

Facility: Browns Ferry NPP Scenario No.: 3-09 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	SROI-1
	BOP:	RO-1

Initial Conditions: Unit 3 is at 95% power following turbine valve testing. One loop of RHRSW is tagged for repair of FCV 23-34, 3A RHR Hx SW OUTLET VLV; which is inoperable. 3B CRD pump is tagged for breaker maintenance.

Turnover: Units 1 and 2 are at 100%. On Unit 3, turbine valve testing has just been completed. Raise power to 100% with Recirc@ 10 MWe/min. Support maintenance on RHRSW valve which is expected to be repaired in 12 hours. Thunderstorm warnings are in effect for Limestone County for the next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	R-ATC N-SRO	Raise power
2	fw13a	C-ALL	RFP 3A failure/trip – 3-AOI-3-1 response and power reduction, Restores tripped RFP per 3-OI-3
3	n/a	N-ATC N-SRO N-BOP	Start raising power per RCP, adjust 2-190 valve and generator transfer volts
4	rd25	I-ATC TS-SRO	RPIS failure on Control Rod 14-35
5	mc01e 4	C-BOP C-SRO	3C Condenser waterbox develops a tube leak requiring isolation of the waterbox
6	th23 3	M-ALL	Fuel Failure
7	th35a 8	M-ALL	MSL leak with failure to auto-isolate

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

DRAFT

ANTICIPATED EAL: 1.1-S-1 – SITE AREA

Received 5/21/09, RSB

Facility: Browns Ferry NPP Scenario No.: 3-09 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-2
	ATC:	SROI-3
	BOP:	RO-2

Facility: Browns Ferry NPP Scenario No.: 3-09 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-4
	ATC:	SROI-5
	BOP:	RO-3

DRAFT

Scenario Narrative

Unit three is at 95% power following turbine valve testing. One loop of RHRSW is tagged for repair of FCV 23-34.

The crew will raise power with Recirc.

3A RFP will receive an inadvertent trip. The crew will reduce power per AOI-3-1 to within the capacity of the running RFPs (< 5050 rpm) and return the pump to service per 3-OI-3.

The Crew will raise power with Recirc after the return of 3A RFP.

A control rod reed switch will fail and the crew will reposition the rod to restore tech spec compliance.

The 3C NS Condenser waterbox develops a tube leak and the Crew will respond per 3-AOI-3-1 and 3-OI-27

Foreign material and conductivity in the vessel causes fuel failure. A subsequent Main Steam Line Break and Group 1 isolation signal occurs. The MSIVs fail to auto-close and must be manually closed.

When SRVs are cycled to maintain reactor pressure, PCV 1-179 will stick open resulting in decreasing RPV inventory and pressure. When an attempt to use HPCI is made a power failure occurs, resulting in HPCI system failure. When RCIC is operated, it will trip locally and area radiation levels will preclude immediate restoration. The 3A CRD pump trips. SLC should be aligned to the test tank.

The scenario is terminated when the RPV level is depressurized due to inability to maintain level above – 180”.

DRAFT

Facility: Browns Ferry NPP Scenario No.: 3-09 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	SROI-1
	BOP:	RO-1

Initial Conditions: Unit 3 is at 95% power following turbine valve testing. One loop of RHRSW is tagged for repair of FCV 23-34, 3A RHR Hx SW OUTLET VLV; which is inoperable. 3B CRD pump is tagged for breaker maintenance.

Turnover: Units 1 and 2 are at 100%. On Unit 3, turbine valve testing has just been completed. Raise power to 100% with Recirc@ 10 MWe/min. Support maintenance on RHRSW valve which is expected to be repaired in 12 hours. Thunderstorm warnings are in effect for Limestone County for the next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	R-ATC R-SRO	Raise power
2	th30v 0	I-ATC TS-SRO	RPS level instrument failure
3	fw13a	C-ALL	RFP 3A failure/trip - AOI response and power reduction, Restores tripped RFP per 3-OI-3
4	n/a	N-ATC N-SRO	Start raising power per RCP
5	rd25	I-ATC I-SRO	RPIS failure on Control Rod 14-35
6	th23 3	M-ALL	Fuel Failure
7	th35a 8	M-ALL	MSL leak with failure to auto-isolate

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

DRAFT

ANTICIPATED EAL: 1.1-S-1 – SITE AREA

Submitted status

Facility: Browns Ferry NPP Scenario No.: 3-09 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-2
	ATC:	SROI-3
	BOP:	RO-2

Facility: Browns Ferry NPP Scenario No.: 3-09 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-4
	ATC:	SROI-5
	BOP:	RO-3

DRAFT

Scenario Narrative

Unit three is at 95% power following turbine valve testing. One loop of RHRSW is tagged for repair of FCV 23-34.

The crew will raise power with Recirc.

An inadvertent half scram will occur due to an instrument failure. The crew will respond per ARPs and Tech. Specs.

3A RFP will receive an inadvertent trip. The crew will reduce power per AOI-3-1 to within the capacity of the running RFPs (< 5050 rpm) and return the pump to service per 3-OI-3.

The Crew will raise power with Recirc after the return of 3A RFP.

A control rod reed switch will fail and the crew will reposition the rod to restore Tech Spec compliance.

Foreign material in the vessel causes fuel failure. A subsequent Main Steam Line Break and Group 1 isolation signal occurs. The MSIVs fail to auto-close and must be manually closed.

When SRVs are cycled to maintain reactor pressure, PCV 1-179 will stick open resulting in decreasing RPV inventory and pressure. When an attempt to use HPCI is made a power failure occurs, resulting in HPCI system failure. When RCIC is operated, it will trip locally and area radiation levels will preclude immediate restoration. The 3A CRD pump trips. SLC should be aligned to the test tank.

The scenario is terminated when the RPV level is depressurized due to inability to maintain level above – 180”.

DRAFT

SIMULATOR EVALUATION GUIDE

TITLE: RAISE POWER WITH RECIRC, RFP FAILURE, RPIS FAILURE FOR A ROD, CONDENSER TUBE LEAK, FUEL FAILURE, MAIN STEAM LEAK, MSRV FAILS OPEN, HPCI INVERTER FAILURE, RCIC TRIP, CRD PUMP FAILURE, CONTINGENCY C1, EMERGENCY DEPRESSURIZE BEFORE LEVEL REACHES -180"

REVISION: 0

DATE: Jan. 16, 2009

PROGRAM: BFN Operator Training – Hot License

RCP required (95% - 100% w/Recirc flow @ 10MWe/min) – Provide marked up copy of 3-GOI-100-12 signed thru step 5.0[6.2] and with steps 5.0[7] thru 5.0[19] marked N/A

An RPHP is required for re-starting tripped RFP (attached) and for raising power after RFP returned to service (also attached)

PREPARED: _____ \ _____
(Operations Instructor) Date

REVIEWED: _____ \ _____
(LOR Lead Instructor or Designee) Date

REVIEWED: _____ \ _____
(Operations Training Manager or Designee) Date

CONCURRED: _____ \ _____
(Operations Superintendent or Designee Required for Exam Scenarios) Date

VALIDATED: _____ \ _____
(Operations SRO) (Required for Exam Scenarios) Date

LOGGED-IN: _____ \ _____
(Librarian) Date

TASK LIST
UPDATED _____ \ _____
Date

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: RAISE POWER WITH RECIRC, RFP FAILURE, RPIS FAILURE FOR A ROD, CONDENSER TUBE LEAK, FUEL FAILURE, MAIN STEAM LEAK, MSRV FAILS OPEN, HPCI INVERTER FAILURE, RCIC TRIP, CRD PUMP FAILURE, CONTINGENCY C1, EMERGENCY DEPRESSURIZE BEFORE LEVEL REACHES -180"
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will raise power with recirc IAW GOI-100-12.
2. The operating crew will respond to a failure of RFP 3A per 3-AOI-3-1.
3. The operating crew will respond to a control rod reed switch failure and move the rod to a position with an operable detector per technical specifications.
4. The operating crew will respond to a Condenser tube leak per 3-AOI-3-1 and 3-OI-27.
5. The operating crew will recognize and respond to fuel failure in accordance with ARPs.
6. The operating crew will recognize and respond to a Main Steam line break and failure of MSIVs to auto isolate per EOI-3.
7. The operating crew will recognize and respond to a stuck open SRV in accordance with AOI-1-1 and EOI-2.
8. The operating crew will respond to RPV low water level due to HPCI, RCIC and CRD pump failure in accordance with EOI-1, RC/L C1, and C2.

- VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.
- VII. Training Materials: (If needed, otherwise disregard)
- A. Calculator
 - B. Control Rod Insertion Sheets
 - C. Stopwatch
 - D. Hold Order / Caution Order tags
 - E. Annunciator window covers
 - F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-09

MF/RF/OR#		Description
1)	trg e1 MODESW	Set trigger
2)	trg e2 HPCI	Set trigger
3)	trg e3 1-179	Set trigger
4)	trg e4 RCIC	Set trigger
5)	imf rd01a (e1 0)	Trip CRD pump 3A
6)	imf fw13c (e1 0)	Trip RFW pump 3C
7)	imf fw13b (e1 0)	Trip RFW pump 3B
8)	mmf th23 10 (e1 0) 1:00	Fuel failure
9)	imf hp07 (e2 0)	HPCI 120v power failure
10)	imf ad01m 100 (e3 0)	SRV 1-179 fail open
11)	imf rc03 (e4 0)	RCIC trip on low suction
12)	imf sw03a	Tag RHRSW A1 pump
13)	imf sw03b	Tag RHRSW A2 pump
14)	ior zlohs231a[1] off	RHRSW A1 green light off
15)	ior ypobkrrhrswpa1 fail_ccoil	RHRSW A1 bkr
16)	ior zlohs235a[1] off	RHRSW A2 green light off
17)	ior ypobkrrhrswpa2 fail_ccoil	RHRSW A2 bkr
18)	ior zlozi2331 off	RHRSW 23-31 red light off
19)	ior ypovfcv2334 fail_power	RHRSW FCV-23-34 breaker
20)	ior zaopi234 0	RHRSW A pressure = 0 psig
21)	ior zdihs7117a null	Null RCIC torus suction valve HS
22)	imf rp15a	MSIV ch A group 1 isolation fail
23)	imf rp15b	MSIV ch B group 1 isolation fail
24)	imf rd01b	Tag 3B CRD pump
25)	ior zlohs852a[1] off	3B CRD pump green light off
26)	ior an:xa553a27 alarm_off	Disable Main Steam line RAD HIHI ann
27)	ior zaori9020a .02	Override RI

IX. Console Operators Instructions

HLTS 3-09

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	manual	Reset to IC 242 ~95% power rst 242 PW = david
Simulator Setup		Main batch file – see summary bat hlts-3-09
Simulator Setup	manual	Place H.O. card on 3B CRD pump, A1 & A2 RHRSW pumps and FCV- 23-34

4 minutes after Power returned to 100% or when directed by lead evaluator....	And After it Trips	imf fw13a trips 3A RFW pump
		dmf fw13a Removes trip

ROLE PLAY: If sent to investigate 3A RFW pump trip, report Radcon performing a survey in the 3A RFW pump room accidentally tripped the pump

When RFP is recovered or when directed by lead evaluator.....		imf rd25 Loss of RPIS on rod 14-35
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ROLE PLAY: If dispatched as IM's to check individual circuit cards in panel 9-27, report card is fine, must be a reed switch failure

ROLE PLAY: If contacted as Reactor Engineer, recommend notch insert control rod 14-35 one notch and see if rod indicates position 46, if so, leave at position 46. (Provide RCP and shove sheet)

5 minutes after the rod is repositioned or when directed by the lead evaluator....		imf mc01e 4 5:00 Condenser tube leak 3A SS
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ROLE PLAY: 5 minutes after requested, Chemistry reports Conductivity of "C" Hotwell is highest

If directed to close FCV-27-70 to 20%		sev mcvfcv2770 0.2 Throttle 3C NS outlet
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If directed to close FCV-27-78 to 20%		sev mcvfcv2778 0.2 Throttle 3C SS outlet
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ROLE PLAY: Report 3-FCV-27-46 (38) is/are throttled

5 minutes after the rod is repositioned or when directed by the lead evaluator.....	and	imf th23 3 10:00 fuel failure
		imf th35a (none 6:00) 8 6:00 Steam line A steam leak in steam tunnel

After scram

ROLE PLAY: If sent to investigate trip of 3A CRD pump, report breaker appears to be damaged and Elec Maint has been contacted to repair

ROLE PLAY: If sent to investigate trip of 3B and 3C RFW pumps, report nothing unusual noted in either pump room

When requested to open breaker for PCV 1-179, wait 3 minutes.....		mrf ad01m out Opens breaker for PCV 1-179
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When requested to close breaker for PCV 1-179...		mrf ad01m in Closes breaker for PCV 1-179
--	--	--

If requested to shutdown HWC.....		mrf og09 shutdown Removes HWC from service
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ROLE PLAY: If asked to check RWCU temp ATU's in Aux Inst rm, report 68-835 A-D reading 90°F to 92 °F

ROLE PLAY: When asked to check on HPCI, the fuse was replaced and blew again immediately. It smells like there is a burned transformer in the inverter. A FINN team member is here and thinks they can replace the inverter in 30 -45 minutes if there is one in the warehouse

(Updates on status may be provided as requested with progress toward success indicated)

ROLE PLAY: As the RB AUO, when directed to investigate RCIC, wait 1 minute then report back that your alarming dosimeter went off and you saw a CAM in alarm when you entered the building. I am currently trying to get Radcon to put me on an RWP to get to the RCIC room

NOTE: monitor FW flow. If condensate injection is observed prior to ED...		imf fw18 100 Rupture the RFW header
At about 450 psig prior to ED. Leave open if ED is initiated earlier		dmf ad01m Closes PCV 1-179
If requested to perform App 7B, wait 25 minutes		bat app07b Align SLC to test tank

Terminate the scenario when the following conditions are satisfied or upon request of instructor:

- 1) MSIV's closed
- 2) Emergency Depressurization completed
- 3) RPV water level restored to +2 to +51 (Lead evaluator may desire to terminate when satisfactory progress to achieve this standard is observed)

X. Scenario Summary:

Unit three is at 95% power following turbine valve testing. One loop of RHRSW is tagged for repair of FCV 23-34.

The crew will raise power with Recirc.

3A RFP will receive an inadvertent trip. The crew will reduce power per AOI-3-1 to within the capacity of the running RFPs (< 5050 rpm) and return the pump to service per 3-OI-3.

The Crew will raise power with Recirc after the return of 3A RFP.

A control rod reed switch will fail and the crew will reposition the rod to restore tech spec compliance.

The 3C NS Condenser waterbox develops a tube leak and the Crew will respond per 3-AOI-3-1 and 3-OI-27

Foreign material and conductivity in the vessel causes fuel failure. A subsequent Main Steam Line Break and Group 1 isolation signal occurs. The MSIVs fail to auto-close and must be manually closed.

When SRVs are cycled to maintain reactor pressure, PCV 1-179 will stick open resulting in decreasing RPV inventory and pressure. When an attempt to use HPCI is made a power failure occurs, resulting in HPCI system failure. When RCIC is operated, it will trip locally and area radiation levels will preclude immediate restoration. The 3A CRD pump trips. SLC should be aligned to the test tank.

The scenario is terminated when the RPV level is depressurized due to inability to maintain level above – 180”.

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

1. SRO: Unit Supervisor _____
2. ATC: Board Unit Operator _____
3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide US with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

1. MSIV's closed
2. Emergency Depressurization completed
3. RPV level being maintained + 2 to + 51 " or recovering

XII. Simulator Event Guide:

Event 1: Raise Power With Recirc

Position	Expected Actions	Time/Comments
SRO	Notify ODS of power increase	
	Direct return of U3 to Full Power using Recirc Flow per 3-GOI-100-12 step 5[17] and 3-OI-68	
ATC	Raises Power w/Recirc using 3-GOI-100-12 and 3-OI-68, section 6.2	
	<p>[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows.</p> <p>AND/OR</p> <p>ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows</p>	
	<p>[2] WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required:</p> <p>RAISE SLOW, 3-HS-96-31 RAISE MEDIUM, 3-HS-96-32 LOWER SLOW, 3-HS-96-33 LOWER MEDIUM, 3-HS-96-34 LOWER FAST, 3-HS-96-35</p>	
BOP	Provides peer check for Recirc adjustment	
	Continue to monitor BOP (transfer volts, condensate flow, etc)	

XII. Simulator Event Guide:

Event #2: RFP 3A Failure

Position	Expected Actions	Time/Comments
ATC	Announces "RFPT A Abnormal" alarm and trip of RFPT 'A'.	
SRO	Directs Entry into 3-AOI-3-1	
	Directs Reactor Power lowered as needed to maintain operating RFP's speed < 5050 rpm	
ATC	Reduces reactor power as necessary to maintain Rx level or verifies Recirc runbacks	
	Reduces reactor power as necessary to maintain RFP speed < 5050 rpm as directed by SRO	
BOP	Refers to ARP, 3-AOI-3-1 and/or 3-OI-3 and takes required actions.	
SRO	Dispatches AUO to RFP to determine cause of trip	
ATC	Verifies unit stable, Power, Level, Pressure	

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
SRO	Directs RFP returned to service after report of spurious trip per 3-OI-3, section 8.1 / 5.7	
BOP	Returns RFP to service per 3-OI-3, section 8.1 / 5.7	
	<p>8.1 RFPT Trip Recovery [1] VERIFY complete actions of Alarm Response RFPT TRIPPED, 3-XA-55-6C Window 29</p>	
	<p>[2] CHECK CLOSED RFP 3A(3B)(3C) DISCH TESTABLE CHECK VLV, 3-FCV-3-94(93)(92), by one of the following:</p> <ul style="list-style-type: none"> • Observe RFP discharge flow indicator • Locally listening to check valve slam <ul style="list-style-type: none"> A. IF testable check valve did NOT close, THEN CLOSE tripped RFP discharge and suction valves 	
<p>[3] IF desired to place alternate RFP/RFPT in service AND another RFPT is available, THEN PERFORM applicable action: (Otherwise N/A)</p> <ul style="list-style-type: none"> • IF no RFP/RFPT in service, THEN REFER TO Section 5.5 • IF any RFP/RFPT in service, THEN REFER TO Section 5.7 <ul style="list-style-type: none"> A. WHEN either Section 5.5 or 5.7 is complete, THEN GO TO Step 8.1[1] 		

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[4] IF cause of RFPT trip is already corrected AND tripped RFPT will be returned to service, THEN PERFORM applicable action: (Otherwise N/A)</p> <ul style="list-style-type: none"> • IF no RFP/RFPT in service, THEN GO TO Section 5.5 • IF any RFP/RFPT in service, THEN GO TO Section 5.7 	
	3-OI-3, section 5.7	
	5.7 Placing the Second and Third RFP/RFPT In Service	
	<p>[1] BEFORE placing a RFPT in service:</p> <p>[1.1] NOTIFY Radiation Protection that an RPHP is in effect for the impending action to place RFPT 3A(3B)(3C) in service. RECORD time Radiation Protection notified in NOMS Narrative Log [BFN PER 126211]</p> <p>[1.2] VERIFY appropriate data and signatures recorded on Appendix A per Appendix A instructions [Tech Spec 5.7] [BFN PER 126211]</p>	

Evaluator Note: Provide signed RPHP to SRO

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
BOP	[2] IF RFP/RFPT is NOT warmed, reset and rolling, THEN PERFORM the following: (Otherwise N/A) N/A	
	[3] VERIFY RFP 3A(3B)(3C) MIN FLOW VALVE, 3-HS-3-20(13)(6), in OPEN position <ul style="list-style-type: none"> • CHECK OPEN MIN FLOW VALVE, 3-FCV-3-20(13)(6) 	
	[4] SLOWLY RAISE speed of RFPT using RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER, 3-HS-46-8A(9A)(10A), to establish flow and maintain level in vessel	
	[5] WHEN RFPT discharge pressure is within 250 psig of reactor pressure, THEN VERIFY OPEN RFP 3A(3B)(3C) DISCHARGE VALVE, 3-FCV-3-19(12)(5)	
	[6] SLOWLY RAISE RFPT speed using RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch, 3-HS-46-8A(9A)(10A), to slowly raise RFP discharge pressure and flow on the following indications (Panel 3-9-6): <ul style="list-style-type: none"> • RFP Discharge Pressure - RFP 3A(3B)(3C), 3-PI-3-16A(9A)(2A) • RFP Discharge Flow - RFP 3A(3B)(3C), 3-FI-3-20(13)(6) 	

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[7] WHEN sufficient flow is established to maintain RFP 3A(3B)(3C) MIN FLOW VALVE, 3-FCV-3-20(13)(6), in CLOSED position (approximately 2 x 10⁶ lbm/hr), THEN PLACE RFP 3A(3B)(3C) MIN FLOW VALVE, 3-HS-3-20(13)(6), in AUTO</p>	
	<p>[8] OBSERVE lowering in speed and discharge flows of other operating RFPs</p>	
	<p>[9] IF transferring RFPT from MANUAL GOVERNOR to individual RFPT Speed Control PDS, THEN PERFORM the following: (Otherwise N/A)</p> <p>[9.1] PULL RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch, 3-HS-46-8A(9A)(10A), to FEEDWATER CONTROL position</p> <p>[9.2] VERIFY amber light at switch extinguished above RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch, 3-HS-46-8A(9A)(10A)</p> <p>[9.3] PERFORM the following on RFPT 3A(3B)(3C) SPEED CONTROL(PDS), 3-SIC-46-8(9)(10) (Panel 3-9-5):</p> <p>[9.3.1] SELECT Column 3</p> <p>[9.3.2] VERIFY PDS in MANUAL</p>	
	<p>[10] IF transferring control of RFPT from individual RFPT Speed Control PDS to "AUTO" control using REACTOR WATER LEVEL CONTROL PDS, 3-LIC-46-5, THEN PERFORM the following: (Otherwise N/A)</p> <p>[10.1] VERIFY REACTOR WATER LEVEL CONTROL (PDS), 3-LIC-46-5 is functioning properly and ready to control second or third RFP</p> <p>[10.2] SLOWLY RAISE RFP discharge flow and pressure by raising RFP speed</p> <p>[10.3] WHEN RFP speed is approximately equal to operating RFP(s) speed, THEN PERFORM the following on RFPT 3A(3B)(3C) SPEED CONTROL (PDS), 3-SIC-46-8(9)(10):</p> <p>[10.3.1] PLACE PDS in AUTO</p> <p>[10.3.2] VERIFY Column 3 selected</p>	

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[11] WHEN RFP in automatic mode on REACTOR WATER LEVEL CONTROL, (PDS) 3-LIC-46-5, THEN CLOSE the following valves:</p> <ul style="list-style-type: none"> • RFPT 3A(3B)(3C) LP STOP VLV ABOVE SEAT DR, 3-FCV-6-120(125)(130) • RFPT 3A(3B)(3C) LP STOP VLV BELOW SEAT DR, 3-FCV-6-121(126)(131) • RFPT 3A(3B)(3C) HP STOP VLV ABOVE SEAT DR, 3-FCV-6-122(127)(132) • RFPT 3A(3B)(3C) HP STOP VLV BELOW SEAT DR, 3-FCV-6-123(128)(133) • RFPT 3A(3B)(3C) FIRST STAGE DRAIN VLV, 3-FCV-6-124(129)(134) • RFPT A(B)(C) HP STEAM SHUTOFF ABOVE SEAT DRAIN, 3-FCV-006-0153(0155)(0157) (local control) • RFPT A(B)(C) LP STEAM SHUTOFF ABOVE SEAT DRAIN, 3-FCV-006-0154(0156)(0158) (local control) 	
	<p>[12] VERIFY CLOSED the following valves on first RFP started in Section 5.5:</p> <ul style="list-style-type: none"> • RFPT 3A(3B)(3C) LP STOP VLV ABOVE SEAT DR, 3-FCV-6-120(125)(130) • RFPT 3A(3B)(3C) LP STOP VLV BELOW SEAT DR, 3-FCV-6-121(126)(131) • RFPT A(B)(C) LP STEAM SHUTOFF ABOVE SEAT DR, 3-FCV-006-0154(0156)(0158) (local control) 	

XII. Simulator Event Guide:

Event #2: RFP 3A Failure (continued)

Position	Expected Actions	Time/Comments
BOP	[13] VERIFY both RFPT Main Oil Pumps running	
	[14] IF desired to stop Turning Gear for in service RFPT, THEN PLACE appropriate handswitch in STOP and RETURN to AUTO: <ul style="list-style-type: none"> • RFPT 3A TURNING GEAR MOTOR, 3-HS-3-101A • RFPT 3B TURNING GEAR MOTOR, 3-HS-3-127A • RFPT 3C TURNING GEAR MOTOR, 3-HS-3-152A 	
	[15] REFER TO Section 6.0. <ul style="list-style-type: none"> • CONTROL and MONITOR RFW system operation 	
	Notify SRO that 3A RFP is returned to service	

XII. Simulator Event Guide:

Event #3: Raise Power

Position	Expected Actions	Time/Comments
SRO	Contact Reactor Engineer for RCP	
	Notify ODS of power increase	
	Direct return of U3 to Full Power using Recirc Flow per 3-GOI-100-12 step 5[17] and 3-OI-68	
ATC	Raises Power w/Recirc using 3-GOI-100-12 and 3-OI-68, section 6.2	
	[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows. AND/OR ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows	
	[2] WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required: RAISE SLOW , 3-HS-96-31 RAISE MEDIUM , 3-HS-96-32 LOWER SLOW , 3-HS-96-33 LOWER MEDIUM , 3-HS-96-34 LOWER FAST , 3-HS-96-35	
BOP	Provides peer check for Recirc adjustment	
	Continue to monitor BOP (transfer volts, condensate flow, etc)	

XII. Simulator Event Guide:

Event #4: Rod Position Failure

Position	Expected Actions	Time/Comments
Crew	Announces alarm 9-5A window 28, CONTROL ROD DRIFT	
ATC	A. DETERMINE which rod is drifting from Full Core Display	
	Identifies rod 14-35 has no position indication on full core and 4-rod display	
	B. IF rod drifting in, THEN REFER TO 3-AOI-85-5	
	C. IF rod drifting out, THEN REFER TO 3-AOI-85-6	
	D. REFER TO Tech Spec Section 3.1.3, 3.10.8	
SRO	Determines rod is not drifting but RPIS indication has failed	
	Enters LCO 3.1.3 and notes that insertion of the rod to an operable position indication (46) is allowed	
	Directs entry into 3-AOI-85-4, Loss of RPIS	
ATC	4.1 Immediate Actions [1] STOP all control rod movement	
	4.2 Subsequent Actions [1] CHECK with Operations Superintendent and Reactor Engineer for actions to be taken in a timely manner	

XII. Simulator Event Guide:

Event #4: Rod Position Failure (continued)

Position	Expected Actions	Time/Comments
ATC	[2] CHECK with Technical Support to help determine the extent of loss of RPIS	
	[3] IF control rod was in motion when RPIS failed and position of that control rod can NOT be determined, THEN CONSIDER that Control Rod Inoperable. REFER TO Tech. Spec. 3.1.3 N/A	
	[4] IF control rod movement is required with a total loss of RPIS, THEN MANUALLY SCRAM reactor N/A	
	[5] REFER TO EPIP-1	
SRO	SRO verifies the EPIP's do not apply	
ATC	[6] VERIFY ON Breaker 612, PANEL 3-9-27 ROD POSITION INFO SYS FEED FROM UNIT PREFERRED 120VAC, at Panel 3-9-9 Cabinet 6	

Evaluator Note: When Operator goes around back to check bkr 612, report that breaker is closed

ATC	[7] IF half or all control rod position indications on Full Core Display are off, THEN PERFORM the following: N/A	
-----	---	--

XII. Simulator Event Guide:

Event #4: Rod Position Failure (continued)

Position	Expected Actions	Time/Comments
ATC	[8] IF an individual control rod position indication is off on Full Core Display or 4-Rod Display, THEN CHECK individual circuit cards in Panel 3-9-27 for proper operation	
	[9] IF an individual reed switch position indicator is out-of-service on Full Core Display or 4-Rod Display, THEN RECORD control rod coordinates and position in Unit Operators Log N/A	
	[10] ^[NER/C] IF unable to restore position indication for an individual control rod or rods, THEN CHECK with Reactor Engineer and DETERMINE additional corrective action	
	4.4 Alternate Methods of Determining Control Rod Position of A Single Control Rod	
	<p>[1] IF the "TENS" Digit for an individual reed switch position indicator is out-of-service on Full Core Display and 4-Rod Display for the Control Rod, THEN VERIFY the following:</p> <ul style="list-style-type: none"> • The Associated Control Rod was NOT being moved when the loss of reed switch Position for the "TENS" Digit occurred • No Drift Alarm is present for the associated Control Rod • The "ONES" Digit is at its original expected position 	

XII. Simulator Event Guide:

Event #4: Rod Position Failure (continued)

Position	Expected Actions	Time/Comments
ATC	[1.1] IF all three of the bullets in 4.4[1] are satisfied, THEN The associated Control Rod can be assured it is in its required/intended position N/A	
	[1.2] IF any of the three bullets in 4.4[1] cannot be met, THEN Control Rods may be moved to an Operable Position Indication as a means of position verification (Refer to Tech Spec Bases SR 3.1.3.1) (bullets 2 & 3 cannot be met)	
	[2] IF the "ONES" Digit for an individual reed switch position indicator is out-of-service on Full Core Display and 4-Rod Display for the Control Rod, THEN Control Rods may be moved to an Operable Position Indication as a means of position verification (Refer to Tech Spec Bases SR 3.1.3.1)	
SRO	When provided the RCP for the rod movement, direct rod 14-35 inserted to position 46 to see if RPIS indications return	
ATC	Notches rod 14-35 to position 46 and verifies that the RPIS indications have returned	
	Reports RPIS restored on rod 14-35 to SRO	
SRO	Directs rod 14-35 to remain in position 46	
	Notifies Reactor Engineer	
	Directs initiation of WO	

XII. Simulator Event Guide:

Event #5: Condenser Tube Leak

Position	Expected Actions	Time/Comments
Crew	Reports alarm 9-6B window 6, Condensate Demin Abnormal	
BOP	A. CHECK system flow conductivity, and system DP, on Panel 3-9-6 for abnormalities.	
	B. DISPATCH personnel to determine problem with condensate demineralizers.	
	C. IF High Conductivity exists, THEN REFER TO 3-AOI-2-1.	
SRO	After AUO report of high conductivity, directs entry into 3-AOI-2-1, Reactor Coolant High Conductivity	
BOP	4.2 Subsequent Actions	
	[1] LOWER reactor power, as necessary, to maintain radiation levels in main steam lines below the "Main Steam Line Radiation High-High" (3-XA-55-3A, Window 27) setpoint. REFER TO 3-GOI-100-12A.	
	[2] MONITOR reactor vessel water conductivity on REACTOR WATER CLEANUP BEFORE DEMIN (CONDUCTIVITY), 3-CR-43-11A, on Panel 3-9-4.	
	[3] NOTIFY Chemistry to sample reactor water. REFER TO 3-SI-4.6.B.1-4.	
	[4] IF condenser hotwell inleakage is suspected, THEN PERFORM the following:	
[4.1] ISOLATE and DRAIN the condenser water boxes (one at a time). REFER TO 3-OI-27 [4.1.1] OBSERVE reactor water conductivity and off gas flow rate. (After the leaking water box is isolated and drained, Reactor water conductivity should begin to lower within 30-45 minutes. OFF-GAS flow rate could raise.)		

XII. Simulator Event Guide:

Event #5: Condenser Tube Leak (continued)

Position	Expected Actions	Time/Comments
SRO	When Chemistry calls and reports conductivity highest in 3C condenser, directs isolating and draining 3S CCW waterboxes per 3-OI-27	
BOP	Starts removing waterboxes per 3-OI-27 section 8.17	
	8.17 Removing a Waterbox from Service for Leak Check [1] IF time permits, THEN COLLECT the Amertap System balls and SHUT DOWN the Amertap System from the waterboxes to be removed. REFER TO 3-OI-27B. N/A	
	[2] IF the waterbox being removed from service is 3A1(SS), THEN SHUT DOWN Debris Filter REFER TO Section 7.2 N/A	
	[3] CLOSE the CNDR 3A1(3A2)(3B1)(3B2)(3C1)(3C2), OFFGAS SHUTOFF VALVE to the waterbox to be removed from service using 3-HS-66-A(3A)(4A)(5A)(6A)(7A) on Panel 3-9-8	
	[4] CLOSE the CNDR 3A(3B)(3C) CCW OUTLET SO VALVE (on the waterbox to be removed) to approximately 20% open as follows:	
	[4.1] WHILE performing the following steps, MONITOR condenser vacuum closely	
	[4.2] PLACE handswitch CNDR 3A(B)(C) NS(SS) CCW OUTL SHUTOFF VLV 2-HS-027-38(46,54,62,70,78)A (3-PNLA-009-0020) in CLOSE and release to close valve to ≈5% open	

XII. Simulator Event Guide:

Event #5: Condenser Tube Leak (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[4.3] AS necessary to maintain Condenser Vacuum greater than 25 inches Hg, SLOWLY THROTTLE OPEN the remaining CNDR 3A(3B)(3C) CCW OUTLET SHUTOFF VALVES by using the following OPEN/CLOSE/STOP pushbutton on Panel 25-116</p> <ul style="list-style-type: none"> • CNDR 3A NS CCW OUTL SHUTOFF VLV, 3-HS-027-0038D • CNDR 3A SS CCW OUTL SHUTOFF VLV, 3-HS-027-0046D • CNDR 3B NS CCW OUTL SHUTOFF VLV, 3-HS-027-0054D • CNDR 3B SS CCW OUTL SHUTOFF VLV, 3-HS-027-0062D • CNDR 3C NS CCW OUTL SHUTOFF VLV, 3-HS-027-0070D • CNDR 3C SS CCW OUTL SHUTOFF VLV, 3-HS-027-0078D 	
	<p>[4.4] IF necessary, THEN REDUCE LOAD and MAINTAIN condenser vacuum greater than 25 inches Hg to get the CNDR 3A(3B)(3C) CCW OUTLET SHUTOFF VALVE NS(SS) (on the waterbox to be removed) to approximately 20 percent open</p>	

XII. Simulator Event Guide:

Event #5: Condenser Tube Leak (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[5] CLOSE the CNDR 3A(3B)(3C) CCW INLET SHUTOFF VALVE for the waterbox to be removed from service using the appropriate switch on Panel 3-9-20:</p> <ul style="list-style-type: none"> • CNDR 3A NS CCW INLET SHUTOFF VLV, 3-HS-27-31A • CNDR 3A SS CCW INLET SHUTOFF VLV, 3-HS-27-39A • CNDR 3B NS CCW INLET SHUTOFF VLV, 3-HS-27-47A • CNDR 3B SS CCW INLET SHUTOFF VLV, 3-HS-27-55A • CNDR 3C NS CCW INLET SHUTOFF VLV, 3-HS-27-63A • CNDR 3C SS CCW INLET SHUTOFF VLV, 3-HS-27-71A 	
	<p>Notices Conductivity lowering after 3C NS waterbox inlet valve</p>	
	<p>[6] IF DESIRED CLOSE NASH valves step 8.3[11.2] and drain the waterbox step 8.3[18]. (otherwise N/A)</p>	
	<p>[7] ADJUST the position the remaining CNDR CCW OUTLET SHUTOFF VALVES to optimize CCW System performance by performing Section 6.1</p>	
SRO	<p>Checks Tech Specs 3.4.6 and TRM 3.4.1 and determine neither apply unless conductivity exceeded 2 µmho/cm (then 3.4.1 would apply)</p>	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak

Position	Expected Actions	Time/Comments
BOP	Announces alarm 9-3A window 5, OG Pre Treatment Radiation High. Responds per ARP	
	<p>A. VERIFY high radiation on following:</p> <ol style="list-style-type: none"> 1. OFFGAS PRETREATMENT RADIATION recorder, 3-RR-90-157 on Panel 3-9-2 2. OFFGAS RADIATION recorder, 3-RR-90-160 on Panel 3-9-2 3. OG PRETREATMENT RAD MON RTMR, 3-RM-90-157 on Panel 3-9-10 4. OFFGAS RAD MON RTMR, 3-RM-90-160 on Panel 3-9-10 	
	B. CHECK off-gas flow normal	
	<p>C. CHECK following radiation recorders and associated radiation monitors:</p> <ol style="list-style-type: none"> 1. MAIN STEAM LINE RADIATION, 3-RR-90-135 on Panel 3-9-2 2. OFFGAS POST-TREATMENT RADIATION, 3-RR-90-265 on Panel 3-9-2 3. STACK GAS/CONT RM RADIATION FROM STACK GAS, 0-RR-90-147 on Panel 1-9-2 	
	D. NOTIFY RADCON	
E. REQUEST Chemistry perform radiochemical analysis to determine source		

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	F. IF Offgas System Isolation Valve, 3-FCV-66-28 is manually restrained in the OPEN position and it has been determined that this is a valid alarm, THEN UNRESTRAIN Offgas System Isolation Valve, 3-FCV-66-28	
	G. REFER TO 0-SI-4.8.B.1.a.1 and 1(2)(3)-SR-3.4.6.1(A) for ODCM compliance and to determine if power level reduction is required	
	H. IF directed by Unit Supervisor, THEN REDUCE reactor power to maintain off-gas radiation within ODCM limits	
	I. IF ODCM limits are exceeded, THEN REFER TO EPIP-1	
SRO	Notifies Chem Lab to Sample	
	Declares NOUE (1.4-U)	
BOP	Announces alarm 9-3A window 5, TURBINE BLDG AREA RADIATION HIGH	
	A. DETERMINE area with high radiation level on Panel 3-9-11. (Alarm on Panel 3-9-11 will automatically reset if radiation level lowers below setpoint.)	
	B. IF the TSC is NOT manned, THEN USE public address system to evacuate area where high airborne conditions exist.	
	C. IF the TSC is manned, THEN REQUEST the TSC to evacuate non-essential personnel from affected areas.	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	D. NOTIFY RADCON.	
	E. MONITOR other parameters providing input to this annunciator frequently as these parameters will be masked from alarming while this alarm is sealed in.	
	F. IF alarm is due to sensor malfunction, THEN REFER TO 0-OI-55.	
	Check instruments and reports increase in radiation RR-90-157 (OG Pretrt) RR-90-135 (MSL Rad)	
	Evacuates Turbine Building per ARP	
SRO	Notifies Rad Con	
BOP	Announces alarm 9-3A window 22, RX BLDG AREA RADIATION HIGH	
	A. DETERMINE area with high radiation level on Panel 3-9-11. (Alarm on Panel 3-9-11 will automatically reset if radiation level lowers below setpoint.)	
	B. IF the alarm is from the HPCI Room while Flow testing is being performed, THEN REQUEST personnel at the HPCI Quad to validate conditions.	
	C. NOTIFY RADCON	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	<p>D. IF the TSC is NOT manned and a “VALID” radiological condition exists., THEN USE public address system to evacuate area where high airborne conditions exist</p>	
	<p>E. IF the TSC is manned and a “VALID” radiological condition exists, THEN REQUEST the TSC to evacuate non-essential personnel from affected areas.</p>	
	<p>F. MONITOR other parameters providing input to this annunciator frequently as these parameters will be masked from alarming while this alarm is sealed in.</p>	
	<p>G. IF a CREV initiation is received, THEN 1. VERIFY CREV A(B) Flow is ≥ 2700 CFM, and ≤ 3300 CFM as indicated on 0-FI-031-7214(7213) within 5 hours of the CREV initiation. [BFPER 03-017922] 2. IF CREV A(B) Flow is NOT ≥ 2700 CFM, and ≤ 3300 CFM as indicated on 0-FI-031-7214(7213) THEN PERFORM the following: (Otherwise N/A) [BFPER 03-017922] a. STOP the operating CREV per 0-OI-31. b. START the standby CREV per 0-OI-31.</p>	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	H. IF alarm is due to malfunction, THEN REFER TO 0-OI-55.	
	I. ENTER 3-EOI-3 Flowchart.	
	J. REFER TO 3-AOI-79-1 or 3-A01-79-2 if applicable.	
	Checks RB instruments to determine affected areas	
	Evacuates Reactor Building per ARP	
SRO	Notifies Rad Con	
	Enters 3-EOI-3 (may direct power reduction with recirc flow)	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	Recognize and announce Group 6 isolation on high radiation	
	Reports alarm 9-3D window 24, MAIN STEAM LINE LEAK DETECTION TEMP HIGH and verifies on TI 1-60A	
	<p>A. CHECK the following temperature indications:</p> <ul style="list-style-type: none"> • MN STEAM TUNNEL TEMP temperature indicator, 3-TIS-1-60A on Panel 3-9-3 • Temperature Switches 3-TS-1-60B, -60C, or -60D window(s) on Panel 3-9-21 • RWCU Piping in the Main Steam Tunnel temperature indicators, 3-TIS-69-834A(B)(C)(D), Auxiliary Instrument Room Panels 9-83(84)(85)(86) OR ICS 'HPTURB' mimic. 	
	<p>B. CHECK the following flow indications:</p> <ul style="list-style-type: none"> • MAIN STEAM LINE FLOW A(B)(C)(D), 3-FI-46-1(2)(3)(4) on Panel 3-9-5 • RFW FLOW LINE A(B), 3-FI-3-78A(78B) on Panel 3-9-5 • RFP 3A(3B)3C) flow indicators, 3-FI-3-20(13)(6) on Panel 3-9-6 	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	C. IF RCIC is NOT in service AND 3-FI-71-1A(B), RCIC STEAM FLOW indicates flow, THEN ISOLATE RCIC and VERIFY Temperatures lowering.	
	D. CHECK for elevated RAD Levels on the following Instruments: <ul style="list-style-type: none"> • 3-RM-90-20, CRD-HCU West • 3-RM-90-29, Suppression Pool 	
	E. IF HPCI is injecting with elevated Suppression Pool Temperature, THEN CONSIDER securing HPCI to determine if it is the source of the leak.	
	F. IF Rx Bldg main steam tunnel temperature is above 160°F on 3-TIS-1-60A on Panel 3-9-3, THEN PERFORM the following: <ol style="list-style-type: none"> 1. ENTER 3-EOI-3 Flowchart 2. VERIFY Rx Zone fans, 3-HS-64-11A at Panel 3-9-25, in fast speed 3. VERIFY Steam Vault Exhaust Booster Fan in service. REFER TO 3-OI-30B 	
	G. IF turbine building main steam tunnel temperature is above 160°F on 3-TS-1-60B, -60C, or -60D on Panel 3-9-21, THEN DISPATCH personnel to 480V AC Turb Bldg Vent Bd 3A (TB, EI 617') to verify TB fans and the Mechanical Spaces Exhaust Fan running	

XII. Simulator Event Guide:

Event #6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
SRO	Directs Core Flow Runback	
	Renters 3-EOI-3	
	Enters EOI-1 and Directs manual scram	
ATC	Manually scrams and verifies all rods inserted	
SRO	Directs ATC to carry out actions of 3-AOI-100-1	
ATC	Carries out 3-AOI-100-1 actions	
	Mode switch in S/D	
	Gives scram report	
	Trips main turbine	
	Verify Recirc pumps at minimum	
Crew	Verifies Group 2, 3, 6 and 8 isolations	

XII. Simulator Event Guide:

Event 6: Fuel Damage/MSL Leak (continued)

Position	Expected Actions	Time/Comments
BOP	Closes MSIVs prior to isolation Or	
	Reports MSIVs not closed on MSL high temp (189°F) on panel 9-3D alarms	
SRO	Directs MSIV closure, if not already directed	
BOP	Closes MSIVs	
SRO	Directs pressure control 800 to 1000 psig using SRV's, Appendix-11A	
	Directs level control + 2" to + 51" using RCIC, Appendix-5C or HPCI, Appendix-5D	
BOP	Controls pressure as directed using SRVs, Appendix-11A	
	1. IF Drywell Control Air is NOT available, THEN ... EXECUTE EOI Appendix 8G, CROSSTIE CAD TO DRYWELL CONTROL AIR, CONCURRENTLY with this procedure.	
	2. IF Suppression Pool level is at or below 5.5 ft, THEN ... CLOSE MSRVS and CONTROL RPV pressure using other options.	
	3. OPEN MSRVS using the following sequence to control RPV pressure as directed by SRO:	
	a. 1 3-PCV-1-179 MN STM LINE A RELIEF VALVE b. 2 3-PCV-1-180 MN STM LINE D RELIEF VALVE c. 3 3-PCV-1-4 MN STM LINE A RELIEF VALVE d. 4 3-PCV-1-31 MN STM LINE C RELIEF VALVE e. 5 3-PCV-1-23 MN STM LINE B RELIEF VALVE f. 6 3-PCV-1-42 MN STM LINE D RELIEF VALVE g. 7 3-PCV-1-30 MN STM LINE C RELIEF VALVE h. 8 3-PCV-1-19 MN STM LINE B RELIEF VALVE i. 9 3-PCV-1-5 MN STM LINE A RELIEF VALVE j. 10 3-PCV-1-41 MN STM LINE D RELIEF VALVE k. 11 3-PCV-1-22 MN STM LINE B RELIEF VALVE l. 12 3-PCV-1-18 MN STM LINE B RELIEF VALVE m. 13 3-PCV-1-34 MN STM LINE C RELIEF VALVE	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure

Position	Expected Actions	Time/Comments
BOP	Attempts to control level as directed using HPCI, Appendix-5D and RCIC, Appendix-5C	
	Reports HPCI failure (120V Power Alarm)	
	Reports RCIC TRIP and failure to reset	
SRO	Dispatches AUO to reset RCIC	
	Dispatches OS-US to troubleshoot / replace HPCI power supply fuses	
BOP	Reports PCV 1-179 failure to close after use	
SRO	Directs entry into 3-AOI-1-1	
BOP	Enters 3-AOI-1-1, Relief Valve Stuck Open and performs immediate operator actions	
	<p>4.1 Immediate Action</p> <p>[1] IDENTIFY stuck open relief valve by OBSERVING the following:</p> <ul style="list-style-type: none"> • SRV TAILPIPE FLOW MONITOR, 3-FMT-1-4, on Panel 3-9-3, <li style="text-align: center;">OR • MSRVS DISCHARGE TAILPIPE TEMPERATURE, 3-TR-1-1 on Panel 3-9-47 • 	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure

Position	Expected Actions	Time/Comments
BOP	<p>[2] WHILE OBSERVING the indications for the affected Relief valve on the Acoustic Monitor; CYCLE the affected relief valve control switch several times as required:</p> <ul style="list-style-type: none"> • CLOSE to OPEN to CLOSE positions 	
	<p>[3] IF all SRVs are CLOSED, THEN CONTINUE at Step 4.2.3. (Otherwise N/A) N/A</p>	
SRO	<p>Directs actions to close PCV 1-179 per 3-AOI-1-1 outside control room</p>	
BOP	<p>4.2.1 Attempt to close valve from Panel 9-3: [1] PLACE the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the OFF position</p>	
	<p>[2] PLACE the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the ON position</p>	
	<p>[3] IF all SRVs are CLOSED, THEN CONTINUE at Step 4.2.3. (Otherwise N/A) N/A</p>	
	<p>[4] PLACE MSRVAUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in INHIBIT:</p>	
	<p>[5] IF relief valve closes, THEN OPEN breaker or PULL fuses as necessary using Attachment 1 (Unit 3 SRV Solenoid Power Breaker/Fuse Table)</p>	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure

Position	Expected Actions	Time/Comments
BOP	[6] PLACE MSR/V AUTO ACTUATION LOGIC INHIBIT 3-XS-1-202, in AUTO	
	Uses table at step 7 to determine which step to proceed to (4.2.2[12])	
	<p>[12] IF 3-PCV-1-179 is NOT closed, THEN PERFORM the following: (Otherwise N/A this section.)</p> <p>[12.1] REMOVE the power from 3-PCV-1-179 by performing one of the following: (Otherwise N/A):</p> <p>A. OPEN the following breaker: (Preferred method)</p> <ul style="list-style-type: none"> • 3B 250V RMOV, Compartment 8C2 <p style="text-align: center;">OR</p> <p>B. In 3-LPNL-925-0658, (EI 593' 3B Electric Board Room, South Wall)</p> <p>PULL the following fuses as necessary:</p> <ul style="list-style-type: none"> • Fuse 3-FU1-001-0179A • Fuse 3-FU1-001-0179B 	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure

Position	Expected Actions	Time/Comments
BOP	[12.2] IF the valve does NOT close, THEN CLOSE breaker or REINSTALL fuses removed in Step 4.2.2[12.1].	
	[12.3] CONTINUE at Step 4.2.3	
	4.2.3 Other Actions and Documentation [1] IF ANY EOI entry condition is met, THEN ENTER the appropriate EOI(s)	
	[2] REFER TO Technical Specifications Sections 3.5.1 and 3.4.3 for Automatic Depressurization System and relief valve operability requirements	
	[3] INITIATE suppression pool cooling as necessary to maintain suppression pool temperature less than 95°F	
	[4] IF the relief valve can NOT be closed AND suppression pool temperature Can NOT be maintained less than or equal to 95°F, THEN PLACE the reactor Mode ⁴ in accordance with 3-GOI-100-12A	
	[5] DOCUMENT actions taken and INITIATE Work Order for the valve Reports PCV 1-179 does not close	
SRO	Directs RHR placed in Suppression Pool cooling per 3-OI-74	
	Reviews Tech Specs 3.5.1 and 3.4.3 and determined no active LCO exists	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
SRO	Enters EOI-2 at 95°F suppression pool temperature	
	Directs all available RHR placed in Suppression Pool Cooling per Appendix-17A	
BOP	Places all available Suppression Pool Cooling in service per Appendix-17A	
	1. IF.....Adequate core cooling is assured, OR Directed to cool the Suppression Pool irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	2. PLACE RHR SYSTEM I(II) in Suppression Pool Cooling as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
c. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 		

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
BOP	d. IF Directed by SRO, THEN.....PLACE 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD in MANUAL OVERRIDE.	
	e. IFLPC I INITIATION Signal exists, THEN.....MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT in SELECT.	
	f. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.	
	g. OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.	
	h. VERIFY desired RHR pump(s) for Suppression Pool Cooling are operating.	
	i. THROTTLE 3-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 3-FI-74-50(64), RHR SYS I(II) FLOW: <ul style="list-style-type: none"> • Between 7000 and 10000 gpm for one-pump operation. OR • At or below 13000 gpm for two-pump operation. 	
	j. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	k. MONITOR RHR Pump NPSH using Attachment 1.	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	m. IF Additional Suppression Pool Cooling flow is necessary, THEN.....PLACE additional RHR and RHRSW pumps in service using Steps 2.b through 2.i.	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
SRO	Directs Alternate RPV Injection System Lineup SLC System, Appendix-7B	
ATC	Performs Appendix-7B by injecting with SLC from the Boron tank or dispatching AUO to align SLC suction to the test tank	
	Verifies recirc pumps trip at -45"	
SRO	Directs preventing flooding vessel via Condensate system by closing RFP discharge valves	
ATC	Closes RFP discharge valves	
SRO	Enters C1, Directs ADS inhibited	
BOP	Inhibits ADS	
	Reports DG starts	
	Dispatches AUO to monitor D/G's	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
SRO	When level decreases to TAF determines/verifies that sufficient injection sources are available to not enter steam cooling and enters C2. i.e. Will Emergency Depressurize somewhere between -162 and -180"	
	Directs RHR be realigned from Suppression Pool Cooling to injection	
BOP	Secures Suppression Pool Cooling and aligns RHR for injection	
SRO	Directs opening 6 ADS valves	
BOP	Opens 6 ADS valves as directed	
SRO	Directs BOP to inject with ECCS until level is above -122" then secure systems to not exceed to maintain + 51"; Directs restoration of Suppression Pool Cooling after RWL control is established	
BOP	Operates and secures ECCS injection as directed / reestablishes Suppression Pool Cooling as directed	

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
SRO	Directs restoring level + 2" to + 51" with Core Spray, Appendix-6D(E)	
BOP	Recover level with CS Loop I, 3-EOI Appendix-6D	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL SUCT VLV • 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL SUCT VLV • 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE	
	3. VERIFY CS Pump 3A and/or 3C RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-25, CORE SPRAY SYS I INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
5. MONITOR Core Spray Pump NPSH using Attachment 1		

XII. Simulator Event Guide:

Event #7: Stuck Open SRV, HPCI/RCIC/CRD Failure (continued)

Position	Expected Actions	Time/Comments
BOP	Recover level with CS Loop II, 3-EOI Appendix-6E	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-30, CORE SPRAY PUMP 3B SUPPR POOL SUCT VLV • 3-FCV-75-39, CORE SPRAY PUMP 3D SUPPR POOL SUCT VLV • 3-FCV-75-51, CORE SPRAY SYS II OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-50, CORE SPRAY SYS II TEST VALVE	
	3. VERIFY CS Pump 3B and/or 3D RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-53, CORE SPRAY SYS II INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	
SRO	Classifies event as Site Area Emergency (1.1-S1)	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Isolates MSIVs prior to 2 3-EOI-3 Area Radiations / Temperatures reaching Max Safe	
2)	Prevent Automatic Depressurization	
3)	Emergency Depressurizes when below TAF and before level drops to -180"	
4)	If SRO directs 2/3 core height override then the SRO will verify that the RHR system is fully realigned for injection when required (contingent – if directed)	

XV. SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-09

- 9 Total Malfunctions Inserted: List (4-8)
- 1) RFP failure
 - 2) RPIS failure
 - 3) Condenser Waterbox Tube Leak
 - 4) Fuel Failure
 - 5) MSL Leak with MSIV Auto Close Failure
 - 6) Stuck Open SRV
 - 7) HPCI failure
 - 8) RCIC trip
 - 9) CRD Pump 3A trip

- 5 Malfunctions that occur after EOI entry: List (1-4)
- 1) MSL Leak with MSIV Auto Close Failure
 - 2) Stuck Open SRV
 - 3) HPCI failure
 - 4) RCIC trip
 - 5) CRD Pump 3A trip

- 4 Abnormal Events: List (1-3)
- 1) RFP failure
 - 2) Condenser Waterbox Tube Leak
 - 3) Fuel Failure
 - 4) Stuck Open SRV

- 2 Major Transients: List (1-2)
- 1) Fuel Failure
 - 2) MSL Leak

- 3 EOI's used: List (1-3)
- 1) EOI-1
 - 2) EOI-2
 - 3) EOI-3

- 2 EOI Contingencies used: List (0-3)
- 1) C1
 - 2) C2

80 Run Time (minutes)

35 EOI Run Time (minutes): 46 % of Scenario Run Time

3-4 Crew Critical Tasks:(2-5)

YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

FCV 23-34 repair underway, clearance has 3A RHR Hx inop for containment cooling. Out
of service 6 hours, expected back in 12 hours. 30 day LCO entered per T.S. 3.7.1, 3.6.2.3,
3.6.2.4, 3.6.2.5. All Appendix R, T.S. LCO's have been addressed. 3B CRD pump is
tagged for breaker maintenance.

Operations/Maintenance for the Shift:

Raise Unit 3 to 100% power at 10MWe/min. Support maintenance on RHRSW valve. Power
was reduced for turbine valve testing which has been completed. Units 1 and 2 are at 100%
power

Unusual Conditions/Problem Areas:

Thunderstorm warning in effect next 2 hours in Limestone County

**Appendix A
(Page 2 of 2)**

Name Of Radiation Protection Person Notified: Joe Neutron

Date: Today Time: Now

Step# 5[16] Procedure: 3-GOI-100-12 (if not this procedure) Rev: Current

RPHP Required by OI? (Y) X (N) RPHP Required For GOI? X (Y) (N)

RCI-17 Controls Necessary? X (Y) (N)

Radiation Protection Supervisor Signature for Release

Joe Neutron Date: Today Time: Now

Comments: For returning Rx Power to 100% after RFP recovery

Name Of Radiation Protection Person Notified: _____

Date: _____ Time: _____

Step# _____ Procedure: _____ (if not this procedure) Rev: _____

RPHP Required by OI? (Y) (N) RPHP Required For GOI? (Y) (N)

RCI-17 Controls Necessary? (Y) (N)

Radiation Protection Supervisor Signature for Release

_____ Date: _____ Time: _____

Comments: _____

FORWARD copies of completed Appendix pages to Radiation Protection Supervisor.

**Appendix A
(Page 2 of 2)**

Name Of Radiation Protection Person Notified: Joe Neutron

Date: Today Time: Now

Step# 5.7[1] Procedure: 3-OI-3 (if not this procedure) Rev: Current

RPHP Required by OI? (Y) X(N) RPHP Required For GOI? X(Y) (N)

RCI-17 Controls Necessary? X(Y) (N)

Radiation Protection Supervisor Signature for Release

Joe Neutron Date: Today Time: Now

Comments: For returning 3A RFP to service

Name Of Radiation Protection Person Notified: _____

Date: _____ Time: _____

Step# _____ Procedure: _____ (if not this procedure) Rev: _____

RPHP Required by OI? (Y) (N) RPHP Required For GOI? (Y) (N)

RCI-17 Controls Necessary? (Y) (N)

Radiation Protection Supervisor Signature for Release

_____ Date: _____ Time: _____

Comments: _____

FORWARD copies of completed Appendix pages to Radiation Protection Supervisor.

Facility: Browns Ferry NPP Scenario No.: 3-10 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-1
	ATC:	SROI-2
	BOP:	RO-4

Initial Conditions: Unit 3 is at approximately 95% power with 3B Stator Cooling Water Pump tagged for bearing replacement and RHR Loop I in Suppression Pool Cooling following HPCI Testing.

Turnover: Units 1 and 2 are at 100%. On Unit 3, secure RHR Loop I from Suppression Pool Cooling. Raise power to 100% with Recirc@ 10 MWe/min. Support maintenance on 3A CRD Pump and 3B Stator Cooling Water Pump.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-BOP N-SRO	Secure RHR Loop I from Suppression Pool Cooling
2	-----	R-ATC N-SRO N-BOP	Raise power with Recirc flow, adjusts 2-190 valve and generator transfer volts
3	ed27d	TS-SRO	Evaluate Technical Specifications on loss of HPCI (B Logic)
4	th30v 0	C-ATC C-SRO	RPS Level instrument failure (blown fuse), reset 1/2 scram after fuse replaced
5	sw10a	C-BOP C-SRO	FPCP 3A failure/trip - AOI response and restores cooling per 3-AOI-78-1
6	multiple	C-ALL	Loss of RBCCW - AOI response and attempted recovery, power reduction and Manual SCRAM
7	fw18 100	M-ALL	RFW Line Rupture in Turbine Building
8	th21 1.5	M-ALL	Recirculation line break in Drywell

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

Received 5/21/09

Facility: Browns Ferry NPP Scenario No.: 3-10 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-3
	ATC:	SROI-4
	BOP:	RO-5

Facility: Browns Ferry NPP Scenario No.: 3-10 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-5
	ATC:	RO-1
	BOP:	RO-6

DRAFT

Scenario Narrative

The Crew will remove RHR Loop I from Suppression Pool Cooling and return it to standby readiness per OI-74.

With the Unit initially at ~ 95% power, the operating crew will return Reactor Power to 100% per Reactor Engineer's instructions and the RCP.

The operating crew will respond to a HPCI "B" logic power failure per ARPs and Technical Specifications and declare HPCI inoperable.

The Crew will respond to an RPS level instrument failure (blown fuse) and reset ½ scram after fuse is replaced.

The crew will respond to an FPCP trip and will place the 3B FPCP in service.

An earthquake occurs causing damage to various systems.

The crew will recognize and respond to a RBCCW leak inside the drywell. The crew will respond per AOI-70-1 and AOI-64-1.

A feedwater line ruptures in the turbine building causing a loss of feedwater and subsequent scram on low RPV water level (If manual scram not already inserted due to loss of RBCCW and small DW leak). The drywell leak increases forcing the crew to spray the suppression chamber and the drywell.

RPV water level drops to TAF as the leak increases forcing the crew to stop spraying containment and to emergency depressurize. The crew will restore water level +2" to +51" and resume drywell sprays.

Additionally, the '3D' DG fails to automatically start but can be manually started. RHR pumps 3B and 3D fail to start and Core Spray injection valve 75-53 fails to open. Core Spray Loop I and RHR Loop I injection valves must be manually opened.

DRAFT

Facility: Browns Ferry NPP Scenario No.: 3-10 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-1
	ATC:	SROI-2
	BOP:	RO-4

Initial Conditions: Unit 3 is at approximately 90% power with 3B Stator Cooling Water Pump tagged for bearing replacement and RHR Loop I in Suppression Pool Cooling following HPCI Testing.

Turnover: Units 1 and 2 are at 100%. On Unit 3, secure RHR Loop I from Suppression Pool Cooling. Raise power to 100% with Recirc@ 10 MWe/min. Support maintenance on 3A CRD Pump and 3B Stator Cooling Water Pump.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-BOP N-SRO	Secure RHR Loop I from Suppression Pool Cooling
2	-----	R-ATC R-SRO	Raise power
3	ed27d	TS-SRO	Evaluate Technical Specifications on loss of HPCI
4	sw10a	C-BOP C-SRO	FPCP 3A failure/trip - AOI response and restores cooling per 3-AOI-78-1
5	-----	N-ATC N-SRO	Swap CRD pumps per 3-OI-85 (Remove 3B pump and place 3A pump in service)
6	multiple	C-ALL	Loss of RBCCW - AOI response and attempted recovery, power reduction and Manual SCRAM
7	fw18 100	M-ALL	RFW Line Rupture in Turbine Building
8	th21 1.5	M-ALL	Recirculation line break in Drywell

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

Submitted 5/11/09

DRAFT

Facility: Browns Ferry NPP Scenario No.: 3-10 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-3
	ATC:	SROI-4
	BOP:	RO-5

Facility: Browns Ferry NPP Scenario No.: 3-10 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-5
	ATC:	RO-1
	BOP:	RO-6

Scenario Narrative

The Crew will remove RHR Loop I from Suppression Pool Cooling and return it to standby readiness per OI-74.

With the Unit initially at ~ 90% power, the operating crew will return Reactor Power to 100% per Reactor Engineer's instructions and the RCP.

The operating crew will respond to a HPCI logic power failure per ARPs and Technical Specifications and declare HPCI inoperable.

The crew will respond to an FPCP trip and will place the 3B FPCP in service.

The Crew will swap CRD pumps per 3-OI-85 and contact Maintenance for PMT.

An earthquake occurs causing damage to various systems.

The crew will recognize and respond to a RBCCW leak inside the drywell. The crew will respond per AOI-70-1 and AOI-64-1.

A feedwater line ruptures in the turbine building causing a loss of feedwater and subsequent scram on low RPV water level (If manual scram not already inserted due to loss of RBCCW and small DW leak). The drywell leak increases forcing the crew to spray the suppression chamber and the drywell.

RPV water level drops to TAF as the leak increases forcing the crew to stop spraying containment and to emergency depressurize. The crew will restore water level +2" to +51" and resume drywell sprays.

Additionally, the '3D' DG fails to automatically start but can be manually started. RHR pumps 3B and 3D fail to start and Core Spray injection valve 75-53 fails to open. Core Spray Loop I and RHR Loop I injection valves must be manually opened.

SIMULATOR EVALUATION GUIDE

TITLE: SECURE RHR FROM SUPPRESSION POOL COOLING, HPCI LOGIC FAILURE, RPS LEVEL INSTRUMENT FAILURE, FUEL POOL COOLANT PUMP TRIP, RBCCW LEAK IN DRYWELL, FEEDWATER LINE RUPTURE IN TURBINE BUILDING, RECIRC LINE BREAK

REVISION: 0

DATE: Mar. 23, 2009

PROGRAM: BFN Operator Training – Hot License

RCP required (95% - 100% w/Recirc flow @ 10MWe/min)

An RPHP is required for raising power (attached)

PREPARED: _____ \ _____
(Operations Instructor) Date

REVIEWED: _____ \ _____
(LOR Lead Instructor or Designee) Date

REVIEWED: _____ \ _____
(Operations Training Manager or Designee) Date

CONCURRED: _____ \ _____
(Operations Superintendent or Designee Required for Exam Scenarios) Date

VALIDATED: _____ \ _____
(Operations SRO) (Required for Exam Scenarios) Date

LOGGED-IN: _____ \ _____
(Librarian) Date

TASK LIST
UPDATED _____ \ _____
Date

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: SECURE RHR FROM SUPPRESSION POOL COOLING, HPCI LOGIC FAILURE, RPS LEVEL INSTRUMENT FAILURE, FUEL POOL COOLANT PUMP TRIP, RBCCW LEAK IN DRYWELL, FEEDWATER LINE RUPTURE IN TURBINE BUILDING, RECIRC LINE BREAK
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will secure RHR from Suppression Pool cooling per 3-OI-74.
2. The operating crew will recognize and respond to a HPCI Logic Failure per ARPs and Tech Specs.
3. The operating crew will recognize and respond to an inadvertent half scram due to instrument failure in accordance with ARPs and Technical Specifications.
4. The operating crew will recognize and respond to a Fuel Pool Coolant pump trip per 3-AOI-78-1.
5. The operating crew will recognize and respond to a RBCCW leak in the drywell per ARPs, 3-AOI-64-1, and 3-AOI-70-1.
6. The operating crew will recognize and respond to a Feedwater Line Break in the Turbine Building per 3-EOI-1 and 3-AOI-100-1.
7. The operating crew will recognize and respond to a LOCA per 3-EOI-2 and C1.
8. The operating crew will Emergency depressurize per C2.

- VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.

- VII. Training Materials: (If needed, otherwise disregard)
 - A. Calculator
 - B. Control Rod Insertion Sheets
 - C. Stopwatch
 - D. Hold Order / Caution Order tags
 - E. Annunciator window covers
 - F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-10

MF/RF/OR#		Description
1)	imf dg01d	DG '3D' auto start failure
2)	trg e1 MODESW	Set trigger
3)	imf th21 (el 0) 1.5 20:00	LOCA
4)	imf rh01b	RHR pump 3B and 3D fails to start
5)	imf rh01d	
6)	imf cs02a	CS spray loop I & II inboard injection valve auto opening failure
7)	imf cs02b	
8)	ior ypovfcv7553 fail_now	Valve 75-53 fails
9)	ior zlohs7553a[1] on	Override green light on
10)	ior zlohs 3536a[1] off	3B Stator Cooling Water Pump tagout
11)	ior zdihs 3536a ptl	
12)	ior zlohs 3536a[2] off	
13)	imf rh05b	FCV 74-53 auto open failure

2. File: bat hlts-3-10-1

MF/RF/OR#		Description
1)	imf sw08 100 20:00	RBCCW leak in the drywell
2)	imf th22 2.5 2:00	Small Drywell leak
3)	imf sw02a (none 18:00)	Trip RBCCW pump 3A
4)	imf sw02b (none 20:00)	Trip RBCCW pump 3B

3. File: bat app07b

MF/RF/OR#		Description
1)	mrf s101 align	SLC to Test Tank

4. File: bat app08e

MF/RF/OR#		Description
1)	mrf rp14a byp	Bypasses Group 6 isolation to Reactor Building Ventilation
2)	mrf rp14b byp	

IX. Console Operators Instructions

HLTS-3-10

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	Manual	~95% power, MOC rst IC 234 [david]
Simulator Setup		See Scenario Summary bat hlts-3-10
Simulator Setup	Manual	Verify RHR Loop I is in Suppression Pool Cooling (3A RHR pump and A2 RHRSW pump)
Simulator Setup	Manual	Place Hold Order Tags on 3B Stator Cooling Water pump.

When Power is being raised		Loss of HPCI B Logic (imf ed27d)
----------------------------	--	-------------------------------------

ROLE PLAY: Report breaker 11D1, on 3A 250v RMOV bd has tripped and will not reset (HPCI "B" Logic)

2 min after Tech Specs addressed for HPCI		fails LIS-3-203B downscale (imf th30v 0)
---	--	---


ROLE PLAY: When sent to Aux Inst room to investigate, wait 2 minutes and report LIS-3-203B reading about 0 inches in Aux Inst room and that fuse 3-FU1-3-203BA was found blown

If requested to replace blown fuse		Replaces fuse (dmf th30v)
------------------------------------	--	------------------------------


ROLE PLAY: If directed to replace fuse - Report 3-FU1-3-203BA (5A-F6B) replaced in panel 9-17

5 minutes after Tech Specs addressed on 203B or when directed by lead evaluator...		Trips 3A FPCP (imf sw10a)
--	--	------------------------------

ROLE PLAY: When sent to investigate the trip of 3A FPCP, report that everything at the pump looks normal but the breaker shows an overcurrent trip

If requested to locally throttle Open 3-FCV-78-65		Throttles valve Open (turn on Red light) (ior zlohs7865a[2] on)
---	---	---


If requested to locally throttle Closed 3-FCV-78-65		Throttles valve Closed (turn off Red light) (dor zlohs7865a[2])
---	---	---

After FPCP swapped to 3B (takes a while to ramp in)		RBCCW leak in DW and small DW leak (bat hlts-3-10-1)
---	---	--

ROLE PLAY: U1 Operator reports “Seismic Trigger A, B, C” is in alarm.

ROLE PLAY: AUO in Rx Bldg reports piping movement.

ROLE PLAY: Respond to other Earthquake calls when received.

If requested to align spare RBCCW pump to Unit 3 Wait 3 minutes		Aligns spare RBCCW pump to Unit 3 (mrf sw02 align)
---	---	--


ROLE PLAY: Call and report Spare RBCCW pump aligned to Unit 3


ROLE PLAY: When requested to check level in surge tank, wait 3 minutes and report no level in sight glass and manual by-pass valve is wide open.

ROLE PLAY: RE Recommends (if called) core flow runback and inserting all rods on emergency shove sheet.


If asked to start SGBT		Starts A SGBT (mrf pc01a start)
------------------------	---	---------------------------------

ROLE PLAY: As Unit 1 RO, call and report A SGBT train in service


3 minutes after rods are being inserted or at scram		Feedwater break in Turbine bldg (imf fw18 100 5:00)
---	---	---

If requested to perform Appendix-7B, wait 25 minutes		Align SLC to Test Tank (bat app07b)
--	---	-------------------------------------

ROLE PLAY: Call and report SLC aligned to test tank

If requested to perform Appendix-8E, wait 3 minutes		Bypass Group Isolations and allows restart of ventilation (bat app08e)
---	---	--

ROLE PLAY: Call and report Appendix-8E completed.

After ED and DW sprays are needed,		Lowers leak rate (mmf th21 0.7)
------------------------------------	---	---------------------------------

Terminate the scenario when the following conditions are satisfied or when requested by Chief Examiner:

1. RPV Emergency Depressurization completed
2. Reactor Water level restored between +2 to +51"
3. Drywell Sprayed

X. Scenario Summary:

The Crew will remove RHR Loop I from Suppression Pool Cooling and return it to standby readiness per OI-74.

With the Unit initially at ~ 95% power, the operating crew will return Reactor Power to 100% per Reactor Engineer's instructions and the RCP.

The operating crew will respond to a HPCI logic power failure per ARPs and Technical Specifications and declare HPCI inoperable.

An inadvertent half scram will occur due to an instrument failure. The crew will respond per ARPs and Tech. Specs.

The crew will respond to an FPCP trip and will place the 3B FPCP in service.

An earthquake occurs causing damage to various systems.

The crew will recognize and respond to a RBCCW leak inside the drywell. The crew will respond per AOI-70-1 and AOI-64-1.

A feedwater line ruptures in the turbine building causing a loss of feedwater and subsequent scram on low RPV water level (If manual scram not already inserted due to loss of RBCCW and small DW leak). The drywell leak increases forcing the crew to spray the suppression chamber and the drywell.

RPV water level drops to TAF as the leak increases forcing the crew to stop spraying containment and to emergency depressurize. The crew will restore water level +2" to +51" and resume drywell sprays.

Additionally, the '3D' DG fails to automatically start but can be manually started. RHR pumps 3B and 3D fail to start and Core Spray injection valve 75-53 fails to open. Core Spray Loop I and RHR Loop I injection valves must be manually opened.

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

1. SRO: Unit Supervisor _____
2. ATC: Board Unit Operator _____
3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide SRO with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

1. ED completed
2. RPV level restored to 2" to 51" (or recovering)
3. DW sprayed

XII. Simulator Event Guide:

Event # 1: Secure RHR Loop I from Suppression Pool Cooling

Position	Expected Actions	Time/Comments
SRO	Directs RHR Loop I returned to standby readiness per 3-OI-74 section 8.6	
BOP	Removes RHR Loop I from Suppression Pool Cooling per 3-OI-74, section 8.6	
	8.6 Shutdown of Loop I(II) Suppression Pool Cooling [1] VERIFY Suppression Pool Cooling in operation. REFER TO Section 8.5.	
	[2] REVIEW the precautions and limitations in Section 3.0.	
	[3] NOTIFY Radiation Protection of Suppression Pool Cooling loop removed from service. RECORD name and time of Radiation Protection representative notified in NOMS narrative log.	
	CAUTIONS 1) To prevent draining an RHR Loop, at least one of the RHR System test valves must be closed before stopping RHR Pumps in the associated loop. 2) To prevent excessive vibration, RHR pumps should not be allowed to operate for more than 3 minutes at minimum flow. 3) When closing throttle valve 3-FCV-74-59 and 3-FCV-74-73 RHR SYS I(II) SUPPR POOL CLG/TEST VLV, from the control room, the handswitch should be held in the close position for approximately 6 seconds after the red light extinguishes. Failure to completely close these valves could provide a leak path to the suppression pool from the RHR discharge piping.	

XII. Simulator Event Guide:

Event # 1: Secure RHR Loop I from Suppression Pool Cooling (continued)

Position	Expected Actions	Time/Comments
BOP	[4] IF both Loop I(II) RHR Pumps are in operation AND one pump is to be removed from service due to reduced heat load, THEN : <i>N/A – ONLY 3A RHR is in service.</i>	
	[5] CLOSE RHR SYS I(II) SUPPR POOL CLG/TEST VLV, 3-FCV-74-59(73).	
	[6] STOP RHR PUMP(s) 3A(3B) and/or 3C(3D) using 3-HS-74-5A(28A) and/or 3-HS-74-16A(39A).	
	[7] CLOSE RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV, 3-FCV-74-57(71).	
	[8] CLOSE RHR HX(s) 3A(3B) and 3C(3D) RHR SW OUTLET VLV(s), 3-FCV-23-34(46) and 3-FCV-23-40(52).	
	[9] IF RHR SW for RHR Heat Exchanger(s) A(B) and C(D) is NOT required to support other unit operations, THEN STOP RHR SW Pump(s) for the heat exchanger(s) removed from service.	
	[10] CHECK RHR System discharge header pressure > 48 psig, as indicated on 3-PI-74-51, RHR SYS I DISCH PRESS, and > 35 psig, as indicated on 3-PI-74-65, RHR SYS II DISCH PRESS.	
	NOTE RHR Room Cooling Fans automatically shut off when area temperature is < 95°F.	
	[11] WHEN 3-TI-74-136A and B, A/C and B/D RHR PUMP ROOM TEMP indicators at Panel 3-9-3 indicate < 95°F, THEN RETURN EECW to its normal operating configuration, if desired. REFER TO 0-OI-67.	

XII. Simulator Event Guide:

Event # 2: Raise Power

Position	Expected Actions	Time/Comments
SRO	Notify ODS of power increase	
	Direct return of U3 to Full Power using Recirc Flow per 3-GOI-100-12 step 5[17] and 3-OI-68	
ATC	Raises Power w/Recirc using 3-GOI-100-12 and 3-OI-68	
	<p>3-GOI-100-12 - 5.0 INSTRUCTION STEPS [6.3] WHEN desired to raise power after testing is complete, THEN PERFORM the following as directed by Unit Supervisor. (N/A Steps 5.0[7] through 5.0[19].</p> <ul style="list-style-type: none"> • RAISE Recirculation flow. REFER TO 3-OI-68. • MAINTAIN Reactor thermal power within the limits shown on ICS and 0-TI-248, Station Reactor Engineer, as appropriate. 	
	<p>3-OI-68 - 6.2 Adjusting Recirc Flow [1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows. AND/OR ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows.</p>	

XII. Simulator Event Guide:

Event # 2: Raise Power (continued)

Position	Expected Actions	Time/Comments
ATC	[2] WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required: RAISE SLOW , 3-HS-96-31 RAISE MEDIUM , 3-HS-96-32 LOWER SLOW , 3-HS-96-33 LOWER MEDIUM , 3-HS-96-34 LOWER FAST , 3-HS-96-35	
BOP	Provides peer check for Recirc adjustment Continue to monitor BOP (transfer volts, condensate flow, etc)	

XII. Simulator Event Guide:

Event # 3: HPCI Logic Failure (continued)

Position	Expected Actions	Time/Comments
SRO	<p>ECCS 3.3.5.1 ACTIONS CONDITION REQUIRED ACTION COMPLETION TIME B. As required by Required Action A.1 and referenced in Table 3.3.5.1-1. B.1 -----NOTES----- 1. Only applicable in MODES 1, 2, and 3. 2. Only applicable for Functions 1.a, 1.b, 2.a, and 2.b. ----- Declare supported ECCS feature(s) inoperable when its redundant feature ECCS initiation capability is inoperable. (1 hour from discovery of loss of initiation capability for features in both divisions) AND B.2 -----NOTE----- Only applicable for Functions 3.a and 3.b. ----- Declare High Pressure Coolant Injection (HPCI) System inoperable. (1 hour from discovery of loss of HPCI initiation Capability) AND B.3 Place channel in trip. 24 hours</p>	
SRO	<p>Primary Containment Isolation Instrumentation 3.3.6.1 ACTIONS CONDITION REQUIRED ACTION COMPLETION TIME B. One or more Functions with isolation capability not maintained. B.1 Restore isolation capability. 1 hour OR 4 hours for Function 1.d when normal ventilation is not available</p>	

XII. Simulator Event Guide:

Event # 3: HPCI Logic Failure (continued)

SRO	Directs investigation on tripped breaker	
	Declares HPCI inoperable, Inform crew of 14 day LCO and 7 day Appendix R LCO	
ATC	Announces half scram	
	Reports half scram due to level from 3-XA-55-4A-2	
	Verifies RPV level normal	
	Refers to 3-9-4 ARP	
	3-ARP-9-4A Operator Action:	
	A. VERIFY alarm by multiple indications.	
	B. IF level is ≤ 2.0 " AND reactor has NOT scrammed, THEN MANUALLY SCRAM the reactor. ENTER 3-EOI-1 FLOWCHART.	
D. IF alarm is NOT valid or initiating condition is corrected, THEN with SRO permission, RESET Half Scram. REFER TO 3-OI-99.		
SRO	C. DISPATCH personnel to 3-LIS-3-203 A, B, C and D to check for abnormal condition.	
	Determines 3-203-BA, 5A-F6B in pnl 9-17 is fuse to trip inst	
	Consults Tech Specs, 3.3.1.1, 3.3.6.1, 3.3.6.2, 3.3.7.1 determines Required actions are to place in trip in 12 hrs. which is met at this time	
	Directs fuse replaced after report that fuse 3-203-BA was found blown	
	Directs $\frac{1}{2}$ scram reset after fuse replaced	

XII. Simulator Event Guide:

Event # 4: RPS Level Instrument Failure (continued)

Position	Expected Actions	Time/Comments
ATC	3-OI-99 - 6.1 Reset of One RPS Trip Logic Channel	
	[1] VERIFY Reactor Protection System in prestartup/standby readiness alignment in accordance with Section 4.0.	
	[2] REVIEW all Precautions and Limitations in Section 3.0.	
	[3] VERIFY RPS Bus for tripped channel energized.	
	[4] CHECK trip signals NOT present.	
	[5] MOMENTARILY PLACE SCRAM RESET , 3-HS-99-5A/S5, as follows: A. RESET FIRST B. RESET SECOND C. NORMAL	

XII. Simulator Event Guide:

Event # 4: RPS Level Instrument Failure (continued)

Position	Expected Actions	Time/Comments
ATC	<p>[6] CHECK the following conditions:</p> <p>A. All eight SCRAM SOLENOID GROUP A/B LOGIC RESET lights illuminated.</p> <p>B. The following four lights illuminated:</p> <ul style="list-style-type: none"> • SYSTEM A BACKUP SCRAM VALVE, 3-IL-99-5A/AB • SYSTEM B BACKUP SCRAM VALVE, 3-IL-99-5A/CD <p>C. Scram Discharge Volume vent and drain valves indicate open.</p> <p>D. Points SOE033(Channel A3 manual scram) and SOE035 (Channels A1&A2 Auto Scram) on ICS computer or on the First Out Printer reads "NOT TRIP" for RPS "A".</p> <p>E. Points SOE034 (Channel B3 manual scram) and SOE036 (Channels B1&B2 Auto Scram) on ICS computer or on the First Out Printer reads "NOT TRIP" for RPS "B".</p>	
	Resets annunciator(s)	

XII. Simulator Event Guide:

Event #5: FPCP Trip

Position	Expected Actions	Time/Comments
ATC	Announces alarm 3-9-4C win 1 Fuel Pool System Abnormal	
	Reports trip of 3A Fuel Pool Cooling pump	
SRO	Directs Entry into 3-AOI-78-1	
ATC	Verifies unit stable, Power, Level, Pressure	
BOP	Refers to ARP, 3-AOI-78-1 and takes required actions.	
	3-AOI-78-1 - 4.2 Subsequent Actions	
	[1] VERIFY automatic actions have occurred.	
	[2] IF Fuel Pool Cooling System failure is due to a loss of SFSP level, THEN: (Otherwise N/A) <i>N/A – NO loss of level</i>	
	[3] IF fuel pool cooling system failure is from loss of cooling, THEN: PERFORM the following: [3.1] START idle FUEL POOL COOLING PUMP 3B(3A). [3.2] ATTEMPT to re-start the tripped FUEL POOL COOLING PUMP 3A(3B). [3.3] VERIFY RBCCW System is operating. REFER TO 3-OI-70.	
[3.4] IF Fuel Pool Cooling flow cannot be established such that Fuel Pool Cooling temperature input 3-TE-78-20 on 3-TR-74-80 is available, THEN: NOTIFY MIG to install a temporary Fuel Pool temperature monitoring device to determine Fuel Pool temperature. (Otherwise N/A) <i>N/A – STBY pump starts</i>		

XII. Simulator Event Guide:

Event #5: FPCP Trip (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[3.5] BYPASS fuel pool filter demineralizer to raise flow by performing the following: THROTTLE OPEN FPC F/D BYPASS ISOL VALVE A(B), 3-FCV-078-0066(0065), using local control switch 3-HS-078-0066B(0065B) to maintain pump discharge pressure greater than 130 psig as indicated on FPC PUMP 3A(3B) DISCH PRESS LOW, 3-PIS-078-0011(0016), on 3-LPNL-925-0016.</p>	
	<p>[3.6] IF Fuel Pool/Reactor Cavity gates are removed, THEN: <i>N/A – Gates installed</i></p>	
	<p>[3.7] DIRECT the STA to ESTIMATE the time for the fuel pool temperature to rise to 125F and 150F, using the heat-up rates as provided on Attachment 1, Table 1 at least once per shift UNTIL Fuel Pool cooling is restored: <i>N/A – Pump restored</i></p>	
	<p>[3.8] PLACE RHR supplemental fuel pool cooling mode in operation, <i>N/A – Pump restored</i></p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell

Position	Expected Actions	Time/Comments
SRO	<p>[3.9] EVALUATE Technical Specification Section 3.7.6, Spent Fuel Pool Water Level; Technical Requirements Manual 3.9.2, Spent Fuel Pool Water Temperature; and TRM 3.9.3, Spent Fuel Pool Water Chemistry. <i>No actions – flow restored</i></p>	
BOP	<p>[3.10] NOTIFY RADCON <i>N/A – Flow restored</i></p> <p>[3.11] IF Dry Cask Storage activities are in progress, THEN: <i>N/A – NOT in operation</i></p>	
SRO	<p>Dispatches AUO to FPCP and breaker to determine cause of trip</p> <p>Directs FPCP 3B placed in service after report of breaker problem on 3A pump</p>	
SRO	<p>Informs crew that annunciation "Strong Motion Accelerograph and Seismic Trigger" received on Unit 1</p> <p>Begins executing 0-AOI-100-5 EPIP-3 Alert, EAL 7.1-A</p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell

Position	Expected Actions	Time/Comments
SRO	<p>0-AOI-100-5 - 4.2 Subsequent Actions [1] VERIFY annunciations by noticeable building movement or some damage to nonseismic structures.</p>	
	<p>[2] CALL the National Earthquake Information Service at 1-303-273-8502 or 1-303-273-8500 and PERFORM the following: [2.1] INFORM the Information Service of indication that an earthquake has taken place. [2.2] REQUEST verification of an earthquake.</p>	
	<p>[3] IF the National Earthquake Information Service has verified an earthquake has occurred AND one or more of SEISMIC SWITCH A(B)(C) RX BLDG 519, 1-XA-55-22C, Window 6(7)(8) has alarmed, THEN COMMENCE a controlled shut down of all reactors. REFER TO 1, 2 and 3-GOI-100-12A. (Otherwise N/A)</p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell

Position	Expected Actions	Time/Comments
SRO	<p>[4] IF START OF STRONG MOTION ACCELEROGRAPH (1-XA-55-22C, Window 5) OR one or more of SEISMIC SWITCH A(B)(C) RX BLDG 519, [1-XA-55-22C, Window 6(7)(8)] has alarmed, THEN DIRECT IMs to download information from the three digital accelerographs. REFER TO FSAR Section 2.5.5.3. (Otherwise N/A)</p>	
	<p>[13] DISPATCH personnel to all units Reactor Bldg elevation 519' to check torus area and corner rooms for flooding. [NRC Commitment LER 86-021]</p>	
	<p>[14] REFER TO EPIP-3, Alert, and MAKE appropriate notifications.</p>	
	<p>EAL 7.1-A Any of the following annunciators in the Unit 1 Control Room, Panel 1-XA-55-22C: • Window 6, SEISMIC SWITCH A • Window 7, SEISMIC SWITCH B • Window 8, SEISMIC SWITCH C AND Assessment by Unit 1 and 2 Control Room personnel that an earthquake has occurred. OPERATING CONDITION: ALL</p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	Reports alarm "RBCCW Surge Tank Level Low". Consults ARP.	
	<p>3-ARP-9-4C – Window 13 Operator Action: A. ADD water to the RBCCW Surge Tank for approximately one minute or until low level alarm resets using the following:</p> <ul style="list-style-type: none"> • RBCCW SYS SURGE TANK FILL VLV, 3-FCV-70-1 (Panel 3-9-4) OR • FCV-70-1 BYPASS VLV, 3-BYV-002-1369 (locally) <p>B. IF alarm does NOT reset, THEN CHECK tank locally. C. IF unable to maintain RBCCW Surge Tank level, THEN REFER TO 3-AOI-70-1.</p>	
	Reports alarm "RBCCW pump Discharge Header Pressure Low" Consults ARP	
	<p>3-ARP-9-4C – Window 12 A. VERIFY 3-FCV-70-48 CLOSING/CLOSED. B. VERIFY RBCCW pumps A and B in service. C. VERIFY RBCCW surge tank low level alarm is reset. D. DISPATCH personnel to check the following:</p> <ul style="list-style-type: none"> • RBCCW surge tank level locally. • RBCCW pumps for proper operation <p>E. REFER TO 3-AOI-70-1 for RBCCW System failure and 3-OI-70 for starting spare pump.</p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
SRO	Directs removal of RWCU	
	Determines RBCCW leak by low level alarm, low pressure, RWCU isolation.	
BOP	Reports loss of RWCU due to isolation. (If not previously removed)	
	Calls Rx Engineer to adjust heat balance	
	Sends AUO to check out level locally in the surge tank and to look for leaks.	
ATC/BOP	Monitors containment parameters	
	Reports alarm "DW to Suppression Chamber Differential Pressure Abnormal"	
	3-ARP-9-3B – Window 26 Automatic Action: A. VERIFY alarm by checking Drywell to Suppression Chamber DP. B. REFER TO 3-OI-64. C. REFER TO Tech Spec Section 3.6.2.6.	
SRO	Refers to 3-AOI-70-1, 3-AOI-64-1.	
	Directs venting per 3-AOI-64-1	
	Recognizes shutdown required due to earthquake	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	Checks RBCCW pump suction temperature.	
	3-AOI-64-1 - 4.2.2 Drywell Pressure is High	
	[1] CHECK Drywell pressure using multiple indications.	
	[2] ALIGN and START additional Drywell coolers and fans as necessary. REFER TO 3-OI-64. <i>None necessary</i>	
	WARNING Stack release rates exceeding 1.4×10^7 $\mu\text{Ci}/\text{sec}$, or a SI-4.8.B.1.a.1 release fraction above one will result in ODCM release limits being exceeded.	
	[3] VENT Drywell as follows: [3.1] CLOSE SUPPR CHBR INBD ISOLATION VLV 3-FCV-64-34 (Panel 3-9-3).	
	[3.2] VERIFY OPEN , DRYWELL INBD ISOLATION VLV, 3-FCV-64-31 (Panel 3-9-3).	
	[3.3] VERIFY 3-FIC-84-20 is in AUTO and SET at 100 scfm (Panel 3-9-55).	
[3.4] VERIFY Running, required Standby Gas Treatment Fan(s) SGTS Train(s) A, B, C (Panel 3-9-25).		

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	[3.5] IF required, THEN REQUEST Unit 1 Operator to START Standby Gas Treatment Fan(s) SGTS Train(s) A, B. (Otherwise N/A)	
	<p style="text-align: center;">NOTE</p> If 3-FCV-84-20 closes after placing 3-HS-64-35 to open, the valve's closure signal must be reset and 3-HS-64-35 must be returned to the OPEN position in order for 3-FCV-84-20 to RE-OPEN	
	[3.6] IF required, THEN RECORD venting data in 3-SI-4.7.A.2.a (Otherwise N/A)	
	[3.7] PLACE 3-FCV-84-20 CONTROL DW/SUPPR CHBR VENT, 3-HS-64-35, in OPEN (Panel 3-9-3).	
	<p style="text-align: center;">CAUTION</p> Stack release rates exceeding 1.4×10^7 ci/sec, or a SI-4.8.B.1.a.1 release fraction above one will result in ODCM release limits being exceeded	
	[3.8] MONITOR stack release rates to prevent exceeding ODCM limits <i>Directs Log AUO to monitor stack release rates</i>	
Crew	Reports alarm "DW Floor Drain Sump Level Abnormal" and both sump pumps running.	
	Notifies Chem. Lab on loss of RWCU.	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
SRO	Directs beginning load reduction based on AOI-70-1 for loss of RBCCW or AOI-64-1 for rising drywell pressure and temperature.	
	Directs Core Flow runback, manual scram, trip Recirc pumps and start cooldown	
	Directs all available DW cooling placed in service	
ATC	<p>3-AOI-64-1 - 4.2.3 High Drywell Temperature [1] IF Reactor is at power AND Drywell cooling is lost and can NOT be immediately restored, THEN PERFORM the following: [1.1] IF core flow is above 60%, THEN REDUCE core flow to between 50-60%.</p>	
	<p> [1.2] MANUALLY SCRAM the reactor and REFER TO 3-AOI-100-1.</p>	
	<p>3-AOI-100-1 - 4.1 Immediate Actions [1] DEPRESS REACTOR SCRAM A and B, 3-HS-99-5A/S3A and 3-HS-99-5A/S3B, on Panel 3-9-5.</p>	
	<p>[2] IF scram is due to a loss of RPS, THEN <i>N/A – Manual Scram inserted</i></p>	
	<p>[3] PLACE REACTOR MODE SWITCH, 3-HS-99-5A-S1, in REFUEL, THEN [3.1] CHECK REFUEL MODE ONE ROD PERMISSIVE light, 3-XI-85-46, illuminates. [3.2] IF REFUEL MODE ONE ROD PERMISSIVE light, 3-XI-85-46, is NOT illuminated, THEN (Otherwise N/A) CHECK all control rod positions at Full-In Overtravel, or Full-In.</p>	
	<p>[4] PLACE REACTOR MODE SWITCH, 3-HS-99-5A-S1, in the SHUTDOWN position.</p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
ATC	<p>[5] IF all control rods CAN NOT be verified fully inserted, THEN <i>N/A – ALL Rods inserted</i></p>	
	<p>[6] REPORT the following status to the US:</p> <ul style="list-style-type: none"> • “All rods in” or “rods out “ • Power level • Mode Switch is in Shutdown • Reactor pressure • MSIV position • Reactor Level is recovering or lowering. 	
SRO	<p>[7] US REPEAT back status to UO, eye contact is not necessary.</p>	
ATC/BOP	<p>3-AOI-64-1 - 4.2.3 High Drywell Temperature [1.3] INITIATE a 90°F/hr cooldown rate. REFER TO 3-AOI-100-1.</p>	
	<p>[2] CHECK Drywell temperature using multiple indications.</p>	
	<p>[3] ALIGN and START additional Drywell coolers and fans as necessary. REFER TO 3-OI-64.</p>	
	<p>3-OI-64 - 5.2 Startup of Drywell Atmospheric Cooling Coils [1] REVIEW all Precautions and Limitations in Section 3.0.</p>	
	<p>[2] VERIFY all Prestartup/Standby Readiness requirements in Section 4.0 are satisfied.</p>	
	<p>[3] IF personnel are present in the Drywell, <i>N/A</i></p>	

XII. Simulator Event Guide:

Event #6: RBCCW Leak In Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	<p>[4] OPEN the associated Drywell Cooler valve and damper, THEN START the associated Drywell Cooler Blower (Panel 3-9-25). Component Blower Hand-switch Associated Valve and Damper Hand-switch</p> <p>DW CLG UNIT 3A1 BLOWER 3-HS-70-37A 3-HS-70-16A</p> <p>DW CLG UNIT 3A2 BLOWER 3-HS-70-38A 3-HS-70-18A</p> <p>DW CLG UNIT 3A3 BLOWER 3-HS-70-39A 3-HS-70-20A</p> <p>DW CLG UNIT 3A4 BLOWER 3-HS-70-40A 3-HS-70-22A</p> <p>DW CLG UNIT 3A5 BLOWER 3-HS-70-41A 3-HS-70-24A</p> <p>DW CLG UNIT 3B1 BLOWER 3-HS-70-42A 3-HS-70-26A</p> <p>DW CLG UNIT 3B2 BLOWER 3-HS-70-43A 3-HS-70-28A</p> <p>DW CLG UNIT 3B3 BLOWER 3-HS-70-44A 3-HS-70-30A</p> <p>DW CLG UNIT 3B4 BLOWER 3-HS-70-45A 3-HS-70-32A</p> <p>DW CLG UNIT 3B5 BLOWER 3-HS-70-46A 3-HS-70-34A</p>	
	<p>[5] PLACE DW CLR RBCCW OUTLET TEMP SEL, 3-XS-70-36, to a position corresponding to an operating cooling unit to monitor RBCCW outlet temperature (Panel 3-9-25).</p>	
	<p>[6] IF personnel are present in the Drywell, THEN N/A</p>	
ATC	Trips Recirc pumps	

XII. Simulator Event Guide:

Event #7: RFW Line Rupture In Turbine Building

Position	Expected Actions	Time/Comments
ATC/BOP	Reports alarms "Hotwell A(B)(C) Level Abnormal" and level in hotwell decreasing	
SRO	Directs manual scram. (If not already done)	
ATC	Manually scrams reactor. (If not already scrammed)	
	Verifies all rods in via: - One rod permissive - ICS - Green backgrounds Reference previous excerpt on AOI-100-1 actions	
BOP	Verifies Group Isolations (Gp 2, 3, 6, & 8) (Group 1 possible if leak not isolated prior to isolation)	
SRO	Enters EOI-1 on low RPV level	
	Directs RFP discharge valves Closed	
	Directs RCIC run for level control per Appendix-5C	
BOP	Closes RFP discharge valves	
	Starts RCIC per 3-EOI APPENDIX-5C	
	1. IF BOTH of the following exist: RPV Pressure is at or below 50 psig, AND Bypass of RCIC low RPV pressure isolation interlocks is necessary, THEN ... EXECUTE EOI Appendix 16A concurrently with this procedure. N/A	
	2. IF BOTH of the following exist: High temperature exists in the RCIC area, AND SRO directs bypass of RCIC High Temperature Isolation interlocks, THEN ... PERFORM the following: a. EXECUTE EOI Appendix 16K concurrently with this procedure. b. RESET auto isolation logic using RCIC AUTO-ISOL LOGIC A(B) RESET 3-XS-71-51A(B) pushbuttons. N/A	

XII. Simulator Event Guide:

Event #7: RFW Line Rupture In Turbine Building (continued)

Position	Expected Actions	Time/Comments
BOP	3. VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VALVE RESET	
	4. VERIFY 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller in AUTO with setpoint at 600 gpm	
	5. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-39, RCIC PUMP INJECTION VALVE • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV 	
	6. PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START	
	7. OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine	
	8. CHECK proper RCIC operation by observing the following: <ul style="list-style-type: none"> a. RCIC Turbine speed accelerates above 2100 rpm. b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm. c. 3-FCV-71-40, RCIC Testable Check Vlv, opens by observing 3-ZI-71-40A, DISC POSITION, red light illuminated. d. 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE, closes as flow rises above 120 gpm 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization

Position	Expected Actions	Time/Comments
BOP	9. IF BOTH of the following exist: <ul style="list-style-type: none"> • RCIC Initiation signal is NOT present, <li style="text-align: center;">AND • RCIC flow is below 60 gpm, THEN ... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE	
	10. ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection.	
	Reports DW press >2.45 psig	
	Reports all DG started except '3D', starts "3D" DG	
	Dispatches AUO to monitor D/G's	
SRO	Enters EOI-2	
	Directs venting per Appendix-12 and H ₂ O ₂ analyzers in service	
BOP	3-EOI APPENDIX-12	
	1. VERIFY at least one SGTS train in service.	
	2. VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): <ul style="list-style-type: none"> • 3-FCV-64-31, DRYWELL INBOARD ISOL VLV, • 3-FCV-64-29, DRYWELL VENT INBD ISOL VLV, • 3-FCV-64-34, SUPPR CHBR INBOARD ISOL VLV, • 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VLV 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization

Position	Expected Actions	Time/Comments
BOP	3. IF ... While executing this procedure to vent the Suppression Chamber, Suppression Pool water level can not be determined to be below 20 ft, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required	
	4. IF ... While executing this procedure, the desired vent path is lost or can not be established, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	5. IF ... While executing this procedure, CAD addition per SAMG-2, Step G-4 OR G-9, is to begin, THEN . BEFORE CAD is initiated, PERFORM Step 13 to secure the vent path	
	<p style="text-align: center;">NOTE:</p> Venting may be accomplished using EITHER: 3-FIC-84-19, PATH B VENT FLOW CONT, OR 3-FIC-84-20, PATH A VENT FLOW CONT	
	<p style="text-align: center;">NOTE:</p> Unless the TSC recommends otherwise, venting the Drywell DIRECTLY should be performed ONLY if the Suppression Chamber can NOT be vented.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>6. IF ... ANY of the following exists: Suppression Pool water level can not be determined to be below 20 ft, OR Suppression Chamber can NOT be vented, OR SRO orders DIRECT drywell venting, THEN CONTINUE in this procedure at:</p> <ul style="list-style-type: none"> • Step 10 to vent the Drywell through 3-FCV-84-19, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Step 11 to vent the Drywell through 3-FCV-84-20. 	
	<p>7. CONTINUE in this procedure at:</p> <ul style="list-style-type: none"> • Step 8 to vent the Suppression Chamber through 3-FCV-84-19, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Step 9 to vent the Suppression Chamber through 3-FCV-84-20. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
	<p>8. VENT the Suppression Chamber using 3-FIC-84-19, PATH B VENT FLOW CONT, as follows:</p> <ul style="list-style-type: none"> a. PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54). b. VERIFY OPEN 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 3-9-54). c. PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55). d. PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55). e. VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm. f. CONTINUE in this procedure at step 12. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>9. VENT the Suppression Chamber using 3-FIC-84-20, PATH A VENT FLOW CONT, as follows:</p> <ul style="list-style-type: none"> a. VERIFY OPEN 3-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 3-9-3). b. PLACE keylock switch 3-HS-84-36, SUPPR CHBR/DW VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54). c. VERIFY OPEN 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV (Panel 3-9-54). d. VERIFY 3-FIC-84-20, PATH A VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55). e. PLACE keylock switch 3-HS-84-20, 3-FCV-84-20 ISOLATION BYPASS, in BYPASS (Panel 3-9-55). f. VERIFY 3-FIC-84-20, PATH A VENT FLOW CONT, is indicating approximately 100 scfm. g. CONTINUE in this procedure at step 12. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>10. VENT the Drywell using 3-FIC-84-19, PATH B VENT FLOW CONT, as follows:</p> <ul style="list-style-type: none"> a. VERIFY CLOSED 3-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 3-9-3). b. PLACE keylock switch 3-HS-84-36, SUPPR CHBR/DW VENT ISOL BYP SELECT, to DRYWELL position (Panel 3-9-54). c. VERIFY OPEN 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE (Panel 3-9-54). d. PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55). e. PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55). f. VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm. g. CONTINUE in this procedure at step 12. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>11. VENT the Drywell using 3-FIC-84-20, PATH A VENT FLOW CONT, as follows:</p> <ul style="list-style-type: none"> a. VERIFY CLOSED 3-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 3-9-3). b. PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to DRYWELL position (Panel 3-9-54). c. VERIFY OPEN 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV (Panel 3-9-54). d. VERIFY 3-FIC-84-20, PATH A VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55). e. PLACE keylock switch 3-HS-84-20, 3-FCV-84-20 ISOLATION BYPASS, in BYPASS (Panel 3-9-55). f. VERIFY 3-FIC-84-20, PATH A VENT FLOW CONT, is indicating approximately 100 scfm. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>12. ADJUST 3-FIC-84-19, PATH B VENT FLOW CONT, or 3-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following:</p> <ul style="list-style-type: none"> • Stable flow as indicated on controller, AND • 3-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished, AND • Release rates as determined below: <ul style="list-style-type: none"> i. IF. . .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress, THEN. .MAINTAIN release rates below those specified in Attachment 2. <ul style="list-style-type: none"> ii. IF. . .Severe Accident Management Guidelines are being executed, THEN. .MAINTAIN release rates below those specified by the TSC SAM Team. <ul style="list-style-type: none"> iii. IF. . .Venting for ANY other reason than items i or ii above, THEN. .MAINTAIN release rates below Stack release rate of $1.4 \times 10^7 \mu\text{Ci/s}$ AND 0-SI-4.8.B.1.a.1 release fraction of 1. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>13. WHEN ... ANY of the following exists: Venting is no longer required, OR Pressure in the space being vented approaches zero, OR Directed by SRO, OR Directed by Step 3, 4, or 5, THEN ... SECURE venting as follows:</p> <ul style="list-style-type: none"> a. VERIFY the following keylock switches in OFF (Panel 3-9-54): 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT 3-HS-84-36, SUPPR CHBR/DW VENT ISOL BYP SELECT. b. VERIFY keylock switch 3-HS-84-20, 3-FCV-84-20 ISOLATION BYPASS, in NORMAL (Panel 3-9-55). c. VERIFY keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in CLOSE (Panel 3-9-55). d. VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV, 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE, 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV, 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE. e. VERIFY CLOSED 3-FCV-64-141, DRYWELL DP COMP BYPASS VALVE (Panel 3-9-3). 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
SRO	Directs RHR Loop I & II in Suppression Pool Cooling per Appendix 17A	
BOP	Places RHR Loop I & II in Suppression Pool Cooling per Appendix-17A	
	<p>3-EOI APPENDIX-17A 1. IF.....Adequate core cooling is assured, OR Directed to cool the Suppression Pool irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.</p>	
	<p>2. PLACE RHR SYSTEM I(II) in Suppression Pool Cooling as follows: a. VERIFY at least one RHRSW pump supplying each EECW header.</p>	
	<p>b. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s). c. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow: • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV</p>	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	d. IF Directed by SRO, THEN..... PLACE 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD in MANUAL OVERRIDE.	
	e. IFLPC I INITIATION Signal exists, THEN..... MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT in SELECT.	
	f. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.	
	g. OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOLVLV.	
	h. VERIFY desired RHR pump(s) for Suppression Pool Cooling are operating.	
	i. THROTTLE 3-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 3-FI-74-50(64), RHR SYS I(II) FLOW: Between 7000 and 10000 gpm for one-pump operation. <p style="text-align: center;">OR</p> At or below 13000 gpm for two-pump operation.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	j. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	k. MONITOR RHR Pump NPSH using Attachment 1.	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	m. IF Additional Suppression Pool Cooling flow is necessary, THEN..... PLACE additional RHR and RHRSW pumps in service using Steps 2.b through 2.l.	
SRO	Directs Appendix-5B (CRD)	
ATC	3-EOI APPENDIX-5B 1. IF Maximum injection flow is NOT required, N/A	
	2. IF BOTH of the following exist: CRD is NOT required for rod insertion, AND Maximum injection flow is required, THEN ... LINE UP ALL available CRD pumps to the RPV as follows: a. IF CRD Pump 3A is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B. b. IF CRD Pump 3B is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
ATC	<p>c. OPEN the following valves to increase CRD flow to the RPV:</p> <ul style="list-style-type: none"> ○ 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV ○ 3-PCV-85-27, CRD CLG WATER PRESS CONTROL VLV ○ 3-FCV-85-50, CRD EXH RTN LINE SHUTOFF VALVE. 	
	<p>d. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, on Panel 9-5 to control injection WHILE maintaining 3-PI-85-13A, CRD ACCUM CHG WTR HDR PRESS, above 1450 psig, if possible.</p>	
	<p>e. IFAdditional flow is necessary to prevent or mitigate core damage, THENDISPATCH personnel to fully open the following valves as required:</p> <ul style="list-style-type: none"> ○ 3-THV-085-0527, CRD PUMP DISCH THROTTLING (RB NE, el 565') ○ 3-BYV-085-0551, CRD PUMP TEST BYPASS (RB NE, el 565'). 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
SRO	Directs all available DW cooling	
	Directs Suppression Chamber Sprays per Appendix-17C	
BOP	3-EOI APPENDIX-17C 1. BEFORE Suppression Chamber pressure drops below 0 psig, CONTINUE in this procedure at Step 6.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Suppression Chamber irrespective of adequate core cooling, THEN BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS .	
	3. IF.....Directed by SRO to spray the Suppression Chamber using Standby Coolant Supply, THEN CONTINUE in this procedure at Step 7. N/A	
	4. IF.....Directed by SRO to spray the Suppression Chamber using Fire Protection, THEN CONTINUE in this procedure at Step 8. N/A	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>5. INITIATE Suppression Chamber Sprays as follows:</p> <p>a. VERIFY at least one RHRSW pump supplying each EECW header.</p>	
	<p>b. IF EITHER of the following exists:</p> <ul style="list-style-type: none"> o . LPCI Initiation signal is NOT present, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> o . Directed by SRO, <p>THEN.....PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.</p>	
	<p>c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.</p>	
	<p>d. IF 3-FCV-74-53(67), RHR SYS I(II) INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) OUTBD INJECT VALVE.</p>	
	<p>e. VERIFY OPERATING the desired RHR System I(II) pump(s) for Suppression Chamber Spray.</p>	
	<p>f. VERIFY OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.</p>	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	g. OPEN 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.	
	h. IF RHR System I(II) is operating ONLY in Suppression Chamber Spray mode, THEN..... CONTINUE in this procedure at Step 5.k.	
	k. MONITOR RHR Pump NPSH using Attachment 2.	
	l. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
	m. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm flow: <ul style="list-style-type: none"> o . 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV o . 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV o . 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV o . 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV. 	
	n. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
SRO	Directs Appendix-7B (SLC)	
ATC	<p>3-EOI APPENDIX-7B Performs Appendix-7B by injecting with SLC from the Boron tank or dispatching AUO to align SLC suction to the test tank</p>	
	<p>2. IF RPV injection is needed immediately ONLY to prevent or mitigate fuel damage, THEN ... CONTINUE at Step 10 to inject SLC Boron Tank to RPV.</p>	
	<p>10. UNLOCK and PLACE 3-HS-63-6A, SLC PUMP 3A/3B, control switch in START PUMP 3A or START PUMP 3B (Panel 3-9-5).</p>	
	<p>11. CHECK SLC injection by observing the following:</p> <ul style="list-style-type: none"> • Selected pump starts, as indicated by red light illuminated above pump control switch. • Squib valves fire, as indicated by SQUIB VALVE A and B CONTINUITY blue lights extinguished, • SLC SQUIB VALVE CONTINUITY LOST Annunciator in alarm (3-XA-55-5B, Window 20). • 3-PI-63-7A, SLC PUMP DISCH PRESS, indicates above RPV pressure. • System flow, as indicated by 3-IL-63-11, SLC FLOW, red light illuminated, • SLC INJECTION FLOW TO REACTOR Annunciator in alarm (3-XA-55-5B, Window 14). 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
ATC	12. IF Proper system operation CANNOT be verified, THEN ... RETURN TO Step 10 and START other SLC pump.	
	13. IF SLC tank level drops to 0%, THEN ... STOP SLC pumps.	
	14. DISPATCH personnel to Unit 3 SLC pump area to line up SLC Test Tank and isolate SLC Boron Tank as follows (RB NE, EI 639 ft):	
SRO	Directs shutting down DW blowers, recirc pumps, and spraying the Drywell per Appendix-17B	
BOP	3-EOI APPENDIX-17B	
	1. BEFORE Drywell pressure drops below 0 psig, CONTINUE in this procedure at Step 7.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Drywell irrespective of adequate core cooling, THEN..... BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS .	
	3. VERIFY Recirc Pumps and Drywell Blowers shutdown.	
	4. IF.....Directed by SRO to spray the Drywell using Standby Coolant N/A	
5. IF.....Directed by SRO to spray the Drywell using Fire Protection, N/A		

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
	<p>6. INITIATE Drywell Sprays as follows: a. VERIFY at least one RHR SW pump supplying each EECW header.</p>	
BOP	<p>b. IF EITHER of the following exists:</p> <ul style="list-style-type: none"> • LPCI Initiation signal is NOT present, <li style="text-align: center;">OR • Directed by SRO, <p>THEN.....PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.</p> <p>c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.</p> <p>d. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.</p> <p>e. VERIFY OPERATING the desired System I(II) RHR pump(s) for Drywell Spray.</p> <p>f. OPEN the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-74-60(74), RHR SYS I(II) DW SPRAY OUTBD VLV • 3-FCV-74-61(75), RHR SYS I(II) DW SPRAY INBD VLV. 	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	g. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	h. IF Additional Drywell Spray flow is necessary, THEN..... PLACE the second System I(II) RHR Pump in service.	
	i. MONITOR RHR Pump NPSH using Attachment 2.	
	j. VERIFY RHR SW pump supplying desired RHR Heat Exchanger(s).	
	k. THROTTLE the following in-service RHR SW outlet valves to obtain between 1350 and 4500 gpm RHR SW flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHR SW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHR SW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHR SW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHR SW OUTLET VLV. 	
	l. NOTIFY Chemistry that RHR SW is aligned to in-service RHR Heat Exchangers.	
	Reports drywell pressure and temperature decrease	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
SRO	Directs ADS inhibited at < -120" and enters C1	
BOP	Inhibits ADS	
	Monitors Level	
SRO	At TAF (-162"), directs 6 ADS Valves open Directs RHR secured from sprays and re-aligned for injection until level is > -162"	
BOP	3-EOI APPENDIX-17B (DW Sprays) –Secure 7. WHEN.....EITHER of the following exists: <ul style="list-style-type: none"> • Before drywell pressure drops below 0 psig, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Directed by SRO to stop Drywell Sprays, THEN..... STOP Drywell Sprays as follows: a. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> ○ 3-FCV-74-100, RHR SYS I U-2 DISCH XTIE ○ 3-FCV-74-60(74), RHR SYS I(II) DW SPRAY OUTBD VLV ○ 3-FCV-74-61(75), RHR SYS I(II) DW SPRAY INBD VLV 	
	b. VERIFY OPEN 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	c. IFRHR operation is desired in ANY other mode, THEN..... EXIT this EOI Appendix	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

BOP	<p>3-EOI APPENDIX-17C (Supp Chmbr Sprays) – Secure.</p> <p>6. WHEN.....EITHER of the following exists:</p> <ul style="list-style-type: none"> • Before Suppression Pool pressure drops below 0 psig, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Directed by SRO to stop Suppression Chamber Sprays, THEN.....STOP Suppression Chamber Sprays as follows: <p>a. CLOSE 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.</p> <p>b. VERIFY CLOSED 3-FCV-74-100, RHR SYS I U-2 DISCH XTIE</p> <p>c. IFRHR operation is desired in ANY other mode, THEN..... EXIT this EOI Appendix</p> <p>Opens 6 ADS Valves</p> <p>Reports all Core Spray pumps started</p> <p>Reports “3B” and “3D” RHR auto start failures (If not manually started)</p>	
SRO	<p>Directs Reactor level restored +2” to +51” with Appendix-6D(6E) (CS) and Appendix-6B(6C) (RHR), if needed</p>	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	3-EOI APPENDIX-6D 1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL SUCT VLV • 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL SUCT VLV • 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE. 	
	2. VERIFY CLOSED 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE	
	3. VERIFY CS Pump 3A and/or 3C RUNNING .	
	Reports 3-FCV-75-25 did Not auto Open and Manually Opens 3-FCV-75-25	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-25, CORE SPRAY SYS I INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump.	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	
	3-EOI APPENDIX-6E 1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-30, CORE SPRAY PUMP 3B SUPPR POOL SUCT VLV • 3-FCV-75-39, CORE SPRAY PUMP 3D SUPPR POOL SUCT VLV • 3-FCV-75-51, CORE SPRAY SYS II OUTBD INJECT VALVE. 	
	2. VERIFY CLOSED 3-FCV-75-50, CORE SPRAY SYS II TEST VALVE.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	3. VERIFY CS Pump 3B and/or 3D RUNNING .	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-53, CORE SPRAY SYS II INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump.	
	On Loop II Core Spray (App-6E) Reports to SRO that 3-FCV-75-53 did Not auto Open and will Not manually Open	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	
SRO	Directs FCV-75-53 opened from the breaker	
BOP	Restores Reactor Level +2" to +51" with RHR I per 3-EOI APPENDIX-6B	
	1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL in BYPASS .	
	2. VERIFY OPEN 3-FCV-74-1, RHR PUMP 3A SUPPR POOL SUCT VLV	
3. VERIFY OPEN 3-FCV-74-12, RHR PUMP 3C SUPPR POOL SUCT VLV		

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>4. VERIFY CLOSED the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-74-61, RHR SYS I DW SPRAY INBD VLV • 3-FCV-74-60, RHR SYS I DW SPRAY OUTBD VLV • 3-FCV-74-57, RHR SYS I SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-58, RHR SYS I SUPPR CHBR SPRAY VALVE • 3-FCV-74-59, RHR SYS I SUPPR POOL CLG/TEST VLV 	
	<p>5. VERIFY RHR Pump 3A and/or 3C running.</p>	
	<p>6. WHEN.....RPV pressure is below 450 psig, THEN.....VERIFY OPEN 3-FCV-74-53, RHR SYS I LPCI INBD INJECT VALVE.</p>	
	<p>7. IF.....RPV pressure is below 230 psig, THEN.....VERIFY CLOSED 3-FCV-68-79, RECIRC PUMP 3B DISCHARGE VALVE.</p>	
	<p>8. THROTTLE 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE, as necessary to control injection.</p>	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	9. MONITOR RHR Pump NPSH using Attachment 1.	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV.	
	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV. 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers. END 6B	
	Restores Reactor Level +2" to +51" with RHR II per 3-EOI APPENDIX-6C 1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155B, LPCI SYS II OUTBD INJ VLV BYPASS SEL in BYPASS .	
	2. VERIFY OPEN 3-FCV-74-24, RHR PUMP 3B SUPPR POOL SUCT VLV.	
	3. VERIFY OPEN 3-FCV-74-35, RHR PUMP 3D SUPPR POOL SUCT VLV.	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	<p>4. VERIFY CLOSED the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-74-75, RHR SYS II DW SPRAY INBD VLV • 3-FCV-74-74, RHR SYS II DW SPRAY OUTBD VLV • 3-FCV-74-71, RHR SYS II SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-72, RHR SYS II SUPPR CHBR SPRAY VALVE • 3-FCV-74-73, RHR SYS II SUPPR POOL CLG/TEST VLV 	
	<p>5. VERIFY RHR Pump 3B and/or 3D running.</p>	
	<p>6. WHEN.....RPV pressure is below 450 psig, THEN.....VERIFY OPEN 3-FCV-74-67, RHR SYS II LPCI INBD INJECT VALVE.</p>	
	<p>7. IF.....RPV pressure is below 230 psig, THEN.....VERIFY CLOSED 3-FCV-68-3, RECIRC PUMP 3A DISCHARGE VALVE.</p>	
	<p>8. THROTTLE 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE, as necessary to control injection.</p>	
	<p>9. MONITOR RHR Pump NPSH using Attachment 1.</p>	
	<p>10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV.</p>	

XII. Simulator Event Guide:

Event #8: Recirc Line Break/Emergency Depressurization (continued)

Position	Expected Actions	Time/Comments
BOP	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers	
	Reports 3-FCV-74-53 did Not auto Open but was able to Open manually	
Crew	Restores level to +2" to +51" with Core Spray and/or RHR	
SRO	Directs Drywell Sprays placed back in service when level > TAF (Appendix-17B) (If needed and in the safe area of the Spray Curve)	
BOP	Places Drywell sprays back in service if directed per Appendix-17B	
SRO	Declares Site Area Emergency 1.1-S-1	
	1.1-S1 Reactor water level can NOT be maintained above -162 inches. (TAF) OPERATING CONDITION: ALL	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Sprays drywell after suppression chamber pressure exceeds 12 psig but before reaching 280°F Drywell temperature or unsafe area of PSP curve	
2)	Emergency depressurizes RPV when RPV water level decreases below TAF (-162") and prior to -180".	
3)	Restores and maintains RPV water level above TAF	

SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-10

- 10 Total Malfunctions Inserted: List (4-8)
- 1) HPCI Logic Failure
 - 2) RPS Level Instrument Failure
 - 3) FPC Pump trip
 - 4) RBCCW leak
 - 5) Feedwater Line Break
 - 6) LOCA
 - 7) "3D" DG Auto start Failure
 - 8) 3B/3D RHR pump Auto start failure
 - 9) FCV 75-25 Auto Open failure and FCV 75-53 failure
 - 10) FCV 74-53 Auto Open failure
- 4 Malfunctions that occur after EOI entry: List (1-4)
- 1) "3D" DG
 - 2) 3B/3D RHR
 - 3) FCV-75-53 and FCV 75-25
 - 4) FCV 74-53
- 2 Abnormal Events: List (1-3)
- 1) FPC Pump trip (AOI)
 - 2) RBCCW leak (AOI)
- 2 Major Transients: List (1-2)
- 1) Feedwater Line Break
 - 2) Small LOCA
- 2 EOI's used: List (1-3)
- 1) EOI-1
 - 2) EOI-2
- 2 EOI Contingencies used: List (0-3)
- 1) C1
 - 2) C2
- 85 Run Time (minutes)
- 40 EOI Run Time (minutes): 47 % of Scenario Run Time
- 3 Crew Critical Tasks:(2-5)
- YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

3B Stator Cooling Water Pump – bearing replacement.

Operations/Maintenance for the Shift:

Remove RHR Loop I from Suppression Pool Cooling and return to standby readiness.

Increase power to 100% with Recirc flow at 10MWe/min. Rx Engineer monitoring all limits.

Unit 3 has been in continuous operation for 122 days. Units 1 and 2 at 100% power.

Unusual Conditions/Problem Areas:

None.

**Appendix A
(Page 2 of 2)**

Name Of Radiation Protection Person Notified: Joe Neutron

Date: Today Time: Now

Step# 5[16] Procedure: 3-GOI-100-12 (if not this procedure) Rev: Current

RPHP Required by OI? (Y) X (N) RPHP Required For GOI? X (Y) (N)

RCI-17 Controls Necessary? X (Y) (N)

Radiation Protection Supervisor Signature for Release

Joe Neutron Date: Today Time: Now

Comments: For returning Rx Power from 90% to 100%

Name Of Radiation Protection Person Notified: _____

Date: _____ Time: _____

Step# _____ Procedure: _____ (if not this procedure) Rev: _____

RPHP Required by OI? _____(Y) _____(N) RPHP Required For GOI? _____(Y) _____(N)

RCI-17 Controls Necessary? _____(Y) _____(N)

Radiation Protection Supervisor Signature for Release

_____ Date: _____ Time: _____

Comments: _____

FORWARD copies of completed Appendix pages to Radiation Protection Supervisor.

Facility: Browns Ferry NPP Scenario No.: 3-12 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	RO-2
	BOP:	RO-7

Initial Conditions: Unit 3 is at 100% power. The 3B Diesel Generator is tagged for annual maintenance and the Main Generator Voltage Regulator is in MANUAL following a monthly Electrical Maintenance PM. Thunderstorm warnings in area.

Turnover: Units 1 and 2 are at 100%. On Unit 3, return the Main Generator Voltage Regulator to AUTO. Lower power to 95% with Recirc to perform 3-SR-3.1.3.3, Control Rod Exercise Test for Partially Withdrawn Control Rods. Support maintenance on 3B Diesel Generator.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-BOP N-SRO	Return Generator Voltage Regulator to Auto
2	-----	R-ATC N-SRO N-BOP	Lower power
3	-----	N-ATC N-SRO	Perform CRD Exercise per 3-SR-3.1.3.3
4	nm16a	I-ATC TS-SRO	APRM Hi/INOP trip - bypass APRM 1
5	sw03J	C-BOP C-SRO	Trip of C3 EECW - ARP response and manual start of A3 EECW pump that fails to Auto start
6	rc02	C-BOP TS-SRO	Secure RCIC after inadvertent start
7	eg07 25	C-ALL	Make-up H ₂ when leak noticed, power reduction / scram / turbine trip
8	ed01	M-ALL	Loss of Off-Site Power
9	rc09 100	M-ALL	Unisolable RCIC steam leak

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

ANTICIPATED EAL: 3.1-S – SITE AREA

Revised 5/21/07, R&S

Facility: Browns Ferry NPP Scenario No.: 3-12 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-1
	ATC:	RO-3
	BOP:	RO-8

Facility: Browns Ferry NPP Scenario No.: 3-12 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-2
	ATC:	RO-4
	BOP:	RO-1

DRAFT

Scenario Narrative

The unit is at 100% power, with '3B' Diesel Generator out of service for annual maintenance. Currently in the first day of a 7 day LCO for the Diesel Generator.

The Crew will perform actions necessary to return the Generator Voltage Regulator to Automatic per 3-OI-47.

The Crew will Lower Reactor Power to 95% to rated per 3-GOI-100-12.

The Crew will perform 3-SR-3.1.3.3, Control Rod Exercise Test for Partially Withdrawn Control Rods.

APRM #1 receives a critical fault due to an input/output card failure, which requires it to be bypassed.

C3 EECW pump trips and will not restart requiring starting of the A3 EECW pump, which fails to Auto start.

RCIC receives an inadvertent auto start signal which requires the crew to secure RCIC.

A Hydrogen leak on the generator occurs which will result in decision to scram and trip the turbine. When the turbine is tripped, breaker failures occur and result in loss of offsite power.

HPCI aux oil pump fails to operate, but can be restored if crew requests maintenance to investigate (after RCIC is placed in service).

When RCIC is used a steam leak occurs and RCIC fails to auto isolate and cannot be manually isolated. The RCIC steam leak will require an emergency depressurization be performed due to High area temperatures/rad levels.

Diesel Generator '3C' starts, but fails to automatically tie to the shutdown board, but may be manually tied on.

Facility: Browns Ferry NPP Scenario No.: 3-12 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	RO-2
	BOP:	RO-7

Initial Conditions: Unit 3 is at approximately 90% power due to Control Valve testing last shift. The 3B Diesel Generator is tagged for annual maintenance and the Main Generator Voltage Regulator is in MANUAL following a monthly Electrical Maintenance PM.

Turnover: Units 1 and 2 are at 100%. On Unit 3, return the Main Generator Voltage Regulator to AUTO. Raise power to 100% with Recirc@ 10 MWe/min. Support maintenance on 3B Diesel Generator.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-BOP N-SRO	Return Generator Voltage Regulator to Auto
2	-----	R-ATC R-SRO	Raise power
3	nm16a	I-ATC TS-SRO	APRM Hi/INOP trip - bypass APRM 1
4	sw03J	C-BOP C-SRO	Trip of C3 EECW - ARP response and manual start of A3 EECW pump that fails to Auto start
5	rc02	C-BOP TS-SRO	Secure RCIC after inadvertent start
6	eg07 25	C-ALL	Make-up H2 when leak noticed, power reduction / scram / turbine trip
7	ed01	M-ALL	Loss of Off-Site Power
8	rc09 100	M-ALL	Unisolable RCIC steam leak

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

Submitted 5/11/09

DRAFT

ANTICIPATED EAL: 3.1-S – SITE AREA

Facility: Browns Ferry NPP Scenario No.: 3-12 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-1
	ATC:	RO-3
	BOP:	RO-8

Facility: Browns Ferry NPP Scenario No.: 3-12 (3) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-2
	ATC:	RO-4
	BOP:	RO-1

Scenario Narrative

The unit is at ~ 90% at reduced power due to Control Valve testing last shift, with '3B' Diesel Generator out of service for annual maintenance. Currently in the first day of a 7 day LCO for the Diesel Generator.

The Crew will perform actions necessary to return the Generator Voltage Regulator to Automatic per 3-OI-47.

The Crew will increase Reactor Power from 90% to rated per 3-GOI-100-12.

APRM #1 receives a critical fault due to an input/output card failure, which requires it to be bypassed.

C3 EECW pump trips and will not restart requiring starting of the A3 EECW pump, which fails to Auto start.

RCIC receives an inadvertent auto start signal which requires the crew to secure RCIC.

A Hydrogen leak on the generator occurs which will result in decision to trip the turbine. When the turbine is tripped, breaker failures occur and result in loss of offsite power.

HPCI aux oil pump fails to operate, but can be restored if crew requests maintenance to investigate (after RCIC is placed in service).

When RCIC is used a steam leak occurs and RCIC fails to auto isolate and cannot be manually isolated. The RCIC steam leak will require an emergency depressurization be performed due to High area temperatures/rad levels.

Diesel Generator '3C' starts, but fails to automatically tie to the shutdown board, but may be manually tied on.

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: APRM FAILURE, TRIP OF C3 EECW PUMP, INADVERTANT START OF RCIC, GENERATOR HYDROGEN LEAK, LOSS OF OFFSITE POWER, HPCI AUX OIL PUMP FAILURE, RCIC STEAM LINE BREAK WITHOUT ISOLATION
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will perform actions necessary to return the Generator Voltage Regulator to Automatic per 3-Oi-47.
2. The operating crew will raise Reactor Power per 3-GOI-100-12.
3. The operating crew will recognize and respond to an APRM failure per ARPs and OIs and Technical Specifications.
4. The operating crew will recognize and respond to a trip of C3 EECW pump
5. The operating crew will recognize and respond to an inadvertent start of RCIC.
6. The operating crew will recognize and respond to a loss of generator hydrogen per ARPs.
7. The operating crew will recognize and respond to a loss of offsite power with a diesel out of service, per 0-AOI-57-1A.
8. The operating crew will recognize and respond to a RCIC steam line break without isolation; in accordance with the EOIs and AOIs.

- VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.
- VII. Training Materials: (If needed, otherwise disregard)
- A. Calculator
 - B. Control Rod Insertion Sheets
 - C. Stopwatch
 - D. Hold Order / Caution Order tags
 - E. Annunciator window covers
 - F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-12

MF/RF/OR#		Description
1)	imf dg06b	DG '3B' fails to start
2)	mrf dg01b open	DG '3B' logic bkr open
3)	ior zdi3hs35234a[3] close	Fails Bkr 234 closed
4)	ior zlo3hs35234a[4] on	Fails Red light on
5)	ior zlo3hs35234a[3] on	Fails Red light on
6)	ior zlo3hs35234a[1] off	Fails Green light off
7)	ior zdihs7553a null	Removes amber light
8)	imf dg03c	D/G '3C' Tie Bkr Auto failure
9)	imf sw07a	Auto start failure of A3 EECW pump

2. File: bat hlts-3-12-1

MF/RF/OR#		Description
1)	ior an:ov:xa553b[27] alarm_off	Overrides alarm
2)	imf eg07 25 35:00	Generator H ₂ leak
3)	imf rc02	RCIC auto start

3. File: bat hlts-3-12-2

MF/RF/OR#		Description
1)	imf rc09 (none 10:00) 100 30:00	100% steam leak in RCIC Room
2)	imf rc10	RCIC failure to Auto Isolate
3)	imf ed01	Loss of offsite power
4)	bat hlthpaop	Fails HPCI aux oil pump & green light
5)	ior zdihs712a open	FCV-71-2 fails as is
6)	ior zdihs713a open	FCV-71-3 fails as is
7)	mmf eg07 .01 :10	Reduces generator H ₂ leak
8)	ior zaoti7569a 0	Overrides indicator downscale

4. File: bat hlts-3-12-3

MF/RF/OR#		Description
1)	ior zaoti7569b 165 5:00	Overrides CS room temp ind. To 165°F
2)	ior zaori9026a 3 4:00	Overrides CS I/RCIC rm rad to max safe
3)	ior zaori9027a 3 4:45	Overrides CS II rm rad to max safe

5. File: bat hlteecw

MF/RF/OR#		Description
1)	ior zdihs6753b	Allows opening EECW from 25-32
2)	ior zdihs6751b	Allows opening EECW from 25-32
3)	ior zdihs6750b	Allows opening EECW from 25-32
4)	bat hlteecw-1	Execute bat file

6. File: bat hlteecw-1

MF/RF/OR#		Description
1)	dor zdihs6753b	Allows valves to reclose on low pressure
2)	dor zdihs6751b	Allows valves to reclose on low pressure
3)	dor zdihs6750b	Allows valves to reclose on low pressure
4)	bat hltrpsreset	Execute bat file

7. File: bat hltrpsreset

MF/RF/OR#		Description
1)	mrf rp01 reset	Reset RPS A
2)	mrf rp02 reset	Reset RPS B
3)	bat hlta	Execute bat file

8. File: bat hlta

MF/RF/OR#		Description
1)	mrf ia05a reset	Reset A air compressor
2)	mrf ia05d reset	Reset D air compressor
3)	mrf ia09 reset	Reset G air compressor

9. File: bat hlthpaop


MF/RF/OR#		Description
1)	imf hp05	fails HPCI aux oil pump
2)	ior zlohs7347a[1] off	fails HPCI aux oil pump green light


10. File: bat hlthpaop-1

MF/RF/OR#		Description
1)	dmf hp05	Restores HPCI aux oil pump
2)	dor zlohs7347a[1]	


IX. Console Operators Instructions

HLTS 3-12

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	manual	~ 90% Power MOC reset 238 (david)
Simulator Setup		See File summary (bat hlts-3-12)
Simulator Setup	manual	Verify Voltage Regulator in Manual
Simulator Setup	manual	Tag 3B D/G

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
3 minutes after manually raising power to rated		APRM 1 Critical Fault (imf nm16a)


ROLE PLAY: If Operator tries to check pnl 9-14, Floor Examiner will provide what Operator should see – APRM Blue Bypass Lights are illuminated on pnl 3-9-14 voters for APRM 1

2 min After Tech Specs addressed for the APRM		Trip of C3 EECW pump (imf sw03J)
---	---	----------------------------------

ROLE PLAY: If dispatched to check C3 EECW pump breaker, report breaker tripped on overload and breaker smells burnt but no visible smoke or flames

ROLE PLAY: If called to investigate failure of A3 EECW pump to auto start, wait 2 minutes and report that pump will have to be secured to continue troubleshooting

ROLE PLAY: If dispatched to Intake to visually inspect EECW pumps, wait 3 minutes and report everything looks the same as when inspected on rounds earlier except that A3 is running instead of C3

4 minutes after A3 EECW started and TS addressed		Inadvertent start of RCIC & Starts the H ₂ leak on generator (bat hlts-3-12-1)
--	---	---

ROLE PLAY: If sent to Aux Inst Rm, report a burning smell in pnl 9-32 – contacted EM to troubleshoot

ROLE PLAY: After 5 minutes (as EM) report a short in panel – repair time unknown

ROLE PLAY: If sent to pnl 25-31, report relays 13AK2, 13AK3, 13AK4, and 13AK37 energized

If requested to reset local H ₂ panel		Resets local panel alarm (mrf an01b reset)
--	---	--

ROLE PLAY: When generator gas pressure reaches 42 PSIG or if Field Temp High alarm is in then report as AUO that the leak is on one of the manways and cannot be isolated

Immediately after turbine is tripped		Reduces hydrogen leak & LOSP & others/see summary (bat hlts-3-12-2)
--------------------------------------	--	---

ROLE PLAY: If directed to check on status of offsite power, report that 500 kv system was lost due to failure of 234 to trip and problems with 5264 and 5268 trip circuits. Will continue to work to restore power. Not sure why 161kv system was lost

ROLE PLAY: If requested to trip 234 breaker locally, report it will not trip



ROLE PLAY: If requested to energize '3B' KV S/D Bd from U2, report as U2 that they cannot support due to their loading requirement.

If requested to reset EECW valves, reset RPS, & Control Air, wait 5 minutes		Resets EECW, RPS, & CA (bat hlteecw)
---	---	--------------------------------------



ROLE PLAY: If sent to investigate HPCI aux oil pump, wait 4 minutes and report control power fuses blown in 250v RMOV bd 3A compartment 4A.

After maintenance requested and RCIC placed in service		Fix HPCI aux oil pump (bat hlthpaop-1)
--	---	--


ROLE PLAY: (If requested, after entering above bat file) Call and report HPCI aux oil pump control power fuses replaced.

If requested to close 71-2 & 3 from breaker		Xfer switch Emergency (mrf rc05k emer)
		Xfer switch Emergency (mrf rc05s emer)

ROLE PLAY: Report Valves will not close from Bkr MCC

If requested to return Xfer SW to norm		Xfer switch Normal (mrf rc05k norm)
		Xfer switch Normal (mrf rc05s norm)

ROLE PLAY: Report xfer switches have been returned to Normal

When requested by examiner		Overrides 2 nd indicator to 165°F and ramps RM-90-26 and 27 to max safe Rad (bat hlts-3-12-3)
----------------------------	--	--

Terminate the scenario when the following conditions are satisfied or upon request of instructor:

- 1) Emergency Depressurization has been initiated
- 2) Water level restored to +2" to +51" (or recovering)

X. Scenario Summary:

The unit is at ~ 90% at reduced power due to Control Valve testing last shift, with '3B' Diesel Generator out of service for annual maintenance. Currently in the first day of a 7 day LCO for the Diesel Generator.

The Crew will perform actions necessary to return the Generator Voltage Regulator to Automatic per 3-OI-47.

The Crew will increase Reactor Power from 90% to rated per 3-GOI-100-12.

APRM #1 receives a critical fault due to an input/output card failure, which requires it to be bypassed.

C3 EECW pump trips and will not restart requiring starting of the A3 EECW pump, which fails to Auto start.

RCIC receives an inadvertent auto start signal which requires the crew to secure RCIC.

A Hydrogen leak on the generator occurs which will result in decision to trip the turbine. When the turbine is tripped, breaker failures occur and result in loss of offsite power.

HPCI aux oil pump fails to operate, but can be restored if crew requests maintenance to investigate (after RCIC is placed in service).

When RCIC is used a steam leak occurs and RCIC fails to auto isolate and cannot be manually isolated. The RCIC steam leak will require an emergency depressurization be performed due to High area temperatures/rad levels.

Diesel Generator '3C' starts, but fails to automatically tie to the shutdown board, but may be manually tied on.

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

1. SRO: Unit Supervisor _____
2. ATC: Board Unit Operator _____
3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide US with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

1. Emergency Depressurization has been initiated
2. Water level restored to +2" to +51" (or recovering)

XII. Simulator Event Guide:

Event #1: Return 90P to Automatic

Position	Expected Actions	Time/Comments
SRO	Directs returning voltage regulator to automatic IAW 3-OI-47, section 8.14.	
BOP	Transfers 90P to automatic IAW 3-OI-47, section 8.14.	
	[1] VERIFY VOLTAGE REGULATOR MAN/AUTO SEL, 3-HS-57-27, is in MAN.	
	[2] PLACE GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 3-HS-57-26, to RAISE UNTIL the upper limit is reached (red light illuminated).	
	[3] PLACE GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 3-HS-57-26, to LOWER UNTIL the lower limit is reached (green light illuminated).	
	[4] ADJUST GENERATOR FIELD VOLTAGE AUTO ADJUST (90P), 3-HS-57-26, UNTIL GEN TRANSFER VOLTS, 3-EI-57-41, indicates zero.	
	[5] PLACE VOLTAGE REGULATOR MAN/AUTO SEL, 3-HS-57-27, in AUTO.	
	[6] VERIFY GEN VOLT REGULATOR TRIP TO MAN, 3-EA-57-132 (3-XA-55-8A, window 3) alarms.	
	[7] RESET GEN VOLT REGULATOR TRIP TO MAN, 3-EA-57-132 (3-XA-55-8A, window 3).	
	Notify SRO Main Generator Voltage Regulator returned to Automatic.	

XII. Simulator Event Guide:

Event #2: Return power to 100%

Position	Expected Actions	Time/Comments
SRO	Notify ODS of power increase.	
	Direct return of U3 to Full Power using Recirc Flow per 3-GOI-100-12 step 5[17] and 3-OI-68.	
ATC	Raises Power w/Recirc using 3-GOI-100-12 and 3-OI-68, section 6.2.	
	<p>[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows.</p> <p>AND/OR</p> <p>ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows.</p>	
	<p>[2] WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required:</p> <p>RAISE SLOW, 3-HS-96-31 RAISE MEDIUM, 3-HS-96-32 LOWER SLOW, 3-HS-96-33 LOWER MEDIUM, 3-HS-96-34 LOWER FAST, 3-HS-96-35</p>	
BOP	Provides peer check for Recirc adjustment	
	Continue to monitor BOP (transfer volts, condensate flow, etc).	

XII. Simulator Event Guide:

Event #3: APRM #1 FAILURE

Position	Expected Actions	Time/Comments
ATC	Announces alarm "APRM Hi/Inop/Trip" and "Rod withdrawal block".	
	Consults ARP.	
	Determines that APRM 1 has critical self test fault.	

NOTE: Floor Examiner will provide what Operator should see at pnl 3-9-14 – APRM Blue Bypass Lights are illuminated on pnl 3-9-14 voters for APRM 1

SRO	Directs bypassing APRM 1 and consults Tech. Specs section 3.3.1.1-1 and TRM table 3.3.4-1 and determines that no further actions required.	
ATC	Bypasses APRM 1 per OI-92B, section 6.1	
	[1] REVIEW all precautions and limitations. REFER TO Section 3.0.	
	[2] PLACE APRM BYPASS, 3-HS-92-7B/S3, to desired channel to be bypassed.	
	[3] CHECK BLUE BYPASSED lights illuminated on Panel 3-9-14 Voters.	
	[4] VERIFY white bypass light on Panel 3-9-5 is illuminated.	
	Resets alarms.	

XII. Simulator Event Guide:

Event #4: C3 EECW PUMP TRIP

Position	Expected Actions	Time/Comments
BOP	Announces Alarms; 9-8C win 33 Motor Tripout, 9-20A win 35 EECW South Hdr DG Section Press Low, and 9-23B win 26 4KV SD Bd Bkr Motor OL Or Trip.	
	Reports C3 EECW pump tripped.	
	Reports A3 EECW pump failed to Auto start.	
SRO	Directs entry into ARP for 9-20A win 35.	
	Directs A3 EECW pump manually started.	
BOP	Responds per ARP 3-9-20A win 35.	
	A. CHECK indications: 1. Header pressure 0-PI-67-24/3 on Unit 3 Panel 9-20 2. EECW S HDR PUMP B FLOW, 0-FI-67-6A/3 on Panel 3-9-20 3. EECW S HDR PUMP D FLOW, 0-FI-67-12A/3 on Panel 3-9-20	
	B. CHECK Panel 3-9-3 for status of north header pump(s) breaker lights and pump motor amps normal	
	C. NOTIFY Unit Supervisor, U1 and U2	
	D. START standby pump for affected header. REFER TO 0-OI-67	
	Clears disagreement on C3 EECW pump	

XII. Simulator Event Guide:

Event #4: C3 EECW PUMP TRIP

Position	Expected Actions	Time/Comments
BOP	CHECK Panel 3-9-3 for status of north header pump(s) breaker lights and pump motor amps normal.	
	START A3 pump using RHRSW PUMP A3(C3) EECW NORTH HDR, 0-HS-23-85A/3(91A/3) on Unit 3, and verifies all alarms reset	
	E. DISPATCH Personnel to check affected pump room and header for abnormal conditions	
	F. IF low pressure is due to line rupture, THEN N/A	
	DISPATCH Personnel to check affected pump room and header for abnormal conditions.	
	Dispatches personnel to check charging spring on A3 EECW pump after start,	
SRO	Refers to Tech Specs 3.7.2 and determines no action is required (No Required pumps INOP – 3 required),	

XII. Simulator Event Guide:

Event #5: INADVERTANT AUTO START OF RCIC

Position	Expected Actions	Time/Comments
CREW	Recognizes RCIC auto started and injected to RPV	
SRO	Determines that RPV water levels are normal and directs RCIC secured	
BOP	Secures RCIC by tripping RCIC and refers to 3-OI-71	
	<p>[1] VERIFY the following initial conditions are satisfied:</p> <ul style="list-style-type: none"> A. RCIC System is in operation or RCIC Turbine was tripped. REFER TO Section 6.0 or 8.4. B. All RPV low-low water level RCIC initiation signals have cleared N/A 	
	[2] REVIEW Precautions and Limitations in Section 3.0	
	[3] DEPRESS RCIC AUTO-INIT RESET pushbutton, 3-XS-71-52 and CHECK RCIC AUTO-INIT amber light, 3-IL-71-52 extinguished N/A	
	[4] DEPRESS RCIC TURBINE TRIP pushbutton, 3-HS-71-9A, and VERIFY RCIC TURB TRIP/THROT VALVE, 3-FCV-71-9, closes	
[5] CLOSE RCIC TURBINE STEAM SUPPLY VLV, 3-FCV-71-8 N/A		

XII. Simulator Event Guide:

Event #5: INADVERTANT AUTO START OF RCIC

Position	Expected Actions	Time/Comments
BOP	[6] CHECK RCIC TURBINE SPEED, 3-SI-71-42A, is zero rpm	
	[7] VERIFY CLOSED RCIC PUMP MIN FLOW VALVE, 3-FCV-71-34	
	[8] NOTIFY Radiation Protection that RCIC System is shutdown. RECORD time Radiation Protection notified in the NOMS Narrative Log. [BFN PER 126211]	
	The rest of procedure is N/A since initiation signal sealed in – cannot return to standby readiness	
SRO	Checks Tech. Specs. And determines that 3.5.3. condition A applies	
	A1- Verify HPCI operable and	
	A2- Restore to operable within 14 days	
	App-R, 7 days on 71-9 (must remain open)	
	Calls Maintenance Manager for repairs on RCIC	
Announces to Crew that RCIC is INOP but available for injection, if necessary		

XII. Simulator Event Guide:

Event #6: Hydrogen Leak

Position	Expected Actions	Time/Comments
BOP	Announces alarm 9-7A window 29, "Gen Hydrogen System Abnormal"	
	Consults ARP 3-9-7A Window 29	
	A. CHECK H2 pressure on 3-PI-35-17A on Panel 3-9-8	
	B. VERIFY alarm by dispatching personnel to check the H2 Control Cabinet (Elevation 565') and inform the Unit Operator of alarm status	
	C. REFER TO 3-OI-35 as required to correct abnormal condition	
	Reports H ₂ Pressure lowering	
	Checks H ₂ purity on 3-9-8 and reports no change	
	Checks Seal oil pressure on 3-9-8 and reports pressure 8-10 psig above H ₂ pressure and lowering	
SRO	Directs personnel to look for H ₂ Leaks and directs BOP to add H ₂ per 3-OI-35	

XII. Simulator Event Guide:

Event #6: Hydrogen Leak

Position	Expected Actions	Time/Comments
BOP	Monitors H ₂ pressure and generator temperatures	
	Adds H ₂ per 3-OI-35	
	[1] REVIEW Precautions and Limitations in Section 3.0	
	[2] ENTER the Beginning of Generator Hydrogen Fill data in the hydrogen usage spreadsheet	
	[3] IF it is desired to add hydrogen using PCV-35-9 bypass valve, THEN (otherwise N/A): N/A	
	[4] OPEN the desired H ₂ FLOW CONTROL VALVE(s). <ul style="list-style-type: none"> • H₂ FLOW CONTROL VALVE A, 3-FCV-35-4A • H₂ FLOW CONTROL VALVE B, 3-FCV-35-4B 	
	[5] IF pressure in generator does not begin to rise, as indicated on 3-PI-035-0015 or 3-PI-035-17A, THEN (otherwise N/A) <ul style="list-style-type: none"> • VERIFY INSTALLED spool piece downstream of SEC CONT STA H₂ TO GEN SHUTOFF valve, 3-SHV-35-547 • VERIFY OPEN SEC CONT STA H₂ TO GEN SHUTOFF valve, 3-SHV-35-547 N/A	
	Evacuates Turbine floor when notified of H ₂ leak on generator	
SRO	Directs load reduction via Recirc pumps to stay within capability curve per the RCP	

XII. Simulator Event Guide:

Event #6: Hydrogen Leak

Position	Expected Actions	Time/Comments
ATC	<p>[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows.</p> <p>AND/OR</p> <p>ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows.</p>	
	<p>[2] WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required:</p> <p>RAISE SLOW, 3-HS-96-31 RAISE MEDIUM, 3-HS-96-32 LOWER SLOW, 3-HS-96-33 LOWER MEDIUM, 3-HS-96-34 LOWER FAST, 3-HS-96-35</p>	
	<p>Inserts rods per the RCP (If needed to continue load drop)</p>	
SRO	Directs Rx Scram and Turbine trip	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
ATC	Manually Scrams Rx	
	Provides Scram report to SRO Power Level Pressure	
Crew	Reports MSIV closure	
	Verify PCIS isolations (1,2,3,6, & 8)	
BOP	Trips Main Turbine	
	Reports failure of bkr 234 to trip	
	Identifies loss of offsite power	
SRO	Enters EOI-1	
	Directs Reactor Pressure be maintained < 1073 psig using MSRV per App-11A	
	Directs level be maintained 2"-51" using HPCI App-5D and, or RCIC App-5C	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
BOP	Maintains Reactor pressure per Appendix-11A	
	1. IF Drywell Control Air is NOT available, THEN ... EXECUTE EOI Appendix 8G, CROSSTIE CAD TO DRYWELL CONTROL AIR, CONCURRENTLY with this procedure	
	2. IF Suppression Pool level is at or below 5.5 ft, THEN ... CLOSE MSRVs and CONTROL RPV pressure using other options.	
	3. OPEN MSRVs using the following sequence to control RPV pressure as directed by SRO: <ul style="list-style-type: none"> a. 3-PCV-1-179 MN STM LINE A RELIEF VALVE. b. 3-PCV-1-180 MN STM LINE D RELIEF VALVE. c. 3-PCV-1-4 MN STM LINE A RELIEF VALVE. d. 3-PCV-1-31 MN STM LINE C RELIEF VALVE. e. 3-PCV-1-23 MN STM LINE B RELIEF VALVE. f. 3-PCV-1-42 MN STM LINE D RELIEF VALVE. g. 3-PCV-1-30 MN STM LINE C RELIEF VALVE. h. 3-PCV-1-19 MN STM LINE B RELIEF VALVE. i. 3-PCV-1-5 MN STM LINE A RELIEF VALVE. j. 3-PCV-1-41 MN STM LINE D RELIEF VALVE. k. 3-PCV-1-22 MN STM LINE B RELIEF VALVE. l. 3-PCV-1-18 MN STM LINE B RELIEF VALVE. m. 3-PCV-1-34 MN STM LINE C RELIEF VALVE. 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
BOP	Starts RCIC per Appendix-5C	
	1. IF BOTH of the following exist: <ul style="list-style-type: none"> • RPV Pressure is at or below 50 psig, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Bypass of RCIC low RPV pressure isolation interlocks is necessary, THEN ... EXECUTE EOI Appendix 16A concurrently with this procedure	
	2. IF BOTH of the following exist: <ul style="list-style-type: none"> • High temperature exists in the RCIC area, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • SRO directs bypass of RCIC High Temperature Isolation interlocks, THEN ... PERFORM the following: <ol style="list-style-type: none"> a. EXECUTE EOI Appendix 16K concurrently with this procedure b. RESET auto isolation logic using RCIC AUTO-ISOL LOGIC A(B) RESET 3-XS-71-51A(B) pushbuttons 	
	3. VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VALVE RESET	
	4. VERIFY 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller in AUTO with setpoint at 600 gpm	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
BOP	5. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-39, RCIC PUMP INJECTION VALVE • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV 	
	6. PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START	
	7. OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine	
	8. CHECK proper RCIC operation by observing the following: <ul style="list-style-type: none"> a. RCIC Turbine speed accelerates above 2100 rpm b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm c. 3-FCV-71-40, RCIC Testable Check Vlv, opens by observing 3-ZI-71-40A, DISC POSITION, red light illuminated d. 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE, closes as flow rises above 120 gpm 	
	9. IF BOTH of the following exist: <ul style="list-style-type: none"> • RCIC Initiation signal is NOT present, <li style="text-align: center;">AND • RCIC flow is below 60 gpm, THEN ... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
BOP	<p>10. ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection</p>	
	<p>11. IF It is desired to align RCIC suction to the Suppression Pool, THEN ... PERFORM the following: a. OPEN 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. OPEN 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE c. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE, and 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE, are fully open, THEN ... VERIFY CLOSED 3-FCV-71-19, RCIC CST SUCTION VALVE NOTE: Step 12.b must be performed promptly following Step 12.a to avoid loss of suction path</p>	
	<p>12. IF It is desired to align RCIC suction to the Condensate Storage Tank, THEN ... PERFORM the following: a. CLOSE 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE starts traveling closed, THEN ... OPEN 3-FCV-71-19, RCIC CST SUCTION VALVE c. CLOSE 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE</p>	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER

Position	Expected Actions	Time/Comments
BOP	If HPCI used (Appendix-5D),	
	VERIFY 3-IL-73-18B, HPCI TURBINE TRIP RX LVL HIGH, amber light extinguished.	
	VERIFY at least one SGTS train in operation	
	VERIFY 3-FIC-73-33, HPCI SYSTEM FLOW/CONTROL, controller in AUTO and set for 5,000 gpm. NOTE: HPCI Auxiliary Oil Pump will NOT start UNTIL 3-FCV-73-16, HPCI TURBINE STEAM SUPPLY VLV, starts to open.	
	PLACE 3-HS-73-47A, HPCI AUXILIARY OIL PUMP, handswitch in START.	
	Reports failure of HPCI aux oil pump.	
	Request maintenance on HPCI aux oil pump.	
ATC	Reports that '3C' Diesel failed to tie to S/D Bd.	
SRO	Directs '3C' Diesel be manually tied to S/D Bd.	
	Direct entry into 3-AOI-100-1.	
	Directs execution of 0-AOI-57-1A.	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	As time permits, performs actions per 3-AOI-100-1.	
	Executes 0-AOI-57-1A.	
	4.1 Immediate Actions	
	[1] VERIFY Diesel Generators have started and tied to respective 4kV Shutdown Boards, THEN DISPATCH personnel to Diesel Generators	
	Closes breaker for 3C D/G tie to 4KV S/D bd	
	[2] VERIFY two EECW Pumps (not using the same EECW strainer) are in service supplying Diesel Generators. [2.1] IF two EECW Pumps (not using the same EECW strainer) are not in service supplying Diesel Generators, THEN PERFORM Attachment 9 (Cooling water is required to be established within 8 minutes) (Otherwise N/A).	
	[3] PERFORM the following to ensure at least one train of Diesel Generator Room Fans are energized: <ul style="list-style-type: none"> • VERIFY 480V DSL Aux Board A or B energized. • VERIFY 480V DSL Aux Board 3EA or 3EB energized. 	
Clears electrical feeder disagreements		

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	4.2 Subsequent Actions	
	[1] IF ANY EOI entry condition is met, THEN REFER TO the appropriate EOI(s). (Otherwise N/A)	
	[2] VERIFY automatic actions and PERFORM any that failed to occur.	
	[3] WHEN EECW header pressure is restored above the reset pressure setpoint (psig) for the valves listed below, THEN FCV-67-50 - 92 FCV-67-51 - 113 RESET EECW supplies to Control Air compressors and RBCCW, at Unit 1 Panel 1-LPNL-925-0032 and Unit 2,3 Panels 2(3)-25-32. REFER TO the EECW to the RCW Crossties for Control Air & RBCCW section of 0-OI-67.	
	[4] START Control Air Compressors G,A, and D as required and MONITOR system pressure. REFER TO 0-AOI-32-1. [4.1] IF an air compressor trips on high temperature, THEN (Otherwise N/A) NOTIFY Unit Supervisor for instructions.	
	[5] REFER TO 1(2)(3)-AOI-32-2, Loss of Control Air, as necessary	
	[6] PLACE RPS MG Sets A and B in service. REFER TO 1(2,3)-OI-99.	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	<p>NOTES</p> <p>1) Station Blackout (SBO) is defined as a loss of 161 and 500kV systems and a failure of the two diesel generators which supply normal power to the two 480 V Shutdown Boards on a unit. Exiting the SBO can occur through Cross-connect capabilities as long as it does not place the Non-SBO unit in jeopardy. Analysis takes credit for only one unit being in an SBO Event.</p> <p>2) This section is to be performed if at anytime during the loss of 161 and 500 kV Offsite power, the required Diesel Generators (for the Unit's 480 V Shutdown Bds) become inoperable thereby placing the unit in a SBO event. All times start with the recognition of an SBO Event, except for the time since shutdown.</p> <p>3) The purpose of the alternate curves are to replace the normal curves (especially the PSP curve) which would force an Emergency Depressurization (thus losing RCIC level control) before the end of the 4 hour coping period of the SBO analysis. Cooldown must be commenced as soon as possible at near maximum allowable rates to ensure that reactor pressure on the SBO unit is below 235 psig before 155 minutes have elapsed.</p> <p>4) To support one unit in a LOOP/LOCA and another unit in a LOOP, 3 RHR pumps, 2 Core Spray pumps, 3 RHRSW pumps and 2 EECW pumps are required long term (greater than 10 minutes). The unit in the LOOP requires one RHR pump and one RHRSW pump for long term cooling requirements. DG load management will ensure the 2 hour de-rated DG limit is not exceeded by manually removing non-required loads.</p>	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	[7] IF the unit(s) is under a "Station Blackout" THEN PERFORM the following: (Otherwise N/A and PROCEED TO Step 4.2[8]) N/A	
	[8] START the Diesel Driven Fire Pump. REFER TO 0-OI-26. N/A	
	[9] PLACE the 43 switch for the following Busses/Boards in MANUAL: <ul style="list-style-type: none"> • Start Busses 1B, 2B, 1A, 2A. • Unit Boards 1 (2) (3), A (B) (C) • Common Boards A, B 	
	[10] ^[NRC/C] IF containment isolation is required, THEN VERIFY the following containment isolation valves closed UNLESS they are required to be open by EOs (RG 1.155): <ul style="list-style-type: none"> • FCV-1-56 MN STM LINE OUTBD DRAIN ISOL • FCV-69-2 RWCU OUTBD SUCT ISOLATION • FCV-71-3 RCIC OUTBD SUCT ISOLATION • FCV-71-18 RCIC SUPPR POOL OUTBD SUCT VALVE • FCV-73-3 HPCI STEAM LINE OUTBD ISOL VALVE • FCV-73-26 HPCI SUPPR POOL INBD SUCTION VLV • FCV-73-30 HPCI MAIN PUMP MINIMUM FLOW VLV • FCV-74-47 RHR SHUTDOWN COOLING SUCT OUTBD ISOL VLV 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	<p>[11] VERIFY the following boards are energized. IF NOT, THEN REFER TO Attachment 1 to restore affected busses while continuing with this instruction.</p> <p>4KV Shutdown Boards 3EA, 3EB, 3EC, 3ED 480V Shutdown Boards 3A, 3B 480V DSL Aux Boards 3EA, 3EB 480V RMOV Boards 3A, 3B 480V Control Bay Vent Boards B 480V HVAC Board. B</p>	
SRO	<p>Enters EOI-2.</p> <p>Directs venting per Appendix-12 and H₂O₂ analyzers in service.</p>	
BOP	<p>Places H₂O₂ Analyzers in service per EOI-2.</p> <ol style="list-style-type: none"> 1. Place Analyzer isolation bypass keylock switches to bypass 2. Select DW or Supp Chmbr and momentarily pull out select switch handle to start sample pumps 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	Vents Containment per Appendix-12.	
	1. VERIFY at least one SGTS train in service.	
	2. VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): <ul style="list-style-type: none"> • 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV, • 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE, • 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV, • 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE. 	
	3. IF ... While executing this procedure to vent the Suppression Chamber, Suppression Pool water level can not be determined to be below 20 ft, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	4. IF ... While executing this procedure, the desired vent path is lost or can not be established, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	5. IF ... While executing this procedure, CAD addition per SAMG-2, Step G-4 OR G-9, is to begin, THEN . BEFORE CAD is initiated, PERFORM Step 13 to secure the vent path.	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	<p>NOTE: Venting may be accomplished using EITHER:</p> <p>3-FIC-84-19, PATH B VENT FLOW CONT OR 3-FIC-84-20, PATH A VENT FLOW CONT</p> <p>NOTE: Unless the TSC recommends otherwise, venting the Drywell DIRECTLY should be performed ONLY if the Suppression Chamber can NOT be vented</p>	
	<p>6. IF ... ANY of the following exists:</p> <ul style="list-style-type: none"> • Suppression Pool water level can not be determined to be below 20 ft, OR • Suppression Chamber can NOT be vented, OR • SRO orders DIRECT drywell venting, THEN CONTINUE in this procedure at: <ul style="list-style-type: none"> ○ Step 10 to vent the Drywell through 3-FCV-84-19, OR ○ Step 11 to vent the Drywell through 3-FCV-84-20. 	
	<p>7. CONTINUE in this procedure at:</p> <ul style="list-style-type: none"> • Step 8 to vent the Suppression Chamber through 3-FCV-84-19, OR • Step 9 to vent the Suppression Chamber through 3-FCV-84-20. 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	8. VENT the Suppression Chamber using 3-FIC-84-19, PATH B VENT FLOW CONT, as follows:	
	a. PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54).	
	b. VERIFY OPEN 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 3-9-54).	
	c. PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55).	
	d. PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55).	
	e. VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm.	
	f. CONTINUE in this procedure at step 12.	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	12. ADJUST 3-FIC-84-19, PATH B VENT FLOW CONT, or 3-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following: <ul style="list-style-type: none"> • Stable flow as indicated on controller, AND • 3-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished, AND • Release rates as determined below: 	
	i. IF. . .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress THEN. .MAINTAIN release rates below those specified in Attachment 2.	
	ii. IF. . .Severe Accident Management Guidelines are being executed, THEN. .MAINTAIN release rates below those specified by the TSC SAM Team.	
	iii. IF. . .Venting for ANY other reason than items i or ii above, THEN. .MAINTAIN release rates below Stack release rate of $1.4 \times 10^7 \mu\text{Ci/s}$ AND 0-SI-4.8.B.1.a.1 release fraction of 1.	
	Contacts LOG AUO to monitor release rates	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
SRO	Directs all available RHR be placed in Suppression Pool Cooling per App-17A after motor breakers tripped per AOI-57-1A	
BOP	Places available RHR in Suppression Pool cooling per Appendix-17A	
	1. IF.....Adequate core cooling is assured, OR Directed to cool the Suppression Pool irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	2. PLACE RHR SYSTEM I(II) in Suppression Pool Cooling as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
c. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow:		
	<ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV 	
	<ul style="list-style-type: none"> • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV 	
	<ul style="list-style-type: none"> • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV 	
	<ul style="list-style-type: none"> • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	d. IF Directed by SRO, THEN.....PLACE 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD in MANUAL OVERRIDE.	
	e. IFLPCI INITIATION Signal exists, THEN.....MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT in SELECT.	
	f. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.	
	g. OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.	
	h. VERIFY desired RHR pump(s) for Suppression Pool Cooling are operating.	
	i. THROTTLE 3-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 3-FI-74-50(64), RHR SYS I(II) FLOW: <ul style="list-style-type: none"> • Between 7000 and 10000 gpm for one-pump operation. OR • At or below 13000 gpm for two-pump operation. 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	j. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	k. MONITOR RHR Pump NPSH using Attachment 1.	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	m. IF Additional Suppression Pool Cooling flow is necessary, THEN.....PLACE additional RHR and RHRSW pumps in service using Steps 2.b through 2.i.	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
SRO	Directs 3B CRD pump be placed in service for level control, as needed per App-5B	
ATC	Places 3B CRD pump in service per Appendix-5B	
	1. IF Maximum injection flow is NOT required, THEN ... VERIFY CRD aligned as follows:	
	a. VERIFY at least one CRD pump in service and aligned to Unit 3 CRD system.	
	b. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, as necessary to obtain flow rate of 65 to 85 gpm.	
	c. THROTTLE 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV, to maintain 250 to 350 psid drive water header pressure differential.	
	d. EXIT this procedure.	
	2. IF BOTH of the following exist: <ul style="list-style-type: none"> • CRD is NOT required for rod insertion, <li style="text-align: center;">AND • Maximum injection flow is required, THEN ... LINE UP ALL available CRD pumps to the RPV as follows:	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
ATC	a. IF CRD Pump 3A is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B.	
	b. IF CRD Pump 3B is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B.	
	c. OPEN the following valves to increase CRD flow to the RPV: <ul style="list-style-type: none"> • 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV • 3-PCV-85-27, CRD CLG WATER PRESS CONTROL VLV • 3-FCV-85-50, CRD EXH RTN LINE SHUTOFF VALVE. 	
	d. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, on Panel 9-5 to control injection WHILE maintaining 3-PI-85-13A, CRD ACCUM CHG WTR HDR PRESS, above 1450 psig, if possible.	
	e. IFAdditional flow is necessary to prevent or mitigate core damage, THENDISPATCH personnel to fully open the following valves as required: <ul style="list-style-type: none"> • 3-THV-085-0527, CRD PUMP DISCH THROTTLING (RB NE, el 565') • 3-BYV-085-0551, CRD PUMP TEST BYPASS (RB NE, el 565'). 	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	When notified by maintenance that HPCI aux oil pump control power fuses replaced (if requested), initiates HPCI for level control per Appendix-5D	
	1. IF Suppression Pool level drops below 12.75 ft during HPCI operation, THEN ... TRIP HPCI and CONTROL injection using other options.	
	2. IF Suppression Pool level CANNOT be maintained below 5.25 in., THEN ... EXECUTE EOI Appendix 16E concurrently with this procedure to bypass HPCI High Suppression Pool Water Level Suction Transfer Interlock.	
	3. IF BOTH of the following exist: <ul style="list-style-type: none"> • High temperature exists in the HPCI area, <li style="text-align: center;">AND • SRO directs bypass of HPCI High Temperature Isolation interlocks, THEN ... PERFORM the following: <ol style="list-style-type: none"> a. EXECUTE EOI Appendix 16L concurrently with this procedure b. RESET auto isolation logic using HPCI AUTO-ISOL LOGIC A(B) RESET 3-XS-73-58A(B) pushbuttons. 	
	4. VERIFY 3-IL-73-18B, HPCI TURBINE TRIP RX LVL HIGH, amber light extinguished.	
5. VERIFY at least one SGTS train in operation.		

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	<p>6. VERIFY 3-FIC-73-33, HPCI SYSTEM FLOW/CONTROL, controller in AUTO and set for 5,000 gpm NOTE: HPCI Auxiliary Oil Pump will NOT start UNTIL 3-FCV-73-16, HPCI TURBINE STEAM SUPPLY VLV, starts to open.</p>	
	7. PLACE 3-HS-73-47A, HPCI AUXILIARY OIL PUMP, handswitch in START.	
	8. PLACE 3-HS-73-10A, HPCI STEAM PACKING EXHAUSTER, handswitch in START.	
	<p>9. OPEN the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-73-30, HPCI PUMP MIN FLOW VALVE • 3-FCV-73-44, HPCI PUMP INJECTION VALVE 	
	10. OPEN 3-FCV-73-16, HPCI TURBINE STEAM SUPPLY VLV, to start HPCI Turbine	
	<p>11. CHECK proper HPCI operation by observing the following:</p> <ul style="list-style-type: none"> a. HPCI Turbine speed accelerates above 2400 rpm b. 3-FCV-73-45, HPCI Testable Check Vlv, opens by observing 3-ZI-73-45A, DISC POSITION, red light illuminated c. HPCI flow to RPV stabilizes and is controlled automatically at 5000 gpm d. 3-FCV-73-30, HPCI PUMP MIN FLOW VALVE, closes as flow exceeds 1200 gpm 	
	12. VERIFY HPCI Auxiliary Oil Pump stops and the shaftdriven oil pump operates properly	
	13. WHEN ... HPCI Auxiliary Oil Pump stops, THEN ... PLACE 3-HS-73-47A, HPCI AUXILIARY OIL PUMP, handswitch in AUTO	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	<p>14. ADJUST 3-FIC-73-33, HPCI SYSTEM FLOW/CONTROL, controller as necessary to control injection</p>	
	<p>15. IF It is desired to align HPCI suction to the Suppression Pool, THEN ... PERFORM the following: a. OPEN 3-FCV-73-26, HPCI SUPPR POOL INBD SUCT VALVE b. OPEN 3-FCV-73-27, HPCI SUPPR POOL OUTBD SUCT VALVE c. WHEN3-FCV-73-26, HPCI SUPPR POOL INBD SUCT VALVE, and 3-FCV-73-27, HPCI SUPPR POOL OUTBD SUCT VALVE, are fully open, THENVERIFY CLOSED 3-FCV-73-40, HPCI CST SUCTION VALVE NOTE: Step 16.b must be performed promptly following Step 16.a to avoid loss of suction path.</p>	
	<p>16. IF It is desired to align HPCI suction to the Condensate Storage Tank, THEN ... PERFORM the following: a. CLOSE 3-FCV-73-26, HPCI SUPPR POOL INBD SUCT VALVE b. WHEN3-FCV-73-26, HPCI SUPPR POOL INBD SUCT VALVE starts traveling closed, THENOPEN 3-FCV-73-40, HPCI CST SUCTION VALVE c. CLOSE 3-FCV-73-27, HPCI SUPPR POOL OUTBD SUCT VALVE</p>	

XII. Simulator Event Guide:

Event #7: LOSS OF OFFSITE POWER (continued)

Position	Expected Actions	Time/Comments
BOP	Announces alarm "RCIC Steam Line Leak Detection Temp. High" pnl 9-3D window 10	
	Checks temperature on Panel 9-21	
SRO	Enters EOI-3 on area Temperature (or Rad)	
BOP	Announces failure of RCIC to isolate Auto or manual	
SRO	Directs RCIC isolation valves be closed locally	
Crew	Identify 3-TS-71-41A above max. safe value	
SRO	Directs cooldown at < 100°F	
BOP	Starts cooldown using MSRVs and/or HPCI (if repaired/needed)	
Crew	Monitors Containment parameters	
	Reports High radiation in CS/RCIC room 90-26a Evacuates that area of Rx Bldg	

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
ATC/BOP	Reports CS Pump room high Humidity/temp high alarm and recognizes the B/D CS room temperatures are rising	
	Report 2 areas above Max Safe on Temperature or Radiation	
SRO	Enters C-2 and directs Emergency Depressurization	
BOP	Opens 6 ADS valves	
	Verifies 6 ADS valves open	
SRO	Directs level be maintained 2"-51" with Core Spray (App-6D or 6E) or RHR (App-6B or 6C)	
BOP	Maintains level 2"-51", trims/throttles pumps as necessary	
	Recover level with CS Loop I	
	3-EOI Appendix-6D	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL SUCT VLV • 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL SUCT VLV • 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE	
	3. VERIFY CS Pump 3A and/or 3C RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTL 3-FCV-75-25, CORE SPRAY SYS I INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
5. MONITOR Core Spray Pump NPSH using Attachment 1		

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
BOP	Recover level with CS Loop II 3-EOI Appendix-6E	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-30, CORE SPRAY PUMP 3B SUPPR POOL SUCT VLV • 3-FCV-75-39, CORE SPRAY PUMP 3D SUPPR POOL SUCT VLV • 3-FCV-75-51, CORE SPRAY SYS II OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-50, CORE SPRAY SYS II TEST VALVE	
	3. VERIFY CS Pump 3B and/or 3D RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-53, CORE SPRAY SYS II INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	
	Restores Reactor Level +2" to +51" with RHR I per 3-EOI Appendix-6B	
	1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL in BYPASS	

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
BOP	2. VERIFY OPEN 3-FCV-74-1, RHR PUMP 3A SUPPR POOL SUCT VLV	
	3. VERIFY OPEN 3-FCV-74-12, RHR PUMP 3C SUPPR POOL SUCT VLV	
	4. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> • 3-FCV-74-61, RHR SYS I DW SPRAY INBD VLV • 3-FCV-74-60, RHR SYS I DW SPRAY OUTBD VLV • 3-FCV-74-57, RHR SYS I SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-58, RHR SYS I SUPPR CHBR SPRAY VALVE • 3-FCV-74-59, RHR SYS I SUPPR POOL CLG/TEST VLV 	
	5. VERIFY RHR Pump 3A and/or 3C running	
	6. WHEN.....RPV pressure is below 450 psig, THEN..... VERIFY OPEN 3-FCV-74-53, RHR SYS I LPCI INBD INJECT VALVE	
	7. IF.....RPV pressure is below 230 psig, THEN..... VERIFY CLOSED 3-FCV-68-79, RECIRC PUMP 3B DISCHARGE VALVE	
	8. THROTTLE 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE, as necessary to control injection	
	9. MONITOR RHR Pump NPSH using Attachment 1	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV	

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
BOP	<p>11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm:</p> <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV 	
	<p>12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers</p>	
	<p>Restores Reactor Level +2" to +51" with RHR II per 3-EOI Appendix-6C</p>	
	<p>1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN.....PLACE 3-HS-74-155B, LPCI SYS II OUTBD INJ VLV BYPASS SEL in BYPASS</p>	
	<p>2. VERIFY OPEN 3-FCV-74-24, RHR PUMP 3B SUPPR POOL SUCT VLV</p>	
	<p>3. VERIFY OPEN 3-FCV-74-35, RHR PUMP 3D SUPPR POOL SUCT VLV</p>	
<p>4. VERIFY CLOSED the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-74-75, RHR SYS II DW SPRAY INBD VLV • 3-FCV-74-74, RHR SYS II DW SPRAY OUTBD VLV • 3-FCV-74-71, RHR SYS II SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-72, RHR SYS II SUPPR CHBR SPRAY VALVE • 3-FCV-74-73, RHR SYS II SUPPR POOL CLG/TEST VLV 		

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
BOP	5. VERIFY RHR Pump 3B and/or 3D running	
	6. WHEN.....RPV pressure is below 450 psig, THEN..... VERIFY OPEN 3-FCV-74-67, RHR SYS II LPCI INBD INJECT VALVE	
	7. IF.....RPV pressure is below 230 psig, THEN..... VERIFY CLOSED 3-FCV-68-3, RECIRC PUMP 3A DISCHARGE VALVE	
	8. THROTTLE 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE, as necessary to control injection	
	9. MONITOR RHR Pump NPSH using Attachment 1	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV	
	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers	

XII. Simulator Event Guide:

Event #8: RCIC LEAK WITHOUT ISOLATION

Position	Expected Actions	Time/Comments
Crew	Recognizes load shed during depressurization (>2.45 psig DW and <450 psig Rx) if applicable	
ATC	Recognizes that "3C" DG failed to tie on again and ties "3C" DG to board	
	Directs EECW valves reset, Air comp restarted and RPS restored again	
SRO	Re-enters EOI-1 and EOI-2 on high Drywell pressure > 2.45 psig (if applicable)	
ATC/BOP	Secures pumps as necessary to maintain level	
SRO	Classifies event as SAE 3.1-S	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Maintains RPV water level above TAF (-162")	
2)	Emergency depressurizes when two Rx Bldg area Temperatures or Radiation exceed maximum safe operating values (within 5 minutes)	

SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-12

- 9 Total Malfunctions Inserted: List (4-8)
- 1) APRM #1 FAILURE
 - 2) C3 EECW pump Trip
 - 3) Inadvertant start or RCIC
 - 4) Generator H2 Leak
 - 5) LOSP
 - 6) HPCI Aux Oil Pump Failure
 - 7) RCIC Leak
 - 8) RCIC Isolation Failure (Auto and Manual)
 - 9) DG '3C' Failure to auto tie
- 4 Malfunctions that occur after EOI entry: List (1-4)
- 1) HPCI Aux Oil Pump Failure
 - 2) RCIC Leak
 - 3) RCIC Isolation Failure
 - 4) DG '3C' Failure to auto tie
- 3 Abnormal Events: List (1-3)
- 1) C3 EECW pump Trip
 - 2) Generator H2 Leak
 - 3) LOSP
- 2 Major Transients: List (1-2)
- 1) LOSP
 - 2) RCIC Leak
- 3 EOI's used: List (1-3)
- 1) EOI-1
 - 2) EOI-2
 - 3) EOI-3
- 1 EOI Contingencies used: List (0-3)
- 1) C-2
- 80 Run Time (minutes)
- 45 EOI Run Time (minutes): 56 % of Scenario Run Time
- 2 Crew Critical Tasks:(2-5)
- YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

3B diesel generator tagged out for annual maintenance 15 hours ago. Expected back in 5
days. 7 day LCO on D/G in effect per T.S. 3.8,1.B. Main Generator Voltage Regulator is in
manual, Electrical Maintenance has just completed monthly PM on 90P rheostat.

Operations/Maintenance for the Shift:

Increase power to rated, 10 MWE/min per RCP and 3-GOI-100-12, step 5[17], Control valve
SR completed last shift. Support Maint on "3B" Diesel Generator. Return Main Generator
voltage regulator (90P) to automatic per 3-OI-47, section 8.14.

Units 1&2 at 100% power.

Unusual Conditions/Problem Areas:

Thunderstorm warnings are in effect for the next 6 hours

**Appendix A
(Page 2 of 2)**

Name Of Radiation Protection Person Notified: Joe Neutron

Date: Today Time: Now

Step# 5[16] Procedure: 3-GOI-100-12 (if not this procedure) Rev: Current

RPHP Required by OI? (Y) X(N) RPHP Required For GOI? X(Y) (N)

RCI-17 Controls Necessary? X(Y) (N)

Radiation Protection Supervisor Signature for Release

Joe Neutron Date: Today Time: Now

Comments: For returning Rx Power from 90% to 100%

Name Of Radiation Protection Person Notified: _____

Date: _____ Time: _____

Step# _____ Procedure: _____ (if not this procedure) Rev: _____

RPHP Required by OI? (Y) (N) RPHP Required For GOI? (Y) (N)

RCI-17 Controls Necessary? (Y) (N)

Radiation Protection Supervisor Signature for Release

_____ Date: _____ Time: _____

Comments: _____

FORWARD copies of completed Appendix pages to Radiation Protection Supervisor.

Facility: Browns Ferry NPP Scenario No.: 3-13 Op-Test No.: HLT 0801

Examiners:		Operators:	SRO:	SROI-3
			ATC:	RO-5
			BOP:	RO-2

Initial Conditions: Unit 3 is at 100% power with 3A RHR Pump tagged to change oil due to Human Performance error (incorrect oil was added).

Turnover: Units 1 and 2 are at 100%. On Unit 3, perform CRD Timer Test. Maintain power at 100%. Support maintenance on 3A RHR Pump; which is expected back in 2 hours. Monitor Drywell pressure as there is a known N₂ leak in the Drywell. Thunderstorm warnings are in effect for the next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-ATC N-SRO	CRD Timer Test per 3-OI-85, Control Rod Drive System
2	-----	N-BOP N-SRO	Vent the Drywell per 3-OI-64, Primary Containment System and/or 3-AOI-64-1, Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell
3	rd07r3031	I-ATC TS-SRO	Respond to drifting Control Rod per 3-AOI-85-5, Rod Drift In
4	-----	R-ATC N-SRO N-BOP	Raises power with Recirc flow after rod recovered, adjusts 2-190 valve and generator transfer volts
5	ed24a hp07	C-BOP TS-SRO	Respond to loss of 3A 250v RMOV BD and recovery, Loss of HPCI 120v Power,
6	ad01c 70	C-BOP C-SRO	Respond to stuck open SRV per 3-AOI-1-1, Relief Valve Stuck Open – valve closes when breaker opened
7	cu04 100	C-BOP C-SRO	Respond to RWCU leak and failure of 69-1 to auto isolate per 3-AOI-64-2a, Group 3 Reactor Water Cleanup Isolation
8	tc01	C-ATC C-SRO	Respond to Turbine trip with failure to SCRAM
9	th21 5	M-ALL	Recirc and steam line leak in Drywell

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

ANTICIPATED EAL: 2.1-A or 2.4-A – ALERT

Revised 5/21/07

Facility: Browns Ferry NPP Scenario No.: 3-13 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-4
	ATC:	RO-6
	BOP:	RO-3

DRAFT

Scenario Narrative

Unit 3 is at 100% power with RHR Pump 3A tagged out.

The Crew will perform a CRD timer test IAW OI-85.

Drywell pressure will rise and the Crew will vent the Drywell per 3-OI-64 or 3-AOI-64-1.

A control rod will drift into the core and the crew will respond IAW appropriate procedures.

The Crew will maneuver power to recover drifted rod.

A loss of 3A 250V RMOV Board occurs in conjunction with a loss of HPCI 120V power.

When the 3A 250V RMOV Board is restored, SRV 1-22 will fail open and the Crew will respond per 3-AOI-1-1 to close the valve when power is removed (if Crew elects to restore power, the SRV will re-open and stay open).

After the ARPs, TS, & TRM are addressed, the crew will respond to a RWCU leak and failure to auto isolate IAW 3-AOI-64-2A. Manual isolation of 69-1 valve will be successful.

The turbine will trip and the bypass valves will fail to operate. The Reactor will fail to auto scram on the turbine trip or the resulting high Reactor pressure but manual scram will function and insert all control rods.

Following the reactor scram Drywell pressure and temperature will rise requiring the Crew to enter and execute 3-EOI-2.

The Crew will spray the Pressure Suppression Chamber. When the Drywell is required to be sprayed, logic failure (Loop I) and inoperable valves (Loop II) will prevent the Drywell from being sprayed.

The Crew will have to Emergency Depressurize on Suppression Chamber pressure (PSP curve) or Drywell temperature (280°F).

Drywell Sprays will be made available after the Emergency Depressurization allowing the crew to spray the Drywell preventing possible loss of level instrumentation

DRAFT

Facility: Browns Ferry NPP Scenario No.: 3-13 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-3
	ATC:	RO-5
	BOP:	RO-2

Initial Conditions: Unit 3 is at 100% power with 3A RHR Pump tagged to change oil due to Human Performance error (incorrect oil was added).

Turnover: Units 1 and 2 are at 92%. On Unit 3, perform CRD Timer Test. Lower power to 92% with Recirc. Support maintenance on 3A RHR Pump; which is expected back in 2 hours. Monitor Drywell pressure as there is a known N₂ leak in the Drywell. Thunderstorm warnings are in effect for the next 2 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	N-ATC N-SRO	CRD Timer Test
2	-----	R-ATC R-SRO	Lower power
3	-----	N-BOP N-SRO	Vent the Drywell per the OI
4	rd07r3031	I-ATC TS-SRO	Respond to drifting Control Rod per the AOI
5	ed24a hp07 ad01c 70	C-BOP TS-SRO	Respond to loss of 3A 250v RMOV BD and recovery, Respond to stuck open SRV per AOI – valve closes when breaker opened
6	cu04 100	C-BOP C-SRO	Respond to RWCU leak and failure of 69-1 to auto isolate
7	tc01	C-ATC C-SRO	Respond to Turbine trip with failure to SCRAM
8	th21 5	M-ALL	Recirc and steam line leak in Drywell

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

Submitted May 11, 2005

ANTICIPATED EAL: 2.1-A or 2.4-A – ALERT

Facility: Browns Ferry NPP Scenario No.: 3-13 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-4
	ATC:	RO-6
	BOP:	RO-3

Scenario Narrative

Unit 3 is at 100% power with RHR Pump 3A tagged out.

The Crew will perform a CRD timer test IAW OI-85.

The Crew will lower power to ~ 92% with Recirc flow.

Drywell pressure will rise and the Crew will vent the Drywell per 3-AOI-64-1.

A control rod will drift into the core and the crew will respond IAW appropriate procedures.

A loss of 3A 250V RMOV Board occurs in conjunction with a loss of HPCI 120V power.

When the 3A 250V RMOV Board is restored, SRV 1-22 will fail open and the Crew will respond per 3-AOI-1-1 to close the valve when power is removed (if Crew elects to restore power, the SRV will re-open and stay open).

After the ARPs, TS, & TRM are addressed, the crew will respond to a RWCU leak and failure to auto isolate IAW 3-AOI-64-2A. Manual isolation of 69-1 valve will be successful.

The turbine will trip and the bypass valves will fail to operate. The Reactor will fail to auto scram on the turbine trip or the resulting high Reactor pressure but manual scram will function and insert all control rods.

Following the reactor scram Drywell pressure and temperature will rise requiring the Crew to enter and execute 3-EOI-2.

The Crew will spray the Pressure Suppression Chamber. When the Drywell is required to be sprayed, logic failure (Loop I) and inoperable valves (Loop II) will prevent the Drywell from being sprayed.

The Crew will have to Emergency Depressurize on Suppression Chamber pressure (PSP curve) or Drywell temperature (280°F).

Drywell Sprays will be made available after the Emergency Depressurization allowing the crew to spray the Drywell preventing possible loss of level instrumentation.

ANTICIPATED EAL: 2.1-A or 2.4-A – ALERT

SIMULATOR EVALUATION GUIDE

TITLE: PERFORM CRD TIMER TEST, ROD DRIFT IN, POWER MANEUVER TO RECOVER ROD, LOSS OF 3A 250V RMOV BD, LOSS OF HPCI 120V, SRV FAILURE, RWCU LEAK WITH FAILURE TO AUTO ISOLATE, TURBINE TRIP WITHOUT BYPASS VALVES WITH AUTO SCRAM FAILURE, LOCA, FAILURE OF DRYWELL SPRAY VALVES

REVISION: 0

DATE: Jan. 17, 2009

PROGRAM: BFN Operator Training – Hot License

**RCP required for power reduction to recover rod (and pull sheet) with Recirc flow
(Provide when required)**

PREPARED: _____ \ _____
(Operations Instructor) Date

REVIEWED: _____ \ _____
(LOR Lead Instructor or Designee) Date

REVIEWED: _____ \ _____
(Operations Training Manager or Designee) Date

CONCURRED: _____ \ _____
(Operations Superintendent or Designee Required for Exam Scenarios) Date

VALIDATED: _____ \ _____
(Operations SRO) (Required for Exam Scenarios) Date

LOGGED-IN: _____ \ _____
(Librarian) Date

TASK LIST
UPDATED _____ \ _____
Date

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: PERFORM CRD TIMER TEST, ROD DRIFT IN, POWER MANEUVER TO RECOVER ROD, LOSS OF 3A 250V RMOV BD, LOSS OF HPCI 120V, SRV FAILURE, RWCU LEAK WITH FAILURE TO AUTO ISOLATE, TURBINE TRIP WITHOUT BYPASS VALVES WITH AUTO SCRAM FAILURE, LOCA, FAILURE OF DRYWELL SPRAY VALVES
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will perform a CRD timer test
2. The operating crew will recognize and respond to a high DW pressure and vent DW per OI-64 and/or AOI-64-1.
3. The operating crew will recognize and respond to a control rod drift in per AOI-85-5
4. The operating crew will raise power after recovery of drifted rod.
5. The operating crew will recognize and respond to a loss of 2A 250V RMOV Bd and subsequent loss of 120V HPCI power supply.
6. The operating crew will recognize and respond to a failure of SRV 1-22 per 3-AOI-1-1 and determine Tech Specs with INOP SRV with HPCI INOP
7. The operating crew will recognize and respond to a RWCU leak per ARPs and 3-AOI-64-2A with failure to auto isolate (manual works).
8. The operating crew will recognize and respond to a turbine trip without bypass valves and failure to auto scram on turbine trip
9. The operating crew will recognize and respond to a LOCA per 3-EOI-1 and 3-EOI-2 and spray containment when sprays are made available

- VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.
- VII. Training Materials: (If needed, otherwise disregard)
- A. Calculator
 - B. Control Rod Insertion Sheets
 - C. Stopwatch
 - D. Hold Order / Caution Order tags
 - E. Annunciator window covers
 - F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-13

MF/RF/OR#		Description
1)	ior zdihs7475a close	Drywell spray valve failure
2)	ior zdixs74121 null	
3)	imf dg01a	"3A" DG fails to auto start
4)	ior ypobkrpmparh fail_ccoil	3A RHR pump tagout
5)	ior zlohs745a[1] off	3A RHR pump green light off
6)	imf rc08	71-8 auto open failure
7)	trg e1 MODESW	Assigns trigger
8)	imf rp06	Fails Auto scrams (manual works)
9)	imf rp14b	Fails auto ARI
10)	imf tc02 (e1 1:00) 0	Fails bypass valves closed
11)	ior zdihs47130a[1] null	Null bypass jack

2. File: bat hlts-3-13-1

MF/RF/OR#		Description
1)	mrf ed24a open	Loss of 3A 250V RMOV Bd.
2)	imf hp07	Loss of 120V HPCI power

3. File: bat hlts-3-13-2

MF/RF/OR#		Description
1)	mrf ed24a norm	Restores power to 3A 250V RMOV Bd.
2)	imf ad01c 70	SRV open at 70%

4. File: bat hlts-3-13-3

MF/RF/OR#		Description
1)	dmf ad01c	Deletes Stuck open SRV
2)	mrf ad01c out	Pull SRV fuse / open breaker

5. File: bat hlts-3-13-4

MF/RF/OR#		Description
1)	imf cu06	RWCU leak & failure of 69-1 to auto isolate
2)	imf cu04 100 10:00	
3)	imf tc01 (none 10:00)	Turbine trip
4)	imf th21 (e1 15:00) 5 12:00	LOCA
5)	imf th22 (e1 5:00) 100 5:00	
6)	imf th33a (e1 10:00) 10 15:00	

6. File: bat hlts-3-13-5

MF/RF/OR#		Description
1)	dor zdihs7475a	Deletes Loop II spray valve failure
2)	dor zdixs74121	Deletes Loop I select logic failure

7. File: bat app18rhra

MF/RF/OR#		Description
1)	mrf rh09 open	Pump down Torus on Loop I
2)	mrf rh11a on	

8. File: bat app18hrb

MF/RF/OR#		Description
1)	mrf rh10 open	Pump down torus on Loop II
2)	mrf rh11b on	

9. File: bat app08ae

MF/RF/OR#		Description
1)	mrf rp06a byp	Bypasses MSIV isolation on low RPV water level (Appendix 8A)
2)	mrf rp06b byp	
3)	mrf rp06c byp	
4)	mrf rp06d byp	
5)	mrf rp14a byp	Bypasses Rx Bldg ventilation isolation on low RPV level
6)	mrf rp14b byp	

10. File: bat hlt3031scram

MF/RF/OR#		Description
1)	imf rd08r3031 0	Scram 30-31 from 9-16 & simulate closing 85-588 valve
2)	mrf rd10r3031 scram	

11. File: bat hlt3031reset

MF/RF/OR#		Description
1)	mrf rd10r3031 norm	reset scram switch on 30-31 from 9-16 & remove drift
2)	dmf rd07r3031	

12. File: bat hltaddn2a

MF/RF/OR#		Description
1)	ior zlo0hs845a3[1] on	Override 85-5a green light on (9-54)
2)	ior zlo0hs845a3[2] off	Override 85-5a red light off (9-54)
3)	ior zlofvcv848a[1] on	Override 85-8a green light on (9-54)
4)	ior zlofvcv848a[2] off	Override 85-8a red light off (9-54)
5)	ior zlozi848a[1] on	Override 85-8a green light on (9-3)
6)	ior zlozi848a[2] off	Override 85-8a red light off (9-3)
7)	ior an:ov:xa554c[29] alarm_off	Override alarm 9-4c/29 off
8)	ior zdi0hs845a3[1] open	Override 85-5a open
9)	ior zdihs848ab[1] dw	Override 85-8a open to DW

13. File: bat hltstopn2a

MF/RF/OR#		Description
1)	ior zdi0hs845a3[1] close	Close HS 84-5a
2)	ior zdihs848ab[1] off	Return HS 84-8a to off
3)	dor zlo0hs845a3[1]	Delete green & red light overrides on 84-5a
4)	dor zlo0hs845a3[2]	
5)	dor zlofvcv848a[1]	Delete green & red light overrides on 84-8a
6)	dor zlofvcv848a[2]	
7)	dor zlozi848a[1]	
8)	dor zlozi848a[2]	
9)	dor an:xa554c[29]	Delete override on annunciator
10)	dor zdi0hs845a3[1]	Delete override on HS 84-5a
11)	dor zdihs848ab[1]	Delete override on HS 84-8a

14. File: bat hltsrv1-22

MF/RF/OR#		Description
1)	imf ad01c 50	re-opens valve
2)	mrf ad01c in	restores power

IX. Console Operators Instructions

HLTS 3-13

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	manual	100%, MOC Reset 256 (david)
Simulator Setup		See Scenario Summary bat hlts-3-13
Simulator Setup	manual	Tag Out: 3A RHR Pump
Simulator Setup	manual	Verify DW pressure ~ 1.48 psig

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
After crew accepts shift and completes CRD Timer Test		Add N ₂ to DW bat hltaddn2a
When DW pressure ~ 1.6 psig and alarm (Pri Cont N ₂ pressure high) in,		Stop DW pressure increase bat hltstopn2a

ROLE PLAY: When contacted as Control bay AUO, repeat will monitor release rates

2 minutes after Drywell pressure alarm resets or when directed by Lead Examiner		Drift rod 30-31 in imf rd07r3031
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ROLE PLAY: When contacted as Rx Engineer, repeat will check and monitor thermal limits

ROLE PLAY: When dispatched to HCU as AUO, report

- scram pilot air header aligned to scram inlet and outlet valves
- scram riser has higher than normal temperatures
- scram outlet valve 3-FCV-85-39A producing flow noise

ROLE PLAY: When directed to close 3-SHV-85-588, wait 1 minute and report valve closed (If asked status of accumulator pressure – report accumulator N₂ pressure is stable)

ROLE PLAY: Establish communications as Operator at 9-16 and AUO at HCU

If requested to scram rod 30-31 from 9-16, wait 3 minutes		Scram rod 30-31 bat hlt3031scram
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ROLE PLAY: Notify U3 UO that the scram switch for 30-31 is in scram (down)

When requested to return scram test switch to normal		Remove scram & drift bat hlt3031reset
--	--	--

ROLE PLAY: As UO in Aux instrument room, Notify U3 UO that the scram switch for 30-31 is in normal (up position)

ROLE PLAY: As AUO at HCU, report solenoids operated normally without chatter or buzzing and the scram inlet and outlet valve stems indicate closed (also, if asked, the flow noise seems to have stopped)

When requested to slowly valve in charging water (open 85-588), wait 1 minute		Open 85-588 mmf rd08r3031 100
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ROLE PLAY: Call and report 85-588 valve open

ROLE PLAY: Rx Engineer recommends maintaining power at ~ 92% with flow while notching CR 30-31 out to original position – (Provide RCP)

After rod returned to position 12		Loss of 3A 250v RMOV bd and HPCI 120v power bat hlts-3-13-1
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ROLE PLAY: When dispatched to check 3A 250v RMOV bd, report that Laborers are cleaning in the area and possibly tripped the breaker (no relay targets picked up)

ROLE PLAY: When dispatched to check HPCI, report blown fuse on HPCI 120VAC (3-FU2-73-33C, pnl 9-82). (If asked to replace fuse, wait 5 minutes and report fuse cleared again immediately)

When requested to close breaker for 3A 250v RMOV bd, (302 bkr or Alt bkr), then,		Restore board, fail SRV 1-22 open bat hlts-3-13-2
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ROLE PLAY: Call and report that the 3A 250v RMOV Bd is re-energized

If asked to go to the Aux. Instrument room and reset ECCS ATU then wait 1 minute		Allows Control room to reset alarm mrf rc19 reset
--	--	--

ROLE PLAY: Call and report that ECCS ATU gross failures are reset

When dispatched to open breaker / pull fuse for SRV-1-22, wait 2 minutes		Close SRV 1-22 & removes power bat hlts-3-13-3
--	--	---

ROLE PLAY: Report breaker open/ fuse removed for SRV-1-22

If directed to restore breaker / fuse for SRV-1-22,		Return power and open SRV-1-22 bat hltsrv1-22
---	--	--

ROLE PLAY: Report breaker closed/ fuse reinstalled for SRV-1-22

If directed to re-open breaker / fuse for SRV-1-22,		Removes power / SRV stays open mrf ad01c out
---	--	---

ROLE PLAY: Report breaker open/ fuse removed for SRV-1-22

If directed to restore breaker / fuse for SRV-1-22 (again),		Closes bkr for SRV-1-22 mrf ad01c in
---	--	---

ROLE PLAY: Report breaker closed/ fuse reinstalled for SRV-1-22

When directed by lead examiner,		RWCU leak, Turbine trip, LOCA bat hlts-3-13-4
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ROLE PLAY: If dispatched to check RWCU demins, report demins are on holding pumps

ROLE PLAY: If requested to manually open drywell spray valve, wait for a return call on status and then report that engaging lever broke and that maintenance is working on it

ROLE PLAY: If requested to look at "Select Logic" failure, wait 5 minutes and report that circuit is open and that you are still troubleshooting the problem

As soon as ED initiated, (If maintenance has been requested),		Fix 74-75 / fix select logic (Allow spraying DW) bat hlts-3-13-5
---	--	--

ROLE PLAY: Call and report 74-75 valve has been repaired on Loop II and/or select logic on Loop I

After ED initiated,		Lowers the severity of the steam break size mmf th33a 0.1
---------------------	--	--

If asked to execute Appendix 18 and which loop to use wait 10 minutes	or	Pump torus down with Loop I bat app18hra
		Pump torus down with Loop II bat app18hrb

Terminate the scenario when the following conditions are satisfied or upon request of instructor:

- 1) Reactor has been emergency depressurized
- 2) Sprays the Drywell when sprays are made available
- 3) Rx water level restored +2" to +51" (or recovering)

X. Scenario Summary:

Unit 3 is at 100% power with RHR Pump 3A tagged out.

The Crew will perform a CRD timer test IAW OI-85.

Drywell pressure will rise and the Crew will vent the Drywell per 3-OI-64 or 3-AOI-64-1.

A control rod will drift into the core and the crew will respond IAW appropriate procedures.

The Crew will maneuver power to recover drifted rod.

A loss of 3A 250V RMOV Board occurs in conjunction with a loss of HPCI 120V power.

When the 3A 250V RMOV Board is restored, SRV 1-22 will fail open and the Crew will respond per 3-AOI-1-1 to close the valve when power is removed (if Crew elects to restore power, the SRV will re-open and stay open).

After the ARPs, TS, & TRM are addressed, the crew will respond to a RWCU leak and failure to auto isolate IAW 3-AOI-64-2A. Manual isolation of 69-1 valve will be successful.

The turbine will trip and the bypass valves will fail to operate. The Reactor will fail to auto scram on the turbine trip or the resulting high Reactor pressure but manual scram will function and insert all control rods.

Following the reactor scram Drywell pressure and temperature will rise requiring the Crew to enter and execute 3-EOI-2.

The Crew will spray the Pressure Suppression Chamber. When the Drywell is required to be sprayed, logic failure (Loop I) and inoperable valves (Loop II) will prevent the Drywell from being sprayed.

The Crew will have to Emergency Depressurize on Suppression Chamber pressure (PSP curve) or Drywell temperature (280°F).

Drywell Sprays will be made available after the Emergency Depressurization allowing the crew to spray the Drywell preventing possible loss of level instrumentation.

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

1. SRO: Unit Supervisor _____
2. ATC: Board Unit Operator _____
3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide US with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

1. Reactor has been emergency depressurized
2. Sprays the Drywell when sprays are made available
3. Rx water level restored +2" to +51" (or recovering)

XII. Simulator Event Guide:

Event #1: CRD Timer Test

Position	Expected Actions	Time/Comments
SRO	Directs OATC to perform CRD timer test per 3-OI-85, section 8.14	
ATC	Performs CRD timer test per 3-OI-85, section 8.14	
	[1] REVIEW all Precautions and Limitations in Section 3.2 and Section 3.3.	
	[2] PLACE WITHDRAW AUXILIARY TIMER TEST , 3-HS-85-3A/S6, in TEST AND HOLD for at least two seconds.	
	[3] CHECK the white indicating light above the WITHDRAW AUXILIARY TIMER TEST , 3-HS-85-3A/S6, illuminates.	
	[4] CHECK the red indicating light above the WITHDRAW AUXILIARY TIMER TEST , 3-HS-85-3A/S6, illuminates after approximately two seconds.	
	[5] CHECK CONTROL ROD SELECT BLOCK TIMER MALFUNCTION annunciator (3-XA-55-5A, Window 21) in alarm.	
	[6] PLACE WITHDRAW AUXILIARY TIMER TEST , 3-HS-85-3A/S6, in RESET .	
	[7] CHECK all Reactor Manual Control System WITHDRAW AUXILIARY TIMER TEST , 3-HS-85-3A/S6, indicating lights are extinguished.	
	[8] RESET CONTROL ROD SELECT BLOCK TIMER MALFUNCTION annunciator (3-XA-55-5A, Window 21).	
NOTE: The following steps allow the RMCS timer to be operationally checked without the possibility of moving a control rod. If rod motion is observed during the test of RMC, no further testing is to be performed without direction of the Unit Supervisor		

XII. Simulator Event Guide:

Event #1: CRD Timer Test (continued)

Position	Expected Actions	Time/Comments
ATC	[9] LOWER the CRD DRIVE WTR HDR DP, 3-PDI-85-17A, to < 75 psid using CRD DRIVE WATER PRESS CONTROL VLV, 3-HS-85-23A.	
	[10] SELECT a peripheral control rod by depressing the appropriate CRD ROD SELECT pushbutton, 3-XS-85-40.	
	[11] IF Rod Motion is observed while performing Step 8.14[12], THEN	
	[11.1] IMMEDIATELY RELEASE CRD CONTROL SWITCH, 3-HS-85-48, and CONTACT System Engineer.	
	[11.2] ADJUST the CRD DRIVE WTR HDR DP, 3-PDI-85-17A, to between 250 psid and 270 psid, using CRD DRIVE WATER PRESS CONTROL VLV, 3-HS-85-23A.	
	[11.3] STOP all tests or checks until authorized by the Unit Supervisor.	
	[12] ATTEMPT to withdraw the peripheral control rod using CRD CONTROL SWITCH, 3-HS-85-48, while observing the RMCS timer in the Auxiliary Instrument Room and/or the indicating lights on Panel 3-9-5.	
	[13] REPEAT Step 8.14[12], as necessary, to determine that the RMCS timer is operating as required.	
	[13.1] IF the RMCS timer is not operating as required, THEN GENERATE a WO.	
	[14] IF the RMCS timer is operating as required, THEN ADJUST the CRD DRIVE WTR HDR DP, 3-PDI-85-17A, to between 250 psid and 270 psid, using CRD DRIVE WATER PRESS CONTROL VLV, 3-HS-85-23A.	

XII. Simulator Event Guide:

Event #2: Vent the Drywell

Position	Expected Actions	Time/Comments
Crew	Announces alarm Primary Containment N ₂ pressure high and responds per the ARP	
BOP	A. VERIFY containment pressure using multiple indications.	
	B. CHECK containment temperature.	
	C. REFER TO 3-OI-64 Venting the Drywell with Standby Gas Treatment Fan.	
SRO	IF Directs venting the Drywell IAW 3-OI-64	
BOP	[1] REVIEW all Precautions and Limitations in Section 3.0.	
	[2] VERIFY all Prestartup/Standby Readiness requirements in Section 4.0 are satisfied.	
	[3] CHECK Group 6 Isolation Signal (Ventilation Systems) NOT present.	
	VERIFY Stack Dilution Fans in operation. REFER TO 3-OI-66.	
	[5] VERIFY 3-SI-4.7.A.2.a. is available for recording of venting activities.	
	[6] IF the Drywell DP Compressor is in operation, THEN STOP the compressor using 3-HS-64-142A (Panel 3-9-3).	
	[7] PERFORM the following:	
	[7.1] VERIFY CLOSED DW DP COMP SUCTION ISOL VLV, 3-FCV-64-139, using 3-ZI-64-139 on Panel 3-9-3.	
	[7.2] VERIFY CLOSED DRYWELL VENT INBD ISOL VALVE, 3-FCV-64-29, using 3-HS-64-29 on Panel 3-9-3.	
[7.3] CLOSE SUPPR CHBR INBD ISOLATION VLV, 3-FCV-64-34, using 3-HS-64-34 on Panel 3-9-3.		

XII. Simulator Event Guide:

Event #2: Vent the Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	[7.4] VERIFY OPEN DRYWELL INBD ISOLATION VLV , 3-FCV-64-31, using 3-HS-64-31 on Panel 3-9-3.	
	[7.5] VERIFY CLOSED PATH B VENT FLOW CONT , 3-FIC-84-19 on Panel 3-9-55.	
	[8] NOTIFY Unit 1 and 2 Control Room that Unit 3 Drywell venting with SGT A (B) (C) is about to start.	
	NOTE: Path A and B Vent valves, 3-FCV-84-19 and 3-FCV-84-20, isolate on Standby Gas duct high pressure of 1 psig.	
	[9] VERIFY PATH A VENT FLOW CONT , 3-FIC-84-20, in AUTO and set at 100 SCFM (Panel 3-9-55).	
	[10] REQUEST Unit 1 OR Unit 2 operator to START (or VERIFY in service) one of the following SGT trains (REFER TO 0-OI-65):	
	<ul style="list-style-type: none"> • SGT FAN A, 0-HS-65-18A on Panel 1-9-25 	
	<ul style="list-style-type: none"> • SGT FAN B, 0-HS-65-40A/1 on Panel 1-9-25 	
	<ul style="list-style-type: none"> • SGTS train C FAN, 0-HS-65-69A/2 on Panel 2-9-25 	
	NOTE: A Standby Gas Treatment Fan is required to be running for 3-FCV-84-20 to operate.	
	[11] PLACE (or VERIFY), 3-FCV-84-20 CONTROL DW/SUPPR CHBR VENT, 3-HS-64-35, in OPEN (Panel 3-9-3).	
	NOTE: Depending upon plant conditions, it is possible that flow may indicate less than 100 SCFM even with the thumbwheel of 3-FIC-84-20, on Panel 3-9-55, is adjusted to the fully open position.	
[12] VERIFY flow at approximately 100 SCFM on PATH A VENT FLOW CONT 3-FIC-84-20 (Panel 3-9-55).		

Simulator Event Guide:

Event #2: Vent the Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	[13] MONITOR Drywell pressure (Panel 3-9-3).	
	NOTE: Drywell pressure is usually controlled to maintain the Drywell and Suppression Chamber differential pressure between 1.15 and 1.30 psid to provide a margin to the Tech Spec Limit.	
	[14] WHEN Drywell pressure has been reduced to the desired pressure, or the lower DP limit is reached as indicated by DRYWELL DP CPRSR DISCH VALVE, 3-HS-64-140, opening on Panel 3-9-3, THEN CLOSE 3-FCV-84-20 using 3-FCV-84-20, CONTROL DW/SUPPR CHBR VENT , 3-HS-64-35 (Panel 3-9-3).	
	Have Log AUO monitor release rates as required by NOTE.	
SRO	IF Directs venting the Drywell IAW 3-AOI-64-1	
	NOTE: This procedure covers possible multiple symptoms of a problem within primary containment. Any or all of the symptoms may exist. The SRO will direct actions based on symptoms and experience.	
	1] IF any EOI entry condition is met, THEN ENTER appropriate EOI(s). (Otherwise N/A)	
BOP	[1] CHECK Drywell pressure using multiple indications.	
	[2] ALIGN and START additional Drywell coolers and fans as necessary. REFER TO 3-OI-64.	
	Transition to 3-OI-64 as necessary	
	NOTE: Normally, four of the five cooling units are placed in service in each train. The required number of cooling units should be placed in service to maintain Drywell temperatures at less than or equal to 135°F.	

Simulator Event Guide:

Event #2: Vent the Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	[3] IF personnel are present in the Drywell, THEN NOTIFY Radiation Protection of the impending startup. RECORD name and the time of notification in the NOMS narrative log	
	[4] OPEN the associated Drywell Cooler valve and damper, THEN START the associated Drywell Cooler Blower (Panel 3-9-25).	
	Component / Blower Hand-switch / Associated Valve and Damper Hand-switch DW CLG UNIT 3A1 BLOWER /3-HS-70-37A /3-HS-70-16A DW CLG UNIT 3A2 BLOWER /3-HS-70-38A /3-HS-70-18A DW CLG UNIT 3A3 BLOWER /3-HS-70-39A /3-HS-70-20A DW CLG UNIT 3A4 BLOWER /3-HS-70-40A /3-HS-70-22A DW CLG UNIT 3A5 BLOWER /3-HS-70-41A /3-HS-70-24A DW CLG UNIT 3B1 BLOWER /3-HS-70-42A /3-HS-70-26A DW CLG UNIT 3B2 BLOWER /3-HS-70-43A /3-HS-70-28A DW CLG UNIT 3B3 BLOWER /3-HS-70-44A /3-HS-70-30A DW CLG UNIT 3B4 BLOWER /3-HS-70-45A /3-HS-70-32A DW CLG UNIT 3B5 BLOWER /3-HS-70-46A /3-HS-70-34A	
	[5] PLACE DW CLR RBCCW OUTLET TEMP SEL, 3-XS-70-36, to a position corresponding to an operating cooling unit to monitor RBCCW outlet temperature (Panel 3-9-25).	
	[6] IF personnel are present in the Drywell, THEN NOTIFY Radiation Protection that the required startup has been completed.	
	Transition to 3-AOI-64-1 as necessary	

Simulator Event Guide:

Event #2: Vent the Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	WARNING: Stack release rates exceeding 1.4 X 10 ⁷ uci/sec, or a SI-4.8.B.1.a.1 release fraction above one will result in ODCM release limits being exceeded.	
	[3] VENT Drywell as follows:	
	[3.1] CLOSE SUPPR CHBR INBD ISOLATION VLV 3-FCV-64-34 (Panel 3-9-3).	
	[3.2] VERIFY OPEN , DRYWELL INBD ISOLATION VLV, 3-FCV-64-31 (Panel 3-9-3).	
	[3.3] VERIFY 3-FIC-84-20 is in AUTO and SET at 100 scfm (Panel 3-9-55).	
	[3.4] VERIFY Running, required Standby Gas Treatment Fan(s) SGTS Train(s) A, B, C (Panel 3-9-25).	
	[3.5] IF required, THEN REQUEST Unit 1 Operator to START Standby Gas Treatment Fan(s) SGTS Train(s) A, B. (Otherwise N/A)	
	NOTE: If 3-FCV-84-20 closes after placing 3-HS-64-35 to open, the valve's closure signal must be reset and 3-HS-64-35 must be returned to the OPEN position in order for 3-FCV-84-20 to RE-OPEN.	
	[3.6] IF required, THEN RECORD venting data in 3-SI-4.7.A.2.a (Otherwise N/A)	
	[3.7] PLACE 3-FCV-84-20 CONTROL DW/SUPPR CHBR VENT, 3-HS-64-35, in OPEN (Panel 3-9-3).	
[3.8] MONITOR stack release rates to prevent exceeding ODCM limits.		
[3.9] WHEN Drywell pressure has been reduced as required, THEN STOP SGT Train(s).		

Simulator Event Guide:

Event #2: Vent the Drywell (continued)

Position	Expected Actions	Time/Comments
BOP	[3.10] VERIFY 3-HS-64-35, in AUTO and 3-FCV-84-20 CLOSED (Panel 3-9-3).	
	[3.11] OPEN SUPPR CHBR INBD ISOLATION VLV 3-FCV-64-34 (Panel 3-9-3).	
	[3.12] VERIFY Drywell DP compressor operates correctly to maintain required Drywell to Suppression Chamber DP.	
	[3.13] RECORD SGTS Train(s) run time in appropriate Control Room Reactor Narrative Log for transfer to 1-SR-2.	

XII. Simulator Event Guide:

Event #3: CONTROL ROD DRIFT

Position	Expected Actions	Time/Comments
ATC	Announces "Control Rod Drift" alarm	
	A. DETERMINE which rod is drifting from Full Core Display.	
	Identifies rod 30-31 as drifting in and is > 2 notches from original position	
	B. IF rod drifting in, THEN REFER TO 3-AOI-85-5.	
SRO	Directs actions per 3-AOI-85-5	
	Directs rod be continuously inserted to 00	
	REFER TO Tech Spec Section 3.1.3, 3.10.8.	
ATC	IMMEDIATE [1] IF multiple rods are drifting into core, THEN MANUALLY SCRAM Reactor. REFER TO 3-AOI-100-1.	
	SUBSEQUENT [1] IF the Control Rod travels greater than two notches from its intended position, THEN INSERT Control Rod to position 00 using CONTINUOUS IN. (otherwise N/A)	
	[2] NOTIFY Reactor Engineer. (May be SRO)	
	[3] CHECK Thermal Limits on ICS (RUN OFFICIAL 3D).	
SRO	Informs Reactor Engineer of drifting rod and directs an RCP to restore rod back to it's original position (if drifting problem can be corrected)	
ATC	[4] ADJUST control rod pattern as directed by Reactor Engineer and CHECK Thermal Limits on ICS (RUN OFFICIAL 3D).	
	[5] IF CRD Cooling Water Header DP is excessive and causing the control rod drift, THEN ALTERNATELY ADJUST tape setpoint of CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, and position of CRD DRIVE WATER PRESS CONTROL VLV, 3-HS-85-23A, to establish the following conditions (otherwise N/A):	

XII. Simulator Event Guide:

Event #3: CONTROL ROD DRIFT (continued)

Position	Expected Actions	Time/Comments
ATC	<ul style="list-style-type: none"> • CRD CLG WTR HDR DP, 3-PDI-85-18A, of about 20 psid, and 	
	<ul style="list-style-type: none"> • CRD DRIVE WTR HDR DP, 3-PDI-85-17A, between 250 and 270 psid, and 	
	<ul style="list-style-type: none"> • CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, between 40 and 65 gpm. 	
	<p>NOTE: All observations and checks made in the following steps should be made as a comparison and relative to the other Hydraulic Control Units.</p>	
	<p>[6] VERIFY scram pilot air header aligned to scram inlet and outlet valves.</p>	
	<p>[7] CHECK CRD SCRAM OUTLET VALVE, 3-FCV-085-39B, for leakage as indicated by the following:</p>	
	<ul style="list-style-type: none"> • Scram riser for affected HCU has higher than normal temperature 	
	<ul style="list-style-type: none"> • CRD SCRAM OUTLET VALVE, 3-FCV-085-39B, producing flow noise 	
	<p>[8] CHECK CRD SCRAM INLET VALVE, 3-FCV-085-39A, for leakage as follows:</p>	
	<p>[8.1] CHECK insert riser for affected HCU for higher than normal temperature.</p>	
<p>NOTE: The CRD accumulator is considered inoperable per Technical Specifications 3.1.5 when the charging water is isolated.</p>		
SRO	Directs charging water to 30-31 be closed	
ATC	<p>[8.2] CLOSE CHARGING WATER SOV, 3-SHV-085-588 and OBSERVE CRD ACCUMULATOR NITROGEN SIDE PRESS, 3-PI-085-034, for lowering trend.</p>	
SRO	Declares accumulator inoperable per Tech Spec 3.1.5 and addresses actions (when charging water is isolated)	
	Directs scram of affected rod from panel 9-16 in Aux. Inst. Room	

XII. Simulator Event Guide:

Event #3: CONTROL ROD DRIFT (continued)

Position	Expected Actions	Time/Comments
ATC	NOTES: 1) If either the Scram Inlet or Outlet valve is found to be leaking, the preferred action is to scram the affected rod at Panel 3-9-16 and initiate corrective maintenance if necessary.	
	2) Individual control rod scram to attempt to reset scram valves may be performed at discretion of Unit Supervisor. Reactor Engineer will determine impact on core thermal limits and preconditioning envelope.	
	[9] IF either Scram Inlet or Outlet Valve is found to be leaking, THEN PERFORM the following to scram the control rod (otherwise N/A):	
	[9.1] ESTABLISH communications between Control Room and the following locations:	
	<ul style="list-style-type: none"> • Hydraulic control unit affected, elevation 565, Reactor Building 	
	<ul style="list-style-type: none"> • Panel 3-9-16 in Auxiliary Instrument Room, elevation 593, Control Bay 	
	[9.2] VERIFY CLOSED CHARGING WATER SOV , 3-SHV-085-588. (AUO)	
	NOTE: Panel 3-9-16, containing the Rod Scram Switches is locked and a key from the Unit 3 Control Room key cabinet will be required to perform the next step.	
	[9.3] INITIATE individual rod scram by actuating selected rod scram switch on Panel 3-9-16 to its scram (DOWN) position. (AUO)	
	[9.4] VERIFY control rod has reached FULL IN on Panel 3-9-5.	
	[9.5] IF attempting to reseal scram valves, THEN RETURN rod scram switch for associated control rod to its normal (UP) position at Panel 3-9-16. (AUO)	

XII. Simulator Event Guide:

Event #3: CONTROL ROD DRIFT (continued)

Position	Expected Actions	Time/Comments
ATC	[9.6] CHECK solenoid operation of CRD SCRAM INLET and OUTLET VALVES 3-FCV-85-39A and 3-FCV-85-39B, (they should function normally without chatter or abnormal buzzing.) (AUO)	
	[9.7] CHECK stem travel indicators on CRD SCRAM INLET and OUTLET VALVES 3-FCV-85-39A and 3-FCV-85-39B. IF either scram valve indicates OPEN, THEN NOTIFY control room. (AUO)	
	[9.8] CHECK blue Scram indicator light on Full Core Display extinguished.	
	[9.9] RESET Rod Drift Alarm and CHECK DRIFT indicator light on Full Core Display extinguished. (N/A if rod is still drifting in)	
	[9.10] CHECK annunciator CONTROL ROD DRIFT (3-XA-55-5A, Window 28) reset. (N/A if rod is still drifting in)	
	[9.11] SLOWLY OPEN CHARGING WATER SOV, 3-SHV-085-588. (AUO)	
	[9.12] CHECK amber ACCUM indicator light on Full Core Display extinguished.	
	[9.13] CHECK red indicating light for associated HCU extinguished on local Panel 3-28-4(3-25-22).	
	[9.14] NOTIFY Site Engineering.	
	[9.15] INITIATE a work order.	
SRO	Declares Rod 30-31 operable when charging water restored.	

XII. Simulator Event Guide:

Event #4: Maneuver Power To Recover Rod

Position	Expected Actions	Time/Comments
SRO	When RCP received from Rx Engineer, directs Operator to lower power with flow to ~ 90% (use upper power runback if applicable), notch withdraw rod 30-31 to position 12, and return power to 100% with Recirc flow at 10 MWe/min per 3-GOI-100-12 and 3-OI-68.	
	Notifies ODS of power drop	
Crew	Notifies Chemistry and RADCON of power drop	
ATC	Transition to 3-GOI-100-12	
	[6.1] REDUCE Recirculation flow. REFER TO 3-OI-68.	
	Transition to 3-OI-68 Section 8.13	
	[1] IF time permits, THEN REVIEW Precautions and Limitations. REFER TO Section 3.0.	
	[2] IF desired to reduce Reactor Power to approximately 90% , THEN PERFORM the following: (Otherwise N/A)	
	[2.1] DEPRESS RECIRC PUMPS UPPER POWER RUNBACK push-button, 3-HS-68-42	
BOP	Provides peer check for Recirc adjustment	
ATC	[2.2] VERIFY the following:	
	<ul style="list-style-type: none"> • Push-button backlight blinks until setpoint is reached. 	
	<ul style="list-style-type: none"> • Reactor power lowers to approximately 90%. 	
	Transition to 3-GOI-100-12	
	[7] IF required for power maneuvering, THEN PERFORM the following as directed by Reactor Engineer:	
	<ul style="list-style-type: none"> • OBTAIN the Control Rod Movement Data Sheet. 	
	<ul style="list-style-type: none"> • ALIGN control rods. 	
Transition to 3-OI-85 Section 6.6.2		
	[1] IF the control rod fails to withdraw, THEN REFER TO Section 8.15 for additional methods to reposition control rod.	

XII. Simulator Event Guide:

Event #4: Maneuver Power To Recover Rod (continued)

Position	Expected Actions	Time/Comments
ATC	[2] IF the control rod double notches, or withdraws past its correct/desired position, THEN REFER TO Section 6.7 for inserting control rod to its correct/desired position.	
	[3] IF at any time while driving a selected rod during the performance of this section, the Control Rod moves more than two notches from its intended position, THEN REFER TO 3-AOI-85-7, Mispositioned Control Rod.	
	[4] OBSERVE the following during control rod repositioning:	
	<ul style="list-style-type: none"> • Control rod reed switch position indicators (four rod display) agree with the indication on the Full Core Display. 	
	<ul style="list-style-type: none"> • Nuclear Instrumentation responds as control rods move through the core (This ensures control rod is following drive during Control Rod movement.) 	
BOP	Provides peer check for Rod Movement.	
SRO	Directs returning power to 100%.	
ATC	Transition to 3-GOI-100-12 Section 5.0	
	[6.3] WHEN desired to raise power, THEN PERFORM the following as directed by Unit Supervisor. (N/A Steps 5.0[7] through 5.0[19].	
	RAISE Recirculation flow. REFER TO 3-OI-68.	
	Transition to 3-OI-68 Section 6.2	
	[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows.	
AND/OR		
ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96-16A(16B) / LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C), push-buttons, to achieve balanced jet pump flows.		

XII. Simulator Event Guide:

Event #4: Maneuver Power To Recover Rod (continued)

Position	Expected Actions	Time/Comments
ATC	AND/OR	
	WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required: RAISE SLOW, 3-HS-96-31 RAISE MEDIUM, 3-HS-96-32 LOWER SLOW, 3-HS-96-33 LOWER MEDIUM, 3-HS-96-34 LOWER FAST, 3-HS-96-35	
BOP	Provides peer check for Recirc adjustment.	
	Continue to monitor and adjust BOP (transfer volts, condensate flow, etc)	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV)

Position	Expected Actions	Time/Comments
Crew	Recognizes the loss of 3A 250V RMOV Bd. using annunciators and loss of lights on handswitches	
BOP	Refers to ARP's (various)	
SRO	Dispatches AUO/Outside US to 3A 250V RMOV Bd	
	References T.S. 3.8.7.E and determines 7day LCO Enters T.S. 3.0.3 due to previous RHR LCO	
	When discovered reason for board trip, Directs re-energizing 3A 250V RMOV Bd	
	After board is re-energized, exits TS 3.8.7.E and 3.0.3	
BOP	After board is re-energized: Resets alarms and reports that HPCI 120V power supply failure and MSRV 1-22 is stuck open	
	Transition to 3-ARP-9-3C (Window 25)	
	A. CHECK MSRV DISCHARGE TAILPIPE TEMPERATURE , 3-TR-1-1, on Panel 3-9-47 and SRV Tailpipe Flow Monitor on Panel 3-9-3 for rising temperature and flow indications.	
	B. REFER TO 3-AOI-1-1.	
SRO	Directs performance of 3-AOI-1-1	
BOP	Transition to 3-AOI-1-1	
	Immediate Action [1] IDENTIFY stuck open relief valve by OBSERVING the following:	
	<ul style="list-style-type: none"> • SRV TAILPIPE FLOW MONITOR, 3-FMT-1-4, on Panel 3-9-3, 	
	OR	
	<ul style="list-style-type: none"> • MSRV DISCHARGE TAILPIPE TEMP, 3-TR-1-1 on Panel 3-9-47. 	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV)

Position	Expected Actions	Time/Comments
BOP	<p>[2] WHILE OBSERVING the indications for the affected Relief valve on the Acoustic Monitor; CYCLE the affected relief valve control switch several times as required:</p> <ul style="list-style-type: none"> • CLOSE to OPEN to CLOSE positions 	
	<p>[3] IF all SRVs are CLOSED, THEN CONTINUE at Step 4.2.3. (Otherwise N/A)</p>	
	<p>Subsequent Action 4.2.1 Attempt to close valve from Panel 9-3: [1] PLACE the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the OFF position.</p>	
	<p>[2] PLACE the SRV TAILPIPE FLOW MONITOR POWER SWITCH in the ON position.</p>	
	<p>[3] IF all SRVs are CLOSED, THEN CONTINUE at Step 4.2.3. (Otherwise N/A)</p>	
	<p>[4] PLACE MSRVAUTO ACTUATION LOGIC INHIBIT, 3-XS-1-202 in INHIBIT:</p>	
	<p>[5] IF relief valve closes, THEN OPEN breaker or PULL fuses as necessary using Attachment 1 (Unit 3 SRV Solenoid Power Breaker/Fuse Table).</p>	
	<p>[6] PLACE MSRVAUTO ACTUATION LOGIC INHIBIT 3-XS-1-202, in AUTO.</p>	
	<p>NOTES: 1) Only the appropriate sections for the stuck open relief valve is required to be performed.</p>	
	<p>[7] IF the SRV valve did not close, THEN PERFORM the appropriate section from table below.</p>	
SRO	<p>SRV 1-22 Step 4.2.2[2] Panel 25-32 Multiple Panel 25-32 (Excerpt from Table)</p> <p>Dispatches outside US to investigate HPCI power failure</p>	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
SRO	<p>When US reports that HPCI fuse was replaced and immediately cleared again, Refers to T.S. and determines T.S. 3.5.1.H and enters 3.0.3 immediately due to ADS valve and HPCI inoperability</p> <p>Calls Rx Engineer for required shutdown sequence</p> <p>Calls Plant Management</p> <p>Notifies Chem Lab and Rad Con</p> <p>Calls SW dispatcher and ODS about impending shutdown</p> <p>Informs crew that unit shutdown is required (IAW 3-GOI-100-12A) due to ADS valve and HPCI INOP</p> <p>Reviews SPP-3.5 and determines 4 hour report for a T.S. required shutdown (3.1.C.1)</p>	
BOP	<p>4.2.2 Attempt to close valve from outside the control room: (continued)</p> <p>NOTES: 1) 3-PCV-1-22 is an ADS Valve 2) 3-PCV-1-22 has two power supplies, it will auto transfer on loss of power and is Normal Seeking.</p> <p>[2] IF 3-PCV-1-22 is NOT closed, THEN PERFORM the following: (Otherwise N/A this section.) (CONTACTS AUO /OUTSIDE US)</p> <p>[2.1] On Panel 3-25-32 PLACE the transfer switch associated MAIN STM LINE B XFER, 3-XS-1-22 in EMERG position. (AUO)</p>	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
BOP	[2.2] IF the SRV does NOT close, THEN PERFORM the following while OBSERVING the indications for the 3-PCV-1-22 on the Acoustic Monitor: (Otherwise N/A) (AUO)	
	<ul style="list-style-type: none"> • CYCLE the MAIN STM LINE B RELIEF VALVE, 3-HS-1-22C to the following positions several times. CLOSE/AUTO to OPEN to CLOSE/AUTO (AUO) 	
	[2.3] IF the SRV does NOT close, THEN PERFORM the following: (Otherwise N/A)	
	A. VERIFY the MAIN STM LINE B RELIEF VALVE, 3-HS-1-22C, in the CLOSE/AUTO position. (AUO)	
	B. PLACE the transfer switch associated MAIN STM LINE B XFER, 3-XS-1-22 in NORM position. (AUO)	
	[2.4] IF the SRV does NOT close, THEN REMOVE the power from 3-PCV-1-22 by performing one of the following: (Opening breakers are the preferred method) (Otherwise N/A)	
	A. OPEN the following breakers: (Preferred method) (AUO)	
	<ul style="list-style-type: none"> • 3A 250V RMOV, Compartment 11C2 	
	<ul style="list-style-type: none"> • 3B 250V RMOV, Compartment 1C1 OR	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
BOP	B. In Panel 3-25-32 (Bay 3)	
	PULL the following fuses as necessary: (AUO)	
	<ul style="list-style-type: none"> • Fuse 3-FU1-001-0022A (Block EE, F2) 	
	<ul style="list-style-type: none"> • Fuse 3-FU1-001-0022B (Block EE, F7) 	
	<ul style="list-style-type: none"> • Fuse 3-FU1-001-0022C (Block EE, F12) 	
	<ul style="list-style-type: none"> • Fuse 3-FU1-001-0022D (Block EE, F15) 	
	[2.5] IF the valve does NOT close, THEN CLOSE the breakers or REINSTALL fuses removed in Step 4.2.2[2.4]. (AUO)	
	[2.6] CONTINUE at Step 4.2.3.	
	4.2.3 Other Actions and Documentation	
	[1] IF ANY EOI entry condition is met, THEN ENTER the appropriate EOI(s).	
	[2] REFER TO Technical Specifications Sections 3.5.1 and 3.4.3 for Automatic Depressurization System and relief valve operability requirements.	
	4.2.3 Other Actions and Documentation (continued)	
	[3] INITIATE suppression pool cooling as necessary to maintain suppression pool temperature less than 95°F.	
[4] IF the relief valve can NOT be closed AND suppression pool temperature Can NOT be maintained less than or equal to 95°F, THEN PLACE the reactor Mode ⁴ in accordance with 3-GOI-100-12A.		
[5] DOCUMENT actions taken and INITIATE Work Order for the valve.		

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
BOP	<p>Transition to 3-ARP-9-3F (Window 7 HPCI 120V)– may have occurred while waiting for outside actions on SRV</p> <p>A. DISPATCH personnel to check the following:</p> <ul style="list-style-type: none"> • Inverter fuses 3-FU2-073-0033C, Panel 3-9-82 • DIV II ECCS ATU inverter. • RMOV BD 3A, compt 11A1. <p>REFER TO Tech Spec 3.3.5.1 and Table 3.3.5.1-1.</p>	
Crew	Recognizes PI-64-67B downscale	
	Recognizes loss of C & D Rx Press. Transmitters causing Header Pressure Control to take over. OI-47, step 8.3 to un-bypass and step 8.2 to transfer to Reactor pressure control	
SRO	<p>Reviews T.S. 3.3.3.1-1 on PI-64-67B and determines 30 day LCO and Tech Spec 3.3.5.1 and Table 3.3.5.1-1.</p> <p>When US reports that HPCI fuse was replaced and immediately cleared again, Refers to T.S. and determines T.S. 3.5.1.H and enters 3.0.3 immediately due to ADS valve and HPCI inoperability</p> <p>Calls Rx Engineer for required shutdown sequence</p> <p>Calls Plant Management</p> <p>Notifies Chem Lab and Rad Con</p> <p>Calls SW dispatcher and ODS about impending shutdown</p> <p>Informs crew that unit shutdown is required (IAW 3-GOI-100-12A) due to ADS valve and HPCI INOP</p> <p>Reviews SPP-3.5 and determines 4 hour report for a T.S. required shutdown (3.1.C.1)</p>	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
SRO	Directs "un-bypassing" "C" and "D" transmitters per 3-OI-47 section 8.3	
	Directs transferring back to Reactor Pressure Control (from Header Pressure Control) per 3-OI-47 section 8.2	
ATC	Transition to 3-OI-47, section 8.3	
	[1] With Unit Supervisor approval, PERFORM the following to bypass a EHC Control System reactor pressure instrument:	
	[1.1] BYPASS one of the desired Reactor Pressure instruments by performing the following:	
	<ul style="list-style-type: none"> • To bypass Reactor Pressure C, DEPRESS REACTOR PRESS C BYPASS pushbutton, 3-HS-47-204C. 	
	<ul style="list-style-type: none"> • To bypass Reactor Pressure D, DEPRESS REACTOR PRESS D BYPASS pushbutton, 3-HS-47-204D. 	
	[1.2] CHECK backlight is illuminated for the pushbutton used in Step 8.3[1.1].	
	[1.3] CHECK Reactor pressure and Reactor power are stable.	
	[1.4] NOTIFY Unit Supervisor that reactor pressure instrument is bypassed.	
	Transition to 3-OI-47, section 8.2	
	[1] OBTAIN Unit Supervisor approval to perform this section.	
	[2] TRANSFER pressure control to Reactor Pressure as follows:	
	[2.1] DEPRESS REACTOR PRESSURE CONTROL pushbutton, 3-HS-47-204.	
	[2.2] CHECK the following:	

XII. Simulator Event Guide:

Event #5: LOSS AND RECOVERY OF 3A 250V RMOV BD (Loss of HPCI and ADS SRV) (continued)

Position	Expected Actions	Time/Comments
ATC	[2.2] CHECK the following: (continued)	
	<ul style="list-style-type: none"> • REACTOR PRESSURE CONTROL pushbutton, 3-HS-47-204, backlight is illuminated. 	
	<ul style="list-style-type: none"> • HEADER PRESSURE CONTROL pushbutton, 3-HS-1-16, backlight is extinguished. 	
	[2.3] CHECK Reactor pressure and Reactor power stable.	
	[2.4] NOTIFY Unit Supervisor that EHC Pressure Control has been transferred to Reactor Pressure.	
	[2.5] RECORD the transfer in the narrative log.	

XII. Simulator Event Guide:

Event #6: RWCU leak

Position	Expected Actions	Time/Comments
Crew	Reports alarm(s) 9-5B Windows 32 and /or 33 - RWCU ISOL LOGIC CHANNEL A (B) TEMP HIGH or 9-3D Window 17 - RWCU LEAK DETECTION TEMP HIGH and reports high RWCU temperatures to SRO	
BOP	Transition to 3-ARP-9-5B	
	A. VERIFY alarm by checking:	
	1. ATUs on Panel 3-9-83 and 3-9-85.	
	2. RWCU LEAK DETECTION TEMP HIGH annunciator in alarm (3-XA-55-3D, Window 17).	
	3. Area temperature indication on LEAK DETECTION SYSTEM TEMPERATURE, 3-TI-69-29, on Panel 3-9-21.	
	4. ARMs 3-RR-90-1, 3-CONS-90-50A on Panel 3-9-2 and 0-CONS-90-361B).	
	5. ICS 'HPTURB' & 'RWCU' mimics for the 834 and 835 temperature loops.	
	B. IF leak is suspected, THEN MANUALLY ISOLATE RWCU or if RWCU automatically isolates, REFER TO 3-AOI-64-2A. <i>Notices 69-1 failure to auto isolate</i>	
C. IF TIS-69-835A(C) indicates greater than 131°F, THEN ENTER 3-EOI-3.		
SRO	Directs entry into 3-AOI-64-2A	
	Directs RWCU secured and isolated	
BOP	Transition to 3-AOI-64-2A	
	Immediate Actions	
	[1] VERIFY automatic actions occur.	
	[2] PERFORM any automatic actions which failed to occur.	
	Subsequent Actions	
	[1] IF any EOI entry condition is met, THEN ENTER appropriate EOI(s).	
[2] CHECK the following to confirm high area temperature condition exists:		
• LEAK DETECTION SYSTEM TEMPERATURE, 3-TI-69-29 (Panel 3-9-21)		
• ATUs in Auxiliary Instrument Room		

XII. Simulator Event Guide:

Event #6: RWCU leak (continued)

Position	Expected Actions	Time/Comments
BOP	[3] IF isolation is caused by high area temperature, THEN DETERMINE if a line break exists by:	
	<ul style="list-style-type: none"> • RWCU ARMs 3-RI-90-9A, 13A, and 14A 	
	<ul style="list-style-type: none"> • Visual Observation 	
	<ul style="list-style-type: none"> • Rx Zone Exhaust Rad Monitors 3-RE-90-142A, 142B, 143A, and 143B 	
	[4] REQUEST Reactor Engineering to make the necessary Heat Balance adjustments.	
	[5] CHECK the following monitors for a rise in activity:	
	<ul style="list-style-type: none"> • AREA RADIATION, 3-RR-90-1, Points 9, 13, and 14 (Panel 3-9-2) 	
	<ul style="list-style-type: none"> • AIR PARTICULATE MONITOR CONSOLE, 3-MON-90-50, 3-RM-90-55 and 57 (Panel 3-9-2) 	
	<ul style="list-style-type: none"> • RB, TB, and Refuel Zone Exhaust Rad on CONTROL ROOM CONSOLE, 0-CONS-90-361A (Panel 1-9-44) 	
	[6] IF it has been determined that leakage is the cause of the isolation, THEN NOTIFY RADCON of RWCU status.	
	[7] NOTIFY Chemistry that RWCU has been removed from service for the following evaluations:	
	<ul style="list-style-type: none"> • The need to begin sampling Reactor Water 	
	<ul style="list-style-type: none"> • The need to remove the Durability Monitor from service 	
	[8] IF the isolation cannot be reset, THEN PERFORM the following:	
[8.1] ISOLATE the CRD System by closing the following seal water valves in the Unit 3 Reactor Bldg El. 593:		
<ul style="list-style-type: none"> • 3-69-592A 		
<ul style="list-style-type: none"> • 3-69-614B 		

XII. Simulator Event Guide:

Event #6: RWCU leak (continued)

Position	Expected Actions	Time/Comments
BOP	[8.2] REFER TO 3-OI-68 for Recirc System operating restrictions while RWCU is isolated.	
	[9] EVALUATE Technical Requirements Manual Section 3.4.1, Coolant Chemistry, for limiting conditions for operation.	
SRO	Refers to TRM 3.4.1 for sampling requirements	
	Refers to Tech Specs 3.6.1.3 and determines action A is applicable to isolate flow path within 4 hours and once per 31 days	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM

Position	Expected Actions	Time/Comments
Crew	Recognizes / reports Turbine trip	
	Reports turbine bypass valves closed	
ATC	Recognizes failure to scram on turbine trip	
	Inserts a manual scram, mode sw, to S/D, ARI	
	Gives scram report (all rods in)	
BOP	Verifies all rods in	
Crew	Announces Rx scram	
SRO	Enters EOI-1 (RPV level and pressure)	
	Directs Rx pressure maintained 800-1000 using <ul style="list-style-type: none"> • SRV's App-11A, • RCIC App-11B, • MSL Drains App-11D, and/or • RFP's App-11F 	
	Directs RPV level maintained +2" to +51" with: <ul style="list-style-type: none"> • RFP's App-5A • RCIC App-5C 	
ATC	Inserts IRMs and follows lowering Rx power by ranging	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	Maintains RPV pressure between 800 and 1000 psig with one or more of the following: <ul style="list-style-type: none"> • SRV's App-11A, • RCIC App-11B, and/or • MSL Drains App-11D 	
	Controls pressure as directed using SRVs, Appendix-11A	
	1. IF Drywell Control Air is NOT available, THEN ... EXECUTE EOI Appendix 8G, CROSSTIE CAD TO DRYWELL CONTROL AIR, CONCURRENTLY with this procedure.	
	2. IF Suppression Pool level is at or below 5.5 ft, THEN ... CLOSE MSRVS and CONTROL RPV pressure using other options.	
	3. OPEN MSRVS using the following sequence to control RPV pressure as directed by SRO:	
	a. 1 3-PCV-1-179 MN STM LINE A RELIEF VALVE b. 2 3-PCV-1-180 MN STM LINE D RELIEF VALVE c. 3 3-PCV-1-4 MN STM LINE A RELIEF VALVE d. 4 3-PCV-1-31 MN STM LINE C RELIEF VALVE e. 5 3-PCV-1-23 MN STM LINE B RELIEF VALVE f. 6 3-PCV-1-42 MN STM LINE D RELIEF VALVE g. 7 3-PCV-1-30 MN STM LINE C RELIEF VALVE h. 8 3-PCV-1-19 MN STM LINE B RELIEF VALVE i. 9 3-PCV-1-5 MN STM LINE A RELIEF VALVE j. 10 3-PCV-1-41 MN STM LINE D RELIEF VALVE k. 11 3-PCV-1-22 MN STM LINE B RELIEF VALVE l. 12 3-PCV-1-18 MN STM LINE B RELIEF VALVE m. 13 3-PCV-1-34 MN STM LINE C RELIEF VALVE	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	Controls pressure as directed using RCIC, Appendix-11B	
	1. IF Emergency RPV Depressurization is required, OR Steam Cooling is required, THEN ... EXECUTE EOI Appendix 16A and 16B as necessary to bypass RCIC Low RPV Pressure and Test Mode Isolation Interlocks	
	2. IF Suppression Pool level CANNOT be maintained below 5.25 in., THEN ... EXECUTE EOI Appendix 16E concurrently with this procedure to bypass HPCI High Suppression Pool Level Suction Transfer Interlock	
	3. IF RCIC Turbine is operating and NOT required for RPV level control, THEN ... ALIGN RCIC in test mode as follows: a. OPEN 3-FCV-71-38, RCIC PUMP CST TEST VLV b. VERIFY OPEN 3-FCV-73-36, HPCI/RCIC CST TEST VLV c. CLOSE 3-FCV-71-39, RCIC PUMP INJECTION VALVE d. CONTINUE in this procedure at Step 5	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	<p>4. IF RCIC is in standby readiness, THEN ... START RCIC as follows:</p> <ul style="list-style-type: none"> a. VERIFY CLOSED 3-FCV-71-39, RCIC PUMP INJECTION VALVE b. VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VLV RESET c. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-38, RCIC PUMP CST TEST VLV • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-73-36, HPCI/RCIC CST TEST VLV d. PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START e. OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine f. VERIFY RCIC Turbine speed accelerates to above 2100 rpm 	
	<p>5. VERIFY proper RCIC minimum flow valve operation as follows:</p> <ul style="list-style-type: none"> a. IF..... RCIC flow is above 120 gpm, THEN... VERIFY CLOSED 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE b. IF..... BOTH of the following exist: <ul style="list-style-type: none"> • RCIC Initiation signal is NOT present, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • RCIC flow is below 60 gpm, THEN... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE 	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	6. THROTTLE 3-FCV-71-38, RCIC PUMP CST TEST VLV, to control RCIC pump discharge pressure at or below 1100 psig	
	7. ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller to control RPV pressure	
	8. IF RCIC injection to the RPV becomes necessary, THEN ... ALIGN RCIC to RPV as follows: a. OPEN 3-FCV-71-39, RCIC PUMP INJECTION VALVE b. CLOSE 3-FCV-71-38, RCIC PUMP CST TEST VLV c. GO to EOI Appendix 5C	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	Controls pressure as directed using MSL Drains, Appendix-11D	
	1. IF BOTH of the following exist: <ul style="list-style-type: none"> • Emergency RPV Depressurization is required, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Group 1 Isolation Signal exists, THEN ... EXIT this procedure and ENTER EOI Appendix 11H	
	2. VERIFY hotwell pressure below -7 in. Hg	
	3. CONTROL RPV pressure with Main Steam line drains as follows: <ul style="list-style-type: none"> a. VERIFY PCIS reset b. OPEN the following valves (Panel 3-9-3): <ul style="list-style-type: none"> ○ 3-FCV-1-55, MN STM LINE DRAIN INBD ISOLATION VLV ○ 3-FCV-1-56, MN STM LINE DRAIN OUTBD ISOLATION VLV ○ 3-FCV-1-58, UPSTREAM MSL DRAIN TO CONDENSER 	
4. THROTTLE 3-FCV-1-59, DOWNSTREAM MSL DRAIN TO CONDENSER, as necessary to control cooldown rate		

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
	<p>5. IF At least one main steam line is open AND EITHER of the following exist:</p> <ul style="list-style-type: none"> • Turbine bypass valves are NOT available, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Additional RPV pressure control is necessary, <p>THEN ... CONTROL RPV pressure with Main Turbine and RFPT drains as follows:</p> <p>a. OPEN the following Main Turbine Drain valves (Panel 3-9-7):</p> <ul style="list-style-type: none"> ○ 3-FCV-6-100, STOP VALVE 1 BEFORE SEAT DR VLV ○ 3-FCV-6-101, STOP VALVE 2 BEFORE SEAT DR VLV ○ 3-FCV-6-102, STOP VALVE 3 BEFORE SEAT DR VLV ○ 3-FCV-6-103, STOP VALVE 4 BEFORE SEAT DR VLV <p>b. OPEN the following RFPT drain valves (Panel 3-9-6):</p> <ul style="list-style-type: none"> ○ 3-FCV-6-122, RFPT 3A HP STOP VLV ABOVE SEAT DR ○ 3-FCV-6-127, RFPT 3B HP STOP VLV ABOVE SEAT DR ○ 3-FCV-6-132, RFPT 3C HP STOP VLV ABOVE SEAT DR 	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	Maintains RPV level +2" to +51" with: <ul style="list-style-type: none"> • RFP's App-5A • RCIC App-5C 	
	Maintains Reactor level with RFP's, Appendix-5A	
	1. VERIFY Condensate System in service, supplying suction to RFPs	
	2. VERIFY OPEN MSIVs, supplying steam to RFPTs	
	3. VERIFY Hotwell Pressure below -7 in. Hg	
	4. VERIFY CLOSED 3-FCV-1-121(129)(137), RFPT 3A(3B)(3C) LP STEAM SUPPLY VALVE	
	5. VERIFY OPEN 3-FCV-1-125(133)(141), RFPT 3A(3B)(3C) HP STEAM SUPPLY VALVE	
	6. DEPRESS 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER, and VERIFY amber light is illuminated	
	7. VERIFY a Main Oil Pump is running for RFPT to be started	
8. VERIFY for EACH of the following pushbuttons, the green light is illuminated and the red light is extinguished: <ul style="list-style-type: none"> • 3-HS-3-208A, RX WTR LVL CH A HI RFPT/MT TRIP RESET • 3-HS-3-208B, RX WTR LVL CH B HI RFPT/MT TRIP RESET 		

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	<p>9. VERIFY OPEN the following valves:</p> <ul style="list-style-type: none"> • 3-FCV-3-75, HP HTR 3A1 FW OUTLET ISOL VLV • 3-FCV-3-76, HP HTR 3B1 FW OUTLET ISOL VLV • 3-FCV-3-77, HP HTR 3C1 FW OUTLET ISOL VLV 	
	<p>10. DEPRESS 3-HS-3-124A(150A)(175A), RFPT 3A(3B)(3C) TRIP RESET, and CHECK the following:</p> <ul style="list-style-type: none"> • Blue light extinguished • HP Stop Valve open as indicated by red light above the following, as applicable: <ul style="list-style-type: none"> ○ 3-HS-3-108, RFPT 3A HP STOP VLV TEST ○ 3-HS-3-134, RFPT 3B HP STOP VLV TEST ○ 3-HS-3-159, RFPT 3C HP STOP VLV TEST • LP Stop Valve open as indicated by red light above the following, as applicable: <ul style="list-style-type: none"> ○ 3-HS-3-107, RFPT 3A LP STOP VLV TEST ○ 3-HS-3-133, RFPT 3B LP STOP VLV TEST ○ 3-HS-3-158, RFPT 3C LP STOP VLV TEST 	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	11. VERIFY OPEN 3-FCV-3-20(13)(6), RFP 3A(3B)(3C) MIN FLOW VALVE	
	12. PLACE 3-HS-46-112A(138A)(163A), RFPT 3A(3B)(3C) START/LOCAL ENABLE, in START	
	13. CHECK RFPT 3A(3B)(3C) speed increases to approximately 600 rpm	
	14. VERIFY OPEN 3-FCV-3-19(12)(5), RFP 3A(3B)(3C) DISCHARGE VALVE	
	15. RAISE RFPT 3A(3B)(3C) speed UNTIL RFP discharge pressure is approximately equal to RPV pressure using ANY of the following methods on Panel 3-9-5: <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <li style="text-align: center;">OR • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <li style="text-align: center;">OR • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	<p>16. SLOWLY RAISE speed of RFPT UNTIL RFW flow to the RPV is indicated using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	
	<p>17. ADJUST RFPT speed as necessary to control injection using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	18. WHEN ... RPV level is approximately equal to desired level AND automatic level control is desired, THEN ... PLACE 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in AUTO with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	Maintains Reactor level with RCIC per Appendix-5C	
	1. IF BOTH of the following exist: <ul style="list-style-type: none"> • RPV Pressure is at or below 50 psig, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Bypass of RCIC low RPV pressure isolation interlocks is necessary, THEN ... EXECUTE EOI Appendix 16A concurrently with this procedure	
	2. IF BOTH of the following exist: <ul style="list-style-type: none"> • High temperature exists in the RCIC area, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • SRO directs bypass of RCIC High Temperature Isolation interlocks, THEN ... PERFORM the following: <ol style="list-style-type: none"> a. EXECUTE EOI Appendix 16K concurrently with this procedure b. RESET auto isolation logic using RCIC AUTO-ISOL LOGIC A(B) RESET 3-XS-71-51A(B) pushbuttons 	
	3. VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VALVE RESET	
	4. VERIFY 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller in AUTO with setpoint at 600 gpm	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	5. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-39, RCIC PUMP INJECTION VALVE • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV 	
	6. PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START	
	7. OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine	
	8. CHECK proper RCIC operation by observing the following: <ul style="list-style-type: none"> a. RCIC Turbine speed accelerates above 2100 rpm b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm c. 3-FCV-71-40, RCIC Testable Check Vlv, opens by observing 3-ZI-71-40A, DISC POSITION, red light illuminated d. 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE, closes as flow rises above 120 gpm 	
	9. IF BOTH of the following exist: <ul style="list-style-type: none"> • RCIC Initiation signal is NOT present, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • RCIC flow is below 60 gpm, THEN ... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	<p>10. ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection</p>	
	<p>11. IF It is desired to align RCIC suction to the Suppression Pool, THEN ... PERFORM the following: a. OPEN 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. OPEN 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE c. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE, and 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE, are fully open, THEN ... VERIFY CLOSED 3-FCV-71-19, RCIC CST SUCTION VALVE NOTE: Step 12.b must be performed promptly following Step 12.a to avoid loss of suction path</p>	
	<p>12. IF It is desired to align RCIC suction to the Condensate Storage Tank, THEN ... PERFORM the following: a. CLOSE 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE starts traveling closed, THEN ... OPEN 3-FCV-71-19, RCIC CST SUCTION VALVE c. CLOSE 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE</p>	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
SRO	When RPV level decreases below +2" ensures Groups 2, 3 and 6 isolate	
Crew	Reports Groups 2, 3 and 6 isolated	
SRO	Directs RHR be placed in Suppression Pool cooling per 3-OI-74 (until EOI-2 entered) or Appendix-17A	
BOP	Places RHR in Suppression Pool Cooling per Appendix-17A	
	1. IF.....Adequate core cooling is assured, OR Directed to cool the Suppression Pool irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	2. PLACE RHR SYSTEM I(II) in Suppression Pool Cooling as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header. b. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	<p>c. THROTTLE the following in-service RHR SW outlet valves to obtain between 1350 and 4500 gpm RHR SW flow:</p> <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHR SW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHR SW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHR SW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHR SW OUTLET VLV 	
	<p>d. IF Directed by SRO, THEN.....PLACE 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD in MANUAL OVERRIDE.</p>	
	<p>e. IFLPC I INITIATION Signal exists, THEN.....MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT in SELECT.</p>	
	<p>f. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.</p>	
	<p>g. OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.</p>	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
BOP	h. VERIFY desired RHR pump(s) for Suppression Pool Cooling are operating.	
	i. THROTTLE 3-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 3-FI-74-50(64), RHR SYS I(II) FLOW: <ul style="list-style-type: none"> • Between 7000 and 10000 gpm for one-pump operation. OR • At or below 13000 gpm for two-pump operation. 	
	j. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	k. MONITOR RHR Pump NPSH using Attachment 1.	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	m. IF Additional Suppression Pool Cooling flow is necessary, THEN.....PLACE additional RHR and RHRSW pumps in service using Steps 2.b through 2.l	

XII. Simulator Event Guide:

Event #7: TURBINE TRIP / FAILURE TO AUTO SCRAM (continued)

Position	Expected Actions	Time/Comments
SRO	Dispatches personnel to investigate bypass valve failure	
	Directs entry into AOI-100-1	
ATC	Performs actions of AOI-100-1 (as time permits)	
Crew	Reports DW pressure/temperature rising	
SRO	Re-enters EOI-1, Enters EOI-2, and Directs following: <ul style="list-style-type: none">• Venting per App-12• H₂O₂ analyzers placed in service	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	Vents Containment per Appendix-12	
	1. VERIFY at least one SGTS train in service.	
	2. VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): <ul style="list-style-type: none"> • 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV, • 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE, • 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV, • 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE. 	
	3. IF ... While executing this procedure to vent the Suppression Chamber, Suppression Pool water level can not be determined to be below 20 ft, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	4. IF ... While executing this procedure, the desired vent path is lost or can not be established, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
5. IF ... While executing this procedure, CAD addition per SAMG-2, Step G-4 OR G-9, is to begin, THEN . BEFORE CAD is initiated, PERFORM Step 13 to secure the vent path.		

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	<p>NOTE: Venting may be accomplished using EITHER:</p> <p>3-FIC-84-19, PATH B VENT FLOW CONT OR 3-FIC-84-20, PATH A VENT FLOW CONT</p> <p>NOTE: Unless the TSC recommends otherwise, venting the Drywell DIRECTLY should be performed ONLY if the Suppression Chamber can NOT be vented</p>	
	<p>6. IF ... ANY of the following exists:</p> <ul style="list-style-type: none"> • Suppression Pool water level can not be determined to be below 20 ft, OR • Suppression Chamber can NOT be vented, OR • SRO orders DIRECT drywell venting, THEN CONTINUE in this procedure at: <ul style="list-style-type: none"> ○ Step 10 to vent the Drywell through 3-FCV-84-19, OR ○ Step 11 to vent the Drywell through 3-FCV-84-20. 	
	<p>7. CONTINUE in this procedure at:</p> <ul style="list-style-type: none"> • Step 8 to vent the Suppression Chamber through 3-FCV-84-19, OR • Step 9 to vent the Suppression Chamber through 3-FCV-84-20. 	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	8. VENT the Suppression Chamber using 3-FIC-84-19, PATH B VENT FLOW CONT, as follows:	
	a. PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54).	
	b. VERIFY OPEN 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 3-9-54).	
	c. PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55).	
	d. PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55).	
	e. VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm.	
	f. CONTINUE in this procedure at step 12.	
	12. ADJUST 3-FIC-84-19, PATH B VENT FLOW CONT, or 3-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following: <ul style="list-style-type: none"> • Stable flow as indicated on controller, AND • 3-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished, AND • Release rates as determined below: 	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	i. IF. . .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress THEN. .MAINTAIN release rates below those specified in Attachment 2.	
	ii. IF. . .Severe Accident Management Guidelines are being executed, THEN. .MAINTAIN release rates below those specified by the TSC SAM Team.	
	iii. IF. . .Venting for ANY other reason than items i or ii above, THEN. .MAINTAIN release rates below Stack release rate of 1.4×10^7 $\mu\text{Ci/s}$ AND 0-SI-4.8.B.1.a.1 release fraction of 1.	
	Contacts LOG AUO to monitor release rates	
	Places H ₂ O ₂ Analyzers in service per EOI-2	
	1. Place Analyzer isolation bypass keylock switches to bypass	
	2. Select DW or Supp Chmbr and momentarily pull out select switch handle to start sample pumps	
ATC	Verifies D/G start on high DW pressure except for 3A D/G fails to start	
	Manually starts 3A D/G	
	Dispatches AUO to monitor D/G's	
SRO	Re-enter EOI-2 (DWT)	
	Directs all DW Blowers verified in service	
ATC	Verifies all DW blowers in service	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
SRO	Determines PSC pressure cannot be maintained <12 psig and directs PSC sprayed	
BOP	Sprays Suppression Chamber per Appendix-17C	
	1. BEFORE Suppression Chamber pressure drops below 0 psig, CONTINUE in this procedure at Step 6.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Suppression Chamber irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	3. IF.....Directed by SRO to spray the Suppression Chamber using Standby Coolant Supply, THEN.....CONTINUE in this procedure at Step 7.	
	4. IF.....Directed by SRO to spray the Suppression Chamber using Fire Protection, THEN.....CONTINUE in this procedure at Step 8.	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	5. INITIATE Suppression Chamber Sprays as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. IF EITHER of the following exists: <ul style="list-style-type: none"> • LPCI Initiation signal is NOT present, OR • Directed by SRO, THEN.....PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.	
	c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.	
	d. IF 3-FCV-74-53(67), RHR SYS I(II) INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) OUTBD INJECT VALVE.	
	e. VERIFY OPERATING the desired RHR System I(II) pump(s) for Suppression Chamber Spray.	
	f. VERIFY OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.	
	g. OPEN 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	h. IF RHR System I(II) is operating ONLY in Suppression Chamber Spray mode, THEN..... CONTINUE in this procedure at Step 5.k.	
	i. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	j. RAISE system flow by placing the second RHR System I(II) pump in service as necessary.	
	k. MONITOR RHR Pump NPSH using Attachment 2.	
	l. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
	m. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	

XII. Simulator Event Guide:

Event #8: LOCA

Position	Expected Actions	Time/Comments
BOP	n. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	6. WHEN.....EITHER of the following exists: <ul style="list-style-type: none"> • Before Suppression Pool pressure drops below 0 psig, OR • Directed by SRO to stop Suppression Chamber Sprays, THEN.....STOP Suppression Chamber Sprays as follows:	
	a. CLOSE 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.	
	b. VERIFY CLOSED 3-FCV-74-100, RHR SYS I U-2 DISCH XTIE	
	c. IFRHR operation is desired in ANY other mode, THEN..... EXIT this EOI Appendix.	
	If Loop I tried, notifies US of Logic failure	
SRO	Directs that PSC sprays be stopped if PSC pressure 0 psig	
	Dispatches personnel to investigate select power loss on Loop I RHR	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair

Position	Expected Actions	Time/Comments
Crew	Monitors Rx level and PC pressure and reports to US when PSC pressure is 12 psig	
SRO	Verifies Recirc pumps tripped	
	Directs all DW blowers secured	
	Verifies in safe region of DW spray curve	
ATC	Secures all DW blowers	
SRO	Directs DW sprayed IAW App-17B	
BOP	Attempts to spray the DW with App-17B	
	Reports RHR Loop I select logic not working (if not already identified)	
	Reports 74-75 Loop II spray valve will not open	
SRO	Directs DW spray valve 74-75 be manually opened	
	Directs DW Blowers returned to service	
	Directs IMs to checking Loop I logic failure (if not already done)	
ATC	Restarts all DW blowers	
BOP	Reports start of Core Spray pumps	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
SRO	Monitors DW pressure and temperature	
	Determines that DW temperature cannot be maintained < 280°F	
	Directs Emergency Depressurization if cannot maintain < 280°F in drywell	
BOP	Opens 5 ADS valves and 1 additional valve and verifies open	
SRO	Directs level be restored and maintained between +2" to +51" with: <ul style="list-style-type: none"> • Condensate App-6A • Core Spray App-6D or 6E • RHR App-6B or 6C 	
	Re-enters Enters EOI-2 on Suppression Chamber Level/Temp	
ATC	Recover level with Condensate, 3-EOI Appendix-6A	
	1. VERIFY CLOSED the following Feedwater heater return valves: <ul style="list-style-type: none"> • 3-FCV-3-71, HP HTR 3A1 LONG CYCLE TO CNDR • 3-FCV-3-72, HP HTR 3B1 LONG CYCLE TO CNDR • 3-FCV-3-73, HP HTR 3C1 LONG CYCLE TO CNDR 	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
ATC	2. VERIFY CLOSED the following RFP discharge valves: <ul style="list-style-type: none"> • 3-FCV-3-19, RFP 3A DISCHARGE VALVE • 3-FCV-3-12, RFP 3B DISCHARGE VALVE • 3-FCV-3-5, RFP 3C DISCHARGE VALVE 	
	3. VERIFY OPEN the following drain cooler inlet valves: <ul style="list-style-type: none"> • 3-FCV-2-72, DRAIN COOLER 3A5 CNDS INLET ISOL VLV • 3-FCV-2-84, DRAIN COOLER 3B5 CNDS INLET ISOL VLV • 3-FCV-2-96, DRAIN COOLER 3C5 CNDS INLET ISOL VLV 	
	4. VERIFY OPEN the following heater outlet valves: <ul style="list-style-type: none"> • 3-FCV-2-124, LP HEATER 3A3 CNDS OUTL ISOL VLV • 3-FCV-2-125, LP HEATER 3B3 CNDS OUTL ISOL VLV • 3-FCV-2-126, LP HEATER 3C3 CNDS OUTL ISOL VLV 	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
ATC	5. VERIFY OPEN the following heater isolation valves: <ul style="list-style-type: none"> • 3-FCV-3-38, HP HTR 3A2 FW INLET ISOL VLV • 3-FCV-3-31, HP HTR 3B2 FW INLET ISOL VLV • 3-FCV-3-24, HP HTR 3C2 FW INLET ISOL VLV • 3-FCV-3-75, HP HTR 3A1 FW OUTLET ISOL VLV • 3-FCV-3-76, HP HTR 3B1 FW OUTLET ISOL VLV • 3-FCV-3-77, HP HTR 3C1 FW OUTLET ISOL VLV 	
	6. VERIFY OPEN the following RFP suction valves: <ul style="list-style-type: none"> • 3-FCV-2-83, RFP 3A SUCTION VALVE • 3-FCV-2-95, RFP 3B SUCTION VALVE • 3-FCV-2-108, RFP 3C SUCTION VALVE 	
	7. VERIFY at least one condensate pump running	
	8. VERIFY at least one condensate booster pump running	
	9. ADJUST 3-LIC-3-53, RFW START-UP LEVEL CONTROL, to control injection (Panel 3-9-5)	
	10. VERIFY RFW flow to RPV	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	Restores Reactor Level +2" to +51" with RHR I per 3-EOI Appendix-6B	
	1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL in BYPASS	
	2. VERIFY OPEN 3-FCV-74-1, RHR PUMP 3A SUPPR POOL SUCT VLV	
	3. VERIFY OPEN 3-FCV-74-12, RHR PUMP 3C SUPPR POOL SUCT VLV	
	4. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> • 3-FCV-74-61, RHR SYS I DW SPRAY INBD VLV • 3-FCV-74-60, RHR SYS I DW SPRAY OUTBD VLV • 3-FCV-74-57, RHR SYS I SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-58, RHR SYS I SUPPR CHBR SPRAY VALVE • 3-FCV-74-59, RHR SYS I SUPPR POOL CLG/TEST VLV 	
	5. VERIFY RHR Pump 3A and/or 3C running	
	6. WHEN.....RPV pressure is below 450 psig, THEN..... VERIFY OPEN 3-FCV-74-53, RHR SYS I LPCI INBD INJECT VALVE	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	7. IF.....RPV pressure is below 230 psig, THEN..... VERIFY CLOSED 3-FCV-68-79, RECIRC PUMP 3B DISCHARGE VALVE	
	8. THROTTLE 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE, as necessary to control injection	
	9. MONITOR RHR Pump NPSH using Attachment 1	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV	
	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	Restores Reactor Level +2" to +51" with RHR II per 3-EOI Appendix-6C	
	1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155B, LPCI SYS II OUTBD INJ VLV BYPASS SEL in BYPASS	
	2. VERIFY OPEN 3-FCV-74-24, RHR PUMP 3B SUPPR POOL SUCT VLV	
	3. VERIFY OPEN 3-FCV-74-35, RHR PUMP 3D SUPPR POOL SUCT VLV	
	4. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> • 3-FCV-74-75, RHR SYS II DW SPRAY INBD VLV • 3-FCV-74-74, RHR SYS II DW SPRAY OUTBD VLV • 3-FCV-74-71, RHR SYS II SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-72, RHR SYS II SUPPR CHBR SPRAY VALVE • 3-FCV-74-73, RHR SYS II SUPPR POOL CLG/TEST VLV 	
	5. VERIFY RHR Pump 3B and/or 3D running	
	6. WHEN.....RPV pressure is below 450 psig, THEN..... VERIFY OPEN 3-FCV-74-67, RHR SYS II LPCI INBD INJECT VALVE	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	7. IFRPV pressure is below 230 psig, THEN VERIFY CLOSED 3-FCV-68-3, RECIRC PUMP 3A DISCHARGE VALVE	
	8. THROTTLE 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE, as necessary to control injection	
	9. MONITOR RHR Pump NPSH using Attachment 1	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV	
	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	Recover level with CS Loop I 3-EOI Appendix-6D	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-2, CORE SPRAY PUMP 3A SUPPR POOL SUCT VLV • 3-FCV-75-11, CORE SPRAY PUMP 3C SUPPR POOL SUCT VLV • 3-FCV-75-23, CORE SPRAY SYS I OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-22, CORE SPRAY SYS I TEST VALVE	
	3. VERIFY CS Pump 3A and/or 3C RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-25, CORE SPRAY SYS I INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	
	Recover level with CS Loop II 3-EOI Appendix-6E	
	1. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-75-30, CORE SPRAY PUMP 3B SUPPR POOL SUCT VLV • 3-FCV-75-39, CORE SPRAY PUMP 3D SUPPR POOL SUCT VLV • 3-FCV-75-51, CORE SPRAY SYS II OUTBD INJECT VALVE 	
	2. VERIFY CLOSED 3-FCV-75-50, CORE SPRAY SYS II TEST VALVE	
	3. VERIFY CS Pump 3B and/or 3D RUNNING	
	4. WHEN ... RPV pressure is below 450 psig, THEN ... THROTTLE 3-FCV-75-53, CORE SPRAY SYS II INBD INJECT VALVE, as necessary to control injection at or below 4000 gpm per pump	
	5. MONITOR Core Spray Pump NPSH using Attachment 1	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
SRO	When notified 74-75 valve repaired;	
	Directs all DW blowers secured again	
	Verifies in safe area of DW spray curve	
	Directs DW sprayed IAW App-17B	
ATC	Secures al DW blowers (again)	
BOP	Sprays Drywell with Loop II RHR per Appendix-17B	
	1. BEFORE Drywell pressure drops below 0 psig, CONTINUE in this procedure at Step 7.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Drywell irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	3. VERIFY Recirc Pumps and Drywell Blowers shutdown.	
	4. IF.....Directed by SRO to spray the Drywell using Standby Coolant supply, THEN.....CONTINUE in this procedure at Step 8.	
	5. IF.....Directed by SRO to spray the Drywell using Fire Protection, THEN.....CONTINUE in this procedure at Step 9.	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	6. INITIATE Drywell Sprays as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. IF EITHER of the following exists: <ul style="list-style-type: none"> • LPCI Initiation signal is NOT present, OR • Directed by SRO, THEN.....PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.	
	c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.	
	d. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.	
	e. VERIFY OPERATING the desired System I(II) RHR pump(s) for Drywell Spray.	
	f. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-74-60(74), RHR SYS I(II) DW SPRAY OUTBD VLV • 3-FCV-74-61(75), RHR SYS I(II) DW SPRAY INBD VLV 	
	g. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	h. IF Additional Drywell Spray flow is necessary, THEN.....PLACE the second System I(II) RHR Pump in service.	
	i. MONITOR RHR Pump NPSH using Attachment 2.	
	j. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
	k. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	

XII. Simulator Event Guide:

Event #9: DW Spray failure and repair (continued)

Position	Expected Actions	Time/Comments
BOP	7. WHEN.....EITHER of the following exists: <ul style="list-style-type: none"> • Before drywell pressure drops below 0 psig, <li style="text-align: center;">OR • Directed by SRO to stop Drywell Sprays, THEN.....STOP Drywell Sprays as follows:	
	a. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> • 3-FCV-74-100, RHR SYS I U-2 DISCH XTIE • 3-FCV-74-60(74), RHR SYS I(II) DW SPRAY OUTBD VLV • 3-FCV-74-61(75), RHR SYS I(II) DW SPRAY INBD VLV 	
	b. VERIFY OPEN 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	c. IFRHR operation is desired in ANY other mode, THEN..... EXIT this EOI Appendix.	
SRO	Directs DW sprays secured if pressure lowers to 0 psig	
	Declares event Alert 2.1-A or 2.4-A	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Inserts a manual scram within 1 minute of failure to scram on turbine trip	
2)	Emergency depressurizes RPV within 5 minutes of exceeding 280°F	
3)	Restores / maintains water level above TAF (-162")	

XV. SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-13

- 9 Total Malfunctions Inserted: List (4-8)
- 1) Control Rod Drift
 - 2) Loss of 3A 250V RMOV Bd
 - 3) Loss of HPCI 120V power supply
 - 4) Failure of ADS/SRV 1-22
 - 5) RWCU leak with failure to auto isolate
 - 6) Turbine trip / Bypass valve failure
 - 7) Drywell Leak
 - 8) Drywell Spray Failure
 - 9) DG "3A" auto start Failure
- 3 Malfunctions that occur after EOI entry: List (1-4)
- 1) Drywell Leak
 - 2) Drywell Spray Failure
 - 3) DG "3A" auto start Failure
- 5 Abnormal Events: List (1-3)
- 1) Control Rod Drift (3-AOI-85-5)
 - 2) Loss of 3A 250V RMOV Bd
 - 3) Failure of ADS/SRV 1-22
 - 4) RWCU leak with failure to auto isolate (AOI-64-2A)
 - 5) High DW pressure (AOI-64-1)
- 1 Major Transients: List (1-2)
- 1) Drywell Leak
- 3 EOI's used: List (1-3)
- 1) EOI-1
 - 2) EOI-2
 - 3) EOI-3
- 2 EOI Contingencies used: List (0-3)
- 1) C-1 (possible)
 - 2) C-2
- 70 Run Time (minutes)
- 35 EOI Run Time (minutes): 50 % of Scenario Run Time
- 3 Crew Critical Tasks: (2-5)
- YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

RHR Pump 3A tagged 2 hours ago to change oil because wrong oil was used (7 day LCO per 3.5.1.A and 30 day LCO per 3.6.2.3.A, 4, &5A). Expected back in 2 hours

Operations/Maintenance for the Shift:

Perform CRD Timer Test per 3-OI-85. Maintain power at 100%. Support maintenance on RHR Pump 3A. Continue to monitor DW pressure – known N₂ leak in Drywell

Unusual Conditions/Problem Areas:

Severe Thunderstorms in the area for the next 2 hours

Facility: Browns Ferry NPP Scenario No.: 3-16 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-5
	ATC:	RO-7
	BOP:	RO-4

Initial Conditions: Unit 3 is at 100% power with an 8% power reduction scheduled. HPCI is currently tagged to repair the Auxiliary Oil Pump; and Feedwater Flow Indicator 3-78B is out of service with the IM Technicians searching for a replacement transmitter.

Turnover: Units 1 and 2 are at approximately 92%. On Unit 3, reduce power to 92% due to low system load demand. Continue with performance of Core Spray II Flow Rate SR (in progress). Support maintenance on HPCI; which is expected back in three hours. Additionally, support maintenance on Feedwater Flow Indicator 3-78B. Thunderstorm warnings are in effect for the next 4 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	R-ATC N-SRO	Lowers power
2	cs01d	C-BOP TS-SRO	Core Spray Flow rate SR where 3D Core Spray Pump fails
3	pc12d	C-BOP C-SRO	3A Reactor Zone Exhaust Fan belts shear, swap fans
4	multiple	C-ATC TS-SRO	3A Recirc Pump speed failure (increase), trip pump, insert rods
5	cr02a 55	C-ATC C-SRO	Power oscillations with failure to scram, insert rods, manual scram
6	multiple	M-ALL	ATWS
7	th23 4	M-ALL	Fuel failure

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

ANTICIPATED EAL: 1.2-S – SITE AREA

Received 5/21/09, ESS

Facility: Browns Ferry NPP Scenario No.: 3-16 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	RO-8
	BOP:	RO-5

Scenario Narrative

The unit is operating at 100% power with an 8% power reduction scheduled. HPCI is tagged out for maintenance on the Auxiliary Oil Pump and is expected to be returned to service within the next 36 hours. It has been out of service for 14 hours.

While performing the Core Spray Loop II Flowrate SR (3-SR-3.5.1.6(CS II)), a trip of 3D Core Spray pump is received and the Crew must consult Technical Specifications to determine required actions.

The belts will shear on 3A Rx Zone Exhaust Fan causing a low Reactor Building d/p and corresponding alarm where the crew will start standby fan per ARP and 3-AOI-30B.

A 3A Recirc Pump speed control failure (> 1500 rpm) will occur. The crew will not be able to lower speed and will respond per 3-AOI-68-3; which will necessitate tripping the pump and responding per 3-AOI-68-1A. The Reactor will enter Region 2 of the Power to Flow Map and Power Oscillations will increase until the OPRM trip setpoint is exceeded. The crew will recognize failure to automatically scram and will insert a manual scram (If manual scram not already inserted prior to OPRMs exceeding scram setpoint).

The crew will experience a hydraulic ATWS and respond per 3-EOI-1 and C5. The crew will have to lower Reactor Water Level to control power per C5 and App-4. The SDV will fail to drain totally, thus requiring multiple reactor scrams to insert Control Rods.

Due to the Fuel failure from the power oscillations, The Main Steam Line Rad Hi Hi Alarm will be received and the crew will recognize that MSIVs cannot be closed until after the control rods have all been inserted.

DRAFT

Facility: Browns Ferry NPP Scenario No.: 3-16 Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROI-5
	ATC:	RO-7
	BOP:	RO-4

Initial Conditions: Unit 3 is at 100% power with an 8% power reduction scheduled. HPCI is currently tagged to repair the Auxiliary Oil Pump; and Feedwater Flow Indicator 3-78B is out of service with the IM Technicians searching for a replacement transmitter.

Turnover: Units 1 and 2 are at approximately 92%. On Unit 3, reduce power to 92% due to low system load demand. Continue with performance of Core Spray II Flow Rate SR (in progress). Support maintenance on HPCI; which is expected back in three hours. Additionally, support maintenance on Feedwater Flow Indicator 3-78B. Thunderstorm warnings are in effect for the next 4 hours.

Event No.	Malf. No.	Event Type*	Event Description
1	-----	R-ATC R-SRO	Lowers power
2	cs01d	N-BOP TS-SRO	Core Spray Flow rate SR where 3D Core Spray Pump fails
3	pc12d	C-BOP C-SRO	3A Reactor Zone Exhaust Fan belts shear, swap fans
4	multiple	C-ATC C-SRO	3A Recirc Pump speed failure (increase), trip pump
5	cr02a 55	C-ATC C-SRO	Power oscillations with failure to scram
6	multiple	M-ALL	ATWS
7	th23 4	M-ALL	Fuel failure

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

DRAFT

ANTICIPATED EAL: 1.2-S – SITE AREA

Submitted 5/11/09

Facility: Browns Ferry NPP Scenario No.: 3-16 (2) Op-Test No.: HLT 0801

Examiners:	

Operators:	SRO:	SROU-1
	ATC:	RO-8
	BOP:	RO-5

Scenario Narrative

The unit is operating at 100% power with an 8% power reduction scheduled. HPCI is tagged out for maintenance on the Auxiliary Oil Pump and is expected to be returned to service within the next 36 hours. It has been out of service for 14 hours.

While performing the Core Spray Loop II Flowrate SR (3-SR-3.5.1.6(CS II)), a trip of 3D Core Spray pump is received and the Crew must consult Technical Specifications to determine required actions.

The belts will shear on 3A Rx Zone Exhaust Fan causing a low Reactor Building d/p and corresponding alarm where the crew will start standby fan per ARP and 3-AOI-30B.

A 3A Recirc Pump speed control failure (> 1500 rpm) will occur. The crew will not be able to lower speed and will respond per 3-AOI-68-3; which will necessitate tripping the pump and responding per 3-AOI-68-1A. The Reactor will enter Region 2 of the Power to Flow Map and Power Oscillations will increase until the OPRM trip setpoint is exceeded. The crew will recognize failure to automatically scram and will insert a manual scram (If manual scram not already inserted prior to OPRMs exceeding scram setpoint).

The crew will experience a hydraulic ATWS and respond per 3-EOI-1 and C5. The crew will have to lower Reactor Water Level to control power per C5 and App-4. The SDV will fail to drain totally, thus requiring multiple reactor scrams to insert Control Rods.

Due to the Fuel failure from the power oscillations, The Main Steam Line Rad Hi Hi Alarm will be received and the crew will recognize that MSIVs cannot be closed until after the control rods have all been inserted.

SIMULATOR EVALUATION GUIDE

TITLE: POWER REDUCTION, CORE SPRAY LOOP II FLOWRATE SR
WITH FAILURE OF 3D PUMP, RECIRCULATION PUMP RUNAWAY/TRIP,
REACTOR POWER OSCILLATIONS, ATWS WITH MSIVS OPEN

REVISION: 0

DATE: Feb. 1, 2009

PROGRAM: BFN Operator Training – Hot License

**Examiner Note: This scenario requires a copy of 3-SR-3.5.1.6(CS II) complete
thru step 7.3, ICS available, no DVM required**

RCP required for power reduction to 92% with Recirc flow (Provide at turnover)

PREPARED: _____ \ _____
(Operations Instructor) Date

REVIEWED: _____ \ _____
(LOR Lead Instructor or Designee) Date

REVIEWED: _____ \ _____
(Operations Training Manager or Designee) Date

CONCURRED: _____ \ _____
(Operations Superintendent or Designee Required for Exam Scenarios) Date

VALIDATED: _____ \ _____
(Operations SRO) (Required for Exam Scenarios) Date

LOGGED-IN: _____ \ _____
(Librarian) Date

TASK LIST
UPDATED _____ \ _____
Date

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: POWER REDUCTION, CORE SPRAY LOOP II FLOWRATE SR WITH FAILURE OF 3D PUMP, RECIRCULATION PUMP RUNAWAY/TRIP, REACTOR POWER OSCILLATIONS, ATWS WITH MSIVS OPEN
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will reduce Reactor power to ~ 92% IAW 3-GOI-100-1 and 3-OI-68.
2. The operating crew will recognize and respond to a failure of a Core Spray pump 3D during a flowrate SR and determine required actions per Technical Specifications
3. The operating crew will recognize and respond to sheared belts on 3A Rx Zone exhaust fan and respond per ARP and 3-AOI-30B
4. The operating crew will recognize and respond to the 3A Recirc pump speed control failure (and subsequent manual trip) in accordance with 3-AOI-68-3 and 3-AOI-68-1A
5. The operating crew will recognize and respond to reactor power oscillations in accordance to 3-AOI-68-1A and 3-GOI-100-1
6. The operating crew will recognize and respond to an ATWS in accordance with EOI-1 and C5
7. The operating crew will recognize and respond to high suppression pool temperature in accordance with EOI-1 and EOI-2.
8. The operating crew will recognize and respond to high radiation in accordance with EOI-3

- VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.

- VII. Training Materials: (If needed, otherwise disregard)
 - A. Calculator
 - B. Control Rod Insertion Sheets
 - C. Stopwatch
 - D. Hold Order / Caution Order tags
 - E. Annunciator window covers
 - F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-16

MF/RF/OR#		Description
1)	imf fw26b 0	'B' FW flow failure
2)	imf tc02 0	Fails bypass valves closed
3)	bat tohpci	Tags out HPCI
4)	trg e1 MODESW	Sets trigger
5)	trg e2 CSDSTART	Sets trigger
6)	trg e3 RXZFANS	Sets trigger
6)	imf th23 (e1 0) 4 15:00	Fuel failure
7)	imf rp08a	RPS A1 scram failure
8)	imf rp08b	RPS A2 scram failure
9)	imf cs01d (e2 0:30)	CS pump 3D trip after 30 seconds
10)	dor an:xa553d[32] (e3 0)	Delete alarm after fan swap

2. File: bat hlts-3-16-1

MF/RF/OR#		Description
1)	imf pc12d	Shears 3A Rx Zone Exh Fan belts
2)	ior an:ov:xa553d[32] alarm_on	Ann – Rx bldg low dp sealed in

3. File: bat hlts-3-16-2

MF/RF/OR#		Description
1)	bat 3ainc	3A Recirc pump runaway (~1535 rpm)
2)	imf cr02a 55 6:00	Power Oscillations
3)	bat atws95east	95% Hydraulic ATWS east side

4. File: bat tohpci

MF/RF/OR#		Description
1)	ior ypomtrglesh fail_cn_po	Tag gland seal exhauster
2)	ior ypovfcv733a close	73-3 close
3)	ior ypovfcv733 fail_now	Tag FCV 73-3
4)	ior ypovfcv7316 fail_now	Tag FCV 73-16
5)	ior ypovfcv7381 fail_now	Tag FCV 73-81
6)	ior zdihs7347a ptl	Tag HPCI Aux oil pump
7)	ior zohs7347a[1] off	Green light off
8)	imf hp05	HPCI trip

5. File: bat app01f

MF/RF/OR#		Description
1)	mrf rp13a byp	Bypasses automatic scrams
2)	mrf rp13b byp	
3)	mrf rp13c byp	
4)	mrf rp13d byp	

6. File: bat app02

MF/RF/OR#		Description
1)	mrf rp12a test	Bypasses ARI
2)	mrf rp12b test	

7. File: bat app08ae

MF/RF/OR#		Description
1)	mrf rp06a byp	Bypasses Gp 1 isolation on low level
2)	mrf rp06b byp	
3)	mrf rp06c byp	
4)	mrf rp06d byp	
5)	mrf rp14a byp	Bypasses Gp 6 isolation on low level
6)	mrf rp14b byp	

8. File: bat atws95east

MF/RF/OR#		Description
1)	imf rd17a	SDV level switch failure
2)	imf rd09a 95	95% hydraulic ATWS east side

9. File: bat sdv

MF/RF/OR#		Description
1)	dmf rd17a	Deletes SDV level switch failure
2)	dmf rd17b	

10. File: bat sdvtd

MF/RF/OR#		Description
1)	dmf rd17a	Deletes SDV level switch failure
2)	dmf rd17b	
3)	imf rd17a (none 8:00)	Inserts level switch failure after 8 minutes
4)	imf rd17a (none 8:00)	

IX. Console Operators Instructions

HLTS 3-16

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	manual	100% MOC reset 255 (david)
Simulator Setup	verify	imf fw26b 0 imf tc02 0 bat tohpci imf rp08a imf rp08b trg e1 MODESW trg e2 CSDSTART trg e3 RXZFANS
Simulator Setup	manual	Tag out HPCI. Hang out of service cover on "B" FW Flow Indicator. Place toilet bowl on ann. 9-6C win 14
Simulator Setup	manual	Start A3 EECW pump, place HPCI AOP and Steam packing exhauster in PTL, place testing borders on ann windows 9-3C/10, 9-3F/1, 9-23C/33, and 9-23D/33

ROLE PLAY: At SR step 7.3[1] report CS static suction pressures at 6 psig (both pumps)

ROLE PLAY: At SR step 7.3[2] report Motor power on indicating light is extinguished (3B 480v rmov / 8B) and no air flow can be felt above either CS pump motor

ROLE PLAY: At SR step 7.3[6.6] report pressure is 248 psig

ROLE PLAY: At SR step 7.3[6.9] report lowest pressure observed is 220 psig

ROLE PLAY: At SR step 7.3[7.3] report suction pressure as 5 psig (259 psig – if asked for local disch)

ROLE PLAY: If asked for 3-FM-75-49 mV reading (step 7.3[7.6]) not taken due to dvom not installed - ICS used instead

ROLE PLAY: At SR step 7.3[9] report vibration readings obtained

ROLE PLAY: At SR step 7.3[10] report Motor power on indicating light is illuminated (3B 480v rmov / 8B) and flow detected above both pump motors

ROLE PLAY: At SR step 7.3[11] (if asked) report pump started and tripped

3 minutes after Tech. Specs. Addressed for tripped CS pump		Shear belts on 3A Rx Zone exh bat hlts-3-16-1
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ROLE PLAY: If directed to check local bldg dp, report Rx Zone dp (+0.2 psid)

ROLE PLAY: If directed to investigate 3A Rx Zone exhaust fan locally, report all belts are sheared (motor running but not fan)

When 3B Rx zone fans placed I/S, VERIFY alarm gets deleted, otherwise, press button to delete alarm		Delete override on dp alarm dor an:xa553d[32]
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ROLE PLAY: If directed to check local bldg dp after 3B fans placed in service, report Rx Zone dp (- 0.27 psid) (If 3A fans secured but 3B fans not started, report dp 0.0 psid)

3 minutes after 3B Rx Zone fans placed in service		Recirc runaway – pwr oscill bat hlts-3-16-2
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Immediately after scram		enable SDV switches bat sdv
As soon as scram is reset		Disable SDV switches for 7 min bat sdvtd

If requested to close 3-85-586 wait 5 minutes		closes 85-586 mrf rd06 close
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ROLE PLAY: Call and report 2-85-586 closed

If requested to perform Appendix 2 wait 3 minutes		bypasses ARI scram bat app02
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If requested to perform Appendix 1F wait 5 minutes		bypasses auto scram signals bat app01f
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ROLE PLAY: Call and report App-2 & 1F complete

If requested to perform Appendix 8A & E wait 6 minutes		PCIS Group bypasses bat app08ae
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ROLE PLAY: Call and report App-8A & 8E complete

When requested to open 2-85-586		Opens 3-85-586 mrf rd06 open
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ROLE PLAY: Call and report 3-85-586 open

When RWL lowered for power control...		Delete power oscillations dmf cr02a
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Immediately after 2 nd scram		Enable SDV switches bat sdv
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As soon as scram is reset		Disable SDV switches for 8 min bat sdvtd
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After 2 nd scram reset if Lead Examiner is satisfied with RC/Q usage and power control		Removes ATWS bat atws-1
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Terminate the scenario when the following conditions are satisfied or upon request of instructor:

- 1) All rods fully inserted
- 2) MSIV's closed after all control rods inserted and C5 exited
- 3) RPV water level +2" to +51" (or recovering)

X. Scenario Summary:

The unit is operating at 100% power with a 8% power reduction scheduled. HPCI is tagged out for maintenance on the Auxiliary Oil Pump and is expected to be returned to service within the next 36 hours. It has been out of service for 14 hours.

While performing the Core Spray Loop II Flowrate SR (3-SR-3.5.1.6(CS II)) a trip of 3D Core Spray pump is received and the Crew must consult Tech Specs to determine required actions.

The belts will shear on 3A Rx Zone exhaust fan causing a low Rx bldg dp and corresponding alarm where the crew will start standby fan per ARP and 3-AOI-30B

3A Recirc pump speed control failure (> 1500 rpm), the crew will not be able to lower speed and will respond per 3-AOI-68-3 and have to trip the pump and will respond per 3-AOI-68-1A. The Reactor will enter Region 2 of the power to flow map and power oscillations will increase until the OPRM trip setpoint is exceeded. The crew will recognize failure to auto scram and will insert a manual scram (If manual scram not already inserted prior to OPRM's exceeding scram setpoint).

The crew will experience a hydraulic ATWS and respond per 3-EOI-1 and C5. The crew will have to lower RWL to control power per C5 and App-4. The SDV will fail to drain totally, thus requiring multiple reactor scrams to insert control rods.

Due to the Fuel failure from the power oscillations, The Main Steam Line Rad HiHi alarm will be received and the crew will recognize Not to close MSIV's until after the control rods have all been inserted.

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

1. US: Unit Supervisor _____
2. ATC: Board Unit Operator _____
3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide US with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

1. All rods fully inserted
2. RPV water level +2" to +51" (or recovering)

XII. Simulator Event Guide:

Event #1: Lower Rx Power with Recirc Flow

Position	Expected Actions	Time/Comments
SRO	Notifies ODS of power drop	
	Direct lowering U3 Power to 92% using Recirc Flow per 3-GOI-100-12 step 5.0[6] and 3-OI-68 step 6.2	
Crew	Notifies Chemistry and RADCON of power drop	
ATC	[1] IF NOT in single loop operation, THEN ADJUST Recirc Pump speeds 3A using, RAISE SLOW (MEDIUM), 3-HS-96-15A(15B)/LOWER SLOW(MEDIUM)(FAST) 3-HS-96-17A(17B)(17C), push-buttons, to achieve balanced jet pump flows.	
	AND/OR	
	ADJUST Recirc Pump speed 3B using, RAISE SLOW (MEDIUM), 3-HS-96- 16A(16B) / LOWER SLOW(MEDIUM)(FAST) 3-HS-96-18A(18B)(18C),push-buttons, to achieve balanced jet pump flows.	
	AND/OR	
	WHEN desired to control Recirc Pumps 3A and/or 3B speed with the RECIRC MASTER CONTROL, THEN ADJUST Recirc Pump speed 3A & 3B using the following push buttons as required: RAISE SLOW, 3-HS-96-31 RAISE MEDIUM, 3-HS-96-32 LOWER SLOW, 3-HS-96-33 LOWER MEDIUM, 3-HS-96-34 LOWER FAST, 3-HS-96-35	
If speeds are between 1200 and 1300 rpm then speeds should be mismatched by 60 rpm		
BOP	Provides peer check for Recirc adjustment	
	Continue to monitor BOP (transfer volts, condensate flow, etc)	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
SRO	Directs BOP to continue with Core Spray flowrate SR 3-SR-3.5.1.6(csII)	
BOP	Resumes Core Spray Loop II Flow rate SR 3-SR-3.5.1.6(csII) at step 7.3, performs required manipulations per the SR	
	<p>7.3 Core Spray Pump Flow and Valve Testing</p> <p>[1] VERIFY CS Pump 3B and 3D pretest static suction pressures are adequate and RECORD below: records pump suction pressures</p>	
	<p>[2] CHECK Core Spray NE Room Cooler Fan is NOT operating as follows:</p> <ul style="list-style-type: none"> • On 480V RMOV Board 3B, Compartment 8B (EI 593') CHECK the fan motor Power On light 3-IL-064-0073 is extinguished. • Above CS Pump 3B, CHECK that no air flow can be felt from the duct louvers while standing next to the pump. • Above CS Pump 3D, CHECK that no air flow can be felt from the duct louvers while standing next to the pump. 	
	[3] START CS Pump 3B using 3-HS-75-33A.	
[4] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A to obtain an average CS LOOP II flow of 3200 gpm as indicated by 3-FI-75-49. [BFPER98-004734-000]		

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	<p>[5] CHECK the following annunciators on Panels 3-9-3 and 3-9-23C are in alarm:</p> <ul style="list-style-type: none"> • CORE SPRAY SYS II PUMP B START (3-XA-55-3F, window 1) • RHR OR CS PUMPS RUNNING ADS BLOWDOWN PERMISSIVE (3-XA-55-3C, window 10) • CORE SPRAY PUMP 3B RUNNING (3-XA-55-23C, window 33) 	
	<p>[6] PERFORM the following to verify 3-CKV-075-0570B operation:</p> <p>[6.1] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A to obtain a CS LOOP II flow of approximately 1800 gpm as indicated by 3-FI-75-49</p>	
	<p>[6.2] VERIFY CORE SPRAY SYS II MIN FLOW VALVE, 3-FCV-75-37 opens</p>	
	<p>[6.3] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A to obtain a flow of approximately 2800 gpm as indicated by 3-FI-75-49</p>	
	<p>[6.4] VERIFY CORE SPRAY SYS II MIN FLOW VALVE, 3-FCV-75-37 is closed</p>	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	[6.5] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE 3-HS-75-50A to obtain a flow of approximately 3200 gpm as indicated by 3-FI-75-49	
	[6.6] On 3-LPNL-25-0060, RECORD the local CS Pump 3B discharge pressure below using 3-PI-075-0035: CS Pump 3B Disch Press _____ psig	
	[6.7] NOTIFY Operations personnel to monitor CS Pump 3B discharge pressure measured locally by 3-PI-075-0035 on 3-LPNL-25-0060 for minimum reading obtained while opening the CORE SPRAY SYS II MIN FLOW VALVE 3-FCV-75-37	
	[6.8] CONTINUOUSLY HOLD the CORE SPRAY SYS II MIN FLOW VALVE, 3-HS-75-37A, in the OPEN position until Step 7.3[6.10]	
	[6.9] RECORD below the lowest CS Pump 3B discharge pressure measured locally by 3-PI-075-0035 on 3-LPNL-25-0060: CS Pump 3B Disch Press _____ psig	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	[6.10] RELEASE 3-HS-75-37A to the AUTO position	
	[6.11] CALCULATE the change in CS Pump 3B discharge pressure as stipulated below: Initial Discharge Pressure ____psig (Step 7.3[6.6]) Lowest Discharge Pressure - ____psig (Step 7.3[6.9]) Discharge Pressure Change = ____psi	
	[6.11.1] VERIFY calculation performed is correct (IV)	
	[6.12] CHECK the discharge pressure change recorded is greater than or equal to 10 psid	
	[6.13] CHECK CORE SPRAY SYS II MIN FLOW VALVE 3-FCV-75-37 is closed by noting valve position indicating lights above 3-HS-75-37A	
	[7] PERFORM the following ASME OM Code pump flow and pressure measurements for CS Pump 3B operation:	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	<p>[7.1] IF the ICS is available to obtain CS LOOP II flow rate data, THEN PERFORM the following; (Otherwise N/A.)</p> <p>[7.1.1] CHECK no gross instrument channel failures have occurred by noting the ICS-displayed flow rate is within 100 gpm of the flow rate shown on CORE SPRAY SYS II FLOW Indicator 3-FI-75-49</p> <p>[7.1.2] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A to obtain an average ICS display reading of 3200 gpm. [BFPER98-004734-000]</p>	
	<p>[7.2] IF the ICS is NOT available to obtain CS LOOP II flow rate data, THEN THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A to obtain an average reading of 349 mV (± 0.5 mV) at the DVOM installed at Panel 3-9-19; (Otherwise N/A). [BFPER98-004734-000]</p>	
	<p>[7.3] WHEN stable conditions are obtained, THEN PERFORM the following:</p> <ul style="list-style-type: none"> • RECORD CS Pump 3B suction pressure from Pressure Gauge A, (Ensure appropriate scale is used.) <p>CS Pump 3B suction press (M&TE) ___psig</p> <ul style="list-style-type: none"> • RECORD the pressure reading at 3-PI-075-0035 below: <p>CS Pump 3B discharge pressure ___psig</p>	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	<p>[7.4] CALCULATE CS Pump 3B differential pressure as follows and VERIFY the differential pressure meets the acceptance criteria: Discharge Pressure ____ psig (Step 7.3[7.3]) Suction Pressure - ____ psig (Step 7.3[7.3]) Differential Pressure = ____ psid Acceptance Criteria: 223.6 to 273.4 psid</p>	
	<p>[7.5] VERIFY calculation is correct (IV)</p>	
	<p>[7.6] RECORD the following data for CS Pump 3B: Core Spray Sys II Flow, or ICS Display ____gpm AC=3200gpm Core Spray Sys II Disch Pressure 3-PI-75-48 ____psig AC=N/A Core Spray Sys II Flow 3-FM-75-49 ____mV AC=349mV± 0.5mV Core Spray Pump 3B Motor Current 3-EI-75-33 ____amps AC=N/A 4kV Shutdown Bd 3EC Voltage ____VAC AC=N/A</p> <p>N/A reading for 3-FM-75-49, CS SYS II FLOW, if DVOM was NOT installed</p>	
	<p>[8] [QMDS] NOTIFY EM to perform 0-TI-230 vibration measurements as indicated on Attachment 4 for CS Pump 3B</p>	
	<p>[9] RECORD CS Pump 3B vibration readings below: AA AH1 AH2 BH CH1 CH2 in/sec</p>	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
BOP	<p>[10] CHECK the Core Spray NE Room Cooler Fan is ON as follows:</p> <ul style="list-style-type: none"> • On 480V RMOV Board 3B, Compartment 8B (EI 593') CHECK the fan motor Power On indicating light 3-IL-064-0073 is illuminated • Above CS Pump 3B CHECK that air flow from the duct louver can be felt while standing next to the pump • Above CS Pump 2D CHECK that air flow from the duct louver can be felt while standing next to the pump 	
	<p>[11] START CS Pump 3D using 3-HS-75-42A</p>	
	<p>[12] THROTTLE 3-FCV-75-50 using CORE SPRAY SYS II TEST VALVE, 3-HS-75-50A as necessary to obtain a CS LOOP II flow of 6250 to 6350 gpm as indicated by 3-FI-75-49 or ICS display</p>	
	<ul style="list-style-type: none"> • Reports trip of 3D Core Spray pump 30 seconds after starting per the SR 	

XII. Simulator Event Guide:

Event #2: Core Spray Pump Failure

Position	Expected Actions	Time/Comments
SRO	Directs SR stopped at point where failure occurred. May request clearance for 3D Core Spray pump	
	Contact maintenance to investigate pump trip	
	Directs UO to secure 3B Core Spray pump	
	Consults Tech Spec 3.5.1 A, C, and D determines that a 72 hour LCO is in effect with HPCI and one (1) Low Pressure ECCS system inoperable	
	Briefs Crew on Tech Spec requirements of Core Spray pump INOP with HPCI INOP	
BOP	Stops SR performance	
	Stops 3B Core Spray pump	

XII. Simulator Event Guide:

Event #3: Shear of 3A Rx Zone Exhaust fan belts

Position	Expected Actions	Time/Comments
BOP	Announces alarm 3-9-3D window 32 Reactor zone differential pressure low	
SRO	Directs BOP to respond per ARP	
BOP	A. IF the alarm is intermittent, THEN CHECK for high wind conditions (ex., >20 mph) on ICS	
	B. IF high wind conditions CANNOT be confirmed, THEN REQUEST personnel to check local Reactor Building differential pressure	
	C. IF alarm is due to high wind conditions, THEN EOI-3 entry is NOT required	
	D. IF alarm is valid, THEN NOTIFY Unit Supervisor of 3-EOI-3 entry condition	
	When building dp is reported + 0.2 psig, notifies SRO of EOI-3 entry condition	
SRO	Enters EOI-3	
	Directs BOP to investigate Rx Bldg exhaust fan for proper operation	
BOP	E. REQUEST personnel to check fans locally for any apparent problems	
	Checks fans on pnl 9-25	
	Notices Rx Zone exhaust flow reading 0 but fans indicate running	

XII. Simulator Event Guide:

Event #3: Shear of 3A Rx Zone Exhaust fan belts

Position	Expected Actions	Time/Comments
BOP	F. REFER TO 3-OI-30B and PLACE standby fan in service to restore normal differential pressure	
	When noticed exhaust flow 0 or when AUO reports exhaust fan belts sheared, enters 3-AOI-30B-1 and 3-OI-30B places 3B fans in service	
	6.1 Alternating Reactor Zone Supply and Exhaust Fans [1] VERIFY the Reactor Zone supply and exhaust fans are operating. REFER TO Section 5.1	
	[2] REVIEW all Precautions and Limitations in Section 3.0	
	[3] IF Reactor Zone Supply and Exhaust Fans will NOT be operated in fast speed, THEN SHUT DOWN Steam Vault Exhaust Booster Fan. REFER TO Section 7.4. (N/A if Reactor Building Ventilation has been lost and it desired to run the booster fan to cool the steam tunnel) N/A	
	[4] PLACE REACTOR ZONE FANS AND DAMPERS Switch, 3-HS-64-11A, in OFF	
[5] ^{[[I/C]} VERIFY dampers close and fans stop as indicated by illuminated green lights above the following switches: <ul style="list-style-type: none"> • REACTOR ZONE SPLY OUTBD ISOL DMPR, 3-HS-64-13 • REACTOR ZONE SPLY INBD ISOL DMPR, 3-HS-64-14 • REACTOR ZONE EXH INBD ISOL DMPR, 3-HS-64-42 • REACTOR ZONE EXH OUTBD ISOL DMPR, 3-HS-64-43 • REACTOR ZONE FANS AND DAMPERS, 3-HS-64-11A ^{[[I/B-92-072]} 		

XII. Simulator Event Guide:

Event #3: Shear of 3A Rx Zone Exhaust fan belts

Position	Expected Actions	Time/Comments
BOP	<p>[6] PLACE REACTOR ZONE FANS AND DAMPERS Switch, 3-HS-64-11A, in SLOW A (SLOW B) to start alternate fans</p>	
	<p>[7] VERIFY dampers open and fans start as indicated by illuminated red lights above the following switches:</p> <ul style="list-style-type: none"> • REACTOR ZONE SPLY OUTBD ISOL DMPR, 3-HS-64-13 • REACTOR ZONE SPLY INBD ISOL DMPR, 3-HS-64-14 • REACTOR ZONE EXH INBD ISOL DMPR, 3-HS-64-42 • REACTOR ZONE EXH OUTBD ISOL DMPR, 3-HS-64-43 • REACTOR ZONE FANS AND DAMPERS, 3-HS-64-11A 	
	<p>[8] IF fast speed Reactor Zone Supply and Exhaust Fan operation is required, five minutes should be allowed after slow start for the discharge dampers to FULLY OPEN, THEN</p> <p>[8.1] PLACE REACTOR ZONE FANS AND DAMPERS switch, 3-HS-64-11A, in FAST A (FAST B)</p> <p>[8.2] VERIFY that the two green lights A(B) remain extinguished and the two red lights A(B) remain illuminated above REACTOR ZONE FANS AND DAMPERS Switch, 3-HS-64-11A</p>	
	<p>Places "B" Fans in fast speed after 5 minutes</p>	

XII. Simulator Event Guide:

Event #3: Shear of 3A Rx Zone Exhaust fan belts

Position	Expected Actions	Time/Comments
BOP	<p>[9] VERIFY the following conditions: [9.1] VERIFY REACTOR ZONE PRESS DIFFERENTIAL Indicator, 3-PDIC-064-0002, on 3-LPNL-925-0213, located at R17-P EI 639', indicates between -0.25 inches and -0.40 inches H₂O [9.2] IF REACTOR ZONE PRESS DIFFERENTIAL Indicator, 3-PDIC-64-2, is NOT between -0.25 inches and -0.40 inches H₂O, THEN REFER TO 3-AOI-30B-1, Reactor Building Ventilation Failure</p>	
	<p>[10] IF required, THEN START Steam Vault Exhaust Booster Fan. REFER TO Section 5.4 N/A</p>	
	<p>Verifies low building dp alarm clears and notifies SRO</p>	
SRO	Exits EOI-3 when low bldg dp alarm clears	

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations

Position	Expected Actions	Time/Comments
ATC	Notifies 3A Recirc pump speed increasing by; <ul style="list-style-type: none"> • actually seeing pump speed increase • actually seeing core flow increase • noticing Rx Power (MWe or APRM's) increasing 	
SRO	Directs entry into 3-AOI-68-3 Directs lowering speed of 3A Recirc pump	
ATC	Attempts to lower speed of 3A Recirc pump using individual lower fast/lower medium/lower slow pushbuttons (may also try master lower fast/lower medium/lower slow pushbuttons – but they will not work either) Notifies SRO of inability to lower 3A Recirc pump speed	
SRO	Directs tripping 3A Recirc pump Directs entering 3-AOI-68-1A for tripped pump / core flow lowering Contacts Management Contacts ODS / SW dispatcher of power drop	
ATC	May dispatch licensed operator with key locally to VFD (but will NOT be able to wait for him/her to get there before having to trip 3A pump) Trips / Shutdown 3A Recirc pump by depressing 3-HS-96-19	

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations (cont)

Position	Expected Actions	Time/Comments
ATC	Enters 3-AOI-68-1A	
	Subsequent Actions	
	[1] IF both Recirc Pumps are tripped in modes 1 or 2, THEN (Otherwise N/A),	
	A. SCRAM the Reactor.	
	A. RESTART affected Reactor Recirculation pumps. Refer to 3-OI-68 Section 8.0.	
	[2] IF the ΔT between the Rx vessel bottom head temperature and the moderator temperature precludes restart of a Recirc pump, OR forced Recirculation flow CANNOT be established for any reason, THEN (Otherwise NA)	
	B. INITIATE a plant cooldown to prevent exceeding the pressure limit for the Rx vessel bottom head temperature indicated on 3-PNL-9-47, 3-TR-56-4 pt. 10 and based on Tech Specs Figure 3.4.9-1.	
	C. INFORM the Unit Supervisor, Tech Spec 3.4.1 requires the Reactor be placed in Mode 3 in 12 hours. Refer to 3-GOI-100-12A and Tech Specs 3.4.1.B.	
[2] IF Region I or II of the Power to Flow Map (Illustration 1) is entered, THEN (Otherwise N/A) IMMEDIATELY take actions to INSERT control rods to less than 95.2% loadline. Refer to 0-TI-464, Reactivity Control Plan Development and Implementation.		

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations (cont)

Position	Expected Actions	Time/Comments
ATC	[3] RAISE core flow to greater than 45%. Refer to 3-OI-68.	
	[4] INSERT control rods to exit regions if not already exited. Refer to 0-TI-464, Reactivity Control Plan Development and Implementation.	
	[5] CLOSE tripped Recirc Pump discharge valve.	
	[6] MAINTAIN operating Recirc pump flow less than 46,600 gpm. Refer to 3-OI-68.	
	[7] [NER/C] WHEN plant conditions allow, THEN, (Otherwise N/A) MAINTAIN operating jet pump loop flow greater than 41 x 106 lbm/hr (3-FI-68-46 or 3-FI-68-48). [GE SIL 517]	
	[8] IF Recirc Pump was tripped due to dual seal failure, THEN (Otherwise N/A)	
	[8.1] VERIFY TRIPPED, RECIRC DRIVE 3A(3B) NORMAL FEEDER, 3-HS-57-17(14).	
	[8.2] VERIFY TRIPPED, RECIRC DRIVE 3A(3B) ALTERNATE FEEDER, 3-HS-57-15(12).	
	[8.3] CLOSE tripped recirc pump suction valve using, RECIRC PUMP 3A(3B) SUCTION VALVE, 3-HS-68-1(77).	
	[8.4] IF it is evident that 75°F between the dome AND the idle Recirc loop cannot be maintained, THEN COMMENCE plant shut down and cool down. Refer to 3-GOI-100-12A.	

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations (cont)

Position	Expected Actions	Time/Comments
ATC	<p>[9] NOTIFY Reactor Engineer to PERFORM the following:</p> <ul style="list-style-type: none"> • Tech Specs 3.4.1 • 3-SR-3.4.1(SLO), Reactor Recirculation System Single Loop Operation • 0-TI-248, Core Flow Determination in Single Loop Operation 	
	<p>[10] [NER/C] WHEN the Recirc Pump discharge valve has been closed for at least five minutes (to prevent reverse rotation of the pump) [GE SIL-517], THEN (N/A if Recirc Pump was isolated in Step 4.2[8])</p> <p>OPEN Recirc Pump discharge valve as necessary to maintain Recirc Loop in thermal equilibrium.</p>	
	<p>[11] REFER TO the following ICS screens to help determine the cause of recirc pump trip/core flow lowering.</p> <p>VFDMPA(VFDPMPB), VFDAAL(VFDBAL)</p>	

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations (cont)

Position	Expected Actions	Time/Comments
ATC	[12] CHECK parameters associated with Recirc Drive and Recirc Pump/Motor 3A(3B) on ICS and 3-TR-68-58(84) to determine cause of trip.	
	[13] PERFORM visual inspection of tripped Reactor Recirc Drive.	
	[14] PERFORM visual inspection of Reactor Recirc Pump Drive relay boards for relay targets.	
	[15] IF necessary, THEN (Otherwise N/A) Refer to Illustration 5 of 3-OI-68 for Reactor Recirc Pump trips.	
	[16] INITIATE actions required to make the necessary repairs. (Otherwise N/A)	
	[17] For Single Loop Operation, PERFORM the following:	
	[17.1] Refer to 3-OI-68 for guidance on single loop operation.	
	[17.2] Refer to Tech Specs 3.4.1.	
	[17.3] WHEN available, THEN RETURN tripped Recirc Pump to service. Refer to 3-OI-68.	

XII. Simulator Event Guide:

Event #4: 3A Recirc Pump Runaway / Trip / Power Oscillations (cont)

Position	Expected Actions	Time/Comments
Crew	Notifies Rx Engineer to perform; <ul style="list-style-type: none"> • 3-SR-3.4.1(SLO), Reactor Recirculation System Single Loop Operation • 0-TI-248, Core Flow Determination in Single Loop Operation 	
SRO	Checks Tech Specs 3.4.1	
ATC	Monitors Reactor for power oscillations	
	Recognizes power oscillations	
	Notifies SRO of power oscillations	
	When recognizes the Rx failed to scram when OPRM setpoint exceeded, inserts manual scram (contingent – manual scram may be inserted prior to exceeding scram setpoint – SRO conservative decision making)	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	Recognizes hydraulic ATWS	
	Takes mode switch to shutdown	
	Initiates one channel of ARI	
	Gives scram report	
SRO	Enters 3-EOI-1 and C5	
	Directs initiating 2 nd channel of ARI	
	Directs tripping 3B Recirc pump	
ATC	Initiates 2 nd channel of ARI	
	Trips 3B Recirc pump	
	Reports Rx power > 5%	
Crew	Announces Rx scram	
SRO	Directs ADS inhibited	
BOP	Inhibits ADS	
SRO	Directs bypassing scrams per App-1F	
	Directs bypassing ARI per App-2	
	Directs ATC to insert control rods per App-1D	
BOP	Calls for App-1F and App-2	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	Performs App-1D	
	1. VERIFY at least one CRD pump in service	
	2. IF Reactor Scram or ARI CANNOT be reset, THEN ... DISPATCH personnel to CLOSE 3-SHV-085-0586, CHARGING WATER SOV (RB NE, EI 565 ft)	
	3. VERIFY REACTOR MODE SWITCH in SHUTDOWN	
	4. BYPASS Rod Worth Minimizer	
	5. REFER to Attachment 2 and INSERT control rods in the area of highest power as follows: a. SELECT control rod b. PLACE CRD NOTCH OVERRIDE switch in EMERG ROD IN position UNTIL control rod is NOT moving inward c. REPEAT Steps 5.a and 5.b for each control rod to be inserted	
	6. WHEN ... NO further control rod movement is possible or desired, THEN ... DISPATCH personnel to VERIFY OPEN 3-SHV-085-0586, CHARGING WATER SOV (RB NE, EI 565 ft)	
Crew	Recognizes and reports Group 2, 3, and 6 isolations if water level decrease below +2"	
SRO	Directs App-8A and App-8E	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
SRO	Directs Rx pressure be maintained 800 – 1000 psig with any of the following; <ul style="list-style-type: none"> • MSRV's – App-11A • MSL Drains – App-11D 	
BOP	Controls Rx pressure as directed with App-11A 1. IF Drywell Control Air is NOT available, THEN ... EXECUTE EOI Appendix 8G, CROSSTIE CAD TO DRYWELL CONTROL AIR, CONCURRENTLY with this procedure. 2. IF Suppression Pool level is at or below 5.5 ft, THEN ... CLOSE MSRVs and CONTROL RPV pressure using other options. 3. OPEN MSRVs using the following sequence to control RPV pressure as directed by SRO: a. 1 3-PCV-1-179 MN STM LINE A RELIEF VALVE b. 2 3-PCV-1-180 MN STM LINE D RELIEF VALVE c. 3 3-PCV-1-4 MN STM LINE A RELIEF VALVE d. 4 3-PCV-1-31 MN STM LINE C RELIEF VALVE e. 5 3-PCV-1-23 MN STM LINE B RELIEF VALVE f. 6 3-PCV-1-42 MN STM LINE D RELIEF VALVE g. 7 3-PCV-1-30 MN STM LINE C RELIEF VALVE h. 8 3-PCV-1-19 MN STM LINE B RELIEF VALVE i. 9 3-PCV-1-5 MN STM LINE A RELIEF VALVE j. 10 3-PCV-1-41 MN STM LINE D RELIEF VALVE k. 11 3-PCV-1-22 MN STM LINE B RELIEF VALVE l. 12 3-PCV-1-18 MN STM LINE B RELIEF VALVE m. 13 3-PCV-1-34 MN STM LINE C RELIEF VALVE	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	Controls Rx pressure as directed with App-11D (If directed)	
	1. IF BOTH of the following exist: <ul style="list-style-type: none"> • Emergency RPV Depressurization is required, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Group 1 Isolation Signal exists, THEN ... EXIT this procedure and ENTER EOI Appendix 11H	
	2. VERIFY hotwell pressure below -7 in. Hg 3. CONTROL RPV pressure with Main Steam line drains as follows: <ul style="list-style-type: none"> a. VERIFY PCIS reset b. OPEN the following valves (Panel 3-9-3): <ul style="list-style-type: none"> ○ 3-FCV-1-55, MN STM LINE DRAIN INBD ISOLATION VLV ○ 3-FCV-1-56, MN STM LINE DRAIN OUTBD ISOLATION VLV ○ 3-FCV-1-58, UPSTREAM MSL DRAIN TO CONDENSER 	
	4. THROTTLE 3-FCV-1-59, DOWNSTREAM MSL DRAIN TO CONDENSER, as necessary to control cooldown rate	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	<p>5. IF At least one main steam line is open AND EITHER of the following exist:</p> <ul style="list-style-type: none"> • Turbine bypass valves are NOT available, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Additional RPV pressure control is necessary, <p>THEN ... CONTROL RPV pressure with Main Turbine and RFPT drains as follows:</p> <p>a. OPEN the following Main Turbine Drain valves (Panel 3-9-7):</p> <ul style="list-style-type: none"> ○ 3-FCV-6-100, STOP VALVE 1 BEFORE SEAT DR VLV ○ 3-FCV-6-101, STOP VALVE 2 BEFORE SEAT DR VLV ○ 3-FCV-6-102, STOP VALVE 3 BEFORE SEAT DR VLV ○ 3-FCV-6-103, STOP VALVE 4 BEFORE SEAT DR VLV <p>b. OPEN the following RFPT drain valves (Panel 3-9-6):</p> <ul style="list-style-type: none"> ○ 3-FCV-6-122, RFPT 3A HP STOP VLV ABOVE SEAT DR ○ 3-FCV-6-127, RFPT 3B HP STOP VLV ABOVE SEAT DR ○ 3-FCV-6-132, RFPT 3C HP STOP VLV ABOVE SEAT DR 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
SRO	Directs Rx water level be lowered to control power to -50" per C5 and App-4	
BOP	Performs Appendix-4 on 9-3 as follows:	
	1. PREVENT injection to RPV from the following systems in any order as required:	
	a. HPCI 1) IF HPCI Turbine is NOT at zero speed, THEN..... PRESS and HOLD 3-HS-73-18A, HPCI TURBINE TRIP push-button 2) WHEN HPCI Turbine is at zero speed, THEN..... PLACE 3-HS-73-47A, HPCI AUXILIARY OIL PUMP control switch in PULL TO LOCK and RELEASE 3-HS-73-18A, HPCI TURBINE TRIP push-button	
	b. RCIC 1) IF DIRECTED by SRO to allow RCIC injection, THEN..... EXIT step 1.b 2) PRESS 3-HS-71-9A, RCIC TURBINE TRIP push-button to trip RCIC Turbine	
c. CORE SPRAY NOTE: After receipt of an automatic initiation signal, it is NOT necessary to wait until the pump actually starts before performing the next step. Following an initiation signal, PLACE ALL Core Spray pump control switches in STOP		

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
BOP	<p>d. LPCI SYSTEM I PREVENT injection by EITHER of the following methods:</p> <ul style="list-style-type: none"> • Following automatic pump start, PLACE RHR SYSTEM I pump control switches in STOP <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • BEFORE RPV pressure drops below 450 psig, <ol style="list-style-type: none"> 1) PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL, in BYPASS <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 2) VERIFY CLOSED 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE 	
	<p>e. LPCI SYSTEM II PREVENT injection by EITHER of the following methods:</p> <ul style="list-style-type: none"> • Following automatic pump start, PLACE RHR SYSTEM II pump control switches in STOP <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • BEFORE RPV pressure drops below 450 psig, <ol style="list-style-type: none"> 1) PLACE 3-HS-74-155B, LPCI SYS II OUTBD INJ VLV BYPASS SEL, in BYPASS <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> 2) VERIFY CLOSED 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	Performs Appendix-4 on 9-5 & 9-6 as follows:	
	f. CONDENSATE and FEEDWATER	
	<p>1) LOWER RFPT 3A(3B)(3C) speed to minimum setting (approximately 600 rpm) using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> ○ Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL AND individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ○ Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ○ Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	2) CLOSE the following valves BEFORE RPV pressure drops below 450 psig: <ul style="list-style-type: none"> ○ 3-FCV-3-19, RFP 3A DISCHARGE VALVE ○ 3-FCV-3-12, RFP 3B DISCHARGE VALVE ○ 3-FCV-3-5, RFP 3C DISCHARGE VALVE ○ 3-LCV-3-53, RFW START-UP LEVEL CONTROL 	
	3) TRIP RFPTs as necessary to prevent injection by DEPRESSING the following push-buttons: <ul style="list-style-type: none"> ○ 3-HS-3-125A, RFPT 3A TRIP ○ 3-HS-3-151A, RFPT 3B TRIP ○ 3-HS-3-176A, RFPT 3C TRIP 	
SRO	When Rx water level is lowered to -50", directs water level be maintained -50" to -162" with RFP's per App-5A (directed water level band may be smaller if directed by SRO, i.e. -50" to -100")	
ATC	Re-establishes injection with a RFP in the directed water level band per App-5A	
	1. VERIFY Condensate System in service, supplying suction to RFPs	
	2. VERIFY OPEN MSIVs, supplying steam to RFPTs	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	3. VERIFY Hotwell Pressure below -7 in. Hg	
	4. VERIFY CLOSED 3-FCV-1-121(129)(137), RFPT 3A(3B)(3C) LP STEAM SUPPLY VALVE	
	5. VERIFY OPEN 3-FCV-1-125(133)(141), RFPT 3A(3B)(3C) HP STEAM SUPPLY VALVE	
	6. DEPRESS 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER, and VERIFY amber light is illuminated	
	7. VERIFY a Main Oil Pump is running for RFPT to be started	
	8. VERIFY for EACH of the following pushbuttons, the green light is illuminated and the red light is extinguished: <ul style="list-style-type: none"> • 3-HS-3-208A, RX WTR LVL CH A HI RFPT/MT TRIP RESET • 3-HS-3-208B, RX WTR LVL CH B HI RFPT/MT TRIP RESET 	
	9. VERIFY OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-3-75, HP HTR 3A1 FW OUTLET ISOL VLV • 3-FCV-3-76, HP HTR 3B1 FW OUTLET ISOL VLV • 3-FCV-3-77, HP HTR 3C1 FW OUTLET ISOL VLV 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	<p>10. DEPRESS 3-HS-3-124A(150A)(175A), RFPT 3A(3B)(3C) TRIP RESET, and CHECK the following:</p> <ul style="list-style-type: none"> • Blue light extinguished • HP Stop Valve open as indicated by red light above the following, as applicable: <ul style="list-style-type: none"> ○ 3-HS-3-108, RFPT 3A HP STOP VLV TEST ○ 3-HS-3-134, RFPT 3B HP STOP VLV TEST ○ 3-HS-3-159, RFPT 3C HP STOP VLV TEST • LP Stop Valve open as indicated by red light above the following, as applicable: <ul style="list-style-type: none"> ○ 3-HS-3-107, RFPT 3A LP STOP VLV TEST ○ 3-HS-3-133, RFPT 3B LP STOP VLV TEST ○ 3-HS-3-158, RFPT 3C LP STOP VLV TEST 	
	11. VERIFY OPEN 3-FCV-3-20(13)(6), RFP 3A(3B)(3C) MIN FLOW VALVE	
	12. PLACE 3-HS-46-112A(138A)(163A), RFPT 3A(3B)(3C) START/LOCAL ENABLE, in START	
	13. CHECK RFPT 3A(3B)(3C) speed increases to approximately 600 rpm	
	14. VERIFY OPEN 3-FCV-3-19(12)(5), RFP 3A(3B)(3C) DISCHARGE VALVE	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	<p>15. RAISE RFPT 3A(3B)(3C) speed UNTIL RFP discharge pressure is approximately equal to RPV pressure using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <li style="text-align: center;">OR • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <li style="text-align: center;">OR • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	
	<p>16. SLOWLY RAISE speed of RFPT UNTIL RFW flow to the RPV is indicated using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <li style="text-align: center;">OR • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <li style="text-align: center;">OR • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	<p>17. ADJUST RFPT speed as necessary to control injection using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO 	
	<p>18. WHEN ... RPV level is approximately equal to desired level AND automatic level control is desired, THEN ... PLACE 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in AUTO with individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO</p>	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure

Position	Expected Actions	Time/Comments
ATC	Continues in Appendix-1D	
	When notified that App-2 is complete and outside portion of App-1F is complete, continues in Appendix-1F and resets scram and starts draining SDV's	
	2. WHEN ... RPS Logic has been defeated, THEN ... RESET Reactor Scram	
	3. VERIFY OPEN Scram Discharge Volume vent and drain valves	
	4. DRAIN SDV UNTIL the following annunciators clear on Panel 3-9-4: <ul style="list-style-type: none"> • WEST CRD DISCH VOL WTR LVL HIGH HALF SCRAM (3-XA-55-4A, Window 1) • EAST CRD DISCH VOL WTR LVL HIGH HALF SCRAM (3-XA-55-4A, Window 29) 	
	5. DISPATCH personnel to VERIFY OPEN 3-SHV-085-0586, CHARGING WATER SOV	
	NOTE: If EOI Appendix 2 has been executed, ARI initiation or reset will NOT be possible or necessary in Step 6	
	6. WHEN ... CRD Accumulators are recharged, THEN ... INITIATE manual Reactor Scram and ARI	
7. CONTINUE to perform Steps 1 through 6 UNTIL ANY of the following exists: <ul style="list-style-type: none"> • ALL control rods are inserted to or beyond position 02, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • NO inward movement of control rods is observed, <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • SRO directs otherwise 		

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
Crew	Recognize and reports "OG Pretreatment Radiation High" and "OG Annual Release Limit Exceeded", notifies RadCon, and Chemistry	
SRO	When the Suppression Pool temperature reaches 95°F (or level -1"), enters EOI-2 and directs; <ul style="list-style-type: none"> • all available Suppression Pool cooling per App-17A • H₂O₂ Analyzers placed in service • vent containment per App-12 (if needed) 	
BOP	Places suppression pool cooling in service per Appendix-17A	
	1. IF.....Adequate core cooling is assured, OR Directed to cool the Suppression Pool irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	2. PLACE RHR SYSTEM I(II) in Suppression Pool Cooling as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	<p>c. THROTTLE the following in-service RHR SW outlet valves to obtain between 1350 and 4500 gpm RHR SW flow:</p> <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHR SW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHR SW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHR SW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHR SW OUTLET VLV 	
	<p>d. IF Directed by SRO, THEN.....PLACE 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD in MANUAL OVERRIDE.</p>	
	<p>e. IFLPCI INITIATION Signal exists, THEN.....MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT in SELECT.</p>	
	<p>f. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.</p>	
	<p>g. OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.</p>	
	<p>h. VERIFY desired RHR pump(s) for Suppression Pool Cooling are operating.</p>	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	i. THROTTLE 3-FCV-74-59(73), RHR SYS I(II) SUPPR POOL CLG/TEST VLV, to maintain EITHER of the following as indicated on 3-FI-74-50(64), RHR SYS I(II) FLOW: <ul style="list-style-type: none"> • Between 7000 and 10000 gpm for one-pump operation. OR • At or below 13000 gpm for two-pump operation. 	
	j. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	k. MONITOR RHR Pump NPSH using Attachment 1.	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	m. IF Additional Suppression Pool Cooling flow is necessary, THEN.....PLACE additional RHR and RHRSW pumps in service using Steps 2.b through 2.l.	
	Places H ₂ O ₂ Analyzers in service per EOI-2	
	1. Place Analyzer isolation bypass keylock switches to bypass	
	2. Select DW or Supp Chmbr and momentarily pull out select switch handle to start sample pumps	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	Vents Containment per Appendix-12 (If directed)	
	1. VERIFY at least one SGTS train in service.	
	2. VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): <ul style="list-style-type: none"> • 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV, • 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE, • 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV, • 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE. 	
	3. IF ... While executing this procedure to vent the Suppression Chamber, Suppression Pool water level can not be determined to be below 20 ft, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	4. IF ... While executing this procedure, the desired vent path is lost or can not be established, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	5. IF ... While executing this procedure, CAD addition per SAMG-2, Step G-4 OR G-9, is to begin, THEN . BEFORE CAD is initiated, PERFORM Step 13 to secure the vent path.	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	<p>NOTE: Venting may be accomplished using EITHER:</p> <p>3-FIC-84-19, PATH B VENT FLOW CONT OR 3-FIC-84-20, PATH A VENT FLOW CONT</p> <p>NOTE: Unless the TSC recommends otherwise, venting the Drywell DIRECTLY should be performed ONLY if the Suppression Chamber can NOT be vented</p>	
	<p>6. IF ... ANY of the following exists:</p> <ul style="list-style-type: none"> • Suppression Pool water level can not be determined to be below 20 ft, OR • Suppression Chamber can NOT be vented, OR • SRO orders DIRECT drywell venting, THEN CONTINUE in this procedure at: <ul style="list-style-type: none"> ○ Step 10 to vent the Drywell through 3-FCV-84-19, OR ○ Step 11 to vent the Drywell through 3-FCV-84-20. 	
	<p>7. CONTINUE in this procedure at:</p> <ul style="list-style-type: none"> • Step 8 to vent the Suppression Chamber through 3-FCV-84-19, OR • Step 9 to vent the Suppression Chamber through 3-FCV-84-20. 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	8. VENT the Suppression Chamber using 3-FIC-84-19, PATH B VENT FLOW CONT, as follows:	
	a. PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54).	
	b. VERIFY OPEN 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 3-9-54).	
	c. PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55).	
	d. PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55).	
	e. VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm.	
	f. CONTINUE in this procedure at step 12.	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	12. ADJUST 3-FIC-84-19, PATH B VENT FLOW CONT, or 3-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following: <ul style="list-style-type: none"> • Stable flow as indicated on controller, AND • 3-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished, AND • Release rates as determined below: 	
	i. IF. . .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress THEN. .MAINTAIN release rates below those specified in Attachment 2.	
	ii. IF. . .Severe Accident Management Guidelines are being executed, THEN. .MAINTAIN release rates below those specified by the TSC SAM Team.	
	iii. IF. . .Venting for ANY other reason than items i or ii above, THEN. .MAINTAIN release rates below Stack release rate of 1.4×10^7 $\mu\text{Ci/s}$ AND 0-SI-4.8.B.1.a.1 release fraction of 1.	
	Contacts LOG AUO to monitor release rates	
Crew	Recognizes fuel damage from multiple Rad alarms and recognizes MSL Hi Hi Rad alarm	
SRO	Directs MSIV remain open due to ongoing ATWS	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
ATC	After SDV drained (alarms 9-4A windows 1 and 28 clear) directs 85-586 re-opened (If closed)	
	After accumulators recharged, inserts 2 nd scram	
	Recognizes some control rod movement, but all control rods not in	
SRO	Directs reactor reset, drain SDV, and re-scram	
	Directs SLC injection (conditional – if Suppression Pool temp $\geq 110^{\circ}\text{F}$)	
ATC	After SDV drained again, inserts 3 rd scram	
	Recognizes and reports all control inserted on scram	
BOP	Verifies all rods in	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
SRO	Exits C5 to RCL (EOI-1)	
	Exits RCQ and directs OATC enter 3-AOI-100-1	
	Directs level be restored +2" to +51" with RCIC (App-5C) , and/or CRD (App-5B)	
	Directs SLC stopped (if injected)	
	Directs closing MSIV's due to MSL Hi Hi alarm and no longer in C5	
ATC	Performs actions in AOI-100-1	
BOP	Aligns and injects with RCIC per Appendix-5C	
	<p>1. IF BOTH of the following exist:</p> <ul style="list-style-type: none"> • RPV Pressure is at or below 50 psig, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Bypass of RCIC low RPV pressure isolation interlocks is necessary, <p>THEN ... EXECUTE EOI Appendix 16A concurrently with this procedure</p>	
	<p>2. IF BOTH of the following exist:</p> <ul style="list-style-type: none"> • High temperature exists in the RCIC area, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • SRO directs bypass of RCIC High Temperature Isolation interlocks, <p>THEN ... PERFORM the following:</p> <ul style="list-style-type: none"> a. EXECUTE EOI Appendix 16K concurrently with this procedure b. RESET auto isolation logic using RCIC AUTO-ISOL LOGIC A(B) RESET 3-XS-71-51A(B) pushbuttons 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	3. VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VALVE RESET	
	4. VERIFY 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller in AUTO with setpoint at 600 gpm	
	5. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-39, RCIC PUMP INJECTION VALVE • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV 	
	6. PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START	
	7. OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine	
	8. CHECK proper RCIC operation by observing the following: <ul style="list-style-type: none"> a. RCIC Turbine speed accelerates above 2100 rpm b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm c. 3-FCV-71-40, RCIC Testable Check Vlv, opens by observing 3-ZI-71-40A, DISC POSITION, red light illuminated d. 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE, closes as flow rises above 120 gpm 	
	9. IF BOTH of the following exist: <ul style="list-style-type: none"> • RCIC Initiation signal is NOT present, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • RCIC flow is below 60 gpm, <p>THEN ... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE</p>	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	<p>10. ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection</p>	
	<p>11. IF It is desired to align RCIC suction to the Suppression Pool, THEN ... PERFORM the following: a. OPEN 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. OPEN 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE c. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE, and 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE, are fully open, THEN ... VERIFY CLOSED 3-FCV-71-19, RCIC CST SUCTION VALVE NOTE: Step 12.b must be performed promptly following Step 12.a to avoid loss of suction path</p>	
	<p>12. IF It is desired to align RCIC suction to the Condensate Storage Tank, THEN ... PERFORM the following: a. CLOSE 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE b. WHEN ... 3-FCV-71-17, RCIC SUPPR POOL INBD SUCT VALVE starts traveling closed, THEN ... OPEN 3-FCV-71-19, RCIC CST SUCTION VALVE c. CLOSE 3-FCV-71-18, RCIC SUPPR POOL OUTBD SUCT VALVE</p>	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	Aligns and injects with CRD per Appendix-5B	
	1. IF Maximum injection flow is NOT required, THEN ... VERIFY CRD aligned as follows:	
	a. VERIFY at least one CRD pump in service and aligned to Unit 3 CRD system.	
	b. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, as necessary to obtain flow rate of 65 to 85 gpm.	
	c. THROTTLE 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV, to maintain 250 to 350 psid drive water header pressure differential.	
	d. EXIT this procedure.	
	2. IF BOTH of the following exist: <ul style="list-style-type: none"> • CRD is NOT required for rod insertion, AND • Maximum injection flow is required, THEN ... LINE UP ALL available CRD pumps to the RPV as follows:	
	a. IF CRD Pump 3A is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B.	
b. IF CRD Pump 3B is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B.		

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	<p>c. OPEN the following valves to increase CRD flow to the RPV:</p> <ul style="list-style-type: none"> • 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV • 3-PCV-85-27, CRD CLG WATER PRESS CONTROL VLV • 3-FCV-85-50, CRD EXH RTN LINE SHUTOFF VALVE. 	
	<p>d. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, on Panel 9-5 to control injection WHILE maintaining 3-PI-85-13A, CRD ACCUM CHG WTR HDR PRESS, above 1450 psig, if possible.</p>	
	<p>e. IFAdditional flow is necessary to prevent or mitigate core damage, THENDISPATCH personnel to fully open the following valves as required:</p> <ul style="list-style-type: none"> • 3-THV-085-0527, CRD PUMP DISCH THROTTLING (RB NE, el 565') • 3-BYV-085-0551, CRD PUMP TEST BYPASS (RB NE, el 565'). 	

XII. Simulator Event Guide:

Event #5: ATWS with Fuel Failure (cont)

Position	Expected Actions	Time/Comments
BOP	Stops SLC (if injected)	
	Closes MSIV's when directed	
Crew	Recognize RM-90-29A Rx Bldg High Radiation (conditional)	
	Evacuates Rx Bldg	
SRO	If Rx Bldg High Rad alarm received, enters EOI-3 (conditional)	
	Classifies event as a Site Area Emergency (1.2-S)	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Insert manual scram within 1 minute of OPRM failure to scram (conditional – Crew may insert manual scram prior to OPRM's exceeding trip setpoint)	
2)	Prevent Auto ADS actuation	
3)	Controls power by : Inserting control rods per RC/Q-21 Lowering water level per C5 and App-4	
4)	When all rods are inserted restores and maintains RPV water level above TAF	
5)	Close MSIV's within 5 minutes of exiting C5	

SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-16

7 Total Malfunctions Inserted: List (4-8)

- 1) Core Spray failure (SR)
- 2) Rx Zone fan failure
- 3) Recirc pump runaway/trip
- 4) Power Oscillations
- 5) Failure of OPRM's to auto scram
- 6) ATWS
- 7) Fuel failure

2 Malfunctions that occur after EOI entry: List (1-4)

- 1) ATWS
- 2) Fuel failure

2 Abnormal Events: List (1-3)

- 1) Rx Zone fan failure
- 2) Recirc pump runaway/trip

2 Major Transients: List (1-2)

- 1) ATWS
- 2) Fuel failure

3 EOI's used: List (1-3)

- 1) EOI-1
- 2) EOI-2
- 3) EOI-3

1 EOI Contingencies used: List (0-3)

- 1) C5

90 Run Time (minutes)

45 EOI Run Time (minutes): 50 % of Scenario Run Time

5 Crew Critical Tasks:(2-5)

YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

HPCI tagged out for 14 hours to repair Auxiliary Oil Pump. Expected back in 3 hours. T.S.
3.5.1. , 14 days LCO. Feedwater flow indicator 3-78B out of service, IM's are looking for a new
transmitter

Operations/Maintenance for the Shift:

Reduce power to 92% with recirculation flow (due to system load not required). Core Spray
Loop II Flow Rate SR 3-SR-3.5.1.6(CS II) in progress, continue SR at step 7.3.[1], Prejob brief
completed for SR and power reduction. Units 1 & 2 are at 92% power

Unusual Conditions/Problem Areas:

Severe thunderstorms in area for the next 4 hours

DRAFT

Facility: Browns Ferry Scenario No.: 3-17 Op-Test No.: 0801

Examiners:	

Operators:	SRO:
	ATC:
	BOP:

Initial

Conditions: 6% power with RHR Loop II tagged and 3A & B RFP's being tagged

Turnover: Lower power to < 5%, swap steam loads, place Mode switch in Mode 2, start de-inerting Drywell, swap to RCIC for level control and close MSIV's. Severe thunderstorm warnings for the next 10 to 12 hours.

Event No.	Malf. No.	Event Type*	(Credited Position) / Event Description
1	n/a	R-ATC N-SRO	Lower power to < 5%
2	n/a	N-BOP N-SRO	place SJAE & OG preheaters on Aux steam
3	rd01a	C-ATC C-SRO	Continue to lower power, respond to CRD pump trip per 3-AOI-85-3, CRD System Failure
4	nm05a 100	I-ATC TS-SRO	Respond to IRM failure upscale (after in Mode 2) (bypass)
5	n/a	N-BOP N-SRO	De-inert Drywell per 3-OI-76, Containment Inerting System
6	ypomtro2pmpb	C-BOP TS-SRO	Respond to failure of O ₂ sample pump, swap analyzers
7	fw13c	C-BOP C-SRO	Respond to 3C RFP trip and place RCIC in service per 3-OI-71, Reactor Core Isolation Cooling System
8	mult	M-ALL	Respond to scram / ATWS
9	th33a 10	M-ALL	Respond to Steam line break in Drywell / Terminate and Prevent / Emergency Depressurize at - 180"

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

DRAFT

ANTICIPATED EAL: 1.1-S-1 – SITE AREA

Received 5/21/09 21/09 RES

Starting ~ 6% power, the crew will lower power to < 5% by inserting control rods per 3-GOI-100-12A, RCP, and 3-OI-85

Turbine sealing steam has already been swapped to aux boiler steam and the crew will swap the operating SJAЕ and Off-Gas Preheater from nuclear steam to aux boiler steam per 3-GOI-100-12A and 3-OI-66

The crew will continue the power reduction and respond to 3A CRD pump trip per 3-AOI-85-3

After the Mode Switch is placed in Mode 2, 3A IRM fails upscale and will cause a ½ scram and the crew will by-pass the IRM and reset the ½ scram

The crew will commence de-inerting containment per 3-OI-76 for personnel entry and inspection at power

The H₂O₂ Analyzer selected for the Drywell will fail requiring swapping the Analyzer selected for Suppression Chamber to the Drywell

The only remaining RFP will trip (shortly after low oil level alarm and low bearing oil pressure alarms) and the crew will respond per 3-AOI-3-1 and place RCIC in service per 3-OI-71, but power is still too high for RCIC alone and HPCI aux oil pump will not start, requiring a manual scram

Several control rods (8) fail to insert on the scram and will not be able to be inserted. The rods are clustered together and the Reactor Engineer will determine that the Reactor will NOT remain subcritical under all conditions

A Drywell leak will cause level to lower and Drywell pressure to increase and the crew will respond per EOI-1, EOI-2, and C-5 to spray the Suppression Chamber and Drywell before having to terminate and prevent prior to emergency depressurization when level drops to -180".

Only 2 ADS valves will open due to a Drywell Control Air header break, requiring opening 3 additional valves (for a total of 5 valves which changes MARF to 230 psig)

Facility: Browns Ferry Scenario No.: 3-17 Op-Test No.: 0801

Examiners:	

Operators:	SRO:	
	ATC:	
	BOP:	

Initial

Conditions: 6% power with RHR Loop II tagged and 3A & B RFP's being tagged

Turnover: Lower power to < 5%, swap steam loads, place Mode switch in Mode 2, start de-inerting Drywell, swap to RCIC for level control and close MSIV's. Severe thunderstorm warnings for the next 10 to 12 hours.

Event No.	Malf. No.	Event Type*	(Credited Position) / Event Description
1	n/a	R-ATC R-SRO	Lower power to < 5%
2	n/a	N-BOP N-SRO	place SJAЕ & OG preheaters on Aux steam
3	n/a	-	Continue to lower power
4	nm05a 100	I-ATC TS-SRO	Respond to IRM failure upscale (after in Mode 2) (bypass)
5	n/a	N-BOP N-SRO	De-inert Drywell per OI
6	mult.	C-BOP TS-SRO	Respond to failure of O ₂ sample pump, swap analyzers
7	mult.	C-BOP C-SRO	Respond to 3C RFP trip and place RCIC in service
8	mult	M-ALL	Respond to scram / ATWS
9	th33a 10	M-ALL	Respond to Steam line break in Drywell / Terminate and Prevent / Emergency Depressurize at – 180"

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

Starting ~ 6% power, the crew will lower power to < 5%% by inserting control rods per 3-GOI-100-12A, RCP, and 3-OI-85

Turbine sealing steam has already been swapped to aux boiler steam and the crew will swap the operating SJAE and Off-Gas Preheater from nuclear steam to aux boiler steam per 3-GOI-100-12A and 3-OI-66

The crew will continue the power reduction until ~ 1% power per 3-GOI-100-12A, RCP, and 3-OI-85

After the Mode Switch is placed in Mode 2, 3A IRM fails upscale and will cause a ½ scram and the crew will by-pass the IRM and reset the ½ scram

The crew will commence de-inerting containment per 3-OI-76 for personnel entry and inspection at power

The H₂O₂ Analyzer selected for the Drywell will fail requiring swapping the Analyzer selected for Suppression Chamber to the Drywell

The only remaining RFP will trip (shortly after low oil level alarm and low bearing oil pressure alarms) and the crew will respond per 3-AOI-3-1 and place RCIC in service per 3-OI-71, but power is still too high for RCIC alone and HPCI aux oil pump will not start, requiring a manual scram

Several control rods (8) fail to insert on the scram and will not be able to be inserted. The rods are clustered together and the Reactor Engineer will determine that the Reactor will NOT remain subcritical under all conditions

A Drywell leak will cause level to lower and Drywell pressure to increase and the crew will respond per EOI-1, EOI-2, and C-5 to spray the Suppression Chamber and Drywell before having to terminate and prevent prior to emergency depressurization when level drops to -180".

Only 2 ADS valves will open, requiring opening 3 additional valves (for a total of 5 valves which changes MARF to 230 psig)

SIMULATOR EVALUATION GUIDE

TITLE: Downpower from ~6% to ~1%, de-inert containment, respond to 3A CRD pump trip, IRM failure upscale and ½ scram, swap steam loads to aux boiler, RFP trip – swap to RCIC, close MSIV’s and maintain level with RCIC until a Drywell leak develops and level lowers to -180” and the crew will Terminate and prevent and Emergency Depressurize (opening 3 additional valves to get a total of 5) and re-commence injection at MARF of 230 psig

REVISION: 0

DATE: Mar. 7, 2009

PROGRAM: BFN Operator Training – Hot License

RCP required for power reduction from ~6% to ~1% by inserting Control Rods (Provide at turnover)

Verify IRM recorders have alarms set for 75 per 3-GOI-100-12A step 5.0[32.5]

Supply current Rev of 3-SR-3.6.2.1.1 to monitor Suppression Pool level and temperature when RCIC placed in service

PREPARED: _____ \ _____
(Operations Instructor) Date

REVIEWED: _____ \ _____
(LOR Lead Instructor or Designee) Date

REVIEWED: _____ \ _____
(Operations Training Manager or Designee) Date

CONCURRED: _____ \ _____
(Operations Superintendent or Designee Required for Exam Scenarios) Date

VALIDATED: _____ \ _____
(Operations SRO) (Required for Exam Scenarios) Date

LOGGED-IN: _____ \ _____
(Librarian) Date

**TASK LIST
UPDATED** _____ \ _____
Date

- I. Program: BFN Operator Training
- II. Course: Examination Guide
- III. Title: Downpower from ~6% to ~1%, de-inert containment, respond to 3A CRD pump trip, IRM failure upscale and ½ scram, swap steam loads to aux boiler, RFP trip – swap to RCIC, close MSIV's and maintain level with RCIC until a Drywell leak develops and level lowers to -180" and the crew will Terminate and prevent and Emergency Depressurize (opening 3 additional valves to get a total of 5) and re-commence injection at MARF of 230 psig
- IV. Length of Scenario – 1 to 1 ½ hours
- V. Training Objectives:
 - A. Terminal Objective:
 - 1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.
 - 2. Given uncertain or degrading conditions, the operating crew will use team skills to conduct proper diagnostics and make conservative operational decisions to remove equipment / unit from operation. (SOER 94-1 and SOER 96-01)
 - 3. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, annunciator, abnormal, and emergency procedures.

B. Enabling Objectives:

1. The operating crew will lower power to < 5% by inserting control rods per 3-GOI-100-12A and 3-OI-85
2. The operating crew will swap steam loads from nuclear steam to aux boiler steam per 3-OI-66
3. The operating crew will continue to lower power and place the Mode Switch in Mode 2 and will recognize and respond to a trip of 3A CRD pump and place 3B in service per 3-AOI-85-3
4. The operating crew will recognize and respond to an IRM failure upscale and subsequent ½ scram and recovery per 3-OI-92A and 3-OI-99
5. The operating crew will de-inert containment per 3-OI-76
6. The operating crew will recognize and respond to a trip of the H₂O₂ Analyzer aligned to the Drywell and will swap analyzers
7. The operating crew will recognize and respond to a trip of the only remaining RFP per 3-AOI-3-1 and place RCIC in service per 3-OI-71
8. The operating crew will recognize and respond to an ATWS and Drywell leak per EOI-1, EOI-2, and C-5
9. The operating crew will terminate and prevent injection and emergency depressurize the Reactor when level drops to -180" per Appendix-4 and C-2
10. The operating crew will recognize and respond to a Drywell control air leak and open additional relief valves when ADS valves fail to open (total of 5 that can open causing MARF to be 230 psig)

VI. References: The procedures used in the simulator are controlled copies and are used in development and performance of simulator scenarios. Scenarios are validated prior to use, and any procedure differences will be corrected using the procedure revision level present in the simulator. Any procedure differences noted during presentation will be corrected in the same manner. As such, it is expected that the references listed in this section need only contain the reference material which is not available in the simulator.

VII. Training Materials: (If needed, otherwise disregard)

- A. Calculator
- B. Control Rod Insertion Sheets
- C. Stopwatch
- D. Hold Order / Caution Order tags
- E. Annunciator window covers
- F. Steam tables

VIII. Console Operator Instructions

A. Scenario File Summary

1. File: bat hlts-3-17

MF/RF/OR#		Description
1)	mrf ms01 on	Aux boilers in service
2)	mrf pc06 start	Pri Cont Purge Filter Fan I/S
3)	mrf eg03 oos	Gen Core monitor OOS
4)	imf fw13a	Places trip on RFP 3A
5)	imf fw13b	Places trip on RFP 3B
6)	imf hp05	Prevents HPCI aux oil pump from starting
7)	imf ad03a	Fail closed (electrically) ADS valve 1-5
8)	imf ad03b	Fail closed (electrically) ADS valve 1-19
9)	imf ad03c	Fail closed (electrically) ADS valve 1-22
10)	imf ad03d	Fail closed (electrically) ADS valve 1-18
11)	ior zdihs0142[1] close/auto	Fail handswitch on SRV 1-42
12)	bat rhr2to	Tag 3B & 3D RHR pump motors only
13)	bat hlts-3-17-1	Stick 8 control rods (all in a close cluster)
14)	bat hlts-3-17-6	Tag 3A & 3B RFP's – start sw, steam valves, pump suction and discharge valves
15)	ior zdihs7117a[1] null	Null RCIC CST suction valve
16)	mrf ia02 align	Align CA to DWCA
17)	sev iavhcv311736 1	Open 32-1736
18)	ior zdihs8550a[2] close	85-50 overridden closed
19)	ior zdihs8448[1] close	Tag N2 to DW
20)	ior zdihs8449[1] close	
21)	ior zdihs848ab[1] off	
22)	ior zdihs848cd[1] off	

2. File: bat hlts-3-17-1

MF/RF/OR#		Description
1)	imf rd06r2227	Stick 9 control rods (grouped together)
2)	imf rd06r2631	
3)	imf rd06r3431	
4)	imf rd06r2623	
5)	imf rd06r3035	
6)	imf rd06r3027	
7)	imf rd06r2235	
8)	imf rd06r2639	
9)	imf rd06r3043	

3. File: bat hlts-3-17-2

MF/RF/OR#		Description
1)	ior zdihs03153a[3] stop	Trip 3C3 EBOP
2)	ior zlohs03153a[1] on	Override green light

4. File: bat hlts-3-17-3

MF/RF/OR#		Description
1)	dor an:ov:xa556c[26]	Delete oil pressure alarm override after oil pumps secured
2)	dor an:ov:xa556c[16]	

5. File: bat hlts-3-17-6

MF/RF/OR#		Description
1)	ior zdihs46112a[1] norm	Tag 3A & 3B RFP's – start / local enable switch, HP & LP steam valves, suction, discharge, and min flow valves
2)	ior zdihs46138a[1] norm	
3)	ior zlohs46112a[2] off	
4)	ior zlohs46138a[2] off	
5)	ior zlohs03124[1] off	
6)	ior zlohs03150[1] off	
7)	ior zlohs01125a[2] off	
8)	ior zlohs01121a[2] off	
9)	ior zlohs01133a[2] off	
10)	ior zlohs01129a[2] off	
11)	ior zdihs0319a[1] null	
12)	ior zlohs0319a[2] off	
13)	ior zlohs0319a[1] off	
14)	ior zdihs0283a[1] null	
15)	ior zlohs0283a[2] off	
16)	ior zlohs0283a[1] off	
17)	ior zdihs0312a[1] null	
18)	ior zlohs0312a[2] off	
19)	ior zlohs0312a[1] off	
20)	ior zdihs0295a[1] null	
21)	ior zlohs0295a[2] off	
22)	ior zlohs0295a[1] off	
23)	ior ypovfvcv0320 fail_control_power	
24)	ior ypovfvcv0313 fail_control_power	

6. File: bat hlts-3-17-7

MF/RF/OR#		Description
1)	ior an:ov:xa556c[26] alarm_on	1 st low oil press alarm
2)	ior zdihs03156a[1] test	Auto start of EBOP 3C3 oil pump
3)	useless commands for time delay	
4)	ior an:ov:xa556c[4] alarm_on	Low oil level alarm
5)	useless commands for time delay	
6)	ior an:ov:xa556c[16] alarm_on	2 nd low oil press alarm
7)	imf fw13c (none :15)	Trip 3C RFP after 10 sec time delay
8)	imf th22 100	Bottom drain leak

7. File: bat app07b

MF/RF/OR#		Description
1)	mrf sl01 align	Align SLC to test tank

8. File: bat rhr2to

MF/RF/OR#		Description
1)	ior ypobkrpmpbrh fail_power	Tag 3B & 3D RHR pump motors only
2)	ior ypobkrpmpdrh fail_power	

IX. Console Operators Instructions

HLTS 3-17

<u>ELAP TIME</u>		<u>DESCRIPTION/ACTION</u>
Simulator Setup	manual	~ 6% power MOC reset IC-233 (david)
Simulator Setup		Main batch file – see summary bat hlts-3-17
Simulator Setup	manual	Place in run and reset RWM – should latch into group 51 with rod 30-31 selected (clear rod block alarms if in)

Simulator Setup	manual (should be 16 cards total)	<p>Pnl 9-5 - Push in on 3A RFP Speed Control (3-HS-46-8A) Pnl 9-5 - Push in on 3B RFP Speed Control (3-HS-46-9A)</p> <p>Place HO cards on all the following:</p> <p>Pnl 9-3 - 3B RHR pump HS (3-HS-74-28A) Pnl 9-3 - 3D RHR pump HS (3-HS-74-39A)</p> <p>Pnl 9-6 - 3A RFP LP Steam valves (3-HS-1-121A) Pnl 9-6 - 3A RFP HP Steam valves (3-HS-1-125A) Pnl 9-6 - 3B RFP LP Steam valves (3-HS-1-129A) Pnl 9-6 - 3B RFP HP Steam valves (3-HS-1-133A) Pnl 9-6 - 3A RFP start / local enable HS (3-HS-46-112A) Pnl 9-6 - 3B RFP start / local enable HS (3-HS-46-138A) Pnl 9-6 - 3A RFP Discharge valve (3-HS-3-19A) Pnl 9-6 - 3A RFP Suction valve (3-HS-2-83A) Pnl 9-6 - 3B RFP Discharge valve (3-HS-3-12A) Pnl 9-6 - 3B RFP Suction valve (3-HS-2-95A)</p> <p>Pnl 9-54 – CAD A Cross Tie to DWCA (3-HS-84-48) Pnl 9-54 – Suppr Chbr / DW CAD 3A Sply Sel (3-HS-84-8A/B)</p> <p>Pnl 9-55 – CAD B Cross Tie to DWCA (3-HS-84-49) Pnl 9-55 – Suppr Chbr / DW CAD 3B Sply Sel (3-HS-84-8C/D)</p>
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ROLE PLAY: If requested as Aux Boiler AUO, report Aux Boilers in service and pressure is 180 psig (OI-66 step 8.12[1.3])

ROLE PLAY: When requested, report 3-12-679 is open (SJAE STM SPLY valve) (OI-66 step 8.12[2])

ROLE PLAY: When requested, report STEAM TO SJAE STAGE I & II pressure at 3-PI-001-0150 and 0152 on Panel 25-105, is 180 psig (OI-66 step 8.12[3])

When requested - OI-66 step 8.12 [5]		Low Steam pressure permissive mrf og10 norm
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ROLE PLAY: Report SJAE TRAIN PERMISSIVE 3-HS-001-0375 is in NORM (OI-66 step 8.12 [5])

When requested - OI-66 step 8.12 [6]	or	manual valve to 3A SJAE open mrf og03a open
		manual valve to 3B SJAE open mrf og03b open

ROLE PLAY: Report AUX STM TO SJAE A(B) 1ST, 2ND & 3RD STG, 3-HS-12-3A(5A) open (OI-66 step 8.12 [6]) (report the valve associated with the SJAE they are trying to place in service)

When requested - OI-66 step 8.12 [9.1] & [9.2]	and	Steam inlet to 3A preheater open mrf og04a aux
		Steam inlet to 3B preheater open mrf og04b aux

ROLE PLAY: When requested, report AUX STEAM TO OFF-GAS PREHEATER A and B, 3-HS-12-74B and 3-HS-12-75B are open (OI-66 step 8.12 [9.1 & 9.2])

ROLE PLAY: When requested, report MAIN STEAM TO OFF-GAS PREHEATER 3A and 3B, 3-HS-1-176C and 3-HS-1-176D are closed (OI-66 step 8.12 [9.3 & 9.4])

After O2 sample pump swapped or when continuing power descent		Trip 3A CRD pump imf rd01a
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ROLE PLAY: If dispatched to investigate trip of 3A CRD pump, report breaker tripped on overload and the pump motor extremely hot

ROLE PLAY: If asked to check 3B CRD pump, report all oil levels are good and slinger rings are turning

After Mode Switch taken to Mode 2		Fail IRM A upscale imf nm05a 100 0:40
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ROLE PLAY: If dispatched to check / align control air to drywell control air, report That 3-SHV-32-332 valve is unlocked and open and the 3-SHV-32-327B is closed. The tagging crew is in the Process of tagging N₂ to Containment

After De-inerting established		Fail O ₂ sample pump B (DW) ior ypomtro2pmpb fail_control_power
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ROLE PLAY: If dispatched to investigate loss of O₂ sample pump, report pump is extremely hot and the rotor is locked up

ROLE PLAY: (3 minutes after O₂ sample pump swapped) As AUO on rounds, report a large puddle of oil visible on floor between the turbine and pump of 3C RFP. Oil discharge pressure is 150 psig and lowering and bearing oil pressure is 45 psig and lowering. The oil tank indicates that level is lowering

2 minutes after AUO report		3C RFP EBOP auto starts & low press alarm – RFP trips on low pressure alarm / low level, after time delay – small DW leak bat hlts-3-17-7
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ROLE PLAY: If dispatched to investigate 3C RFP after trip, wait 1 minute and report nothing notable except oil puddle is larger

ROLE PLAY: Respond as needed as Radwaste UO if contacted to lock-out U3 Turbine bldg floor drain sump pumps

If 3C RFP oil pumps secured		Clear low oil pressure alarms bat hlts-3-17-3
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When EOI-2 entered on Drywell temperature		RCIC trip on low suction pressure imf rc03
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6 minutes after scram or sooner if needed to get level down sooner		Recirc leak in Drywell imf th21 1 15:00
--	--	--

If dispatched to close 3-85-586 valve, wait 3 minutes		Close 3-85-586 mrf rd06 close
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ROLE PLAY: Call and report 3-85-586 closed

If dispatched to open 3-85-586 valve, wait 1 minute		Open 3-85-586 mrf rd06 open
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ROLE PLAY: Call and report 3-85-586 open

If dispatched to perform App-7B, wait 25 minutes		Align SLC to test tank bat app07b
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ROLE PLAY: If directed to perform any sections of 3-OI-85 section 8.19 to insert stuck control rods, (i.e. vent overpiston area, etc.) repeat back directions (but you'll never get there) If called back requesting status report you lost your TLD badge and you're at the Radcon office

ROLE PLAY: If dispatched to investigate HPCI aux oil pump failure to start, wait 4 minutes and report everything looks normal at breaker and at HPCI skid

If requested to test breaker for HPCI aux oil pump, or if Maintenance dispatched to look at breaker		Green light off for HPCI AOP – simulate racking out breaker ior zlohs7347a[1] off
---	--	--

ROLE PLAY: If requested to test breaker for HPCI aux oil pump, or if Maintenance dispatched to look at breaker, report breaker will not test and that maintenance is troubleshooting

If requested to rack HPCI AOP breaker back in		Green light on for HPCI AOP – simulate racking in breaker dor zlohs7347a[1]
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ROLE PLAY: If requested to make determination if the Rx will remain subcritical under all conditions without boron, after 5 minutes call back as Reactor Engineer and report that the Rx will NOT remain subcritical under all conditions

When Suppression Chamber sprays placed in service		Break the "A" DWCA header imf ia02a
---	--	--

ROLE PLAY: **If dispatched to investigate loss of Drywell Control Air A header, Wait 5 minutes and report no indications of a leak outside of Containment and all valves aligned properly**

After 4 minutes (but prior to crew trying to ED)		Bring in alarm MS Relief Accum Press Low (9-3D win 18) ior an:ov:xa5533d[18] alarm_on
--	--	--

Terminate the scenario when the following conditions are satisfied or upon request of instructor:

- 1) Emergency Depressurization completed
- 2) Reactor water level restored to 2" to 51" (or recovering)

X. Scenario Summary:

Starting ~ 6% power, the crew will lower power to < 5%% by inserting control rods per 3-GOI-100-12A, RCP, and 3-OI-85

Turbine sealing steam has already been swapped to aux boiler steam and the crew will swap the operating SJAE and Off-Gas Preheater from nuclear steam to aux boiler steam per 3-GOI-100-12A and 3-OI-66

The crew will continue the power reduction and respond to 3A CRD pump trip per 3-AOI-85-3

After the Mode Switch is placed in Mode 2, 3A IRM fails upscale and will cause a ½ scram and the crew will by-pass the IRM and reset the ½ scram

The crew will commence de-inerting containment per 3-OI-76 for personnel entry and inspection at power

The H₂O₂ Analyzer selected for the Drywell will fail requiring swapping the Analyzer selected for Suppression Chamber to the Drywell

The only remaining RFP will trip (shortly after low oil level alarm and low bearing oil pressure alarms) and the crew will respond per 3-AOI-3-1 and place RCIC in service per 3-OI-71, but power is still too high for RCIC alone and HPCI aux oil pump will not start, requiring a manual scram

Several control rods (8) fail to insert on the scram and will not be able to be inserted. The rods are clustered together and the Reactor Engineer will determine that the Reactor will NOT remain subcritical under all conditions

A Drywell leak will cause level to lower and Drywell pressure to increase and the crew will respond per EOI-1, EOI-2, and C-5 to spray the Suppression Chamber and Drywell before having to terminate and prevent prior to emergency depressurization when level drops to -180".

Only 2 ADS valves will open, requiring opening 3 additional valves (for a total of 5 valves which changes MARF to 230 psig)

XI. Floor Instructor Instructions

A. Assign crew positions (assign positions based on evaluation requirements for personnel).

- 1. SRO: Unit Supervisor _____
- 2. ATC: Board Unit Operator _____
- 3. BOP: Desk Unit Operator _____

B. Review the shift briefing information with the operating crew. Provide US with a copy of the shift turnover sheet for the scenario.

C. Direct the shift crew to review the control boards and take note of present conditions, alarms, etc.

D. Ensure recorders are inking are recording and ICS is active and updating. Note any deficiencies during shift briefing.

E. Terminate the scenario when the following conditions are satisfied or upon request of Lead Examiner.

- 1. Emergency Depressurization completed
- 2. Reactor water level restored to 2" to 51" (or recovering)

XII. Simulator Event Guide:

Event #1: Continue lowering power per 3-GOI-100-12A

Position	Expected Actions	Time/Comments
SRO	Directs ATC to continue in 3-GOI-100-12A at step 5.0[32] to get < 5% power	
ATC	Continues to lower Reactor Power per 3-GOI-100-12A by inserting control rods	
	PLACE all IRM Range switches on Range 10. (N/A if power is less than Range 10 and indication is between approximately 25 and 75.)	
	INSERT all operable IRMs or VERIFY full-in.	
	SELECT IRM on both IRM/RBM recorders.	
	VERIFY IRM recorder High Alarm setpoint programmed ON with setpoint at 75.	
	SELECT IRM on all IRM/APRM recorders.	
	Continues to lower power by inserting control rods per the RCP, shove sheets, and RWM (step 5.0[33])	
	RANGE IRMs down as necessary to maintain between approximately 25 and 75 using IRM range switches.	
When power is < 5% stops lowering power to allow BOP to swap steam loads (step 5.0[33])		

XII. Simulator Event Guide:

Event #2: Swap SJAE and Off-Gas Preheaters to Aux Boiler steam

Position	Expected Actions	Time/Comments
SRO	Directs BOP to swap SJAE and OG preheaters to Aux steam per 3-OI-66 section 8.12	
BOP	CHECK all Precautions and Limitations in Section 3.0 have been reviewed.	
	CHECK SJAE and/or preheaters are in service using main steam.	
	CHECK Swapping to Aux Boiler Steam has been directed by Shift Manager or 3-GOI-100-12A.	
	CHECK Auxiliary Boiler(s) in service per 0-OI-12 and boiler pressure greater than or equal to 165 psig	
	Directs AUO VERIFY OPEN the SJAE STM SPLY valve, 3-12-679 (T13.5-H EL 565') locally to open 3-12-679 and verify pressures 170 – 250 psig	
	PLACE both of the following to CLOSE at Panel 3-9-7. A. SJAE 3A PRESS CONTROLLER, 3-HS-1-150 B. SJAE 3B PRESS CONTROLLER, 3-HS-1-152	
	Directs AUO locally to VERIFY in NORM SJAE TRAIN PERMISSIVE 3-HS-001-0375.	
	Directs AUO locally to DEPRESS the open pushbutton for AUX STM TO SJAE A(B) 1ST, 2ND & 3RD STG, 3-HS-12-3A(5A) for the SJAE to be returned to service, UNTIL the valve is fully open at JB 3525 El. 586' T12-C	

XII. Simulator Event Guide:

Event #2: Swap SJAE and Off-Gas Preheaters to Aux Boiler steam (cont)

Position	Expected Actions	Time/Comments
	MONITOR hotwell pressure as indicated on HOTWELL TEMP AND PRESS recorder, 3-XR-2-2, on Panel 3-9-6 AND VERIFY proper operation of SJAE placed in service.	
	PLACE the following valves to CLOSE at Panel 3-9-7. A. STEAM TO SJAE 3A, 3-HS-1-155A B. STEAM to SJAE 3B, 3-HS-1-156A	
	Directs AUO locally to SWAP steam to the preheaters at JB 6305 located in the Turbine Building breezeway: (T13 B-Line EI 586')	

XII. Simulator Event Guide:

Event #3: Mode Switch to Start / Hot Standby and 3A CRD Failure

Position	Expected Actions	Time/Comments
SRO	Directs ATC to continue in 3-GOI-100-12A step 5.0[34])	
ATC	OBTAIN Unit Supervisor's permission and VERIFY or PLACE REACTOR MODE SWITCH in START & HOT STANDBY position.	
	Places Reactor Mode Switch in Start & Hot Standby position	
SRO	NOTIFY Instrument Maintenance to PERFORM OR VERIFY within required frequency the following surveillances: (Required to be performed within 12 hours of entering the Mode 2 from Mode 1) A. 3-SR-3.3.1.1.3(IRMs) (N/A if a condition is reached within 12 hours where IRM operability is not required by Tech Specs.) B. 3-SR-3.3.1.2.5&6, Source Range Monitor (SRM) Functional Test With Reactor Mode Switch Not In Run Position	
	NOTIFY Instrument Maintenance to PERFORM OR VERIFY within required frequency the following surveillance's: A. 3-SR-3.3.1.1.13 (APRM-1-4), Average Power Range Monitor Calibration-APRM-1-4. (N/A if not required.) B. 3-SR-3.3.1.1.16(APRM 1-4), Average Power Range Monitor Functional Test-APRM-1-4. (N/A if not required.) C. 3-SR-3.3.1.1.14(2e), Average Power Range Monitor (APRM) 2-OUT-OF-4 Voter Logic Functional Test.) (N/A if not required)	
ATC	CONTINUE inserting control rods in accordance with 3-SR-3.1.3.5(A), Control Rod Movement Data Sheets.	

XII. Simulator Event Guide:

Event #3: Mode Switch to Start / Hot Standby and 3A CRD Failure (cont)

Position	Expected Actions	Time/Comments
Crew	Announces alarm 9-8C window 33 "Motor Tripout"	
ATC	Recognizes 3A CRD pump tripped	
SRO	Directs entry into 3-AOI-85-3, CRD System Failure	
ATC	Performs Immediate Operator actions of 3-AOI-85-3	
	[1] IF operating CRD PUMP has TRIPPED AND STANDBY CRD PUMP is AVAILABLE, THEN (Otherwise N/A) PERFORM the following at Panel 3-9-5:	
	[1.1] PLACE CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, in MAN at minimum setting	

XII. Simulator Event Guide:

Event #3: Mode Switch to Start / Hot Standby and 3A CRD Failure (cont)

Position	Expected Actions	Time/Comments
ATC	<p>[1.2] START associated standby CRD Pump using one of the following:</p> <ul style="list-style-type: none"> • CRD PUMP 3B, using 3-HS-85-2A • CRD Pump 3A, using 3-HS-85-1A 	
	<p>[1.3] ADJUST CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, to establish the following conditions:</p> <ul style="list-style-type: none"> • CRD CLG WTR HDR DP, 3-PDI-85-18A, approximately 20 psid • CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, between 40 and 65 gpm 	
	<p>[1.4] BALANCE CRD SYSTEM FLOW CONTROL, 3-FIC-85-11, and PLACE in AUTO or BALANCE</p>	
	<p>[2] IF operating CRD PUMP has tripped and BACKUP CRD PUMP is NOT available, THEN (Otherwise N/A) N/A</p>	
	<p>[3] IF Reactor Pressure is LESS THAN 900 PSIG AND ANY ONE of the following conditions exist:</p> <ul style="list-style-type: none"> • In service CRD Pump tripped and NEITHER CRD Pump can be started, <li style="text-align: center;">OR • Charging Water Pressure can NOT be restored and maintained above 940 PSIG, <p>THEN PERFORM the following: (Otherwise N/A) N/A</p>	

XII. Simulator Event Guide:

Event #3: Mode Switch to Start / Hot Standby and 3A CRD Failure (cont)

Position	Expected Actions	Time/Comments
ATC	Subsequent Actions	
	<p>[1] IF Reactor Pressure is GREATER THAN OR EQUAL TO 900 PSIG AND</p> <ul style="list-style-type: none"> • Charging Water Pressure can NOT be restored and maintained above 940 PSIG within 20 minutes, <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> • Two or more Scram accumulators inop, and associated control rod NOT fully inserted, <p>THEN PERFORM the following: (Otherwise N/A) N/A</p>	
	<p>[2] IF operating CRD Pump has NOT tripped, THEN PERFORM the following: (REFER TO 3-OI-85) (Otherwise N/A) N/A</p>	
	<p>[3] IF CRD System hydraulic pressure is restored, THEN RESTORE Control Rod Drive System alignment. REFER TO 3-OI-85. (Otherwise N/A) Refers to 3-OI-85</p>	
SRO	Request investigation of 3A CRD pump failure	

XII. Simulator Event Guide:

Event #4: IRM Failure

Position	Expected Actions	Time/Comments
ATC	Announces alarm 3-XA-55-3-5A window 26 IRM HIGH	
	VERIFY alarm by multiple indications.	
	VERIFY control rod block.	
	RANGE OR BYPASS affected channel as desired.	
ATC/BOP	Announces alarm 3-XA-55-3-5A window 33 IRM CH A, C, E, G HI-HI/INOP and 3-XA-55-3-5B window 1 REACTOR CHANNEL A AUTO SCRAM	
ATC	STOP any reactivity changes.	
	NOTIFY Reactor Engineer.	
SRO	Directs bypassing failed IRM per 3-OI-92A section 6.1 and Reset ½ scram and affected systems per 3-OI-99 section 6.1	
ATC	Bypasses IRM per 3-OI-92A section 6.1	
	REVIEW precautions and limitations in Section 3.0	
	PLACE the appropriate IRM Bypass selector switch to the BYPASS position: <ul style="list-style-type: none"> • IRM BYPASS, 3-HS-92-7A/S4A 	
	CHECK Bypassed light is illuminated.	
	Resets ½ scram per 3-OI-99 section 6.1	
	VERIFY Reactor Protection System in prestartup/standby readiness alignment in accordance with Section 4.0	
	REVIEW Precautions and Limitations in Section 3.0.	
	VERIFY RPS Bus for tripped channel energized.	
	CHECK trip signals NOT present.	
	MOMENTARILY PLACE SCRAM RESET, 3-HS-99-5A/S5, as follows: <ul style="list-style-type: none"> A. RESET FIRST B. RESET SECOND C. NORMAL 	

XII. Simulator Event Guide:

Event #4: IRM Failure (continued)

Position	Expected Actions	Time/Comments
SRO	Refers to Tech Spec Table 3.3.1.1-1, TRM Tables 3.3.4-1 and 3.3.5-1 and determines no LCO with IRM bypassed	
ATC	<p>CHECK the following conditions:</p> <ul style="list-style-type: none"> A. All eight SCRAM SOLENOID GROUP A/B LOGIC RESET lights illuminated. B. The following four lights illuminated: <ul style="list-style-type: none"> • SYSTEM A BACKUP SCRAM VALVE, 3-IL-99-5A/AB • SYSTEM B BACKUP SCRAM VALVE, 3-IL-99-5A/CD C. Scram Discharge Volume vent and drain valves indicate open. D. Points SOE033 (Channel A3 manual scram) and SOE035 (Channels A1&A2 Auto Scram) on ICS computer or on the First Out Printer reads "NOT TRIP" for RPS "A". E. Points SOE034 (Channel B3 manual scram) and SOE036 (Channels B1&B2 Auto Scram) on ICS computer or on the First Out Printer reads "NOT TRIP" for RPS "B". 	

XII. Simulator Event Guide:

Event #5: De-inert Containment

Position	Expected Actions	Time/Comments
SRO	Directs BOP to start de-inerting Containment per 3-OI-76, section 7.1	
BOP	Starts de-inerting CTMT per 3-OI-76, section 7.1	
	VERIFY CLOSED the following vlvs (Panel 3-9-3): <ul style="list-style-type: none"> • DW/SUPPR CHBR N2 MU PRESS CONTROL, using 3-PC-76-14 • PRI CTMT N2 MAKEUP OUTBD ISOLATION VLV, using 3-HS-76-17 • DRYWELL N2 MAKEUP INBD ISOLATION VLV, using 3-HS-76-18 • SUPPR CHBR N2 MAKEUP INBD ISOLATION VLV, using 3-HS-76-19 	
	PURGE the Drywell and Suppression Chamber. REFER TO 3-OI-64	
	REVIEW all Precautions and Limitations in Section 3.0	
	VERIFY all Prestartup/Standby Readiness requirements in Section 4.0 are satisfied.	
	VERIFY the following initial conditions are satisfied: <ul style="list-style-type: none"> • H2O2 analyzers are in service REFER TO 3-OI-76. • Drywell vented to less than 0.25 psig. • Reactor Zone Fans in operation with Reactor Zone Supply and Exhaust Fan in fast speed. REFER TO 3-OI-30B. 	
	REQUEST Chemistry to obtain a Drywell sample per 3-SI-4.8.B.2-6.	
	IF sample is within limits of 3-SI-4.8.B.2-6, THEN NOTIFY Shift Manager.	
	Verifies DW DP compressor already secured	
Acknowledges DWCA aligned to plant control air		

XII. Simulator Event Guide:

Event #5: De-inert Containment (continued)

Position	Expected Actions	Time/Comments
BOP	<p>VERIFY CLOSED the following valves (Panel 3-9-3):</p> <ul style="list-style-type: none"> • DRYWELL INBD ISOLATION VLV, 3-FCV-64-31 • SUPPR CHBR INBD ISOLATION VLV, 3-FCV-64-34 • DRYWELL N2 MAKEUP INBD ISOLATION VLV, 3-FCV-76-18 • SUPPR CHBR N2 MAKEUP INBD ISOLATION VLV, 3-FCV-76-19 • PRI CTMT N2 PURGE OUTBD ISOLATION VLV, 3-FCV-76-24 • SUPPR CHBR VENT INBD ISOL VALVE, 3-FCV-64-32 • SUPPR CHBR VENT OUTBD ISOLATION VLV, 3-FCV-64-33 • DW/SUPPR CHBR VENT TO SGT, 3-FCO-64-36 	
	<p>IF the Reactor Mode switch is in RUN, THEN PLACE the following switches in the BYPASS position (Panel 3-9-3):</p> <ul style="list-style-type: none"> • PC PURGE DIV I RUN MODE BYPASS, 3-HS-64-24 • PC PURGE DIV II RUN MODE BYPASS, 3-HS-64-25 	(not in Run)

XII. Simulator Event Guide:

Event #5: De-inert Containment (continued)

Position	Expected Actions	Time/Comments
BOP	RECORD start time in Narrative log	
	OPEN the following valves (Panel 3-9-3): <ul style="list-style-type: none"> • DRYWELL VENT INBD ISOL VALVE, 3-FCV-64-29, using 3-HS-64-29 <input type="checkbox"/> • DRYWELL VENT OUTBD ISOLATION VLV, 3-FCV-64-30, using 3-HS-64-30 	
	MONITOR Drywell Pressure (Panel 3-9-3).	
	Contacts AUO to START CTMT PURGE FILTER FAN using 3-HS-64-131 (Reactor Bldg., EI 621).	
	OPEN the following valves (Panel 3-9-3): <ul style="list-style-type: none"> • DW/SUPPR CHBR AIR PURGE ISOL VALVE, 3-FCV-64-17, using 3-HS-64-17 • DRYWELL ATM SUPPLY INBD ISOLATION VLV, 3-FCV-64-18, using 3-HS-64-18 	
	DISPATCH personnel to Aux Inst Room to reset GROSS FAILURES on associated RPS and ECCS ATUs, THEN RESET Control Room annunciators (Panel 3-9-3 and 3-9-5).	
	PLACE O2 ANALYZER 3A and 3B O2 RANGE SELECT switches, 3-HS-76-72 and 82 in HIGH (Panels 3-9-54 and 55).	

XII. Simulator Event Guide:

Event #6: H₂O₂ Analyzer Failure

Position	Expected Actions	Time/Comments
BOP	Announces alarm 3-XA-55-3-7C window 22, DRYWELL/SUPPR CHAMBER H ₂ O ₂ ANALYZER FAILURE	
	CHECK Panel 3-9-54 and 3-9-55 for abnormal indicating lights such as low flow, H ₂ or O ₂ downscale, pump off, etc. (low flow, H ₂ or O ₂ downscale, and pump off may exist if analyzer(s) are in standby)	
	Notes that the Analyzer selected for the Drywell shows the O ₂ sample pump tripped / not running and the low flow white light illuminated	
	If attempts to re-start the tripped O ₂ sample pump, notes that pump failed to start	
	DISPATCH personnel to Panels 25-340 and 25-420 or 25-341	
	Notifies SRO to REFER TO Tech Spec 3.3.3.1, Technical Requirements Manual Section 3.6.2	
	Swaps the operable Analyzer from Suppression Chamber to Drywell	
SRO	Refers to Tech Spec 3.3.3.1 and TRM 3.6.2 and acknowledges that Tech Spec 3.3.3.1 and TRM 3.6.2 do not apply under the current conditions	

XII. Simulator Event Guide:

Event #7: Continue lowering power per 3-GOI-100-12A / 3C RFP TRIP

Position	Expected Actions	Time/Comments
SRO	Directs ATC to continue in 3-GOI-100-12A step 5.0[38]	
ATC	CONTINUE inserting control rods in accordance with 3-SR-3.1.3.5(A), Control Rod Movement Data Sheets.	
	MONITOR power reduction on IRMs, keeping them on scale between approximately 25 and 75 using IRM range switches.	
	If it is desired to close the MSIVs as directed by the Unit Supervisor, Then (Otherwise, N/A.) Perform Attachment 3 and continue in the procedure as directed by the Unit Supervisor (step 5.0[42])	
BOP	Notifies SRO of AUO report of oil leak in 3C RFP room (call from TB AUO)	
	Announces alarm 3-XA-55-3-6C window 4 RFPT OIL TANK LEVEL ABNORMAL	
	Directs AUO to ADD oil as needed per 3-OI-20.	
	Announces alarm 3-XA-55-3-6C window 26 RFPT BRG OIL PRESS LOW, quickly followed by 3-XA-55-3-6C window 16 RFPT BRG OIL PRESS LOW	
	If not manually secured, announces 3C RFP tripped (15 seconds after second oil pressure low alarm)	
	Recognizes 3C RFP trip is still present and, therefore, not available to re-start	

XII. Simulator Event Guide:

Event #7: Continue lowering power per 3-GOI-100-12A / 3C RFP TRIP
(continued)

Position	Expected Actions	Time/Comments
SRO	Directs entry into 3-AOI-3-1	
	Directs placing RCIC per 3-OI-71 and or HPCI in service per 3-OI-73 to restore / maintain Rx level	
BOP	Places RCIC in service per 3-OI-71 section 5.2	
	NOTIFY Radiation Protection of the impending action to manually start the RCIC System. RECORD time Radiation Protection notified in the NOMS Narrative Log	
	REVIEW all Precautions and Limitations in Section 3.0.	
	OBTAIN 3-SR-3.6.2.1.1 to check Suppression Pool level and temperature every 5 min.	
	ESTABLISH communication with the personnel locally at the RCIC turbine.	
	ENSURE all unnecessary personnel have exited the general area of the RCIC turbine and rupture discs prior to rolling the RCIC turbine.	
ANNOUNCE on the plant PA system, "Unit Three is starting RCIC, all unnecessary personnel stay clear of the NW RX BLDG. QUAD."		

XII. Simulator Event Guide:

Event #7: Continue lowering power per 3-GOI-100-12A / 3C RFP TRIP
(continued)

Position	Expected Actions	Time/Comments
BOP	OPEN RCIC LUBE OIL COOLING WTR VLV, 3-FCV-71-25.	
	START RCIC VACUUM PUMP, 3-HS-71-31A.	
	OPEN RCIC PUMP INJECTION VALVE, 3-FCV-71-39.	
	OPEN RCIC PUMP MIN FLOW VALVE, 3-FCV-71-34.	
	START RCIC Turbine by opening RCIC TURBINE STEAM SUPPLY VLV, 3-FCV-71-8 and OBSERVE the following: <ul style="list-style-type: none"> • RCIC Turbine speed accelerates above 2100 rpm, on RCIC TURBINE SPEED indicator, 3-SI-71-42A • Flow to the RPV stabilizes and is controlled automatically at 600 gpm • RCIC TESTABLE CHECK VLV, 3-FCV-71-40, DISC POSITION indicates open • RCIC PUMP MIN FLOW VLV, 3-FCV-71-34, is closed when flow is above 120 gpm • RCIC STEAM LINE DR INBD and OUTBD ISOL VLVs, 3-FCV-71-6A and -6B, close 	
	REFER TO Section 6.0 to control and monitor RCIC turbine operation.	
	[place HPCI in service per 3-OI-73,	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS

Position	Expected Actions	Time/Comments
BOP	If attempted to places HPCI in service per 3-OI-73 section 5.2	
	NOTIFY Radiation Protection of the impending action to manually start the HPCI System. RECORD time Radiation Protection notified in the NOMS Narrative Log.	
	REVIEW Precautions and Limitations in Section 3.0.	
	OBTAIN 3-SR-3.6.2.1.1 to check Suppression Pool level and temperature every 5 minutes.	
	REQUEST SGTS placed in operation.	
	ESTABLISH communication with the AUO locally in the HPCI room.	
	DEPRESS and HOLD HPCI AUX OIL PUMP, 3-HS-73-47B, START pushbutton (local) for approximately 2 minutes to prime the oil system. Reports to US that the HPCI aux oil pump failed to start	
SRO	After BOP report about HPCI aux oil pump failure and / or when discovered inadequate high pressure injection systems available to maintain Reactor level, directs manual scram	
ATC	Inserts manual scram – notes that some control rods did not insert on the scram	
	Takes mode switch to shutdown	
	Initiates one channel of ARI	
	Gives scram report (reports power < range 7 on IRM's)	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
SRO	Enters 3-EOI-1 and C5	
	Directs initiating 2 nd channel of ARI	
ATC	Initiates 2 nd channel of ARI	
Crew	Announces Reactor scram	
SRO	Exits RC/Q and directs OATC to enter 3-AOI-100-1 and to insert control rods with 3-OI-85 (8.19)	
	Verifies Reactor pressure being maintained on bypass valves	
	Enters C-5 and directs ADS inhibited	
	Directs App-8A and App-8E	
BOP	Inhibits ADS	
Crew	Recognizes and reports Group 2, 3, 6, and 8 isolations if water level decreases below (+) 2"	
BOP	Calls for App-8A and App-8E	
SRO	Directs Rx water level be maintained (+) 2" to (+) 51" with RCIC per App-5C	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
BOP	Performs 3-EOI Appendix-5C to inject with RCIC	
	IF BOTH of the following exist: RPV Pressure is at or below 50 psig, AND Bypass of RCIC low RPV pressure isolation interlocks is necessary, THEN ... EXECUTE EOI Appendix 16A concurrently with this procedure.	
	IF BOTH of the following exist: High temperature exists in the RCIC area, AND SRO directs bypass of RCIC High Temperature Isolation interlocks, THEN ... PERFORM the following:	
	VERIFY RESET and OPEN 3-FCV-71-9, RCIC TURB TRIP/THROT VALVE RESET.	
	VERIFY 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller in AUTO with setpoint at 600 gpm.	
	OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-71-39, RCIC PUMP INJECTION VALVE • 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE • 3-FCV-71-25, RCIC LUBE OIL COOLING WTR VLV. 	
	PLACE 3-HS-71-31A, RCIC VACUUM PUMP, handswitch in START.	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
	OPEN 3-FCV-71-8, RCIC TURBINE STEAM SUPPLY VLV, to start RCIC Turbine.	
	CHECK proper RCIC operation by observing the following: <ul style="list-style-type: none"> a. RCIC Turbine speed accelerates above 2100 rpm. b. RCIC flow to RPV stabilizes and is controlled automatically at 600 gpm. c. 3-FCV-71-40, RCIC Testable Check Vlv, opens by observing 3-ZI-71-40A, DISC POSITION, red light illuminated. d. 3-FCV-71-34, RCIC PUMP MIN FLOW VLV, closes as flow rises above 120 gpm. 	
	IF BOTH of the following exist: RCIC Initiation signal is NOT present, AND RCIC flow is below 60 gpm, THEN ... VERIFY OPEN 3-FCV-71-34, RCIC PUMP MIN FLOW VALVE.	
	ADJUST 3-FIC-71-36A, RCIC SYSTEM FLOW/CONTROL, controller as necessary to control injection.	
	Monitor containment parameters	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
ATC	Insert control rods per 3-OI-85 section 8.19	
	If Removal and Replacement of RPS Scram Solenoid Fuses is desired, Then: N/A	
	If Venting and Repressurizing the Scram Pilot Air Header is desired, Then: N/A	
	If it is desired to Individually Scram Control Rods, Then: (if this section is tried on the 8 rods that will not drive in –the support people needed will encounter obstacles such that they will not be available) N/A	
	If it is desired to Insert Control Rods Using Reactor Manual Control System, then:	
	VERIFY the reactor scram has been reset. REFER TO 3-AOI-100-1 (scram will not be able to be reset after Drywell pressure > 2.45 – unless the SRO called for App-2 & 1F prior to exiting RC/Q)	
	IF scram CANNOT be reset, THEN CLOSE CHARGING WATER SHUTOFF , 3-SHV-085-0586 (RB, EL 565, NE Corner).	
	DEMAND , Print Rod Position Log, to edit control rod positions.	
	BYPASS the Rod Worth Minimizer. REFER TO Section 8.17.	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
ATC	3-OI-85 section 8.17 Manual Bypass of the Rod Worth Minimizer	
	VERIFY the following initial conditions are satisfied: <ul style="list-style-type: none"> • The Shift Manager/Reactor Engineer has directed the Rod Worth Minimizer to be bypassed. • A second licensed operator is available to verify control rod position. 	
	PLACE RWM SWITCH PANEL, 3-XS-85-9025, in BYPASS.	
	CHECK the Manual Bypass light is illuminated.	
	CHECK all other indications on the Rod Worth Minimizer Operator's Panel are extinguished.	
	CHECK the Blue Rod Out Permit light above 3-HS-85-48 is illuminated.	
	RESET CONTROL ROD WITHDRAWAL BLOCK annunciator (3-XA-55-5A, Window 7).	
	Back to 3-OI-85 section 8.19	
	REFER TO Illustration 4 and DEPRESS the appropriate CRD Rod Select pushbutton on 3-XS-85-40.	
	CHECK the backlit CRD ROD SELECT pushbutton is brightly illuminated and that the white indicating light on the Full Core Display is illuminated.	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
ATC	CONTINUOUSLY INSERT the control rod to Position 00, by holding the CRD CONTROL SWITCH, 3-HS-85-48, in ROD IN or CRD NOTCH OVERRIDE SWITCH, 3-HS-85-47 in EMERG ROD IN.	
	IF a control rod is difficult to insert, THEN REFER TO Section 8.16.	
	REPEAT Steps 8.19[4.6] through 8.19[4.8] for each Control Rod to be inserted	
	Reports No rod movement on initial attempt to insert rods	
	3-OI-85 section 8.16	
	VERIFY the control rod will NOT notch in, in accordance with Section 6.7 or Section 8.19	
	CHECK CRD SYSTEM FLOW is between 40 gpm and 65 gpm, indicated by 3-FIC-85-11	
	CHECK CRD DRIVE WTR HDR DP, 3-PDI-85-17A is between 250 psid and 270 psid	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
ATC	<p>IF CRD SYSTEM FLOW or CRD DRIVE WTR HDR DP had to be adjusted, THEN PROCEED to Section 6.7.</p>	
	<p>If control rod motion is observed, but the CRD fails to notch-in with normal operating drive water pressure, Then: N/A</p>	
	<p>If the control rod problem is believed to be air in the hydraulic system, Then Flush the control rod by placing CRD control switch, 3-HS-85-48, in ROD IN, for several minutes Or until the control rod begins to insert N/A</p>	
	<p>If Manual Insertion of Control Rods by Venting the Over Piston Area is desired, Then: (if this section is tried on the 9 rods that will not drive in –the support people needed will encounter obstacles such that they will not be available) May dispatch operator to perform this but will not occur.</p>	

XII. Simulator Event Guide:

Event #8: Reactor SCRAM / ATWS (continued)

Position	Expected Actions	Time/Comments
Crew	Report increase in Drywell pressure and temperature	
SRO	At 2.45 psig Drywell pressure or 160°F Drywell temperature, re-enters 3-EOI-2 and EOI-1	
	Directs BOP to place available H ₂ O ₂ system in service	
	Directs BOP to vent containment per App-12	
BOP	Places H ₂ O ₂ analyzer in service per 3-EOI-2	
	Place Analyzer isolation bypass keylock switches to bypass	
	Select DW or Supp Chmbr and momentarily pull out select switch handle to start sample pumps	
	Vents Containment per 3-EOI Appendix-12	
	VERIFY at least one SGTS train in service.	
	VERIFY CLOSED the following valves (Panel 3-9-3 or Panel 3-9-54): <ul style="list-style-type: none"> • 3-FCV-64-31, DRYWELL INBOARD ISOLATION VLV, • 3-FCV-64-29, DRYWELL VENT INBD ISOL VALVE, • 3-FCV-64-34, SUPPR CHBR INBOARD ISOLATION VLV, • 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE. 	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	IF ... While executing this procedure to vent the Suppression Chamber, Suppression Pool water level can not be determined to be below 20 ft, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	IF ... While executing this procedure, the desired vent path is lost or can not be established, THEN . PERFORM step 13 to secure the vent path and reenter this procedure if further venting is required.	
	PLACE keylock switch 3-HS-84-35, DW/SUPPR CHBR VENT ISOL BYP SELECT, to SUPPR-CHBR position (Panel 3-9-54).	
	VERIFY OPEN 3-FCV-64-32, SUPPR CHBR VENT INBD ISOL VALVE (Panel 3-9-54).	
	PLACE 3-FIC-84-19, PATH B VENT FLOW CONT, in AUTO with setpoint at 100 scfm (Panel 3-9-55).	
	PLACE keylock switch 3-HS-84-19, 3-FCV-84-19 CONTROL, in OPEN (Panel 3-9-55).	
	VERIFY 3-FIC-84-19, PATH B VENT FLOW CONT, is indicating approximately 100 scfm.	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	<p>ADJUST 3-FIC-84-19, PATH B VENT FLOW CONT, or 3-FIC-84-20, PATH A VENT FLOW CONT, as applicable, to maintain ALL of the following:</p> <ul style="list-style-type: none"> • Stable flow as indicated on controller, <p>AND</p> <ul style="list-style-type: none"> • 3-PA-84-21, VENT PRESS TO SGT HIGH, alarm light extinguished, <p>AND</p> <ul style="list-style-type: none"> • Release rates as determined below: <ol style="list-style-type: none"> i. IF. . .PRIMARY CONTAINMENT FLOODING per C-1, Alternate Level Control, is in progress, THEN. .MAINTAIN release rates below those specified in Attachment 2. ii. IF. . .Severe Accident Management Guidelines are being executed, THEN. .MAINTAIN release rates below those specified by the TSC SAM Team. iii. IF. . .Venting for ANY other reason than items i or ii above, THEN. .MAINTAIN release rates below <ul style="list-style-type: none"> • Stack release rate of $1.4 \times 10^7 \mu\text{Ci/s}$ _____ <p>AND</p> <ul style="list-style-type: none"> • 0-SI-4.8.B.1.a.1 release fraction of 1. 	
SRO	<p>Determines that Suppression Chamber and Drywell Pressure cannot be maintained < 12 psig and directs the Suppression Chamber sprayed per App-17C</p>	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	Sprays Suppression Chamber per Appendix-17C (only Loop I available)	
	1. BEFORE Suppression Chamber pressure drops below 0 psig, CONTINUE in this procedure at Step 6.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Suppression Chamber irrespective of adequate core cooling, THEN.....BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS.	
	3. IF.....Directed by SRO to spray the Suppression Chamber using Standby Coolant Supply, THEN.....CONTINUE in this procedure at Step 7.	
	4. IF.....Directed by SRO to spray the Suppression Chamber using Fire Protection, THEN.....CONTINUE in this procedure at Step 8.	
	5. INITIATE Suppression Chamber Sprays as follows:	
	a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. IF EITHER of the following exists: <ul style="list-style-type: none"> • LPCI Initiation signal is NOT present, OR • Directed by SRO, THEN.....PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.	
	c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.	
	d. IF 3-FCV-74-53(67), RHR SYS I(II) INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) OUTBD INJECT VALVE.	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	e. VERIFY OPERATING the desired RHR System I(II) pump(s) for Suppression Chamber Spray.	
	f. VERIFY OPEN 3-FCV-74-57(71), RHR SYS I(II) SUPPR CHBR/POOL ISOL VLV.	
	g. OPEN 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.	
	h. IF RHR System I(II) is operating ONLY in Suppression Chamber Spray mode, THEN..... CONTINUE in this procedure at Step 5.k.	
	i. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	j. RAISE system flow by placing the second RHR System I(II) pump in service as necessary.	
	k. MONITOR RHR Pump NPSH using Attachment 2.	
	l. VERIFY RHRSW pump supplying desired RHR Heat Exchanger(s).	
	m. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV 	
	n. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	6. WHEN.....EITHER of the following exists: <ul style="list-style-type: none"> • Before Suppression Pool pressure drops below 0 psig, OR • Directed by SRO to stop Suppression Chamber Sprays, THEN.....STOP Suppression Chamber Sprays as follows:	
	a. CLOSE 3-FCV-74-58(72), RHR SYS I(II) SUPPR CHBR SPRAY VALVE.	
	b. VERIFY CLOSED 3-FCV-74-100, RHR SYS I U-2 DISCH XTIE	
	c. IFRHR operation is desired in ANY other mode, THEN..... EXIT this EOI Appendix.	
SRO	Directs App-5B (CRD) if all attempts have been exhausted trying to insert the stuck rods	
ATC	1. IF Maximum injection flow is NOT required, THEN ... VERIFY CRD aligned as follows: <ul style="list-style-type: none"> a. VERIFY at least one CRD pump in service and aligned to Unit 3 CRD system. b. ADJUST 3-FIC-85-11, CRD SYSTEM FLOW CONTROL, as necessary to obtain flow rate of 65 to 85 gpm. c. THROTTLE 3-PCV-85-23, CRD DRIVE WATER PRESS CONTROL VLV, to maintain 250 to 350 psid drive water header pressure differential. d. EXIT this procedure. 	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
ATC	2. IF BOTH of the following exist: <ul style="list-style-type: none"> • CRD is NOT required for rod insertion, AND • Maximum injection flow is required, THEN ... LINE UP ALL available CRD pumps to the RPV as follows: <ul style="list-style-type: none"> a. IF CRD Pump 3A is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B. b. IF CRD Pump 3B is available, THEN ... VERIFY RUNNING CRD Pump 3A or 3B. 	
	Reports 3B CRD pump will Not start and 3-FCV-85-50 will Not open	
	Dispatches personnel to investigate 3B CRD and 3-FCV-85-50	
BOP	Reports RCIC tripped and will Not reset	
	Dispatches personnel to investigate RCIC loss	
SRO	When Drywell temperature approaches 280°F or Suppression Chamber pressure exceeds 12 psig, directs the following; <ul style="list-style-type: none"> • Verify Suppression Pool level is below 18 ft • Verify in safe area of Curve 5 • Verify Recirc pumps tripped • Secure Drywell blowers • Spray the Drywell per App-17B 	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	3-EOI APPENDIX-17B 1. BEFORE Drywell pressure drops below 0 psig, CONTINUE in this procedure at Step 7.	
	2. IF.....Adequate core cooling is assured, OR Directed to spray the Drywell irrespective of adequate core cooling, THEN..... BYPASS LPCI injection valve auto open signal as necessary by PLACING 3-HS-74-155A(B), LPCI SYS I(II) OUTBD INJ VLV BYPASS SEL in BYPASS .	
	3. VERIFY Recirc Pumps and Drywell Blowers shutdown.	
	4. IF.....Directed by SRO to spray the Drywell using Standby Coolant <i>N/A</i>	
	5. IF.....Directed by SRO to spray the Drywell using Fire Protection, <i>N/A</i>	
	6. INITIATE Drywell Sprays as follows: a. VERIFY at least one RHRSW pump supplying each EECW header.	
	b. IF EITHER of the following exists: <ul style="list-style-type: none"> • LPCI Initiation signal is NOT present, OR <ul style="list-style-type: none"> • Directed by SRO, THEN..... PLACE keylock switch 3-XS-74-122(130), RHR SYS I(II) LPCI 2/3 CORE HEIGHT OVRD, in MANUAL OVERRIDE.	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	c. MOMENTARILY PLACE 3-XS-74-121(129), RHR SYS I(II) CTMT SPRAY/CLG VLV SELECT, switch in SELECT.	
	d. IF 3-FCV-74-53(67), RHR SYS I(II) LPCI INBD INJECT VALVE, is OPEN, THEN..... VERIFY CLOSED 3-FCV-74-52(66), RHR SYS I(II) LPCI OUTBD INJECT VALVE.	
	e. VERIFY OPERATING the desired System I(II) RHR pump(s) for Drywell Spray.	
	f. OPEN the following valves: <ul style="list-style-type: none"> • 3-FCV-74-60(74), RHR SYS I(II) DW SPRAY OUTBD VLV • 3-FCV-74-61(75), RHR SYS I(II) DW SPRAY INBD VLV. 	
	g. VERIFY CLOSED 3-FCV-74-7(30), RHR SYSTEM I(II) MIN FLOW VALVE.	
	h. IF Additional Drywell Spray flow is necessary, THEN..... PLACE the second System I(II) RHR Pump in service.	
	i. MONITOR RHR Pump NPSH using Attachment 2.	
	j. VERIFY RHR SW pump supplying desired RHR Heat Exchanger(s).	

XII. Simulator Event Guide:

Event #9: Drywell Leak (continued)

Position	Expected Actions	Time/Comments
BOP	k. THROTTLE the following in-service RHRSW outlet valves to obtain between 1350 and 4500 gpm RHRSW flow: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-46, RHR HX 3B RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV • 3-FCV-23-52, RHR HX 3D RHRSW OUTLET VLV. 	
	l. NOTIFY Chemistry that RHRSW is aligned to in-service RHR Heat Exchangers.	
	Reports drywell pressure and temperature decrease	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak

Position	Expected Actions	Time/Comments
BOP	Announces alarm 9-3E window 35 / DRYWELL CONTROL AIR PRESS LOW	
	Refer To 3-AOI-32A-1	
	Realizes from turnover that plant control air is supplying DWCA and steps to align CAD would not serve any purpose (and is tagged)	
SRO	Directs AUO / Outside US to verify alignment of Control air to DWCA	
BOP	Announces alarm 9-3D window 18 / MAIN STEAM RELIEF VLV AIR ACCUM PRESS LOW	
	Check Drywell Control Air System, if malfunctioning, refer to 3-AOI-32A-1	
BOP	Continues to monitor RWL decrease	
SRO	Determines cannot restore/maintain RPV level above – 180"	
	Directs to Stop and Prevent ALL injection into the RPV except from RCIC, CRD, and SLC (App-4)	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
ATC	<p>Performs Appendix-4 on pnl 9-5 and 9-6</p> <p>1. PREVENT injection to RPV from the following systems in any order as required: f. CONDENSATE and FEEDWATER</p> <p>1) LOWER RFPT 3A(3B)(3C) speed to minimum setting (approximately 600 rpm) using ANY of the following methods on Panel 3-9-5:</p> <ul style="list-style-type: none"> • Using 3-LIC-46-5, REACTOR WATER LEVEL CONTROL PDS, in MANUAL AND individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in AUTO, <p>OR</p> <ul style="list-style-type: none"> • Using individual 3-SIC-46-8(9)(10), RFPT 3A(3B)(3C) SPEED CONTROL PDS in MANUAL, <p>OR</p> <ul style="list-style-type: none"> • Using individual 3-HS-46-8A(9A)(10A), RFPT 3A(3B)(3C) SPEED CONT RAISE/LOWER switch in MANUAL GOVERNOR. <p>2) CLOSE the following valves BEFORE RPV pressure drops below 450 psig:</p> <ul style="list-style-type: none"> • 3-FCV-3-19, RFP 3A DISCHARGE VALVE • 3-FCV-3-12, RFP 3B DISCHARGE VALVE • 3-FCV-3-5, RFP 3C DISCHARGE VALVE • 3-LCV-3-53, RFW START-UP LEVEL CONTROL. <p>3) TRIP RFPTs as necessary to prevent injection by DEPRESSING the following push-buttons:</p> <ul style="list-style-type: none"> • 3-HS-3-125A, RFPT 3A TRIP • 3-HS-3-151A, RFPT 3B TRIP • 3-HS-3-176A, RFPT 3C TRIP. 	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
BOP	Performs Appendix-4 on pnl 9-3	
	<p>1. PREVENT injection to RPV from the following systems in any order as required:</p> <p>c. CORE SPRAY</p> <p>NOTE: After receipt of an automatic initiation signal, it is NOT necessary to wait until the pump actually starts before performing the next step. Following an initiation signal, PLACE ALL Core Spray pump control switches in STOP.</p>	
	<p>d. LPCI SYSTEM I</p> <p>PREVENT injection by EITHER of the following methods:</p> <ul style="list-style-type: none"> • Following automatic pump start, PLACE RHR SYSTEM I pump control switches in STOP. <p>OR</p> <ul style="list-style-type: none"> • BEFORE RPV pressure drops below 450 psig, 1) PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL, in BYPASS. AND 2) VERIFY CLOSED 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE. <p>e. LPCI SYSTEM II</p> <p>PREVENT injection by EITHER of the following methods:</p> <ul style="list-style-type: none"> • Following automatic pump start, PLACE RHR SYSTEM II pump control switches in STOP. <p>OR</p> <ul style="list-style-type: none"> • BEFORE RPV pressure drops below 450 psig, 1) PLACE 3-HS-74-155B, LPCI SYS II OUTBD INJ VLV BYPASS SEL, in BYPASS. AND 2) VERIFY CLOSED 3-FCV-74-66, RHR SYS II LPCI OUTBD INJECT VALVE. 	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
SRO	Directs opening 6 ADS valves	
BOP	Reports only 2 ADS valves able to be opened	
SRO	Directs opening additional valves until 6 are open (if possible)	
BOP	Opens additional valves and reports only 5 can be opened	
SRO	Directs no additional injection until MARF is achieved (5 valves – 230 psig)	
	Once MARF pressure is obtained, directs Slowly raising RPV level with Condensate (App-6A), or RHR I (App-6B) and restore level to + 2" to + 51"	
ATC	Recover level with Condensate, 3-EOI Appendix-6A	
	1. VERIFY CLOSED the following Feedwater heater return valves: <ul style="list-style-type: none"> • 3-FCV-3-71, HP HTR 3A1 LONG CYCLE TO CNDR • 3-FCV-3-72, HP HTR 3B1 LONG CYCLE TO CNDR • 3-FCV-3-73, HP HTR 3C1 LONG CYCLE TO CNDR. 	
	2. VERIFY CLOSED the following RFP discharge valves: <ul style="list-style-type: none"> • 3-FCV-3-19, RFP 3A DISCHARGE VALVE • 3-FCV-3-12, RFP 3B DISCHARGE VALVE • 3-FCV-3-5, RFP 3C DISCHARGE VALVE. 	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
ATC	<p>3. VERIFY OPEN the following drain cooler inlet valves:</p> <ul style="list-style-type: none"> • 3-FCV-2-72, DRAIN COOLER 3A5 CNDS INLET ISOL VLV • 3-FCV-2-84, DRAIN COOLER 3B5 CNDS INLET ISOL VLV • 3-FCV-2-96, DRAIN COOLER 3C5 CNDS INLET ISOL VLV. 	
	<p>4. VERIFY OPEN the following heater outlet valves:</p> <ul style="list-style-type: none"> • 3-FCV-2-124, LP HEATER 3A3 CNDS OUTL ISOL VLV • 3-FCV-2-125, LP HEATER 3B3 CNDS OUTL ISOL VLV • 3-FCV-2-126, LP HEATER 3C3 CNDS OUTL ISOL VLV. 	
	<p>5. VERIFY OPEN the following heater isolation valves:</p> <ul style="list-style-type: none"> • 3-FCV-3-38, HP HTR 3A2 FW INLET ISOL VLV • 3-FCV-3-31, HP HTR 3B2 FW INLET ISOL VLV • 3-FCV-3-24, HP HTR 3C2 FW INLET ISOL VLV • 3-FCV-3-75, HP HTR 3A1 FW OUTLET ISOL VLV • 3-FCV-3-76, HP HTR 3B1 FW OUTLET ISOL VLV • 3-FCV-3-77, HP HTR 3C1 FW OUTLET ISOL VLV. 	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
ATC	6. VERIFY OPEN the following RFP suction valves: <ul style="list-style-type: none"> • 3-FCV-2-83, RFP 3A SUCTION VALVE • 3-FCV-2-95, RFP 3B SUCTION VALVE • 3-FCV-2-108, RFP 3C SUCTION VALVE. 	
	7. VERIFY at least one condensate pump running.	
	8. VERIFY at least one condensate booster pump running.	
	9. ADJUST 3-LIC-3-53, RFW START-UP LEVEL CONTROL, to control injection (Panel 3-9-5).	
	10. VERIFY RFW flow to RPV.	
	Manually make-up (bypass) to the Hotwell from the CST as needed	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
BOP	Restores Reactor Level +2" to +51" with RHR I per 3-EOI APPENDIX-6B (Loop 1 only)	
	1. IF.....Adequate core cooling is assured, AND It becomes necessary to bypass the LPCI injection valve auto open signal to control injection, THEN..... PLACE 3-HS-74-155A, LPCI SYS I OUTBD INJ VLV BYPASS SEL in BYPASS .	
	2. VERIFY OPEN 3-FCV-74-1, RHR PUMP 3A SUPPR POOL SUCT VLV	
	3. VERIFY OPEN 3-FCV-74-12, RHR PUMP 3C SUPPR POOL SUCT VLV	
	4. VERIFY CLOSED the following valves: <ul style="list-style-type: none"> • 3-FCV-74-61, RHR SYS I DW SPRAY INBD VLV • 3-FCV-74-60, RHR SYS I DW SPRAY OUTBD VLV • 3-FCV-74-57, RHR SYS I SUPPR CHBR/POOL ISOL VLV • 3-FCV-74-58, RHR SYS I SUPPR CHBR SPRAY VALVE • 3-FCV-74-59, RHR SYS I SUPPR POOL CLG/TEST VLV 	
	5. VERIFY RHR Pump 3A and/or 3C running.	
	6. WHEN.....RPV pressure is below 450 psig, THEN..... VERIFY OPEN 3-FCV-74-53, RHR SYS I LPCI INBD INJECT VALVE.	

XII. Simulator Event Guide:

Event #10: Drywell Control Air Leak (continued)

Position	Expected Actions	Time/Comments
BOP	7. IF.....RPV pressure is below 230 psig, THEN.....VERIFY CLOSED 3-FCV-68-79, RECIRC PUMP 3B DISCHARGE VALVE.	
	8. THROTTLE 3-FCV-74-52, RHR SYS I LPCI OUTBD INJECT VALVE, as necessary to control injection.	
	9. MONITOR RHR Pump NPSH using Attachment 1.	
	10. PLACE RHRSW pumps in service as soon as possible on ANY RHR Heat Exchangers discharging to the RPV.	
	11. THROTTLE the following in-service RHRSW outlet valves to maintain flow between 1350 and 4500 gpm: <ul style="list-style-type: none"> • 3-FCV-23-34, RHR HX 3A RHRSW OUTLET VLV • 3-FCV-23-40, RHR HX 3C RHRSW OUTLET VLV. 	
	12. NOTIFY Chemistry that RHRSW is aligned to in-service RHR heat exchangers.	
SRO	Directs Drywell Sprays placed back in service when level > TAF (Appendix-17B) (If needed and in the safe area of the Spray Curve)	
BOP	Places Drywell sprays back in service if directed per Appendix-17B	
SRO	Declares Site Area Emergency 1.1-S-1	

XIII. Crew Critical Tasks:

	TASK	SAT/UNSAT
1)	Prevent Auto ADS actuation	
2)	Terminate and prevent injection prior to Emergency Depressurize	
3)	Emergency Depressurize when required by EOI's – When level reaches (-)180"	
4)	Restore/Recover Reactor water level above top of active fuel (-)162"	

SCENARIO REVIEW CHECKLIST

SCENARIO NUMBER: HLTS-3-17

9 Total Malfunctions Inserted: List (4-8)

- 1) 3A CRD Pump Trip
- 2) H₂O₂ Analyzer Failure
- 3) IRM Failure
- 4) RFP Trip
- 5) HPCI Aux Oil Pump failure
- 6) ATWS
- 7) Drywell Leak
- 8) DW Control air header break / Failure of ADS valves
- 9) 3B CRD trip

4 Malfunctions that occur after EOI entry: List (1-4)

- 1) ATWS
- 2) Drywell Leak
- 3) DW Control air header break / Failure of ADS valves
- 4) 3B CRD trip

4 Abnormal Events: List (1-3)

- 1) 3A CRD Pump Trip
- 2) IRM Failure
- 3) H₂O₂ Analyzer Failure
- 4) RFP Trip

2 Major Transients: List (1-2)

- 1) ATWS
- 2) Drywell leak

2 EOI's used: List (1-3)

- 1) EOI-1
- 2) EOI-2

2 EOI Contingencies used: List (0-3)

- 1) C-5
- 2) C-2

_____ Run Time (minutes)

_____ EOI Run Time (minutes): _ % of Scenario Run Time

4 Crew Critical Tasks:(2-5)

YES Technical Specifications Exercised (Yes/No) – TRM

SHIFT TURNOVER SHEET

Equipment Out of Service/LCO's:

3A and 3B RFP's are being tagged for outage work. Loop II RHR is tagged to bridge and
meggars their motors, 7 day LCO's for T.S. 3.5.1.A and 3.6.2.3A, 4A, & 5A.

Operations/Maintenance for the Shift:

Continue to lower power with control rods per 3-GOI-100-12A step 5.0[32] until < 5% and then
stop to place SJAE's and OG pre-heaters on aux boiler steam (Turbine seal steam has already
been swapped to aux boiler steam). The IM's have completed all SR's for SRM's and IRM's
and they have been declared Operable. Then after Mode switch is placed in START & HOT
STANDBY, start de-inerting the Drywell (3-OI-76 section 7.1 and 3-OI-64 section 8.2) and
continue lowering power to ~ 1% and close MSIV's per 3-GOI-100-12A Attachment 3 (step
5.0[42]). Maintain Rx power ~ 1% while Drywell inspection and turbine work is performed.
Control air has been aligned to DWCA and all N₂ to Containment is being tagged out.

Unusual Conditions/Problem Areas:

Severe thunderstorm warnings in area for the next 10 to 12 hours.

