FINAL SUBMITTAL

BROWNS FERRY EXAM
50-259, 260, 296/2001-301

SEPTEMBER 17-21, 2001

FINAL AS GIVEN OPERATOR ACTIONS

F.1.g - FORM ES-D-2 OPERATOR ACTIONS

Facility: Browns Ferry Scenario No.: NRC-1 Op-Test No.: A

Examiners: _____ Operators: _____

Initial Conditions: Unit At 85%, With Power Ascension in progress. 2C RHR Pump is tagged out for minor maintenance (6 hours into a 7 day LCO). HPCI Flow Test at Rated Pressure, 2-SR-3.5.1.7 is in progress and complete up to Step 7.10.

Turnover: Continue to 100%. Severe Thunder Storm Warning in effect.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N-BUO	Alternate Unit 2 EH pumps.
2	N/A	R-all	Continue power ascension to 100%.
3	Imfhp08	N-duo C-duo	Continue HPCI Flow Test 2-SR-3.5.1.7 (Ruptured HPCI steam line with a failure to auto isolate).
4	imf swo2a	I-duo	"A" RBCCW pump trip and FCV-70-48 failure to close.
5	imf ad01n 100	C-buo	SRV-1-180 Fails Open.
6	Bat RRPAVIB dmf th12A	C-buo /all	High Vibrations result in 2A Recirc Pump Seal Leak, and Power Oscillations that will Lead to Reactor Scram.
7	imf th22	M-all	High Pressure in Drywell.
7b	imf edo1	M-all	LOOP/ After entry into procedure for High Pressure in DW, with a failure of the "D" D/G to autostart.

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

SIMULATOR EVALUATION GUIDE

TITLE : NRC-1

REVISION : 0

DATE : August 30, 2001

PROGRAM : BFN Operator Training - Hot License

PREPARED BY: _____ /_____
(Operations Instructor) Date

REVIEWED BY: _____ /_____
(LOR Lead Instructor or Designee) Date

REVIEWED BY: _____ /_____
(Operations Training Manager or Designee) Date

CONCURRED : _____ /_____
(Operations Superintendent or Designee) Date

VALIDATION : _____ /_____
BY (Operations SRO: Required for Exam Scenarios Only) Date

TASK LIST : N/A_____ /_____
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(Librarian) Date

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	DATE	PAGES AFFECTED	REVIEWED BY
0	INITIAL	8/30/01	All	

I. Program: BFN Operator Training

II. Course: Hot License Training

III. Title: NRC 1

IV. Length of Scenario:

V. Examination Objectives:

A. Terminal Objective

1. Perform routine shift turnover, plant assessment and routine shift operation in accordancewith BFN procedures.

2. Given abnormal conditions, the operating crew will place the unit in astabilized condition per normal, abnormal, annunciator and emergency procedures.

B. Enabling Objectives:

1. The operating crew will alternate EHC pumps.

2. The operating crew will continue power ascension from 85% power.

3. The operating crew will experience a HPCI steam line break during performance of 2-SR-3.5.1.7 ,HPCI Flow Rate, with a failure of HPCI to auto isolate.

4. The operating crew will recognize and respond to a loss of an RBCCW pump and failure of FCV-70-48 to automatically close.

5. The operating crew will recognize and respond to a safety-relief valve failed open.

6. The operating crew will recognize and respond to a high vibration and trip of 2A Recirc pump.

7. The operating crew will recognize and respond to reactor power oscillations by scramming the reactor.

8. The operating crew will recognize and respond to a high drywell pressure condition.

9. The operating crew will recognize and respond to a loss of all offsite power.

10. The operating crew will respond to a failure to 'D' diesel generator to auto start.

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:

A. This Lesson Plan (NRC 1)

B. Simulator

C. Control Rod Insertion Sheets

D. Marked up copy of 2-SR-3.5.1.7, HPCI Flow Rate

VIII. Console Operators Instructions

A. Scenario File Summary

1. IC 39	85% MOC	
	bat 7048ftc	Fails FCV-70-48 Open
	bat 7048-1	Allows FCV-70-48 to be closed manually
	bat torhrc	Prepares RHR C for tagout
	imf hp09	Failure of HPCI to auto isolate
	imf dg01d	Failure of D diesel gen to auto start
2. bat app16fg		Defeats RHR Injection Valve Timers
3. bat RRPAVIB	imf th12a	Inserts Vibration Alarm
	imf th10a (none 1:)	Fails Recirc Pump A Inboard Seal
	imf th11a (none 2:)	Fails Recirc Pump A Outboard Seal)
	imf cr02a (e5 20) 25 2:00	Inserts Power Oscillations
	ior zdihs681	Prevents Recirc Pump A Suction Valve Closure

B. Console Operators Manipulations

ELAP. TIME	IC/MF/RF#	DESCRIPTION/ACTION
Sim setup	rst 39	85% Power MOC
Sim setup	manual	Hang HO tags on 'C' RHR pump
Sim setup	manual	Place TESTING/MAINT frames on Panel 9-3F, Windows 5, 11, 26 for HPCI SR
When HPCI is at rated pressure and flow	imf hp08	Steam leak into HPCI room
When directed by Lead Examiner	imf sw02a	Trips 'A' RBCCW pump
Unit 1 Operator 1 minutes after requested	mrf sw03	Places spare RBCCW pump in service
When directed by Lead Examiner	imf ad01n 100	Fails SRV-1-180 open
When dispatched, wait four minutes	mrf ad02n out	Removes power from SRV-1-180

More Follows

B. Console Operators Manipulations (Continued)

When dispatched to check 2A Recirc Vibration, wait 3 minutes and report back 15 mils

When directed by Lead Examiner	bat RRPAVIB	Recirc Pump A high vibration, seal failure, suction valve fails to close and power oscillations.
When 'A' Recirc trips	dmf th12a	Deletes vibration high alarm
After scram	imf th22 (none :30) 100	60 GPM seal leakage
When requested, wait 4 minutes	bat app16fg	Defeats RHR injection valve timers
When directed by Lead Examiner	imf ed01	Loss of offsite power
When requested, wait 4 minutes	bat eecw bat eecw-1 mrf rp01 mrf rp02 mrf ia05a mrf ia05d	Resets EECW to CAC and RBCCW Returns EECW to auto Resets A RPS Circuit Protectors Resets B RPS Circuit Protectors Resets A CAC Resets D CAC

IX. Scenario Summary

Given Unit 2 at 85% power, the crew will alternate EHC pumps and resume power ascension to 100%. As 2-SR-3.5.1.7, HPCI Flow Rate, is continued the crew will experience a ruptured HPCI steam line with a failure of HPCI to automatically isolate. Manual HPCI isolation will be possible. Subsequently, an RBCCW pump trips with the resultant failure of the 70-48 valve to close. When the 70-48 valve is manually closed it isolates non-essential RBCCW loads including the reactor water cleanup system. As power ascension is continued, an SRV fails open but can be closed as steps of AOI-1-1 are performed. Finally the crew experiences high vibration with a subsequent trip and seal leakage on the 2A Recirc Pump resulting in high drywell pressure. When the diesel generators automatically start the D diesel generator fails to auto start but can be manually started.

X. Information to Floor Examiners:

A. Ensure recorders are inking and recording and ICS is active and updating.

B. Assign Crew Positions based on the required rotation.

1. SRO: Unit Supervisor
2. BUO: Board Unit Operator
3. DUO: Desk Unit Operator

C. Conduct a shift turnover with the Unit Supervisor.

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

E. Terminate the scenario when the following conditions are satisfied are at the request of the floor/lead instructor/evaluator.

1. RPV water level +2" to +51"
2. Drywell pressure under control
3. Critical systems restored from loss of offsite power

XI. Simulator Event Guide

Event 1: Alternate EHC Pumps

POSITION	EXPECTED ACTION(S)	NOTES/REMARKS
BUO/DUO	Receive crew briefing and walk boards down	
SRO	Directs DUO to alternate EHC pumps	
DUO	Alternates EHC Pumps in accordance with 2-OI-47A	
	• Starts 2B EHC Pump	
	• Verifies EHC header pressure 1550 to 1650 psig	
	•	
	• Verifies 2B EHC motor amps <140	
	•	
	• Stops 2A EHC Pumps	

XI. Simulator Event Guide (Continued)

Event 2: Continue power ascension

POSITION	EXPECTED ACTION(S)	NOTES/REMARKS
SRO	Directs power ascension per GOI-100-12 and OI-68	
BUO	Raises reactor power at 8 to 10 MW/min in accordance with GOI-100-12 and OI-68	
DUO	Performs as peer checker for recirc flow changes	

XI. Simulator Event Guide (Continued)

Event 3: HPCI Steam Line Break

POSITION	EXPECTED ACTION(S)	NOTES/REMARKS
SRO	Directs DUO to continue with 2-SR-3.5.1.7 at step 7.11	
BUO/DUO	Makes plant announcement HPCI is to be started	
DUO	Responds to Reactor Bldg Hi Rad alarm per the ARP	
DUO	Determines HPCI area source of hi rad	
DUO	Responds to HPCI Leak Detection Temp Hi alarm per the ARP	
DUO	Recognizes HPCI not isolated when isolation lights are illuminated	
SRO	Directs HPCI manually isolated	
DUO	Manually isolates HPCI steam supply	
BUO/DUO	Evacuates HPCI area	
BUO/DUO	Notifies Rad Con	
DUO	Monitors for lowering temperature and radiation levels in HPCI area	
SRO	Sends personnel to investigate	
SRO	Determines unit in 72 hour LCO (TS 3.5.1 - HPCI and C RHR Inop)	

XI. Simulator Event Guide (Continued)

Event 4: RBCCW Pump Trip and FCV-70-48 Failure to Close

POSITION	EXPECTED ACTION(S)	NOTES/REMARKS
CREW	Recognizes 'A' RBCCW pump trip	
SRO	Directs response per 2-AOI-70-1	
DUO	Attempts manual restart of 'A' RBCCW Pump	
DUO/BUO	Directs Unit 1 Operator to place spare RBCCW pump in service to Unit 2	
DUO	Determines FCV-70-48 did not close	
DUO	Manually closes FCV-70-48	
DUO	Verifies all available drywell cooling in service	
DUO/BUO	Secures Reactor Water Cleanup System	
CREW	Monitors drywell and recirc pump temperatures	

XI. Simulator Event Guide (Continued)

Event 5: SRV-1-180 Fails Open

POSITION	EXPECTED ACTION(S)	NOTES/REMARKS
CREW	Recognizes SRV open • Main Steam Relief Valve Open alarm • lowering generator output	
SRO	Directs response per AOI-1-1	
DUO	Determines SRV-1-180 from accoustic monitor	
DUO	Places SRV-1-180 control switch from close to open to close several times	
DUO	Determines SRV still open	
DUO	Places SRV Tailpipe Flow Monitor power switch to OFF and then back ON	
DUO	Determines SRV still open	
DUO	Places MSRV Auto Actuation Logic Inhibit, 2-XS-1-202, in INHIBIT	
DUO	Determines SRV has closed	
SRO	Directs power removed from SRV-1-180	
DUO	Dispatches personnel to remove power from SRV-1-180	
DUO	After power removed from SRV-1-180, returns MSRV Auto Actuation Logic Inhibit, 2-XS-1-202, to AUTO	
SRO	DeterminesTS 3.4.3 - Non-ADS valve, safety function of 12 required, No further LCO	

XI. Simulator Event Guide (Continued)

Event 6: Recirc Vibration, Seal Leakage, Power Oscillations and Scram

POSITION	EXPECTED ACTIONS	COMMENTS
BUO/DUO	Announces Recirc A high vibration alarm	
BUO/DUO	Consults ARP for Panel 9-4	
BUO/DUO	Directs AUO to Local Panel to check vibration	
DUO	Monitors Recirc Pump Temperatures	
SRO	Contacts Reactor Engineer	
SRO	Directs BUO to reduce speed of 2A RRP to reduce vibration	
BUO	Reduces 2A RRP speed with peer check to clear vibration alarm	
BUO/DUO	Announces Recirc A Seal Leakage Alarm	
BUO/DUO	Identifies Seal Failure via Instrumentation	
BUO/DUO	Recognizes lowering pressure on Recirc Pump A #1 seal	
SRO	Directs crew to watch for signs of increased leakage	
DUO	Acknowledges Recirc Pump A seal leakoff high alarm; informs SRO; consults ARP	
BUO/DUO	Recognizes lowering pressure on Recirc Pump A outboard seal; informs SRO	
DUO	Monitors drywell parameters; notes pressure and temperature increasing; informs SRO	
SRO	When vibration report received or dual seal failure is reported, directs 'A' Recirc Pump tripped	
BUO/DUO	Trips Recirc A and closes the discharge valve	
SRO	Directs actions per 2-AOI-68-1	

XI. Simulator Event Guide (Continued)

Event 6: Recirc Vibration, Seal Leakage, Power Oscillations and Scram (Continued)

POSITION	EXPECTED ACTIONS	COMMENTS
BUO/DUO	Directs AUO to Recirc MG Set to monitor oil temp.	
BUO/DUO	Checks Power to flow map to verify within safe region	
BUO	Checks APRMs and LPRMs for indication of power oscillations	
BUO	Informs SRO of Power Oscillations	
SRO	When APRM oscillation >10% peak to peak, directs reactor scram	
BUO	Scrams the reactor	
SRO	Directs AOI-100-1	
BUO/DUO	Carry out actions of AOI-100-1	
SRO	Directs 'A' Recirc Isolated	
DUO	Notes that Recirc Pump A suction isolation valve will not close; informs SRO	
SRO	Directs DUO to monitor drywell temperature and pressure	
DUO	Directs AUO to close Recirc Pump suction valve locally at Board.	
SRO	Directs venting per OI-64	
DUO	Vents per OI-64	
DUO	Directs Logs person to monitor release rates	
DUO	Keeps SRO informed as drywell pressure approaches 2.45 psig	
SRO	Enters EOI-2 at 2.45 psig drywell pressure	
BUO/DUO	Directs venting per Appendix 12	

XI. Simulator Event Guide (Continued)

Event 7: LOSS OF OFFSITE POWER

POSITION	EXPECTED ACTIONS	INST. INFO/NOTES
BUO/DUO	Recognize loss of offsite power; informs SRO	
SRO	Directs BOP to verify all 4 diesel generators started and tied on (0-AOI-57-1A immediate action)	
DUO	Recognizes that DG D did not auto start	
DUO	Manually starts DG D	Critical Task
DUO	Informs DRO DG D was manually started and tied to board	
SRO	Directs actions per 0-AOI-57-1A:	
DUO	Carries out actions of 0-AOI-57-1A	
	Reset EECW Valves	
	Start RBCCW pumps and drywell cooling	
	Start diesel driven fire pump [Unit 1 operator]	
	Realign electrical distribution system	
	Reset RPS MG sets	
	Reset A, D & G Air Compressors.	
DUO	Starts drywell coolers	
BUO	Starts RBCCW pumps	
SRO	Directs RPS busses be restored	
SRO	Directs 1B CRD pump started	
BUO	Starts 1B CRD pump and aligns to Unit 2	

XIV. Shift Turnover Information

Equipment out of service/LCOs: 2C RHR Pump is out of service. T.S 3.5.1.A.1 has been entered. Unit 2 is 6 hours into a seven day LCO

Operation/Maintenance for the Shift: Unit 2 is at 85% power, 2-SR-3.5.1.7 in progress Complete up to Step 7.11 (HPCI Main and Booster Pump Set Developed Head and Flow Rate Test at Rated Reactor Pressure). Swap EHC Pumps per section 6.3 of OI47A. Increase reactor power to 90% using Recirc flow (GOI-100-12 step 5.132) and complete HPCI SR.

Unusual Conditions/Problem Areas: None

Facility: Browns Ferry Scenario No.: NRC 2 Op-Test No.: A

Examiners: _____ Operators: _____

Initial Conditions: Unit At 100%; 2C RHR Pump is tagged out for minor maintenance (6 hours into a 7 day LCO)

Turnover: Power reduction Planned in order to perform 2-SR-3.3.1.1.8(9) turbine control valve fast closure. Severe Thunder Storm Warning in effect.

Event No.	Malf. No.	Event Type*	Event Description
0	imf rp06	C all	Prevent Reactor Scram
0	bat atws75	M	75% ATWS
1	N/A	R buo	Power Reduction for 2-SR-3.3.1.1.8(9)
2	imf rp01a	I buo	Failure of "A" RPS.
3	Imf og04a	C duo	Failure of "A" SJAE.
4	Imf rd01a	C buo	2A CRD Pump Trip. B pump starts
5	imf pc02 dmf pc02	C duo	A Reactor Zone Fans Trip.
6	Bat ms1b hilevel	C all	Fail level control for 2B1 moisture sep. creating high level
7a	N/A	M all	Reactor Fails to Scram. (ATWS)
7b	imf pc05a	M all	Steam Leak in Primary and Secondary Containment with MSIV Closure.

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

SIMULATOR EVALUATION GUIDE

TITLE : NRC-2

REVISION : 0

DATE : August 30, 2001

PROGRAM : BFN Operator Training - Hot License

PREPARED BY: _____ / _____
(Operations Instructor) Date

REVIEWED BY: _____ / _____
(LOR Lead Instructor or Designee) Date

REVIEWED BY: _____ / _____
(Operations Training Manager or Designee) Date

CONCURRED : _____ / _____
(Operations Superintendent or Designee) Date

VALIDATION BY : _____ / _____
(Operations SRO: Required for Exam Scenarios Only) Date

TASK LIST UPDATED : N/A _____ / _____
(Operations Training) Date

LOGGED IN : N/A _____ / _____
(Librarian) Date

NUCLEAR TRAINING REVISION/USAGE LOG				
REVISION NUMBER	DESCRIPTION OF REVISION	DATE	PAGES AFFECTED	REVIEWED BY
0	INITIAL	8/30/01	All	

I. Program: BFN Operator Training

II. Course: Hot License Training

III. Title: NRC 2

IV. Length of Scenario:

V. Examination Objectives:

A. Terminal Objective

1. Perform routine shift turnover, plant assessment and routine shift operation in accordance with BFN procedures.

2. Given abnormal conditions, the operating crew will place the unit in a stabilized condition per normal, abnormal, annunciator and emergency procedures.

B. Enabling Objectives:

1. The operating crew will reduce power to perform 2-SR-3.3.1.1.8(9).

2. The operating crew will recognize and respond to a failure of 'A' RPS Bus.

3. The operating crew will recognize and respond to an isolation of 'A' SJAE.

4. The operating crew will recognize and respond to a control rod drive pump trip.

5. The operating crew will recognize and respond to a trip of the reactor zone ventilation fans.

6. The operating crew will recognize and respond to a high level in a moisture separator.

7. The operating crew will recognize and respond to an ATWS.

8. The operating crew will recognize and respond to a main steam line break inside primary containment.

9. The operating crew will recognize and respond to an MSIV closure due to a steam line break in the tunnel.

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:

A. This Lesson Plan (NRC 2)

B. Simulator

C. Control Rod Insertion Sheets

VIII. Scenario Summary

Given Unit 2 at 100% power a power reduction will be performed to perform 2-SR-3.3.1.1.8(9), Turbine Control Valve Fast Closure. A failure of 'A' RPS bus will occur. 'A' steam jet air ejector will isolate requiring the crew to place the 'B' steam jet air ejector is service. The operating CRD pump will subsequently trip requiring response in accordance with the Abnormal Operating Procedure. The crew will then experience a reactor zone ventilation fan trip and will be required to place the B set of fans in service.. A level control failure on 2B1 moisture separator will trip the main turbine and the operating crew will experience a failure to auto scram and an ATWS is experienced when the manual scram is inserted. When all rods are in the crew will experience leaks in primary and secondary containment resulting in an MSIV closure.

IX. Console Operator Instructions

A. Scenario File Summary

	MF/RF/IOR#	Description
1. File	bat app08ace	
a.	mrf rp06a byp mrf rp06b byp mrf rp06c byp mrf rp06d byp mrf rp14a byp mrf rp14b byp mrf ia08 byp	Bypasses MSIV Group I closure on low RPV level, Group 6 ventilation, and drywell control air isolation
2. File:	bat app16fg	
	MF/RF/IOR#	Description
.	mrf rh14 byp mrf rh15 byp	Bypasses LPCI Loop I and II injection valve timers
3. File	bat app02	
	MF/RF/IOR#	Description
.	mrf rp12a test mrf rp12b test	Bypasses ARI signals
4. File	bat app01f	
	MF/RF/IOR#	Description
.	mrf rp13a byp mrf rp13b byp mrf rp13c byp mrf rp13d byp	Bypasses auto scram signals
5. File	bat atws-1	
	MF/RF/IOR#	Description
.	dmf rd09a dmf rd09b	Allows sdv to drain

B. Console Operator Manipulations

ELAP. TIME	IC/MF/RF #	DESCRIPTION/ACTION
Sim. Setup	rst 38	100%, MOC
Sim. Setup	bat atws75	75% ATWS
Sim Setup	imf rp06	Failure to auto scram
SIM Setup	imf rp14b	Failure to auto ARI
Sim. Setup	bat torhrc	Tags out 2C RHR Pump
Sim. Setup	Manual	Place HO tag on 2C RHR Pump
When directed by lead examiner	imf rp01a	Trip 'A' RPS MG Set
Three minutes after being dispatched	mrf rp03a	Places 'A' RPS on alternate
When directed by lead examiner	imf og04a	Isolates 'A' SJAE
When directed by lead examiner	imf rd01a	Trip 'A' CRD Pump
When directed by lead examiner	imf pc02 dmf pc02	Trip running reactor zone ventilation fans and allow restart
When directed by lead examiner	bat ms1bhilevel	Fails 2B1 moisture separator level control
When reactor scrams	bat sdv	Removes SDV level switch failure
When requested, wait 5 minutes	bat app02	Defeats ARI
When requested, wait 5 minutes	bat app01f	Bypasses scram signals
When requested, wait 5 minutes	bat app08ace	Bypasses Group 6 low level isolations
When scram reset and SDV drains open	bat atws-1	Allows SDV to drain
When all rods are in	imf th33a 100 10:00 imf th32a 100 5:00	Main steam line break inside primary containment and in the steam tunnel
When requested, wait 5 minutes	bat app16fg	Defeats RHR injection timers

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

1. All rods in
2. RPV water level restored +2" to +51" and stable
3. Drywell pressure under control

X. Information to Floor Examiners:

A. Ensure recorders are inking and recording and ICS is active and updating.

B. Assign Crew Positions based on the required rotation.

1. SRO: Unit Supervisor
2. BUO: Board Unit Operator
3. DUO: Desk Unit Operator

C. Conduct a shift turnover with the Unit Supervisor.

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

E. Terminate the scenario when the following conditions are satisfied are at the request of the floor/lead instructor/evaluator.

1. All rods in

2. Water level restored +2" to +51"

3. Drywell pressure under control

XI. Simulator Event Guide

Event 1: Power Reduction for SR

POSITION	EXPECTED ACTIONS	SAT/UNSAT/COMMENTS
SRO	Directs load reduction for 2-SR-3.3.1.1.8(9)	Turbine Control Valve Fast Closure
BUO	Determines latest copy of procedure.	_____
BUO	Reduces reactor power to <80% in accordance with 2-GOI-100-12 & 2-OI-68.	_____
BUO	Reduces recirc flow in accordance with OI-68, Section 6.0	_____
BUO	Lowers setpoint of individual recirc pump controls to reduce power to 80% at 8 to 10 mw/min	_____
BUO	Performs SR 3.3.1.1.I	Core Thermal Hydraulic Stability

Event 2: Failure of 'A' RPS

POSITION	EXPECTED ACTIONS	SAT/UNSAT/COMMENTS
CREW	Announce half scram	
B/D/U	Reports RPS 2A failure	
SRO	Directs BUO/DUO to carry out actions of AOI-99-1	
SRO	Dispatch O/S SRO to restore RPS and to determine reason for loss of MG set	
CREW	Monitors steam Tunnel Temp	
SRO	Informs crew that RPS 2A has been placed on Alt. power supply	
SRO	Directs half scram reset	
	Directs PCIS logic reset	
	Directs system restoration per 2-OI-99	
SRO	Contacts Elect. Maint. to Troubleshoot RPS MG set	
BUO	Resets half scram	
	Reset PCIS logic	
DUO	Places Rx/RF fans in service in SLOW	
	Secures SBGT "C"	
	Notifies Unit 1 to stop SBGT "A & B"	
	Verifies/Opens DWCA suctions valves	
	Places PSC head tank pumps in service	
	Restores DW DP compressor to automatic operation	
	Restores DW floor and equip. drain systems to normal operation	
	Restores Radiation monitoring system (DW CAM)	
	Restores H2/O2 analyzer to operation	

	Restores RWCU system to service	_____
	Secures CB Emergency Press system to standby (optional)	_____
	Resets TIP isolation	_____
	Reports systems returned to normal.	_____
Event 2:	Failure of 'A' RPS (Continued)	
BUO/DUO	Reports Steam Tunnel Temp. lowering when Rx Bldg. Vent. restored	_____
DUO	Places Rx/RF fans in service in FAST 5 minutes after restart	_____

Event 3: Failure of 'A' SJAE

POSITION	EXPECTED ACTIONS	SAT/UNSAT/COMMENTS
CREW	Determines 'A' SJAE isolated in response to 9-53 Off-Gas Flow low alarm	_____
SRO	Directs 'B' SJAE placed into service per OI-66	_____
DUO	Places 'B' SJAE in service per OI-66, Section 8.14 • Verifies condensate inlet and outlet open • Verifies SJAE inlet valve open • Opens SJAE outlet valve • Places pressure control handswitch in open	_____

Event 4: 2A CRD Pump Trip

POSITION	EXPECTED ACTION (S)	COMMENTS
CREW	Determines 2A CRD Pump Trip	
SRO	Directs actions per AOI-85-3	
BUO	- Places FIC in Man at zero setting.	
BUO	- Start 1B CRD Pump	
BUO	Adjusts CRD Sys flow and pressures	
BUO	Balance CRD FIC and place in auto	
SRO	Dispatches AUO/OS SRO to check CRD pump 2A	

Event 5: 'A' Reactor Zone Fan trip

POSITION	EXPECTED ACTIONS	INST. INFO/NOTES
CREW	Recognizes Rx Bldg Ventilation abnormal alarm	
SRO	Directs response per ARP	
DUO	Determines 'A' Reactor Zone Fans have tripped	
SRO	Directs 'B' reactor Zone Fans placed in service	
DUO	Places 'B' reactor Zone fans in SLOW	
DUO	Reports 'B' reactor zone fans in service	
CREW	Monitors steam tunnel temperature on TIS-1-60	
DUO	After five minutes, places 'B' Reactor Zone fans in FAST	

Event 6: MSDP and LCV for 2B1 failure

POSITION	EXPECTED ACTIONS	INST. INFO/NOTES
BUO/DUO	Respond to annunciators utilizing ARPs	
BUO/DUO	Recognizes MSDP B1 tripped	
CREW	Recognizes potential for turbine trip. With both MSDP and LCV failure turbine trip will occur on high level	
SRO	Directs SRO/AUO to turbine bldg. to attempt to restore level control. Attempt to start MSDP &/or get high level control.	
CREW	Makes determination that alarms are valid	
SRO	Directs Load reduction in accordance with GOI-100-12. Will extend time before turbine trip	

Event 7A: Turbine trip, failure to auto scram, ATWS

POSITION	EXPECTED ACTIONS	INST. INFO/NOTES
CREW	Recognizes Turbine trip and failure of Rx to scram	
SRO	Directs manual Scram	
BUO	Inserts Manual scram as directed	
	Reports all rods not full in	
	Places mode switch in S/D	
	Initiates ARI	
	Monitors Rx power	
SRO	Enters EOI-1, & C5 Directs ADS inhibited	
	Directs power control per RC/Q	
SRO	Direct EOI App. 2, 1f, 1d, 8a, 8c, 8e	
	Directs App. 4	
	Directs level lower to < -50"	
BUO/DUO	Performs App. 4	
	Lowers level to < -50"	Critical Task
	Inhibits ADS and verifies via ann.	
BUO	Resets Scram when App. 1F & 2 complete Drives Rods when 85-586 closed.	
BUO	Scrams reactor when SDV alarms clear	Critical Task
BUO	Reports all rods in	
SRO	Directs level restored +2" to +51"	
SRO	Exits C5 and directs restoration per AOI-100-1	
BUO	Restores vessel level +2" to +51"	

Event 7B,C Leak in Primary and Secondary Containment with MSIV Closure

POSITION	EXPECTED ACTIONS	INST. INFO/NOTES
CREW	Recognizes MSIV closure	
BUO/DUO	Controls Rx pressure in specified band (800 - 1000)	
DUO	Evacuates Turbine Bldg.	
CREW	Recognizes drywell pressure and temperature rising	
SRO	@ 2.45# drywell pressure Directs pressure control per EOI 2 and re-enter EOI-1	
	Vent per App 12 and H2 O2 Avail. in service.	
SRO	Directs Supp. Chamber sprays initiated prior to reaching 12 psig Supp. Chamber pressure.	
DUO	Initiates Supp. Chamber Sprays.	
	Vents Containment per App. 12	
	Places H2 O2 Anal. in service.	
SRO	Directs Drywell Spray initiated @ 12 psig, if required.	
DUO	Initiates Drywell Spray	
	Reports D/W temp. & Press lowering	
SRO	Directs Sprays secured before reaching "0" psi in sprayed area	
	Directs AOI-100-1	
SRO	Classifies Event as an SAE (1.2-S)	

SHIFT TURNOVER SHEET

Equipment Out of Service/LCOs 2C RHR Pump tagged out for minor maintenance - 6 hours into a 7 day LCO.

Operations/Maintenance For the Shift Reduce power to 80% for performance of 2-SR-3.3.1.1.8(9), Turbine Control Valve Fast Closure

Unusual Conditions/Problem Areas Severe thunder storm warning in effect.