two front cover fasteners CLOCKWISE until tight.
13	Inform Control Room of task completion. (Cue: Control Room acknowledges report.)	S	Task completion reported using telephone or GAI-TRONICS page system.  NOTE: Hand held radio is <u>NOT</u> to be used in the Cable Spreading Room.
14	As an evaluator ensure you have positive control of all exam material provided to the examinee (Task Conditions/Prerequisites) <u>AND</u> procedures.	P	Positive control established

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

#### I. TERMINATING CUE

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

## **TASK CONDITIONS/PREREQUISITES**

- 1. Unit 2 scrammed.**
- 2. Use of this procedure has been directed by T-100 procedures.**
- 3. Water is available from the CST and RCIC suction is aligned to the CST.**
- 4. RCIC is available.**

## **INITIATING CUE**

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

**EXELON NUCLEAR**  
**Nuclear Generation Group**

**OJT/TPE MATERIAL COVERSHEET**

<input checked="" type="checkbox"/> <b>X</b>	<b>Peach Bottom</b>	<input type="checkbox"/>	<b>Limerick</b>	<input type="checkbox"/>	<b>Common</b>
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<b>TYPE:</b>	<input checked="" type="checkbox"/> <b>X</b>	JPM	<input type="checkbox"/>	QUALIFICATION MANUAL	<input type="checkbox"/>	OJT MODULE
<b>PROGRAM:</b>	Licensed Operator Training				<b>CODE #:</b>	IP_Sys_j
<b>COURSE:</b>	LICENSED OPERATOR REQUALIFICATION				<b>REV #:</b>	000
<b>AUTHOR:</b>	C. N. Croasmun				<b>TYPIST:</b>	cnc
<b>TITLE:</b>	Bypass of SV-9130A and SV-9130B					
<b>APPROVALS:</b>						
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
			_____ Signature / Title		_____ Date	
<b>APPROVED FOR USE:</b>						
			_____ Signature / Title		_____ Date	
<b>EFFECTIVE DATE:</b> ____/____/____						

<b>NAME:</b> _____ Last First M.I.		<b>ISSUE DATE:</b> _____	
<b>EMPLOYEE ID NO.</b> _____		<b>COMPLETION DATE:</b> _____	
<b>COMMENTS:</b>			
<b>Training Review for Completeness:</b>  _____ Signature/Date		<b>LMS CODE:</b>	
		<b>LMS ENTRY:</b>	

EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: Task# 2008450599 / PLOR-275P K/A: 218000 K4.04

RO: 3.5 SRO: 3.6

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

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

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

C. REFERENCES

1. T-331-3 Area 31 Fire Guide

D. TASK STANDARD

1. Satisfactory task completion is indicated when a bypass around the SV-9130A & B valves has been installed..
2. Estimated time to complete: 10 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

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

F. TASK CONDITIONS/PREREQUISITES

1. A fire has occurred in the 3A and 3C Emergency Battery Room.
2. The ADS valves do NOT currently have a long term pneumatic supply.

G. INITIATING CUE

The Control Room Supervisor directs you to perform T-331-3 Attachment 1 to install a bypass around the SV-9130A and SV-9130B valves.

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of T-331-3 Attachment 1. (Cue: Provide the candidate with a copy of T-331-3 Attachment 1.)	S	Copy of Attachment 1 obtained.
2	Obtain bypass line for SV-9130A. (Cue: Bypass line has been removed.)	S	Remove bypass line for SV-9130A from its holder on the wall.
3	Remove FME plugs. (Cue: FME plugs have been removed.)	S	Remove FME plugs from the female Parker fittings on each end of the bypass line.
<p align="center"><b>**** NOTE: ****</b></p> <p align="center"><b>Next two steps are not sequence dependant.</b></p>			
*4	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL one end of the bypass line on the Parker fitting downstream of HV-3-16A-33155A ("ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130A") by matching the bypass line and test tap color codes.
*5	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL the other end of the bypass line on the Parker fitting downstream of HV-3-16A-33156A ("ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130A") by matching the bypass line and test tap color codes.
<p align="center"><b>**** NOTE: ****</b></p> <p align="center"><b>Next two steps are not sequence dependant.</b></p>			
*6	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130A. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33155A "ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130A" by rotating the handwheel counter clockwise to the full OPEN position.
*7	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130A. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33156A "ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130A" by rotating the handwheel counter clockwise to the full OPEN position.

STEP NO	STEP	ACT	STANDARD
8	Verify nitrogen supply pressure. (Cue: PI-9130 is reading 92 psig.)	S	VERIFY supply pressure is >85 psig on PI-9130, "ADS Backup Nitrogen Supply Press" at RB SW el. 135'.
9	Notify the Control Room (Cue: Control Room notified.)	S	Notify the Main Control Room that SV-9130A "ADS Backup Nitrogen A HDR Supply to Drywell" bypass line is in service.
10	Obtain bypass line for SV-9130B. (Cue: Bypass line has been removed.)	S	Remove bypass line for SV-9130B from its holder on the wall.
11	Remove FME plugs. (Cue: FME plugs have been removed.)	S	Remove FME plugs from the female Parker fittings on each end of the bypass line.
<p align="center"><b>**** NOTE: ****</b></p> <p align="center"><b>Next two steps are not sequence dependant.</b></p>			
*12	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL one end of the bypass line on the Parker fitting downstream of HV-3-16A-33155B ("ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130B") by matching the bypass line and test tap color codes.
*13	Install bypass line. (Cue: Bypass line INSTALLED.)	S	INSTALL the other end of the bypass line on the Parker fitting downstream of HV-3-16A-33156B ("ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130B") by matching the bypass line and test tap color codes.
<p align="center"><b>**** NOTE: ****</b></p> <p align="center"><b>Next two steps are not sequence dependant.</b></p>			
*14	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130B. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33155B "ADS Backup N2 Sup Test Tap Upstream of SV-3-16A-9130B" by rotating the handwheel counter clockwise to the full OPEN position.
*15	Open Test Tap Isolation Valve to bypass nitrogen around SV-9130B. (Cue: Test Tap isolation valve OPEN.)	S	OPEN HV-3-16A-33156B "ADS Backup N2 Sup Test Tap Dwnstrm of SV-3-16A-9130B" by rotating the handwheel counter clockwise to the full OPEN position.



STEP NO	STEP	ACT	STANDARD
16	Verify nitrogen supply pressure. (Cue: PI-9130 is reading 92 psig.)	S	VERIFY supply pressure is >85 psig on PI-9130, "ADS Backup Nitrogen Supply Press" at RB SW el. 135'.
17	Notify the Control Room (Cue: Control Room notified.)	S	Notify the Main Control Room that SV-9130B "ADS Backup Nitrogen A HDR Supply to Drywell" bypass line is in service.
18	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 a bypass has been installed around SV-9130A and SV-9130B, the Control Room Supervisor should be informed, the evaluator will terminate the exercise.

## **TASK CONDITIONS/PREREQUISITES**

- 1. A fire has occurred in the 3A and 3C Emergency Battery Room.**
- 2. The ADS valves do NOT currently have a long term pneumatic supply.**

## **INITIATING CUE**

**The Control Room Supervisor directs you to perform T-331-3 Attachment 1 to install a bypass around the SV-9130A and SV-9130B valves.**

**EXELON NUCLEAR**  
**Nuclear Generation Group**  
**OJT/TPE MATERIAL COVERSHEET**

<b>TYPE:</b>	<input checked="checked" type="checkbox"/> JPM	<input type="checkbox"/> QUALIFICATION MANUAL	<input type="checkbox"/> OJT MODULE												
<b>PROGRAM:</b>	Licensed Operator Training	<b>CODE #:</b>	IP_Sys_k												
<b>COURSE:</b>	Licensed Operator Requalification	<b>REV #::</b>	001												
<b>AUTHOR:</b>	J. T. Hanley	<b>TYPIST:</b>	jth												
<b>TITLE:</b>	Diesel Driven Fire Pump Manual Start														
<b>APPROVALS:</b> <table style="width: 100%; border: none;"> <tr> <td style="border: none; width: 30%;"></td> <td style="border: none; width: 40%; text-align: center;">Signature / Title</td> <td style="border: none; width: 30%; text-align: center;">Date</td> </tr> <tr><td style="border: none;"></td><td style="border: none; text-align: center;">Signature / Title</td><td style="border: none; text-align: center;">Date</td></tr> <tr><td style="border: none;"></td><td style="border: none; text-align: center;">Signature / Title</td><td style="border: none; text-align: center;">Date</td></tr> <tr><td style="border: none;"></td><td style="border: none; text-align: center;">Signature / Title</td><td style="border: none; text-align: center;">Date</td></tr> </table>					Signature / Title	Date		Signature / Title	Date		Signature / Title	Date		Signature / Title	Date
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<b>NAME:</b> _____ <div style="display: flex; justify-content: space-between; width: 80%; margin: 0 auto;"> <span>Last</span> <span>First</span> <span>M.I.</span> </div>	<b>ISSUE DATE:</b> _____				
<b>Employee ID. NO.</b> _____	<b>COMPLETION DATE:</b> _____				
<b>COMMENTS:</b>					
<b>Training Review for Completeness:</b>  <div style="border-top: 1px solid black; width: 80%; margin: 0 auto; text-align: center;">Signature/Date</div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"><b>LMS CODE:</b></td> <td style="width: 50%;"></td> </tr> <tr> <td style="padding: 5px;"><b>LMS ENTRY:</b></td> <td></td> </tr> </table>	<b>LMS CODE:</b>		<b>LMS ENTRY:</b>	
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EXELON NUCLEAR  
PEACH BOTTOM ATOMIC POWER STATION  
JOB PERFORMANCE MEASURE

POSITION TITLE: Unit Reactor Operator/Senior Reactor Operator

TASK-JPM DESIGNATOR: 2860080101 / PLOR-327PA

K/A: 286000A4.06

RO: 3.4      SRO: 3.4

TASK DESCRIPTION: Diesel Driven Fire Pump Manual Start

A. NOTES TO EVALUATOR:

1. An asterisk (\*) before the step number denotes a CRITICAL STEP. CRITICAL STEPS are those steps which when not performed correctly will prevent the system from functioning properly or prevent successful task completion.
2. System cues included in the performance checklist are to be provided to the examinee when no system response is available.
3. JPM Performance
  - a. "Control Room" JPMs are designed to be performed in the simulator. If a "Control Room" JPM is to be performed in the Control Room all perform steps (P) shall be simulated (S).
  - b. When performing "In-Plant" JPMs, no equipment will be operated without Shift Management approval.
4. Satisfactory performance of this JPM is accomplished if:
  - a. The task standard is met.
  - b. JPM completion time requirement is met.
    - 1) For non-time critical JPMs, completion within double the estimated time (listed in paragraph D.2) is acceptable provided the evaluator determines that the progress to completion is acceptable.
    - 2) For time critical JPMs, completion within the estimated time (listed in paragraph D.2) is required.
5. The estimated time to complete this JPM, though listed in the task standard, is not to be given to the examinee.

B. TOOLS AND EQUIPMENT

1. Diesel Driven Fire Pump Room door key (#3702)

C. REFERENCES

1. SO 37B.1.B Rev 6, "Fire Water System Pump Manual Startup" \_

D. TASK STANDARD

1. Satisfactory task completion is indicated when the Diesel Driven Fire Pump battery status circuit has been reset and the Diesel Driven Fire Pump has been started locally in accordance with SO 37B.1.B, "Fire Water System Pump Manual Startup."
2. Estimated time to complete: 8 minutes Non-Time Critical

E. DIRECTIONS TO EXAMINEE

When given the initiating cue, perform necessary steps to locally start the Diesel Driven Fire 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. Fire Water system is lined up for operation in accordance with SO 37.1.A, "Common Plant Fire Water System Lineup for Automatic Operations."

G. INITIATING CUE

The Control Room Supervisor directs you, the Equipment Operator, to locally start the Diesel Driven Fire Pump in accordance with SO 37B.1.B, "Fire Water System Pump Manual Startup."

## H. PERFORMANCE CHECKLIST

STEP NO	STEP	ACT	STANDARD
1	Obtain a copy of procedure SO 37B.1.B.	P	A copy of procedure SO 37B.1.B is obtained. Section 4.1 is referenced.
2	Verify blue "Battery Connected" lights are lit.  (Cue: Blue battery status lights are NOT lit.)	S	Determine that Blue "Battery 'A' Connected" and "Battery 'B' Connected" lights are NOT lit.
3	Notify Shift Management that Battery Connected lights are NOT lit.  (Cue: Acknowledge report)	P	Notifies Shift Management.
4	Open the Panel 00C126 door.  (Cue: Panel door is open.)	S	Panel door handle is turned, and door pulled outward to gain access to the DDFP controls inside Panel 00C126. (Simulation is acceptable since the DDFP controls are visible through a window on the panel door.)
*5	Turn the Diesel Driven Fire Pump Local Control SW HS-0-37D- CS1/12' to "OFF".  (Cue: Diesel Driven Fire Pump Local Control SW HS-0-37D- CS1/12'switch has been placed in "OFF".)	S	"Diesel Driven Fire Pump Local Control SW HS-0-37D- CS1/12'" switch placed in "OFF" inside Panel 00C126.
*6	Momentarily depress the "RESET" pushbutton.  (Cue: "RESET" pushbutton has been depressed. )	S	"RESET" pushbutton momentarily depressed inside Panel 00C126 (right hand side).
*7	Turn the Diesel Driven Fire Pump Local Control SW HS -0-37D-CS1/12' to "AUTO".  (Cue: Control Selector switch has been placed in "AUTO". The blue "Battery Ready" lights are lit.)	S	Diesel Driven Fire Pump Local Control SW HS -0-37D-CS1/12' switch placed in "AUTO" inside Panel 00C126.
8	Verify the blue "Battery A(B) Connected" lights are lit.  (Cue: The blue "Battery Ready" lights are lit.)	S	Determine that blue "Battery Ready" lights are lit

STEP NO	STEP	ACT	STANDARD
*9	Place the Diesel Driven Fire Pump Local control switch HS-0-37D-CS1/12 in the "MANUAL A" <u>or</u> "MANUAL B" position <u>and</u> depress the "START" pushbutton  (Cue: Control switch manipulation is complete. Cylinder combustion noise is heard, DDFP engine speed rises to 1750 RPM as indicated on skid mounted panel and pump discharge pressure rises to 150 psig on PI-0290 near South wall of the DDFP.)	S	Inside Panel 00C126, Diesel Driven Fire Pump Local control switch HS-0-37D-CS1/12 placed in the "MANUAL A" <u>or</u> "MANUAL B" position <u>and</u> the "START" pushbutton depressed (left hand side)
*10	Place the Diesel Driven Fire Pump Local control switch HS-0-37D-CS1/12 in the "TEST" position  (Cue: Control Selector switch has been placed in "TEST".)	S	Diesel Driven Fire Pump Local control switch HS-0-37D-CS1/12 placed in the "TEST" position with <u>NO</u> pause at "AUTO" position
11	Close the Panel 00C126 door.  (Cue: Panel door is closed and relatched.)	S	Panel door is closed and relatched using handle.
12	Inform Control Room Supervisor of task completion.  (Cue: Control Room Supervisor acknowledges report.)	P	Task completion reported using hand held radio, telephone or GAI-TRONICS page system.
13	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 the Diesel Driven Fire Pump battery status circuit has been reset and the Diesel Driven Fire Pump has been locally started, then Control Room Supervisor should be informed. The evaluator will then terminate the exercise.

## **TASK CONDITIONS/PREREQUISITES**

**Fire Water system is lined up for operation in accordance with SO 37.1.A, “Common Plant Fire Water System Lineup for Automatic Operations.”**

## **INITIATING CUE**

**The Control Room Supervisor directs you, the Equipment Operator, to locally start the Diesel Driven Fire Pump in accordance with SO 37B.1.B, “Fire Water System Pump Manual Startup.”**



## Scenario Outline

ES-D-1

Simulation Facility Peach BottomScenario No. #1Op Test No. 2013 NRC

Examiners \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Operators \_\_\_\_\_ CRS (SRO)  
 \_\_\_\_\_ URO (ATC)  
 \_\_\_\_\_ PRO (BOP)

**Scenario Summary**

The scenario begins with the reactor at 100% power.

Following shift turnover, the crew will stroke Main Steam Sample Valves AO-2-02-316 and 317 as part of a surveillance test for primary containment isolation valves. Shortly after stroking the valves, Reactor Building to Torus vacuum breaker isolation valve AO-2502A will fail partially open requiring the crew to declare the valve inoperable per Technical Specifications.

Next, the running Service Water pump will trip on overcurrent, requiring the crew to place the standby pump in service using the system operating procedure. Following this, a drywell pressure instrument will fail upscale without causing the expected half scram. The crew will apply Tech Specs and (with time-compression) insert a half scram IAW GP-25 "Installation of Trips/Isolations to Satisfy Tech Spec/TRM Requirements".

Next 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, causing a loss of the remaining Condensate pumps. HPCI and RCIC will initiate on low RPV level. The HPCI system flow controller will fail in automatic and must be adjusted in manual to allow the system to inject. The HPCI system will trip shortly after it injects and will not be recoverable. An RPS failure will prevent the automatic and manual scrams, requiring entry into T-101 "RPV Control" and the use of Alternate Rod Insertion (ARI) to shutdown the reactor. A small Reactor coolant leak will occur in the drywell and require the use of containment sprays. The crew should enter T-102 "Primary Containment Control". A containment spray logic failure will complicate the crew's efforts to spray containment. The crew will not be able to spray containment with the initial loop of RHR selected. The other loop of RHR will be available and should be used to spray containment.

The reactor coolant leak inside the drywell will be greater than the capacity of RCIC (the only remaining high-pressure feed source). The crew should enter T-111 "Level Restoration". As level deteriorates, the crew should start available low pressure ECCS pumps and when it is determined that level cannot be restored and maintained above -172 inches, the reactor should be depressurized in accordance with T-112 "Emergency Blowdown". Low pressure ECCS will be available to recover reactor level. The scenario will be terminated when the reactor has been depressurized and reactor level has been recovered and controlled.

**Initial Conditions Turnover**

IC-118, 100% power

See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*	Event Description
1	See Scenario Guide	N PRO CRS	Stroke time primary containment isolation valves for surveillance testing
2	See Scenario Guide	TS CRS	Reactor Bldg to Torus vacuum breaker isolation valve fails open (Tech Spec)
3	See Scenario Guide	C URO CRS	Service Water pump trip / manual start of the standby pump

Event No.	Malfunction No.	Event Type*		Event Description
4	See Scenario Guide	I TS	PRO CRS	Drywell pressure instrument fails upscale without the expected half scram (Tech Spec) / insert half scram IAW GP-25
5	See Scenario Guide	R	URO CRS	Condensate pump trip with recirc runback failure / power reduction
6	See Scenario Guide	M	ALL	Loss of #2 auxiliary bus / loss of condensate & feedwater / reactor coolant leak inside the drywell
7	See Scenario Guide	C	URO CRS	RPS failure requires ARI to scram the reactor
8	See Scenario Guide	C	PRO CRS	HPCI controller fails in automatic
9	See Scenario Guide	C	ALL	HPCI turbine trip, requiring an emergency blowdown to restore level with low-pressure ECCS
10	See Scenario Guide	I	PRO CRS	Containment spray logic failure hampers effort to spray the containment, requiring crew to use alternate RHR loop

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

## **SIMULATOR OPERATOR INSTRUCTIONS FOR 2013 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**

- A previous version was used on the 2009 NRC ILT exam. It was modified (altered) slightly and submitted as a spare scenario for the 2011 NRC ILT exam. It has been modified again for use in the 2013 ILT 11-1 NRC Exam.

### **INITIAL SETUP**

#### **Initial Conditions**

- IC-118, 100% power
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active
- Setup a TRIP Table PMS screen by typing in "NCPCIS" on the GROUP DISPLAY screen to support ST-O-007-420-2 performance in Event 1

#### **Blocking Tags**

- None

**Activate APP "2013\_NRC\_SCN1" or insert the following:**

#### **Event Triggers**

**TRG E5 ARI\_A\_DEPRESSED**  
**TRG E4 = BAT BUS\_2\_OVERCURRENT\_LOCKOUT**  
**TRG E5 = MRF ARI01TO NORMAL**

#### **Malfunctions**

**IMF SWS01B (E1 0 0) ('B' Service Water pump trip)**  
**IMF MCS05A (E3 0 0) ('A' Condensate pump trip)**  
**IMF RRS20 (E4 2:00 0) 4 20:00 0 (Recirc loop rupture at 4% severity, 2 minute delay and 20 minute ramp)**  
**IMF HPC03 (E6 0 0) (HPCI turbine trips)**  
**IMF HPC04 (E4 0 0) (HPCI flow controller fails low in auto)**

## Overrides

**IOR ZLORP15DS26B (none 0 0) ON** (5A-DS26B light at RPS Panel 20C017 to ON)  
**IOR ZYP06A521S16 FALSE** (SFCS recirc runback inhibit)  
**IOR ZYP12A1S19 (none 0 0) OFF** (Override Switch 10A-17A, prevents containment sprays)  
**IOR ZYP12A3S19 (none 0 0) OFF** (Override Switch 10A-17B, prevents containment sprays)  
**IOR ANO205LD4 (E2 0 0) ALARM\_ON** (RPS INSTRUMENT GROSS FAILURE – 210 D-4)  
**IOR ANO205LF1 (E2 0 0) ALARM\_ON** (DW HI PRESSURE – 210 F-1)  
**IOR ZLOPC03AO2502A\_2 (E7 0 0) ON** (AO-2502A red light on)  
**IOR ANO203CE3 (E7 0 0) ALARM\_ON** (A TORUS VACUUM RELIEF VALVE OPEN – 224 E-3)

## 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 B3 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

ST-O-007-420-2 "PCIS Normally Closed Valves Operability Test", marked complete up to and including step 6.1.5 (rev 17)

## **SIMULATOR OPERATOR DIRECTIONS**

### **EVENT 1**

Support crew for stroking of main steam sample valves AO-316 and 317 per ST-O-007-420-2.

### **EVENT 2**

After stroking of main steam sample valves AO-316 and 317 per ST-O-007-420-2 is complete, initiate **ET7** for split indication on normally closed PCIV AO-2502A, and verify the following:

- **IOR ZLOPC03AO2502A\_2 (E7 0 0) ON**, AO-2502A red light on
- **IOR ANO203CE3 (E7 0 0) ALARM\_ON**, A TORUS VACUUM RELIEF VALVE OPEN – 224 E-3

When dispatched as the Equipment Operator to the valve to verify ARC 224 E-3 step 3.c, wait 1 minute and report that the valve appears to be closed and that you hear an air leak but cannot tell where it is coming from.

### **EVENT 3**

After the Tech Spec evaluation is complete, or when directed by the Lead Examiner, initiate **ET1 (IMF SWS01B)** to trip the 'B' Service Water pump.

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 dispatched as the Equipment Operator for a start of the 'C' Service Water, wait 2 minutes and report steps 4.2.3 and 4.2.4 are complete and the 2C SW Pump is ready for a start. Support the crew with step 4.2.7 after pump starts by reporting local service water pressure is 80 psig.

Support the crew while restoring the Fuel Pool Service Water booster pumps IAW SO 19.1.A-2, section 4.2. (Two pumps should be placed in service).

### **EVENT 4**

When Fuel Pool Service Water is restored, or when directed by the Lead Examiner, initiate **ET2** for the drywell pressure instrument failure, and verify the following:

- **IOR ANO205LF1 ALARM\_ON**, DW HI PRESSURE (210 F-1)
- **IOR ANO205LD4 ALARM\_ON**, RPS INSTRUMENT GROSS FAILURE (210 D-4)

When requested to check the 2AC065D and 2BC065D instrument racks, report Drywell Pressure Instrument PIS-2-5-12A is upscale high with the gross failure light lit. If directed to reset the gross failure, report that it will NOT reset.

IF I & C is contacted for support of Relay 5A-K4A failure, report that the relay must be replaced and it will take at least a shift to do so.

## **SIMULATOR OPERATOR DIRECTIONS**

### **EVENT 5**

After the crew has inserted a half scram on RPS channel A1 and before inserting a PCIS channel trip, or when directed by the Lead Examiner, initiate a trip of the 'A' condensate pump using **ET3 (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. If dispatched to the 'A' condensate pump, wait 2 minutes and report there is nothing abnormal.

Support the crew as necessary during the power reduction.

Support the crew during performance of SO 5.2.A-2 "Condensate System Condensate Pump Shutdown"

### **EVENTS 6**

#### **and 8**

When actions for the condensate pump trip are complete, and when target power level of  $\leq 60\%$  is achieved (or when directed by the Lead Examiner), initiate **ET4** to cause an overcurrent lockout on #2 aux bus and fail the HPCI flow controller low, and verify the following:

- **Activate BAT BUS\_2\_OVERCURRENT\_LOCKOUT**, Loss of #2 Aux Bus
- **IMF HPC04**, HPCI flow controller fails low in auto

Verify a Recirc loop rupture initiates 2 minutes later at 4% severity on a 20 minute ramp (**IMF RRS20 4 20:00**).

If asked, report DWCW return header pressure is 28 psig.

Support performance of T-223 "Drywell Cooler Fan Bypass" if requested to perform step 4.6 for placing the fan breakers in SLOW.

### **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 **ET5 (MRF ARI01TO NORMAL)** initiates to restore the 'A' ARI channel to normal.

When directed to close HV-2-3-56 (per T-246), **MRF T220\_2 CLOSE** and report HV-2-3-56 is closed.

### **EVENT 9**

30 to 60 seconds after HPCI automatically starts and is injecting, **AND** after operators take manual control, initiate **ET6 (IMF HPC03)** (HPCI turbine trips) in order to support maintaining RPV level -100 to -80 inches.

When directed to investigate the HPCI turbine trip, wait 5 minutes and then report unable to determine the cause of the trip.

## **SIMULATOR OPERATOR DIRECTIONS**

### **EVENT 10**

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

After the crew attempts to spray the containment (either torus or drywell), delete the override on the OPPOSITE RHR LOOP:

- To delete the override on the 'B' RHR Loop, DOR ZYP12A3S19
- To delete the override on the 'A' RHR Loop, DOR ZYP12A1S19

**NOTE: Adjust the severity of RRS20 as necessary to control the pace of RPV level trend toward -172 inches. Ensure the crew has time to enter T-111 and inhibit ADS before raising the leak severity. Consider MMF RRS20 to 6% with remaining ramp time when HPCI is tripped. HPCI will likely restore RPV level to 0 inches before RRS20 initiates, even with RCIC OOS.**

### **TERMINATION**

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

## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit 2 is steady at 100% power.

### **INOPERABLE EQUIPMENT/LCOs:**

- None

### **SCHEDULED EVOLUTIONS:**

- ST-O-007-420-2, "PCIS Normally Closed Valves Operability Test".

### **SURVEILLANCES DUE THIS SHIFT:**

- Completion of ST-O-007-420-2 "PCIS Normally Closed Valves Operability Test". The test is done up to and including step 6.1.5 (Rev 17). Continue with step 6.2 (stroking AO-2-02-316 and 317)
- Stopwatch is available
- PMS screen is setup to support ST

### **ACTIVE CLEARANCES:**

- None

### **GENERAL INFORMATION:**

- Unit 2 is steady at 100% power.



### **CRITICAL TASK LIST**

- 1. Recognize failure of the Reactor Protection System to scram the reactor and initiate Alternate Rod Insertion (ARI) to insert control rods in accordance with T-101 "RPV Control" and RRC 3B.1-2 "Alternate Rod Insertion During A Plant Event".**
- 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.**
- 3. Perform an emergency blowdown in accordance with T-112 "Emergency Blowdown" when reactor water level cannot be restored and maintained above -172 inches.**

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 1      Page: 1 of 18

**Event Description:**      Stroke main steam sample isolation valves AO-2-02-316 and 317 per ST-O-007-420-2

**Cause:**      Stroke open and close PCIVs associated with Main Steam Sample System

**Effects:**      N/A – Normal evolution

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	CRS	Directs the PRO to continue with ST-O-007-420-2 "PCIS Normally Closed Valves Operability Test" starting at step 6.2 (Rev 17).
	PRO	Performs step 6.2 of ST-O-007-420-2: Strokes open AO-2-02-316 "Main Steam Sample Inboard" Strokes closed and times AO-2-02-316 "Main Steam Sample Inboard" Records time in surveillance test Strokes open AO-2-02-317 "Main Steam Sample Outboard" Strokes closed and times AO-2-02-317 "Main Steam Sample Inboard" Verifies PMS computer points associated with both valves have changed state by verifying historical tabular trend

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 2      Page: 2 of 18

**Event Description:** Reactor Building to Torus Vacuum Breaker Isolation Valve AO-2502A has split indication

**Cause:** Deflation of boot seal for AO-2502A

**Effects:** Valve is no longer leak tight and inoperable for primary containment purposes

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Acknowledges and reports alarm 224 E-3 "A TORUS VACUUM RELIEF VALVE OPEN" Verifies that AO-2502A is open
	CRS	References ARC 224 E-3 Direct that an Equipment Operator be dispatched to check instrument air supply, backup nitrogen supply, and valve seal operation for AO-2502A. Refer to Tech Spec 3.6.1.5 Declare AO-2502A inoperable per Tech Spec 3.6.1.5. Condition A Determine that AO 250A must be closed within 72 hours.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 3      Page: 3 of 18

**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"
  - 216 F-5 "Fuel Pool Service Water To HX Lo Press"
2. Loss of 'B' Service Water pump, requiring manual start of 'C' Service Water pump.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO/PRO	<p>Recognize and report the following alarms and enter corresponding Alarm Response Cards:</p> <ul style="list-style-type: none"><li>• 216 H-1 "B' Service Water Pump Trip"</li><li>• 216 H-2 "B' Service Water Pump OVLD"</li><li>• 216 F-1 "Service Water Header Lo Press"</li><li>• 216 F-5 "Fuel Pool Service Water To HX Lo Press"</li></ul> <p>Recognize and report trip of the 2B Service Water pump.</p> <p>Recognize and report trip of the 2A and 2B Fuel Pool Service Water (FPSW) booster pumps.</p> <p>Green flag the 2B Service Water pump control switch.</p> <p>(May) green flag the 2A and 2B FPSW booster pump control switches.</p> <p>Dispatch an Equipment Operator to investigate the Service Water pump and breaker.</p>
	CRS	<p>Enter and direct actions of Alarm Response Cards 216 H-1, 216 H-2, 216 F-1 and 216 F-5.</p> <p>Direct placing the 2C Service Water pump in service IAW SO 30.1.A-2 "Unit 2 Service Water System Normal Operations".</p> <p>Request Maintenance assistance to investigate trip of 2B Service Water Pump.</p>
	PRO	<p>Place the 2C Service Water pump in service IAW SO 30.1.A-2 as follows:</p> <ul style="list-style-type: none"><li>• 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.</li><li>• Start the 2C Service Water pump by placing the pump control switch in "Run".</li><li>• Verify Service Water pump discharge pressure is 65-95 psig (both in the Control Room and locally).</li></ul>

**Operator Actions**

ES-D-2

**Op Test No.:** 1      **Scenario No.:** 1      **Event No.:** 3      **Page:** 4 of 18**Event Description:** 'B' Service Water pump trips on overcurrent (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	CRS	Direct placing two Fuel Pool Service Water booster pumps in service IAW SO 19.1.A-2 "Fuel Pool Cooling System Startup and Normal Operations".
	PRO	<p>Place two Fuel Pool Service Water booster pumps in service IAW SO 19.1.A-2 as follows:</p> <ul style="list-style-type: none"><li>• Direct an Equipment Operator to prepare two Fuel Pool Service Water booster pumps for start IAW SO 19.1.A-2, step 4.2.5.</li><li>• Start the 2A, B, or C Fuel Pool Service Water booster pump by placing the pump control switch in "Run".</li><li>• Start an additional Fuel Pool Service Water booster pump by placing the pump control switch in "Run".</li><li>• Direct an Equipment Operator to adjust differential pressure for the Fuel Pool Service Water booster pumps placed in service IAW SO 19.1.A-2, step 4.2.8.</li></ul>
	CRS	Request troubleshooting/technical assistance through the Shift Manager.

**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 1      **Event No.:** 4      **Page:** 5 of 18

**Event Description:** Drywell pressure instrument fails upscale without the expected half scram

**Cause:** PIS-2-5-12A fails upscale (gross failure)

**Effects:**

1. Alarms:
  - 210 F-1 "Drywell Hi Pressure Trip"
  - 210 D-4 "RPS/PCIS Trip Units in Calibration of Gross Failure"
2. Drywell pressure instrument fails high (gross failure); RPS half scram fails to occur.

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	URO	<p>Recognize and report the following alarms and enter the corresponding Alarm Response Cards:</p> <ul style="list-style-type: none"><li>• 210 F-1 "Drywell Hi Pressure Trip"</li><li>• 210 D-4 "RPS/PCIS Trip Units in Calibration of Gross Failure"</li></ul> <p>Determine actual drywell pressure is below the scram setpoint.</p> <p>Recognize and report the drywell pressure instrument failure did <u>NOT</u> cause the expected RPS half scram.</p> <p><b>Evaluator CUE: IF RO investigates relay status, inform RO that 5A-K4A is DE-ENERGIZED.</b></p>
	CRS	<p>Enter and execute the Alarm Response Cards for 210 F-1 and 210 D-4.</p> <p>Direct an Equipment Operator to check the 2A(B)C065D instrument racks in the Reactor Building to aid in determining the cause of the trip.</p>
	CRS	<p>Direct troubleshooting in accordance with the Alarm Response Card for 210 D-4 "RPS/PCIS Trip Units in Calibration of Gross Failure".</p> <p>Declare drywell pressure instrument PIS-2-5-12A inoperable.</p> <p>Request I &amp; C assistance to troubleshoot Drywell High Pressure Trip instrument failure and associated RPS failure</p> <p>Review <u>Tech Spec 3.3.1.1</u> and determine Condition A applies (RPS Function 6 on Table 3.3.1.1-1):</p> <ul style="list-style-type: none"><li>• Place associated channel (or trip system) in trip within 12 hours, <u>OR</u></li><li>• Be in Mode 3 within the next 12 hours.</li></ul> <p>Review <u>Tech Spec 3.3.6.1</u> and determine Condition A applies (PCIS Function 2.b on Table 3.3.6.1-1):</p> <ul style="list-style-type: none"><li>• Place associated channel (or trip system) in trip within 12 hours, <u>OR</u></li><li>• Be in Mode 3 in the next 12 hours and in Mode 4 in the next 36 hours.</li></ul> <p>Review <u>Tech Spec 3.3.6.2</u> and determine Condition A applies (SCIS Function 2 on Table 3.3.6.2-1):</p> <ul style="list-style-type: none"><li>• Place associated channel (or trip system) in trip within 12 hours, <u>OR</u></li><li>• Take the compensatory actions for Condition C.</li></ul> <p>Recognize that RPS/PCIS trips must be installed within 12 hours.</p>

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 4      Page: 6 of 18

**Event Description:** Drywell pressure instrument fails upscale without the expected half scram  
(continued)

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
		<b><u>NOTE:</u> This section is optional at discretion of Lead Examiner. The Lead Examiner may act as the Shift Manager and direct the crew to perform GP-25 to install the RPS/PCIS trips OR the scenario can move on when the crew determines that GP-25 Appendices 1 &amp; 5 apply.</b>
	CRS	Initiate GP-25 Appendices 1 and 5 to install redundant RPS/PCIS trips.
	PRO	Install trip on A1 RPS channel as directed by the CRS using GP-25 Appendix 1: <ul style="list-style-type: none"><li>• Complete Appendix 1.</li><li>• Inform URO that a half scram on RPS channel A1 will be inserted.</li><li>• At Panel 20C015, insert key and place the A1 Test Keylock Switch to the TRIP position.</li></ul>
		<b><u>NOTE:</u> the next event will be initiated before the crew can perform Appendix 5 of GP-25 (PCIS).</b>

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 5      Page: 7 of 18

**Event Description:** 'A' Condensate pump trip with 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 reactor level and requiring manual recirc flow reduction to control reactor level.

### Time

#### Position

#### Applicant's Actions or Behavior

URO

Recognize and report trip of the 'A' Condensate pump.  
(May) recognize / report the Recirc pump runback (45%) failed to occur.  
Recognize and announce entry into the OT-100 "Reactor Low Level":

- Recognize the reactor water level drop is caused by a lack of makeup capability, requiring power reduction with Recirc flow.
- Reduce power by lowering the 'A' and 'B' Recirc pump speed controllers per GP-9-2 "Fast Reactor Power Reduction" (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).

Recognize and announce entry into OT-112, "Unexpected/Unexplained Change in Core Flow".

NOTE: the crew must respond to this event by lowering power per GP-9 to prevent a low reactor water level scram. IF the crew recognizes that Feedwater flow was above 85% (12 Mlbm/hr) prior to the Condensate pump trip, they should reduce Recirc flow to the runback setpoint of 45%.

CRS

Enter OT-100 "Reactor Low Level": direct the URO to lower power by lowering Recirc flow using GP-9-2 "Fast Reactor Power Reduction".  
Enter OT-110 "Reactor High Level" if high level condition exists following power reduction.  
Enter / direct actions of ARC 203 E-2 "A Condensate Pump BKR Trip".  
Enter / direct actions of OT-112 "Unexpected/Unexplained Change in Core Flow".

- Direct insertion of control rods per GP-9-2 "Fast Reactor Power Reduction" to exit Region 2 of Power to Flow map.
- Plot conditions on Power to Flow map. Determine that plant is in region 2.
- Direct the URO to monitor for THl

(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.  
Request Maintenance assistance for investigation into trip of 'A' Condensate Pump and failure of Recirc system to runback.



## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 5      Page: 8 of 18

Event Description: 'A' Condensate pump trip with Recirc runback failure / power reduction (cont'd)

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO	Monitor for Thermal Hydraulic Instabilities (THI). Insert control rods per GP-9-2 "Fast Reactor Power Reduction" to exit Region 2 of Power to Flow map.
	PRO	Investigate the cause of the 'A' Condensate pump trip using the applicable Alarm Response Card. <ul style="list-style-type: none"><li>• Direct an Equipment Operator to investigate the breaker and pump.</li><li>• Green flag the 'A' Condensate pump control switch.</li></ul>
	CRS	Direct PRO to perform SO 5.2.A-2 "Condensate System Condensate Pump Shutdown" for the 2A Condensate Pump
	PRO	Perform SO 5.2.A-2 "Condensate System Condensate Pump Shutdown" for the 2A Condensate Pump

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 6      Page: 9 of 18

**Event Description:** Loss of #2 auxiliary bus (loss of Condensate and Feedwater)

**Cause:** Failure in the bus work results in an overcurrent condition and a bus lockout / RPS 'B' automatic and manual channel 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 reactor water level to drop rapidly.
4. Full Reactor scram does not occur; manual ARI initiation is required.
5. Reactor level drop is greater because more time is spent under power conditions with no high-pressure injection.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Recognize and report the loss of #2 Auxiliary Bus.
	CRS	
	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. Recognize and report an RPS scram has failed to occur. <b>(See Event #8)</b> Report entry into T-101 "RPV Control" for the ATWS condition.
CT	CRS	Direct the mode switch be placed in SHUTDOWN if not previously performed by URO. Recognize a failure to scram condition exists; enter and execute T-101 "RPV Control". For RC/Q: <ul style="list-style-type: none"><li>• Direct initiation of Alternate Rod Insertion (ARI) <b>(See Event #8)</b>.</li></ul>

**Operator Actions****ES-D-2****Op Test No.: 1      Scenario No.: 1      Event No.: 6      Page: 10 of 18****Event Description:** Loss of #2 auxiliary bus (loss of Condensate and Feedwater)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	CRS	Execute T-101 "RPV Control". For RC/L: <ul style="list-style-type: none"><li>• Direct restoring reactor level to +5 to +35 inches with HPCI and RCIC.</li></ul> For RC/P: <ul style="list-style-type: none"><li>• Direct instrument nitrogen bypassed and restored IAW GP-8E.</li><li>• Direct reactor pressure stabilized below 1050 psig.</li></ul>
	PRO	Perform applicable scram actions: <ul style="list-style-type: none"><li>• Transfer 13 KV house loads (#1 bus only).</li><li>• Trip main turbine at approximately 50 MWe.</li><li>• Verify main generator lockout.</li><li>• Verify Group II &amp; III isolations and SGTS initiation.</li><li>• Verify SDV vent and drain valves are closed.</li><li>• Verify HWC isolated.</li><li>• Verify recirc pumps are tripped.</li><li>• Report PRO scram actions to the CRS</li><li>• Monitor instrument air header pressure and drywell pressure; report instrument air header pressure is greater than drywell pressure.</li></ul>
	PRO	Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2 or GP-8E. <ul style="list-style-type: none"><li>• Place AO-2969A control switch to "CLOSE".</li><li>• Place AO-2969B control switch to "CLOSE".</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S100 in the "BYPASS" position.</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S99 in the "BYPASS" position.</li><li>• Place AO-2969A control switch to "OPEN".</li><li>• Place AO-2969B control switch to "OPEN".</li></ul> NOTE: this activity may be coordinated between the URO and the PRO.
	URO/PRO	Announce an additional entry condition for T-101 based on Reactor level below -48 inches. Operate HPCI and RCIC to restore reactor level to +5 to +35 inches.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 6      Page: 11 of 18

**Event Description:** Reactor coolant leak inside the drywell

**Cause:** A leak develops on a weld joint on the suction piping of the "B" reactor recirculation pump after it tripped; the leak size propagates over time.

**Effects:**

1. Initial alarms:
  - 210 F-2 "Drywell Hi-Lo Press"
  - 225 A-4 "Drywell Hi-Lo Press"
2. Drywell pressure and temperature will rise at an increasing rate, eventually leading to a high drywell pressure alarm, ECCS automatic start signals, and PCIS isolation signals. Conditions will escalate requiring the use of containment sprays.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO/PRO	Recognize and report alarms 210 F-2 "Drywell Hi-Lo Press" and 225 A-4 "Drywell Hi-Lo Press" and enter corresponding Alarm Response Cards.
	CRS	Enter and execute follow-up actions of OT-101 "High Drywell Pressure": <ul style="list-style-type: none"><li>• When drywell pressure reaches 2 psig, then enter T-101 "RPV Control" and T-102 "Primary Containment Control" and execute concurrently with OT-101.</li><li>• Direct additional drywell cooling placed in service.</li></ul>
	URO/PRO	Maximize drywell cooling by placing all drywell cooler fans to RUN.
	CRS	Enter and execute T-102 "Primary Containment Control" when drywell pressure reaches 2 psig. For PC/P: <ul style="list-style-type: none"><li>• Direct performance of GP-8.B "PCIS Isolations – Groups II and III"</li><li>• Direct torus sprays initiated IAW T-204 "Initiation of Containment Sprays Using RHR".</li></ul> For DW/T: <ul style="list-style-type: none"><li>• Direct drywell cooling maximized by performing T-223 "DW Cooler Fan Bypass".</li></ul> For PC/G: <ul style="list-style-type: none"><li>• Direct CAD placed in service as time permits.</li></ul> Re-enter T-102 when Torus level reaches 14.9 feet, and when Drywell temperature reaches 145 degrees F. Direct an RPV depressurization to 500-600 psig.

**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 1      **Event No.:** 6      **Page:** 12 of 18

**Event Description:** Reactor coolant leak inside the drywell (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	URO/PRO	Monitor T-102 parameters (torus temperature, torus level, drywell pressure, torus pressure, drywell temperature) and provide trends to the CRS as appropriate.
	URO/PRO	Perform GP-8.B, report no isolations required.
	PRO	Spray the torus in accordance with T-204 "Initiation of Containment Sprays Using RHR" ( <b>see Event #10</b> ).
	URO	Maximize drywell cooling by performing T-223 "DW Cooler Fan Bypass". Shutdown drywell cooling fans when directed. Depressurize the RPV to 500-600 psig using bypass valves.
	URO/PRO	Place CAD in service when directed. Monitor reactor level, and report to the CRS reactor level is continuing to lower.
	CRS	When drywell pressure and temperature plot within the safe region of the Drywell Spray Initiation Limit Curve: <ul style="list-style-type: none"><li>• Direct drywell cooling fans shut down.</li></ul>
<b>CT</b>		<ul style="list-style-type: none"><li>• Direct drywell sprays initiated IAW T-204 "Initiation of Containment Sprays Using RHR".</li></ul>
<b>CT</b>	PRO	Spray the drywell in accordance with T-204 "Initiation of Containment Sprays Using RHR".  <u>NOTE:</u> the crew will also enter T-103, "Secondary Containment Control", due to high main steam tunnel temperatures (points 1 and 16 on TR-2-13-139) but there are no substantive actions that are required.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 7      Page: 13 of 18

**Event Description:** RPS failure requires Alternate Rod Insertion (ARI) to scram the reactor

**Cause:** RPS 'B' automatic and manual channel failure

**Effects:** Full Reactor scram does not occur; manual ARI initiation is required.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
CT	CRS	Recognize a failure to scram condition exists; enter and execute T-101 "RPV Control". For RC/Q: <ul style="list-style-type: none"><li>• Direct initiation of Alternate Rod Insertion (ARI).</li></ul>
CT	URO	Initiate ARI IAW RRC 3B.1-2 "Alternate Rod Insertion During a Plant Event": <ul style="list-style-type: none"><li>• Rotate the "A" and "B" ARI pushbutton collars to "Armed".</li><li>• Depress the "A" and "B" ARI pushbuttons.</li><li>• Verify the following ARI solenoid valves open:<ul style="list-style-type: none"><li>○ SV-2-03-141A</li><li>○ SV-2-03-142A</li><li>○ SV-2-03-141B</li><li>○ SV-2-03-142B</li></ul></li><li>• Verify and report the scram air header is depressurizing.</li><li>• Monitor and report when control rods begin to insert.</li><li>• Verify APRMs are downscale and report to the CRS.</li><li>• Report the status of reactor level control, reactor pressure control, and control rods.</li></ul>

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 8      Page: 14 of 18

**Event Description:**      HPCI flow controller fails low in automatic

**Cause:**      HPCI flow controller internal malfunction while in automatic

**Effects:**      HPCI turbine speed will be too low to develop enough system discharge pressure to allow injection into the RPV. Controller must be placed in MANUAL and output raised manually to allow the system to inject.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Recognize that HPCI system automatic response is abnormal and that the system has low discharge pressure and no injection flow. Place the HPCI system flow controller in MANUAL. Using controller manual output knob, raise HPCI system speed high enough to develop enough discharge pressure to allow system injection into the RPV. Report the abnormal HPCI response and actions taken to the CRS.

**Operator Actions****ES-D-2****Op Test No.:** 1      **Scenario No.:** 1      **Event No.:** 9      **Page:** 15 of 18**Event Description:** HPCI turbine trip / emergency blowdown**Cause:** Instrument failure**Effects:** HPCI will trip while in-service, RPV level lowers requiring emergency blowdown

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	URO	Recognize and report alarm 221 B-1 "HPCI Turb Trip" and enter the corresponding Alarm Response Card (as time permits). Dispatch an Equipment Operator to determine the cause of the trip. When report is received from the field, report to the CRS that there is no apparent cause for the HPCI trip.
	CRS	Direct SBLC initiation to augment reactor level control. Direct T-246 "Maximize CRD Flow to the Reactor Vessel".
	URO/PRO	Initiate SBLC for reactor level control, as directed, using RRC 11.1-2 "SBLC Initiation During a Plant Event". Perform T-246 "Maximize CRD Flow to the Reactor Vessel". <ul style="list-style-type: none"><li>• Direct an Equipment Operator to open HV-2-3-129 "CRDHS Bypass Valve for Pump Suction Filter"</li><li>• Direct an Equipment Operator to check standby CRD Pump for start per step 4.4.</li><li>• Start the standby CRD Pump.</li><li>• Direct an Equipment Operator to open discharge valve for the CRD Pump placed in service HV-2-3-36A or B.</li><li>• While monitoring CRD Pump motor amps, direct an Equipment Operator to throttle open HV-2-3-170 "Inlet Valve to Drive Water Filters"</li><li>• Direct an Equipment Operator to place the standby drive water filter in service per step 4.8.</li><li>• Fully open MO-2-3-020 on Panel 20C005A.</li><li>• Close MO-2-2A-8029A and B on Panel 20C004A.</li><li>• Verify CRD flow controller FIC-2-3-301 in MANUAL.</li><li>• While monitoring CRD Pump motor amps, open AO-2-3-19A(B) "Flow Control" using FIC-2-3-301.</li></ul>



**Operator Actions**

ES-D-2

Op Test No.: 1 Scenario No.: 1 Event No.: 9 Page: 16 of 18

Event Description: HPCI turbine trip / emergency blowdown (continued)

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	CRS	After it is determined reactor level <u>cannot</u> be maintained above –172 inches, exit the RC/L leg of T-101 and enter/execute T-111 “Level Restoration”: <ul style="list-style-type: none"><li>• Direct ADS inhibited.</li><li>• Direct Core Spray and LPCI pumps started.</li></ul>
CT		When reactor level drops to –172 inches, enter and execute T-112 “Emergency Blowdown”: <ul style="list-style-type: none"><li>• Verify torus level is above 7 feet.</li><li>• Verify reactor pressure is 50 psig above torus pressure.</li><li>• Direct 5 ADS SRVs opened.</li></ul>
CT	URO/PRO	Inhibit ADS when directed. Verify start of all available Core Spray and LPCI pumps. When directed, manually open 5 ADS SRVs by placing their control switches in OPEN.
	CRS	After T-112 is executed, direct RPV injection maximized with all systems, subsystems, and alternate subsystems. After it is determined reactor level <u>can</u> be maintained above –172 inches, exit T-111 and enter T-101 “RPV Control” at step RC/L-1. Direct reactor level restored to +5 to +35 inches with Core Spray/RHR.
	URO/PRO	Maximize injection with all systems, subsystems, and alternate subsystems. Restore and maintain reactor level +5 to +35 inches, as directed.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 1      Event No.: 10      Page: 17 of 18

**Event Description:** Pressure instrument failure prevents using containment spray on 1 RHR loop

**Cause:** Drywell pressure input to spray logic permissive not functioning

**Effects:** Prevents containment spray using B (A) loop of RHR, resulting in Drywell temperature rising toward 281 degrees F (the A (B) loop of RHR is available).

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
		<b>NOTE:</b> the spray logic failure will effect whichever loop of RHR (B or A) is first selected to spray the containment. The simulator operator will delete the associated override (failure) on the opposite RHR loop to allow spraying the containment with that loop.
	PRO	Spray the torus in accordance with T-204 "Initiation of Containment Sprays using RHR": <ul style="list-style-type: none"><li>• Verify System 1 and 2 Drywell Pressure Permits Containment Spray annunciators (224 D-3, 225 B-3) are lit.</li><li>• Place keylock switch 10A-S18 in "MANUAL OVERRIDE".</li><li>• Momentarily place switch 10A-S17 in "MANUAL".</li><li>• Open or verify open MO-2-10-39 "Torus Header".</li><li>• Open or verify open MO-2-10-89 HPSW Hx Outlet".</li><li>• Start a HPSW pump</li><li>• Start an RHR pump..</li><li>• Close or verify closed MO-2-10-34 "Full Flow Test".</li><li>• Throttle open MO-2-10-38 "Torus Spray" to obtain 1,000 gpm on FI-2-10-136.</li></ul>
CT		Recognize and report inability to spray the torus (drywell) with the B (A) loop of RHR.
CT	CRS	Direct the operator to spray the torus (drywell) with the opposite loop of RHR.
CT	PRO	As directed, spray the torus (drywell) using the opposite loop of RHR in accordance with T-204 "Initiation of Containment Sprays using RHR" <b>(refer to steps above for steps to spray the torus).</b> Spray the drywell per T-204 as follows: <ul style="list-style-type: none"><li>• Verify both recirc pumps are tripped</li><li>• Verify all drywell cooling fans control switches are in OFF</li><li>• Open MO-2-10-31</li><li>• Open MO-2-10-26</li><li>• Monitor torus and drywell pressure</li><li>• Throttle MO-2-10-26 to adjust drywell spray as needed</li></ul>

**Op Test No.:** 1      **Scenario No.:** 1      **Event No.:** 10      **Page:** 18 of 18

**Event Description:** Pressure instrument failure prevents using containment spray on 1 RHR loop

**POST SCENARIO EMERGENCY CLASSIFICATION:**

Classification is an Alert IAW EAL MA2 ("Failure to Scram") OR FA1 ("Loss of Reactor Coolant System Barrier").

**TERMINATION CRITERIA:**

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

## Scenario Outline

ES-D-1

Simulation Facility Peach BottomScenario No. #2Op Test No. 2013 NRC

Examiners \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Operators \_\_\_\_\_ CRS (SRO)  
 \_\_\_\_\_ URO (ATC)  
 \_\_\_\_\_ PRO (BOP)

**Scenario Summary**

The scenario begins with the reactor at 100% power. After taking the shift, the crew will perform the Master Trip Solenoid Valve Routine Test.

Next, a turbine stop valve will fail closed, requiring the crew to execute OT-102 "Reactor High Pressure", which will require reducing reactor power to less than or equal to 95% in accordance with GP-5 "Power Operations".

Next, a failure in the controller for the 'A' Recirc M-G set will cause the Recirc pump speed to oscillate. The crew should recognize the changes in core and jet pump flows and "lock up" the 'A' Recirc pump. The crew should verify compliance with Technical Specifications for recirc loop flow differentials.

Next, a spurious HPCI initiation will occur due to a logic system failure. The crew should enter OT-104 "Positive Reactivity Insertion" and shutdown HPCI. This event will cause a steam leak from the HPCI system piping in the HPCI pump room, requiring the crew to enter and execute T-103 "Secondary Containment Control". Initial attempts to isolate HPCI using the Isolation Pushbutton results in "split" indication for the MO-2-23-15 and -16 steam supply valves. Operator should attempt manual closure of these valves. All attempts to isolate HPCI will be unsuccessful due to logic system and control switch failures. The leak will gradually worsen, requiring a reactor scram and entry into T-101 "RPV Control".

While performing scram actions, the PRO should recognize the generator lockout failure following the main turbine trip and manually open the generator output breakers and exciter field breaker. The URO should respond to the 'C' reactor feedpump discharge bypass valve failure by batch feeding through the 'C' reactor feedpump discharge valve. When depressurization using Bypass Valves is performed, Bypass valves will initially function normally but then fail closed, requiring operator to complete depressurization using SRVs.

Conditions will continue to deteriorate in the Reactor Building due to the HPCI steam leak. When the second Reactor Building area (Torus Room) exceeds its T-103 Action Level, the crew should perform a T-112 "Emergency Blowdown". The scenario will end when the RPV is depressurized and RPV level is being maintained with Condensate.

**Initial Conditions**  
**Turnover**

IC-119, 100% power

See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*	Event Description
1	See Scenario Guide	N PRO CRS	Perform the master trip solenoid valve routine test
2	See Scenario Guide	R URO CRS	Turbine stop valve fails closed / power reduction
3	See Scenario Guide	C URO TS CRS	'A' Recirc pump speed oscillations (Tech Spec) / Lock up the 'A' Recirc pump
4	See Scenario Guide	C PRO TS CRS	Inadvertent HPCI initiation / shutdown HPCI (Tech Spec)

<b>Event No.</b>	<b>Malfunction No.</b>	<b>Event Type*</b>		<b>Event Description</b>
<b>5</b>	See Scenario Guide	M	ALL	HPCI steam leak into secondary containment
<b>6</b>	See Scenario Guide	C	PRO CRS	HPCI Isolation System pushbutton and control switch failure
<b>7</b>	See Scenario Guide	I	PRO CRS	Generator lockout fails to occur following main turbine trip
<b>8</b>	See Scenario Guide	C	URO CRS	'C' reactor feedpump discharge bypass valve fails to open, complicating post-scrum and post-blowdown reactor level control
<b>9</b>	See Scenario Guide	C	URO CRS	Bypass Valves fail closed, depressurize using SRVs
<b>10</b>	See Scenario Guide		ALL	Emergency blowdown due to exceeding Reactor Building temperature limits in more than one area

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

## **SIMULATOR OPERATOR INSTRUCTIONS FOR 2013 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 scenario was altered from one originally developed for the 2011 NRC ILT Exam.

### **INITIAL SETUP**

#### **Initial Conditions**

- IC-119, 100% power, created from IC-14
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

#### **Blocking Tags**

- None

**Activate APP "2013\_NRC\_SCN2", or insert the following:**

#### **Event Triggers**

**TRG E8 HPCI\_ISOLATION\_DEPRESSED**  
**TRG E12 BYPASS\_JACK\_OPEN**

#### **Malfunctions**

**IMF MTA03C (E1 0 0)** (Turbine stop valve #3 fails closed)  
**IMF HPC02 (E2 0 0)** (HPCI spurious automatic start)  
**IMF HPC07 (E3 0 0) 5 20:00 0** (HPCI steam supply line break)  
**IMF RFC04A (E4 0 0) 100** (Recirc M-G flow controller 'A' oscillations)  
**IMF EHH02L (E12 60 0)** (Bypass Valve A-I Fails Closed)

#### **Overrides**

**IOR ZYP01A2A1S02 (none 0 0) NORMAL** ('C' RFP discharge startup bypass MO-8090)  
**IOR ZYP13A1S07 (none 0 0) OPEN** (HPCI steam line isolation valve MO-23-15)  
**IOR ZYP13A1S05 (none 0 0) OPEN** (HPCI steam line isolation valve MO-23-16)  
**IOR ZLOHP04BM02315-1 (E8 0 0) ON** (MO-2-23-15 Green Light ON)  
**IOR ZLOHP04BM02316-1 (E8 0 0) ON** (MO-2-23-16 Green Light ON)

### **Remote Functions**

None

### **Trip Overrides**

**MRF HPO04TO Override** (HPCI isolation override – includes K27, K28, K36, K57 relays)

**MRF MGA01TO Override** (Main Generator 86 lockout relay)

### **Batch Files**

None

### **Turnover Procedures**

- RT-O-01D-402-2 “Master Trip Solenoid Valves Operability Test” (**provide a consumable copy**)

## **SIMULATOR OPERATOR DIRECTIONS**

- EVENT 1** Support the crew as necessary for the Master Trip Solenoid Valves Routine Test.
- EVENT 2** When directed by the Lead Examiner, initiate pending events on **ET 1 (IMF MTA03C)** to cause turbine stop valve #3 to fail closed.
- If requested as I&C to investigate annunciator 201 H-1 "Feedwater Field Instrument Trouble", acknowledge request.
- If directed to walk down accessible areas of EHC system components, report no apparent issues identified.
- EVENT 3** When directed by the Lead Examiner, initiate pending events **ET 4 (IMF RFC04A 100)** to cause Recirc M-G flow controller 'A' oscillations.
- EVENT 4** When directed by the Lead Examiner, initiate pending events on **ET 2 (IMF HPC02)** to cause a spurious start of HPCI.
- If dispatched as the Equipment Operator to investigate the HPCI start, wait approximately 5 minutes and report no HPCI abnormalities.
- EVENT 5** After the Tech Spec determination has been made, or when directed by the Lead Examiner, initiate pending events on **ET 3 (IMF HPC07 5 20:00 0)** to cause a HPCI steam supply line break.
- Modify the leak severity as necessary to control the scenario pace and ensure a second Reactor Building area exceeds the Action Level for temperature. This will vary based on the crew's action to depressurize the reactor.**
- Event 6** When the PRO attempts to isolate HPCI using the Isolation Pushbutton, verify **ET 8** initiates to activate pre-inserted overrides resulting in the MO-15 and -16 valves indicating "splits" but remaining fully open.
- EVENT 7** Following the GP-4 shutdown and Main Turbine Trip, the Main Generator will not lockout.
- EVENT 8** When the URO attempts to establish reactor level control using MO-8090, the valve will not open.
- EVENT 9** When the URO attempts to depressurize using Bypass valves by using the manual BPV jack, verify **ET 12** initiates to activate pre-inserted malfunctions to cause Bypass valves to close approx 60 seconds after initial opening.
- EVENT 10** When the second area temperature exceeds the action level, the CRS will direct an emergency blowdown. The CRS may have directed a rapid depressurization with bypass valves prior the second parameter exceeding the action level.
- TERMINATION** The scenario may be terminated when 5 SRVS are open, the reactor is depressurized, and reactor level is under control.



## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit 2 is at 100% power.

### **INOPERABLE EQUIPMENT/LCOs:**

- None

### **SCHEDULED EVOLUTIONS:**

- RT-O-01D-402-2 "Master Trip Solenoid Valves Operability Test" (**provide a consumable copy**)

### **SURVEILLANCES DUE THIS SHIFT:**

- RT-O-01D-402-2 "Master Trip Solenoid Valves Operability Test"

### **ACTIVE CLEARANCES:**

- None

### **GENERAL INFORMATION:**

- None

### **CRITICAL TASK LIST**

1. **Following a positive reactivity addition, restore Reactor power below 100%.**
2. **When a Primary System is discharging into Secondary Containment through an unisolable leak, scram the Reactor when any parameter (temperature) exceeds a T-103 "Secondary Containment Control" Action Level.**
3. **Perform T-112 "Emergency Blowdown" when the same parameter (temperature) exceeds a T-103 "Secondary Containment Control" Action Level in more than one area and the system breach has not been isolated.**

### Operator Actions

ES-D-2

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

Event Description: Main turbine master trip solenoid valves routine test

Cause: N/A

Effects: None

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	CRS	Direct PRO to perform RT-O-01D-402-2 "Master Trip Solenoid Valves Operability Test".
	PRO	Perform RT-O-01D-402-2 "Master Trip Solenoid Valves Operability Test": <ul style="list-style-type: none"><li>• Review RT</li><li>• Place the Master Trip Test Selector switch to TRIP A</li><li>• Verify "Test A" lamp is OFF</li><li>• Release and place Master Trip Test Selector switch to RESET</li><li>• Verify "Test A" lamp is ON</li><li>• Place the Master Trip Test Selector switch to TRIP B</li><li>• Verify "Test B" lamp is OFF</li><li>• Release and place Master Trip Test Selector switch to RESET</li><li>• Verify "Test B" lamp is ON</li><li>• Complete RT paperwork</li></ul>
	CRS	Review RT for completeness/satisfactory results.
	URO	Monitor plant parameters/assist as directed.

## Operator Actions

ES-D-2

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

**Event Description:** Turbine stop valve fails closed / Reactor power reduction

**Cause:** An internal fault in the control pac for #3 stop valve causes the stop valve to go closed

**Effects:**

1. Alarms: 201 H-1 "Feedwater Field Instrument Trouble"  
206 A-4 "Main Steam Line Bypass Valve Open"
2. Reactor pressure will rise due to the valve closure; reactor power will rise in response to the rise in reactor pressure, Bypass valve(s) will open.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO/PRO	Recognize and report alarm 201 H-1 "Feedwater Field Instrument Trouble" and enter the corresponding Alarm Response Card. Recognize and report alarm 206 A-4 "Main Steam Line Bypass Valve Open" Recognize and report main turbine bypass valve open Recognize and report the rise in reactor pressure. Recognize and report entry into OT-102 "Reactor High Pressure". Enter and execute OT-102 "Reactor High Pressure". Recognize and report Load Limit light lit on main turbine Panel 20C008A. Recognize closure of the #3 Main Turbine Stop Valve. Request I&C assistance to respond to alarm 201 H-1 "Feedwater Field Instrument Trouble"
	URO/PRO	Recognize and report the rise in reactor power. (May) recognize and report entry into OT-104 "Positive Reactivity Insertion".
	CRS	Enter and execute OT-102 "Reactor High Pressure". (May) enter and execute OT-104 "Positive Reactivity Insertion". Exit OT-104 (per step 3.2). Recognize OT-102 requirement to reduce reactor thermal power within 2 hours in order to comply with Tech Spec 3.2. Enter and execute GP-5 "Power Operation" per OT-102, step 3.5. Direct that an EO walkdown accessible areas of EHC system components searching for causal factors.
	URO/PRO	Direct Equipment Operator to walkdown accessible areas of EHC system components searching for causal factors.

**Operator Actions****ES-D-2****Op Test No.: 1      Scenario No.: 2      Event No.: 2      Page: 3 of 14****Event Description:** Turbine stop valve fails closed / Reactor power reduction (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
CT	CRS	Direct the URO to lower reactor power to $\leq 95\%$ (3338 MWth) per GP-5, step 6.32. Verify operation is within the acceptable region of AO 1E. 4-2 "Planned Removal of the Fifth or Fourth Stage Feedwater Heaters for Service During End of Cycle Coastdown and Return to Normal Shutdown Condition".
CT	URO	Lower reactor power using Recirc until reactor power $\leq 95\%$ (3338 MWth), as directed.
	PRO	Recognize and report main turbine bypass valve open Recognize and report Load Limit light extinguished on main turbine Panel 20C008A <u>NOTE:</u> "Main Steam Line Hi Radiation" (218 D-2) may alarm and clear during the power reduction due to Hydrogen Water Chemistry injection.

### Operator Actions

ES-D-2

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

**Event Description:** 'A' Recirc M-G Flow Controller oscillations

**Cause:** Failure in the 'A' flow controller

**Effects:**

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

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO	Recognize and report the 'A' Recirc pump (controller) oscillations Recognize and report the oscillations as an entry into OT-112 "Unexpected/Unexplained Change in Core Flow". URO may lockup the 'A' Recirc M-G set without direction at this time.
	CRS	Enter and execute OT-112 "Unexpected/Unexplained Change in Core Flow". <ul style="list-style-type: none"><li>• Plot conditions on the Power to Flow map</li><li>• Direct monitoring for THI</li></ul> Direct the URO to Lock-up the 'A' Recirc pump by placing the Scoop Tube switch to "LOCK" at panel 20C004A. Refer to SO 2D.7.B-2 "Recirculation MG Set Scoop Tube Lockup and Reset", especially for transient and scram actions for a locked up Recirc pump. Verify the Jet pump flow mismatch is within: <ul style="list-style-type: none"><li>• 10.25 Mlbm/hr IF total core flow &lt; 71.75 Mlbm/hr</li><li>• 5.125 Mlbm/hr IF total core flow &gt; 71.75 Mlbm/hr</li></ul> Direct that reactor power be maintained $\leq 95\%$ based on Event 1. (May) dispatch a licensed operator to manually operate the 'A' Recirc pump using AO 2D.2-2 "Recirculation MG Set Scoop Tube Manual Operation".
	URO	"Lock up" the 'A' Recirc MG Set if not already completed. Monitor for THI

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 4      Page: 5 of 14

**Event Description:** Inadvertent HPCI initiation

**Cause:** Initiation relay contacts short closed

**Effects:**

1. Alarms:
  - 222 D-5 "HPCI Auxiliary Oil Pump Running"
  - 228 C-5 "HPCI Relays Not Reset"
2. HPCI injection to the reactor; reactor water level and reactor power increase

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Recognize and report HPCI initiation. Verify, using at least two independent indications, misoperation of HPCI and/or adequate core cooling is assured.
	URO	Recognize and report entry into OT-104 "Positive Reactivity Insertion" and OT-110 "Reactor High Level". Control feed pump speed / discharge pressure as necessary to maintain reactor water level below +35 inches.
	CRS	Enter and execute OT-104 "Positive Reactivity Insertion". <ul style="list-style-type: none"><li>• Verify, using at least two independent indications, misoperation of HPCI and/or adequate core cooling is assured.</li><li>• Direct HPCI short term shutdown in accordance with RRC 23.1-2 "HPCI System Operation during a Plant Event".</li></ul> Enter and execute OT-110 "Reactor High Level". <ul style="list-style-type: none"><li>• Direct maintaining reactor water level below +35 inches.</li></ul> Review Tech Spec 3.3.5.1 and determine Condition B applies: <ul style="list-style-type: none"><li>• Declare HPCI inoperable within 1 hour.</li><li>• Place the channel in trip within 24 hours.</li></ul> Review Tech Spec 3.5.1 and determine Condition C applies: <ul style="list-style-type: none"><li>• Verify RCIC operability immediately.</li><li>• Restore HPCI to operable status within 14 days.</li></ul> May reference GP-25 "Installation of Trips/Isolations to Satisfy Tech Spec/TRM Requirements for Inoperable Instrumentation." Request Maintenance and/or I&C assistance in investigating cause of inadvertent HPCI initiation.

**Operator Actions****ES-D-2****Op Test No.: 1      Scenario No.: 2      Event No.: 4      Page: 6 of 14****Event Description:** Inadvertent HPCI initiation (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	PRO	Perform RRC 23.1-2 "HPCI System Operation During a Plant Event", Section E, "HPCI Shutdown With Initiation Signal Present (short-term shutdown): <ul style="list-style-type: none"><li>• Place Aux Oil Pump control switch in START.</li><li>• Place Vacuum Pump control switch in START.</li><li>• Depress and hold Remote Trip pushbutton.</li><li>• When turbine speed reaches ~ 0 RPM, place Aux Oil Pump control switch in P-T-L and release the Remote Trip pushbutton.</li></ul>
	CRS	(May) direct PRO to follow-up with SO 23.2.A-2 "HPCI System Shutdown"
	PRO	(May) perform SO 23.2.A-2 "HPCI System Shutdown"



### Operator Actions

ES-D-2

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

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

**Cause:**      Unisolable HPCI steam line break in the HPCI room

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

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO/URO	Recognize and report the "High Area Temp" alarm (210 J-3) and enter the correspond Alarm Response Card. Recognize and report the Fire Panel alarm (007 D-6 Lower).
	PRO	Report the rise in HPCI room temperature (Point #3). Report the temperature alarm as an entry into T-103 "Secondary Containment Control".
	CRS	Enter and direct T-103 "Secondary Containment Control". <ul style="list-style-type: none"><li>• Monitor and control secondary containment temperatures.</li><li>• Perform a local evacuation IAW GP-15.</li><li>• Direct operators to isolate HPCI.</li><li>• Determine a primary system is discharging into the Reactor Building.</li></ul>
	PRO	Monitor secondary containment temperatures on TR-2-13-139. Inform the CRS of the failure to isolate HPCI ( <b>see Event 6</b> ). Perform a GP-15 local evacuation as directed.

## Operator Actions

ES-D-2

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

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

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
CT	CRS	Direct a GP-4 "Manual Reactor Scram" before HPCI room temperature (Point #3) exceeds the action level of 150 degrees F. Enter and direct T-101 "RPV Control".
CT	URO	Perform GP-4 "Manual Reactor Scram" as directed: <ul style="list-style-type: none"><li>• Place the mode switch to SHUTDOWN.</li><li>• Verify control rods are inserting.</li><li>• Verify APRMs are downscale.</li><li>• When reactor level begins to recover, then "Emergency Stop" all 3 RFPTs.</li><li>• Depress "SLOW RAISE" or "FAST RAISE" on the RFPT to remain in service.</li><li>• Close all RFP discharge valves and open 'C' RFP discharge bypass valve. <b>(See Event 8)</b></li><li>• Establish and maintain reactor level control with feedwater.</li><li>• Verify all control rods are inserted.</li><li>• Verify reactor pressure, trend, and status of EHC.</li><li>• Notify health physics of changing plant conditions.</li></ul>
	PRO	Perform GP-4 "Manual Reactor Scram" as directed: <ul style="list-style-type: none"><li>• Transfer 13 KV house loads.</li><li>• Trip main turbine when less than 50 MWe.</li><li>• Verify main generator lockout. <b>(See Event 7)</b></li><li>• Verify Group II and III isolations and SGTS initiation.</li><li>• Verify scram discharge volume vents and drains are closed.</li><li>• Verify hydrogen water chemistry is isolated.</li><li>• Verify both recirc pumps speed have runback to 30%.</li><li>• Monitor instrument air header pressure and drywell pressure.</li><li>• When the CRS is ready, report scram actions.</li></ul>

**Operator Actions****ES-D-2****Op Test No.: 1      Scenario No.: 2      Event No.: 5      Page: 9 of 14****Event Description:**      HPCI steam leak into Secondary Containment (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	CRS	Direct the URO to control reactor level between +5" to +35" with feedwater. Direct the PRO to bypass and restore instrument nitrogen to the drywell.
	URO	Control reactor level between +5" to +35" with feedwater.
	PRO	Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2 or GP-8E. <ul style="list-style-type: none"><li>• Place AO-2969A control switch to "CLOSE".</li><li>• Place AO-2969B control switch to "CLOSE".</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S100 in the "BYPASS" position.</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S99 in the "BYPASS" position.</li><li>• Place AO-2969A control switch to "OPEN".</li><li>• Place AO-2969B control switch to "OPEN".</li></ul>
	CRS	Direct reactor depressurization to 500-600 psig IAW T-101 "RPV Control"
	URO/PRO	Perform reactor depressurization to 500-600 psig using the Bypass Valves, as directed. <b>(See Event 9)</b>

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 6      Page: 10 of 14

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

**Cause:**      Logic and Control Switch failure

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

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Attempt to isolate HPCI using the Isolation Pushbutton Recognize and report the failure of the MO-2-23-15 and -16 valves to fully close
	PRO	Attempt to manually close the MO-15 and -16 valves. Recognize and report the failure of the MO-15 and 16 valves to fully close

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 7      Page: 11 of 14

**Event Description:** Generator lockout fails to occur following Main Turbine trip

**Cause:** Failure in the generator lockout circuit

**Effects:** Main Generator output breakers fail to open  
Main Generator exciter field breaker fails to open

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	PRO	Recognize the failure of the Main Generator lockout while performing PRO scram actions. Open the Main Generator output breakers (215 BKR and 225 BKR). Open the exciter field breaker (ALT EXC FLD BKR 41-0601). Report to the CRS that the Main Generator lockout failed and that you manually opened the Main Generator output breakers and the field breaker.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 8      Page: 12 of 14

**Event Description:** 'C' reactor feedpump discharge bypass valve fails to open

**Cause:** Failure of the motor operator for MO-8090 ('C' feed pump discharge bypass) to engage and open the valve

**Effects:** Reactor level must be controlled using the RFP discharge valve and not the RFP bypass, complicating post-scam and post blowdown Reactor level control.

### Time

### Position

### Applicant's Actions or Behavior

URO

Recognize the failure of MO-8090 to open during URO scram actions.

Throttle open RFP discharge valve MO-2149A, B or C.

Maintain reactor level by controlling RFP discharge valve position and RFP speed (pump discharge pressure).

NOTE: when RFP's are no longer available (e.g., following emergency depressurization), the RFP discharge valve must be throttled to control Condensate flow to the reactor.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 9      Page: 13 of 14

**Event Description:** Bypass Valves Fail Closed

**Cause:** EHC System failure

**Effects:** Operator attempts to de-pressurize will require shifting over to using Safety Relief Valves.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO	Open Bypass Valves to initiate depressurization to 500 to 600 psig as directed Recognize and report closure of Bypass valves 60 seconds after initial opening Attempt to re-establish control with Bypass valves Recognize and report inability to open Bypass valves
	CRS	Direct URO to continue depressurization using Safety Relief Valves (May) Direct URO to establish Torus Cooling IAW RRC 10.1 "RHR System Torus Cooling during a Plant Event"
	CRS	Continue depressurization using Safety Relief Valves Establish Torus Cooling IAW RRC 10.1.

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 2      Event No.: 10      Page: 14 of 14

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

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

**Effects:**      Reactor depressurization via ADS SRVs

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
CT	CRS	When the same parameter exceeds an action level in more than one area (HPCI Room and Torus Room) <u>and</u> the primary system breach has not been isolated, enter and execute T-112 "Emergency Blowdown": <ul style="list-style-type: none"><li>• Verify torus level is above 7 feet.</li><li>• Verify reactor pressure is 50 psig or more above torus pressure.</li><li>• Direct 5 ADS SRVs opened.</li></ul>
CT	PRO	When directed, open 5 ADS SRVs by placing their control switches in OPEN.

### **POST SCENARIO EMERGENCY CLASSIFICATION:**

- Classification is a Site Area Emergency IAW EAL FS1, Based on a Loss of the Primary Containment Barrier and a Loss of the Reactor Coolant System Barrier.
- Based on the scenario conditions and expected outcome, the CRS should determine that there is a Release in Progress.

### **TERMINATION CRITERIA:**

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



# Scenario Outline

ES-D-1

**Simulation Facility** Peach Bottom      **Scenario No.** #3      **Op Test No.** 2013 NRC

**Examiners** \_\_\_\_\_ **Operators** \_\_\_\_\_ CRS (SRO)  
 \_\_\_\_\_ URO (ATC)  
 \_\_\_\_\_ PRO (BOP)

**Scenario Summary**      The scenario begins with the reactor at 100% power. After taking the shift the crew is required to swap operating TBCCW pumps for inspection of a noisy bearing on the 'A' TBCCW pump.

Next, an individual control rod drive scram accumulator will experience low pressure and alarm in the main control room. The crew will initiate corrective action but the accumulator pressure will remain low requiring the crew to declare the control rod slow or inoperable per Technical Specifications.

Shortly after this, the E-4 diesel generator will inadvertently start, requiring the crew to shutdown the E-4 diesel generator and apply Technical Specifications for an inoperable diesel generator.

The crew should then recognize and respond to lowering main condenser vacuum caused by a failure of the in service steam jet air ejector steam supply valve. The crew must enter OT-106 "Condenser Low Vacuum" and reduce reactor power in accordance with GP-9-2 "Fast Power Reduction".

Following the power reduction, a turbine lube oil malfunction will result in a high bearing temperature and vibration condition for the main turbine, requiring the crew to scram the reactor and trip the main turbine. A CRD hydraulic malfunction will result in a low-power ATWS, requiring the crew to execute T-101 "RPV Control" and T-117 "Level/Power Control." In addition, the scram discharge volume (SDV) will fail to completely isolate, requiring the crew to manually isolate the SDV.

When SBLC is initiated the SBLC pump will trip, requiring the URO to place the alternate SBLC pump in service. The second SBLC pump will trip shortly after being placed in service. A failure of the only available EHC pump will cause the turbine bypass valves to close, requiring the crew to utilize HPCI and/or SRVs for reactor pressure control. The crew should perform T-220 "Driving Control Rods During Failure to Scram" to insert control rods. The crew will need to adjust control rod drive water pressure in order to successfully insert the control rods. The scenario may be terminated when the crew has control of RPV power and level using T-240 "Termination and Prevention of Injection into the RPV" and the crew is inserting control rods.

**Initial Conditions**      IC-120, 100% power  
**Turnover**      See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*	Event Description
1	See Scenario Guide	N PRO CRS	Swap operating TBCCW Pumps
2	See Scenario Guide	TS CRS	Individual control rod drive scram accumulator low pressure (Tech Spec)
3	See Scenario Guide	I PRO TS CRS	E4 diesel generator spurious start / diesel generator shutdown (Tech Spec)
4	See Scenario Guide	C PRO	Failure of Steam Jet Air Ejector steam supply valve / re-open by placing additional valve air supply in service

<b>Event No.</b>	<b>Malfunction No.</b>	<b>Event Type*</b>	<b>Event Description</b>
<b>5</b>	See Scenario Guide	R URO CRS	Fast reactor power reduction (w/ recirc)
<b>6</b>	See Scenario Guide	C URO CRS	Main turbine high temperature and vibration / reactor scram
<b>7</b>	See Scenario Guide	M ALL	ATWS (hydraulic) / turbine bypass valves fail closed
<b>8</b>	See Scenario Guide	C URO CRS	Standby liquid control (SBLC) pump trips / start second SBLC pump /second pump trips
<b>9</b>	See Scenario Guide	C PRO CRS	Two in-series scram discharge volume (SDV) vent valves fail to automatically isolate
<b>10</b>	See Scenario Guide	C URO	Low CRD drive water pressure / adjust to drive control rods

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

## **SIMULATOR OPERATOR INSTRUCTIONS FOR 2013 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 Scenario originated from the 2007 NRC Initial License Exam. It was significantly modified for the 2009 and 2010 CERT Exams. It has been altered here by replacing Event 1, adding new events 4 and 10, and deleting an event.

### **INITIAL SETUP**

#### **Initial Conditions**

- IC-120, 100% power (created from IC-14)
- Ensure recorder power is on; roll recorders as required
- Ensure annunciator horns are active

#### **Blocking Tags**

- Apply Information Tag to the 2B EHC Pump control switch
- Apply Information Tag to Annunciator 205 K-3 EHC STANDBY PUMP NOT IN AUTO

**Activate APP "2013\_NRC\_SCN3" or insert the following:**

#### **Event Triggers**

TRG E5 REACTOR\_MODE\_SWITCH\_NOT\_IN\_RUN  
TRG E6 RPV\_LEVEL\_LE\_-48  
TRG E7 SBLC\_SWITCH\_IN\_START-A  
TRG E8 SBLC\_SWITCH\_IN\_START-B  
TRG E9 SDV\_INBD\_NOT\_IN\_AUTO  
TRG E10 SDV\_OUTBD\_NOT\_IN\_AUTO  
TRG E11 MO\_3\_20\_CLOSE  
TRG E5 = DMF IPM03  
TRG E7 = DMF SLC01B  
TRG E8 = DMF SLC01A  
TRG E9 = DMF CRH09B  
TRG E10 = DMF CRH09D  
TRG E11 = MMF CRH01A (none 20 0) 70

## Malfunctions

**IMF CRH09B (none 0 0)** (inboard SDV vent valve fails to isolate)  
**IMF CRH09D (none 0 0)** (outboard SDV vent valve fails to isolate)  
**IMF IPM03 (none 0 0) 80 0 0** (hydraulic ATWS)  
**IMF SLC01A (none 0 0)** (SBLC Pump A trip)  
**IMF SLC01B (none 0 0)** (SBLC Pump B trip)  
**IMF CAR01 (E3 0 0) 2 0 0** (Main Condenser air in-leakage at 2% severity)  
**IMF MTA01B (E4 0 0) 100 10:00 0** (Main Turbine bearing 'B' high temperature)  
**IMF MTA02B (E4 0 0) 100 10:00 0** (Main Turbine bearing 'B' high vibration)  
**IMF MTA02C (E4 0 0) 100 10:00 0** (Main Turbine bearing 'C' high vibration)  
**IMF EHH04A (E6 2:00 0)** (2A EHC pump trip... 2 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02A (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02B (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02C (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02D (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02E (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02F (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02G (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02H (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF EHH02I (E6 4:00 0)** (Bypass valves fail closed 4 minutes after RPV level  $\leq$  -48 inches)  
**IMF CRH01A (E8 0 0) 5** (CRD flow control valve fails to 5% open on start of B SBLC pump)

## Overrides

**IOR ZLOTC08A2BP17\_1 (none 0 0) OFF** (Block 2B EHC pump green light)  
**IOR ZYP01A6S39 (none 0 0) STOP** (Block 2B EHC pump control switch)  
**IOR ZYP04A8S04 (E1 0 2) START** (E-4 DG QUICK START pushbutton)  
**IOR ZYP02A6S28 (E8 0 15) OPEN** (MO-2-3-20 strokes open for 15 seconds after B SBLC pump is started)  
**IOR ZYP02A6S27 (E8 16 2) THROTTLE** (MO-2-3-20 open stroke is stopped 16 seconds after starting by depressing throttle pushbutton for 2 seconds)

## Trip Overrides

None

## Turnover Procedures

None

## **SIMULATOR OPERATOR DIRECTIONS**

### **EVENT 1**

Support crew for TBCCW pump swap in accordance with SO 34.6.A-2.

- When directed, report Step 4.1 of SO 34.6.A-2 is complete.
- When directed per Step 4.2.1 of SO 34.6.A-2, report 'B' TBCCW pump discharge pressure is 85 psig.
- When directed per Step 4.4 of SO 34.6.A-2, report 'B' TBCCW pump discharge pressure is 85 psig.

### **EVENT 2**

After the swap of TBCCW pumps, initiate **ET2 (IMF CRH051423)** to cause a low HCU accumulator alarm condition for control rod 14-23.

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

### **EVENT 3**

After the Tech Spec determination is completed, or when directed by the Lead Examiner, initiate **ET1 (IOR ZYP04A8S04 START)** to cause a spurious start of diesel generator E4.

After the E4 diesel starts, verify override **ZYP04A8S04 is deleted**.

If directed to perform running inspection of E4 EDG, report as the Equipment Operator the E4 diesel unning inspection is complete and everything appears normal.

IF EO is NOT dispatched to EDG, report as I&C / Maintenance person in the EDG room that the EDG is running normally.

Support shutdown of EDG per SO 52A.1.B "Diesel Generator Operations".

### **EVENTS 4 & 5**

After the TS requirements have been determined for the EDG spurious start, or when directed by the Lead Examiner, insert Remote Function **IRF MSS05A 'A' SJA E Steam Isolation Valve AO-2466A CLOSE** to close AO-2466A and initiate a main condenser low vacuum condition.

Support the crew for GP-9, "Fast Power Reduction". Role-play as the Power System Director when called.

**IF** the Lead Examiner requires additional GP-9 power reduction, initiate **ET3 (IMF CAR01 2 0 0)** to cause Main Condenser air in-leakage at 2% severity. (NOTE: With NO power reduction, appox 2 minutes to Cond Lo Vac alarm.) **THEN MMF CAR01 1 1:00 0** to reduce the severity of the condenser in-leakage to 1% severity. **AFTER** GP-9 is initiated, **DMF CAR01**

## **SIMULATOR OPERATOR DIRECTIONS**

### **EVENT 6**

After power is reduced, or as directed by the Lead Examiner, initiate **ET4** and verify the following malfunctions:

- **IMF MTA01B 100 10:00**, "Main Turbine Bearing B High Temperature."
- **IMF MTA02B 100 10:00**, "Main Turbine Bearing B High Vibration."

**IMF MTA02C 100 10:00**, "Main Turbine Bearing C High Vibration."

### **EVENT 7**

If directed to investigate the main turbine, wait 5 minutes and when bearing #2 is above 225 degrees F (PMS shortcut "**TGB**"), report there is no oil flow to #2 bearing.

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

When RPV level is lowered to -50 inches, verify trigger **ET6 (IMF EHH04A)** initiates a trip of the 'A' EHC pump 2 minutes later.

When requested to perform T-221, wait 5 minutes then **MRF T221\_\_1 DEFEAT "Remove Low RPV Level/GP1 Isolation"**.

After 5 minutes report to the MCR by phone that T-221 jumpers (step 4.1) have been installed.

When requested as the Equipment Operator to perform T-216 steps 4.1 and 4.2, acknowledge direction but DO NOT COMPLETE THE TASK.

### **EVENT 8**

Pre-inserted malfunctions will trip the 'A' or 'B' Standby Liquid Control pump; whichever one is placed in service first. When the 'A' or 'B' SLC pump is started, VERIFY the trip malfunction for the other pump is deleted:

- **TRG E7 = DMF SLC01B** (if the 'A' SLC pump was placed in service)
- **TRG E8 = DMF SLC01A** (if the 'B' SLC pump was placed in service)

When the B SLC Pump is started verify the following override initiates:

- **IOR ZYP02A6S28 (E8 0 15) OPEN** (opens MO-2-3-20 for 15 seconds after B SLC pump is started to lower CRD drive water pressure)
- **IOR ZYP02A6S27 (E8 16 2) THROTTLE** (stops the open stroke for MO-2-3-20 16 seconds into its open stroke)
- **IMF CRH01A (E8 0 0) 5** (CRD flow control valve fails to 5% open on start of B SBLC pump)

One minute after the standby SLC pump is started, trip the pump by inserting malfunction **IMF SLC01A or SCL01B** (trip of A or B SLC pump)

### **SIMULATOR OPERATOR DIRECTIONS**

#### **EVENT 9**

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**

#### **EVENT 10**

IF the operator strokes closed MO-2-3-20 to raise CRD drive water pressure, verify initiation of **MMF CRH01A (none 20 0) 70** (repositions CRD flow control valve to 70% open on a 20 second delay)

#### **TERMINATION**

The scenario may be terminated when the crew has control of RPV power and level using T-240 “Termination and Prevention of Injection into the RPV” and the crew begins inserting control rods per T-220.

## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit 2 is at 100% power

### **INOPERABLE EQUIPMENT/LCOs:**

- 2B EHC pump is blocked OOS for micron filter replacement

### **SCHEDULED EVOLUTIONS:**

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

### **SURVEILLANCES DUE THIS SHIFT:**

- None

### **ACTIVE CLEARANCES:**

- 2B EHC pump

### **GENERAL INFORMATION:**

- None



### **CRITICAL TASK LIST**

- 1. Before torus temperature exceeds the limits of the Heat Capacity Temperature Limit (HCTL) curve, lower reactor power by performing T-240 "Terminating and Preventing Injection" to lower RPV level until:**
  - a. Reactor power is below 4%, OR**
  - b. RPV level reaches -172 inches, OR**
  - c. All SRVs remain closed and drywell pressure is below 2 psig.**
- 2. Initiate a reactor shutdown by inserting control rods in accordance with 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

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 1      Page: 1 of 13

Event Description: Swap TBCCW pumps

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

Effects: N/A

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	CRS	Direct the PRO to perform SO 34.6.A-2 "Placing the Standby Turbine Building Closed Cooling Water System Pump in Service."
	PRO	<p>Perform SO 34.6.A-2 "Placing the Standby Turbine Building Closed Cooling Water System Pump in Service."</p> <ul style="list-style-type: none"><li>• Contact the Equipment Operator to perform SO 34.6.A-2 Step 4.1 to vent the 'B' TBCCW pump and verify it ready for start</li></ul> <p><b>NOTE: MCR TBCCW discharge pressure indication reads lower than local indication.</b></p> <ul style="list-style-type: none"><li>• Start the 'B' TBCCW pump and direct the EO to verify discharge pressure is greater than 70 psig on local pressure indicator.</li><li>• Stop the 'A' TBCCW pump and place it in AUTO.</li><li>• Direct the EO to verify discharge pressure of running pump is greater than 70 psig and less than or equal to 87 psig on local pressure indicator.</li><li>• Inform the CRS and Maintenance the pump swap is complete.</li></ul>
	URO	Monitor plant parameters and assist as directed.

**Operator Actions**

**ES-D-2**

**Op Test No.:**        **1**        **Scenario No.:**        **3**        **Event No.:**        **2**        **Page:**        **2 of 13**

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

**Cause:**        Leaking CRD HCU accumulator

**Effects:**        1. Alarms:

- 211 E-2 "CRD Accum Lo Pres / Hi Level"

2. Control rod must be declared SLOW or INOPERABLE per Tech Spec.

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

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 3      Page: 3 of 13

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

**Cause:** Spurious automatic start signal

**Effects:**

3. Alarms:
  - 005 F-4 "E4 Diesel Running"
  - 002 A-5 "Emergency Service Water Pump Auto Start"
  - 212 B-2 "Emergency Cooling Water Pump Auto Start"
4. The diesel will continue to run until manually shutdown...it should not be left running for long periods unloaded due to accumulation of oil in the exhaust manifold.

### Time

#### Position

#### Applicant's Actions or Behavior

PRO

Acknowledge and report alarm 005 F-4 "E4 Diesel Running" and enter corresponding Alarm Response Card.

- Red flag the E4 Diesel Generator control Switch by placing the control Switch to "START"

Recognize the E4 diesel is running unloaded.

Verify diesel automatic response using SO 52B.1.B "Diesel Generator Automatic Start".

- Verify an ESW pump started.
  - Check pump discharge pressure (PI-0236A (B)) "DISCH PRESS" 25 to 64 psig.
  - Check pump motor current "AMPS" 25 to 35 amps.
- Red-flag the ESW pump to remain in service.
- Shutdown the remaining ESW pump per ARC-002 A-5.
- Direct an Equipment Operator to perform a running inspection of the E-4 diesel generator.

NOTE: the Lead Examiner, acting as the Shift Manager, may prompt the CRS to remove the E-4 diesel generator from service (do NOT perform a 2-hour load run).

CRS

Per SO 52B.1.B (step 4.7), direct a shutdown of the E-4 diesel generator IAW the applicable steps of section 4.5 of SO 52A.1.B "Diesel Generator Operations".

(May) direct placing the E4 diesel in Pull-to-Lock.

Request Maintenance and/or I&C assistance in troubleshooting E4 diesel generator spurious start.

**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 3      **Event No.:** 3      **Page:** 4 of 13

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

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	PRO	<p>Shutdown the E4 diesel IAW SO 52A.1.B:</p> <ul style="list-style-type: none"><li>• Place the E4 diesel generator control switch to "STOP".</li><li>• Shutdown the running ESW pump in accordance with SO 33.2.A.</li><li>• Direct the Equipment Operator to continue with the E4 diesel shutdown in accordance with SO 52A.1.B, section 4.5.</li></ul> <p>Place the E4 diesel in Pull-to-Lock, as directed.</p>
	CRS	<p>Declare the E-4 diesel inoperable.</p> <p>Review Tech Spec 3.8.1 and determine Condition B applies:</p> <ul style="list-style-type: none"><li>• Verify alignment/availability of the Conowingo tie line immediately.</li><li>• Verify breaker alignment for operable offsite circuits within 1 hour.</li><li>• Restore the E-4 diesel generator to operable status within 14 days.</li></ul>

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 4 & 5      Page: 5 of 13

**Event Description:** Failure of Steam Jet Air Ejector steam supply valve / fast reactor power reduction

**Cause:** Leak in normal air supply to steam supply valve

**Effects:**

1. Alarms:
  - 201 H-3, "HWC System Trouble"
  - 201 J-3, "HWC System Trip"
  - 204 D-5, "SJAЕ Disch Hi/Lo Press"
  - PMS Major: Off Gas Flow
2. GP-9 "Fast Power Reduction" required due to degraded main condenser vacuum

### Time

#### Position      Applicant's Actions or Behavior

URO/PRO      Acknowledge and report alarms:

- 201 H-3, "HWC System Trouble"
- 201 J-3, "HWC System Trip"
- 204 D-5, "SJAЕ Disch Hi/Lo Press"

Recognize and report A SJAЕ steam supply isolation valve AO-2466A closed on Panel 20C006B.

Recognize and report lowering main condenser vacuum.

CREW      Enter and execute OT-106 "Condenser Low Vacuum"

URO      Reduce reactor power in accordance with GP-9-2 "Fast Power Reduction" until vacuum stops lowering.

- Lower recirculation flow as required to a value of no lower than 61.5 Mlbs/hr.
- Stop power reduction when main condenser vacuum stops lowering and/or begins to improve.

CRS      Recognize that step 3.8 of OT-106 applies to present condition (AO-2466A closed)  
Directs PRO to perform step 3.8 of OT-106.

PRO      Place control switch "Alt Instr Air AO-2-08A-2466A" to OPEN on Panel 20C007A.  
Verify AO-2-08A-2466A indicates open at Panel 20C006B.  
Place PIC-2239A "A Steam Press" in MANUAL on Panel 20C007A.  
Restore SJAЕ steam supply pressure to between 115 and 125 psig.

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 6      Page: 6 of 13

**Event Description:** Main turbine high temperature and vibration / reactor scram

**Cause:** Lack of lube oil flow to the #2 main turbine bearing

**Effects:**

1. Initial Alarms:
  - Alarm 205 H-4, "Turbine Bearing Metal Hi Temp"
  - Alarm 205 A-2, "Turbine Vibration / Thrust High"
2. Turbine bearing temperature and vibrations will rise. With no operator action, the main turbine will (eventually) automatically trip.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO/PRO	Recognize and report alarm 205 H-4, "Turbine Bearing Metal Hi Temp" and enter corresponding Alarm Response Card. Identify affected bearing on temperature recorder TR-2401. Check turbine lube oil temperature on TR-2401, and increase cooling water to lube oil coolers, if necessary. Check vibration of the affected bearing on VR-2657. Dispatch operator to check for proper oil flow and local temperature at the affected bearing.
	CRS	Direct operator actions IAW ARC 205 H-4, "Turbine Bearing Metal Hi Temp" and 205 A-2, "Turbine Vibration/Thrust High". Direct the reduction of turbine load IAW GP-9-2, "Fast Power Reduction" (the CRS may go directly to GP-4 "Manual Reactor Scram").
	URO	Perform a GP-9-2 "Fast Power Reduction" as directed.
	CRS	When bearing metal temperature increases to 250 degrees F, then direct a manual scram IAW GP-4 "Manual Reactor Scram" then direct the PRO to trip the Main Turbine ( <b>see next event</b> ).
	PRO	When directed by the CRS, or when bearing metal temperatures exceed 250 degrees F, then trip the Main Turbine.

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 7      Page: 7 of 13

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

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

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

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO	Perform GP-4 "Manual Reactor Scram": <ul style="list-style-type: none"><li>• Reduce recirc flow controllers to minimum (20% demand)</li><li>• Place the mode switch to "SHUTDOWN".</li><li>• Verify control rods are inserting.</li><li>• Report APRMs are NOT downscale and that an ATWS is in progress with reactor power &gt; 4% (T-101 entry condition).</li><li>• Depress manual scram pushbuttons on Panel 20C005A.</li></ul>
	PRO	Perform GP-4 "Manual Reactor Scram": <ul style="list-style-type: none"><li>• Transfer 13 KV house loads using RRC 53.1-2.</li></ul>
	CRS	Enter/direct actions for T-101 "RPV Control": <ul style="list-style-type: none"><li>• Verify URO/PRO scram actions.</li><li>• Direct tripping of the Main Turbine.</li><li>• Direct RPV pressure stabilized below 1050 psig using BPVs, SRVs and/or HPCI.</li><li>• Direct drywell instrument nitrogen restored.</li><li>• Direct actions for the ATWS (<b>see later in this event</b>).</li></ul>



**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 3      **Event No.:** 7      **Page:** 8 of 13

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

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	PRO	<p>Trip the Main Turbine by depressing the "TRIP" pushbutton.</p> <p>Stabilize reactor pressure below 1050 psig as directed using HPCI and/or SRVs.</p> <p>When the isolation occurs (+1 inch RPV level):</p> <ul style="list-style-type: none"><li>• Verify Group II &amp; III isolations and SGTS initiation.</li><li>• Verify HWC isolated.</li><li>• Bypass and restore drywell instrument nitrogen IAW RRC 94.2-2 or GP-8E.<ul style="list-style-type: none"><li>• Place AO-2969A control switch to "CLOSE".</li><li>• Place AO-2969B control switch to "CLOSE".</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S100 in the "BYPASS" position.</li><li>• Place Drywell Instrument Nitrogen Bypass Switch 16A-S99 in the "BYPASS" position.</li><li>• Place AO-2969A control switch to "OPEN".</li><li>• Place AO-2969B control switch to "OPEN".</li></ul></li></ul> <p>NOTE: this activity may be coordinated between the URO and the PRO.</p>
	CRS	<p>Direct T-101, RC/Q ATWS actions:</p> <ul style="list-style-type: none"><li>• Initiation of ARI</li></ul>
CT		<ul style="list-style-type: none"><li>• Trip recirc pumps at least 10 seconds apart</li><li>• T-220 "Driving Control Rods During Failure To Scram"</li><li>• T-216 "Control Rod Insertion by Manual Scram or Individual Scram Test Switches"</li></ul>
CT		<ul style="list-style-type: none"><li>• Enter T-117 "Level/Power Control"</li><li>• SLC injection</li></ul>
	URO	<p>Perform T-101, RC/Q actions:</p> <ul style="list-style-type: none"><li>• Initiate ARI using RRC 3B.1-2, "ARI During a Plant Event"; report the scram air header is depressurized.</li><li>• Trip Recirc pumps at least 10 seconds apart.</li><li>• Initiate SLC by starting either SLC pump (see Event #8).</li><li>• 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).</li></ul>
CT		<ul style="list-style-type: none"><li>• Perform T-220 "Driving Control Rods During Failure To Scram" (<b>see Event #10</b>).</li></ul>

**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 3      **Event No.:** 7      **Page:** 9 of 13

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

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	CRS	Direct T-117 actions:
		<ul style="list-style-type: none"><li>• Inhibit ADS.</li><li>• T-221 "Main Steam Isolation Valve Bypass".</li></ul>
CT		<ul style="list-style-type: none"><li>• T-240 "Termination And Prevention Of Injection Into The RPV" per Attachment 1 Figure 1</li></ul>
		OR
		<ul style="list-style-type: none"><li>• T-240 per Attachment 1 Figure 2 if:<ul style="list-style-type: none"><li>○ RPV level is &gt; -172" and,</li><li>○ Reactor power is &gt; 4% and,</li><li>○ An SRV is open and Drywell pressure &gt; 2 psig and,</li><li>○ Torus temperature is &gt; 110 °F</li></ul></li></ul>
	URO/PRO	Perform T-117 actions:
		<ul style="list-style-type: none"><li>• Inhibit ADS per RRC 1G.1-2 "ADS Inhibit".</li><li>• Direct 3rd Reactor Operator (via phone or radio) to perform T-221.</li></ul>
CT		<ul style="list-style-type: none"><li>• 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.<ul style="list-style-type: none"><li>○ Place HPCI Aux Oil Pump in the "Pull-to-Lock" position.</li><li>○ Press "Emergency Stop" for all reactor feed pumps.</li><li>○ Close reactor feed pump discharge valves MO-2149A, B, C.</li><li>○ Verify closed MO-8090 "C RFP Discharge Bypass".</li></ul></li></ul>

**Operator Actions****ES-D-2****Op Test No.: 1      Scenario No.: 3      Event No.: 7      Page: 10 of 13****Event Description:**      ATWS – hydraulic / turbine bypass valves fail closed (continued)

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
<b>CT</b>	URO/PRO	When RPV level is below -60 inches, restore injection and maintain RPV level between -60 and -195 inches as follows: <ul style="list-style-type: none"><li>• Using Feedwater:<ul style="list-style-type: none"><li>○ Place LIC-8091 in "MAN" and close the valve.</li><li>○ Open MO-8090 "C RFP Bypass".</li><li>○ Raise RFP speed until discharge pressure is 75-100 psig above RPV pressure.</li><li>○ Control RPV injection by adjusting RFPT speed, OR LIC8091 setting, OR MO-2149C "RFP C Discharge" valve position.</li></ul></li><li>• Using HPCI (manual initiation):<ul style="list-style-type: none"><li>○ Arm and depress the "HPCI Manual Initiation" pushbutton.</li><li>○ Verify MO-2-23-014 "Supply" opens.</li><li>○ Verify the aux oil pump starts.</li><li>○ Verify MO-2-23-019 "To Feed Line" opens.</li><li>○ Verify vacuum pump starts.</li><li>○ Verify AO-2-23-042 and AO-2-23-043 "Drain Isol to Mn Cndr" close.</li><li>○ Adjust HPCI flow controller setpoint to the desired RPV injection rate.</li></ul></li></ul>
	URO/PRO	Recognize loss of only available EHC Pump. Recognize complete loss of EHC System and eventual loss of turbine bypass valves for RPV pressure control.
	CRS	Direct RPV pressure control using SRVs and/or HPCI.
	URO/PRO	Control RPV pressure using SRVs and/or HPCI to stay below 1050 psig, OR to stay on safe side of T-102 Curve T/L-1 "SRV Tail Pipe Limit", as applicable.
	URO/PRO	Place Torus cooling in service using RRC 10.1-2 <ul style="list-style-type: none"><li>• Open MO-2-10-39A(B)</li><li>• Open MO-2-32-89A (B, C, or D)</li><li>• Start a HPSW Pump</li><li>• Start an RHR Pump</li><li>• Open MO-2-10-34A(B)</li><li>• Place additional pumps in service as required</li><li>• Direct an Equipment Operator to close stay full injection valve(s) for the RHR loop(s) in service</li></ul>

**Operator Actions**

**ES-D-2**

**Op Test No.:** 1      **Scenario No.:** 3      **Event No.:** 8      **Page:** 11 of 13

**Event Description:** Both standby liquid control (SLC) pumps trip

**Cause:** First SLC pump placed into service trips immediately on overcurrent  
Second SLC pump trips on overcurrent approximately 1 minute after being placed in service

**Effects:** SLC system will not be available to mitigate the effects of the ATWS. Reactor power must be reduced using T-240, "Termination And Prevention Of Injection Into The RPV" and T-220, "Driving Control Rods During Failure To Scram".

<b><u>Time</u></b>	<b><u>Position</u></b>	<b><u>Applicant's Actions or Behavior</u></b>
	URO	Recognize the Standby Liquid Control (SLC) pump placed into service has failed to start (pump immediately trips). Place the standby SLC pump in service using keylock control switch on the 20C005A panel. Recognize that the standby SLC pump also tripped approx. 1 minute after being placed in service.
	CRS	Acknowledge SLC pump failure to start. Direct placing the backup SLC pump in service, if not already done. Acknowledge standby SLC pump trip.

## Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 9      Page: 12 of 13

**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.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	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: <ul style="list-style-type: none"><li>• Manually isolate the valves by moving the SDV isolation hand-switches counter-clockwise to the "Close" position.</li><li>• Verify all vent and drain valves are closed.</li><li>• Inform the CRS as conditions permit.</li></ul>
	CRS	Acknowledge SDV vent valve isolation failure. Direct manual isolation of the SDV vent valves, if not already isolated.  <u>NOTE:</u> if the PRO scram actions (RRC 94.2-2) are not performed, or are delayed significantly, the SDV vent valve failure will result in T-103 and T-104 entry conditions, complicating this scenario.

### Operator Actions

ES-D-2

Op Test No.: 1      Scenario No.: 3      Event No.: 10      Page: 13 of 13

**Event Description:** Low CRD drive water pressure

**Cause:** Blockage in the CRD hydraulic system

**Effects:** Low pressure will prevent control rods from being inserted manually per T-220. The operator must manually adjust (close) drive water pressure control valve MO-2-3-20 in order to insert control rods.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions or Behavior</u>
	URO	<p>Perform T-220 "Driving Control Rods During Failure To Scram"</p> <ul style="list-style-type: none"><li>Place FC-2-03-301 "CRD Flow Control" in MANUAL and open AO-2-3-19A "CRD Hydraulic System Flow Control" at Panel 20C005A.</li><li>Bypass the RWM (needs key inserted below RWM scsreen)</li><li>Attempt to insert control rods using the "Emergency In /Notch Override" control switch on Panel 20C005A.</li></ul> <p>Recognize and report that control rods cannot be inserted due to drive water pressure being too low</p> <p>Raise CRD drive pressure by throttling closed MO-2-3-20 "Drive Water Pressure" at Panel 20C005A.</p> <p>Insert control rods using the "Emergency In /Notch Override" control switch on Panel 20C005A</p>
	CRS	<p>Acknowledge report that control rods cannot be inserted due to drive water pressure being too low</p> <p>Direct closing of MO-2-3-20 if not already performed.</p>

### **POST SCENARIO EMERGENCY CLASSIFICATION:**

Classification is a Site Area Emergency IAW EAL MS2 (Scram condition >4% power with ARI not successful).

### **TERMINATION CRITERIA:**

The scenario may be terminated when the crew has control of RPV power and level using T-240 "Termination and Prevention of Injection into the RPV" and the crew begins inserting control rods using T-220.