

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 02-01 NRC EXAMINATION SCENARIO GUIDE

SCENARIO NUMBER: 1

EFFECTIVE DATE:

EXPECTED DURATION: 1.5 Hours

REVISION NUMBER: 00

PROGRAM: L.O. REQUAL

INITIAL LICENSE

OTHER _____

REVISION SUMMARY:

I. OBJECTIVE(S):

Enabling Objectives

- A.
- B.

II. MAJOR EVENTS:

- A. Place 3rd Reactor Feed Pump in Recirc.
- B. Reduce power with Control Rods
- C. 'C' Flow Comparator Failure
- D. Loss of Reactor Building Ventilation/Secondary Containment
- E. 'A' CRD Pump trip
- F. RCIC steam leak w/ failure to isolate/High HPCI Room Temp/Scram
- G. ADS failure to initiate during Emergency Depressurization

III. SCENARIO SUMMARY:

The scenario commences with Reactor power at 80% and a Shutdown in progress. The 3rd Reactor Feed Pump will be placed in Recirc before reducing power with control rods.

A failure of 'C' Flow Comparator will require the operators to bypass the failed instrument and determine the applicable Technical Specifications. Once Technical Specification actions are determined then a Reactor Building ventilation damper (HD-9414B) will fail closed causing a loss of Reactor Building pressure. The operators will respond in accordance with the Abnormal procedures to place FRVS in service to restore pressure.

'A' CRD pump trips requiring the alternate pump to be placed in service.

A steam leak develops in the RCIC room. The HPCI room temperatures will also rise because the intervening door was left open by an operator in his/her haste to exit the area.

The steam leak will require RCIC to be isolated. All attempts to isolate RCIC will fail. Entry into the Emergency Operating Procedures will be required. The leak is severe enough to require a unit scram. Room temperatures will rise high enough to require an emergency depressurization.

The scenario will be terminated when the Reactor is depressurized and RPV level is being controlled in the band required by the EOPs.

IV. INITIAL CONDITIONS:

- ___ Initialize the simulator to IC-01; 100% power, MOL, Xe equilibrium, pull sequence step #723
- ___ Reduce Reactor power with Recirc to 80%.
- ___ Complete Attachment 1 "Simulator Ready-for-Training/Examination Checklist."

OTHER CONDITIONS: (i.e., computer set points, procedures, bevel covers)

Initial	Description
___	1. Mark up IO-4 through step 5.1.4.

EVENT TRIGGERS:

Initial	ET #	Description
___	1.	EVENT ACTION: ZDRCF07C COMMAND: PURPOSE: HV-F007 Switch placed in CLOSE

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___	1. RR19C2 Recirc flow transmitter failure			1/None		100
___	2. CD10A CRD pump failure			3/None		
___	3. RC09 RCIC steam line break inside RCIC RM 4110		300	4/None		100
___	4. RC10 RCIC steam isolation vlvs fail to auto close			4/None		
___	5. HP09 HPCI steam line break inside HPCI Rm 4111			4/None		1

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___	1. ET015 GROUP 6A HV-F007 RCIC steam supply			None/1		Rack Open

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___	1. 8S37 A OVDI ADS LOGIC B man init armed			Preinsert		OFF
___	2. 8S46 B OVDI ADS LOGIC H man init depress			Preinsert		OFF
___	3. 1A175 F OVDI HD-9414B Close-Reactor Bldg			2/None		ON
___	4. 1A175 E OVDI HD-9414B Open-Outbd Exh-Reactor Bldg			2/None		OFF
___	5. 9S5 C OVDI HS-F008			Preinsert		OFF

V. SEQUENCE OF EVENTS:

- A. Crew and individual evaluations shall be performed by all evaluators using the simulator examination evaluation instruments IAW NC.TQ-WB.ZZ-0003(Z).
- B. State shift job assignments.
- C. Hold a shift briefing, detailing instruction to the shift.
(Provide crewmembers a copy of the shift turnover sheet)
- D. Unfreeze the simulator and inform the crew:

"The simulator is running. You may commence panel walk downs at this time. OS/CRS please inform me when your crew is ready to assume the shift."
- E. Allow sufficient time for panel walk-downs. When informed by the OS/CRS that the crew is ready to assume the shift, inform the crew the scenario has commenced.
- F. Incorporate/evaluate the following activities during the scenario exam:

VI. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>1. C RFP Placed in Recirc.</p>	<ul style="list-style-type: none"> • IAW HC.OP-IO.ZZ-0004, the CRS directs placing the C RFP in Recirc. • PO places the C RFP in Recirc IAW HC.OP-SO.AE-0001, <ul style="list-style-type: none"> ⇒ Places C RFP control in MAN and reduces pump speed until it is no longer feeding the RPV. 	
<p>2. Reduce Reactor power with Control Rods.</p>	<ul style="list-style-type: none"> • IAW HC.OP-IO.ZZ-0004 and RE guidance, the CRS directs insertion of control rods. • RO inserts control rods IAW the Shutdown Sequence and HC.OP-SO.SF-0001. 	
<p>3. Flow Comparator Failure. TRIGGER RT-1 ('C' Recirc Flow Unit Falls Upscale) after Control Rods have been inserted to the satisfaction of the lead examiner.</p>	<ul style="list-style-type: none"> • RO/PO recognize failure of the C Flow Unit and informs the CRS. <ul style="list-style-type: none"> ⇒ [C6-D1] "APRM/RBM FLOW REF OFF NORMAL". ⇒ [C6-D3] "RO OUT MOTION BLOCK" ⇒ Flow Units A & C "COMPAR" status lights. ⇒ CRIDS C049 "RECIRC FLOW COMPAR". • Crew responds to alarm response procedures and determines "C" Flow unit is failed upscale. 	

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- CRS directs:
 - ⇒ Bypassing the "C" Flow Unit IAW HC.OP-SO-SE-0001.
 - ⇒ Placing Flow unit in test at 10C608 panel.
- Crew bypasses flow unit IAW HC.OP-SO.SE-0001.
- RO bypasses the C Flow Unit by placing the Bypass Joystick to the "C" position and observes the BYPASS light illuminates and the overhead annunciators clear.
- CRS reviews Technical Specification 3.3.6 for applicability. (Tracking)
- CRS directs Shift Maintenance Manager to have I&C place the flow unit in TEST and dummy in false high flow signal.

4. Loss of Reactor Bldg Ventilation/Secondary Containment.
 TRIGGER RT-2 (HD-9414B fails closed) after actions for the failed Flow Unit have been completed, or at the discretion of the Lead Examiner.

- Crew recognizes RBVS problem via annunciator E6-C5 and digital alarm D3960 and informs CRS.
- CRS directs placing a FRVS Vent Fan in service IAW HC.OP-AB.ZZ-0115.
- PO places FRVS Vent Fan in service to maintain Rx bldg DP IAW HC.OP-AB.ZZ-0115 Immediate Operator Actions.

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Report as EO after an appropriate time delay that low flow alarms are present for all RBVS fans. Report that all RBVS fans have tripped.</p> <p>If dispatched, report as RBEO report that HD-9414B is shut and there are no indications of any problems.</p>	<ul style="list-style-type: none"> • RO/PO dispatches EO to investigate problem with RBVS. • Crew recognizes loss of RBVS via Rx bldg DP decreasing on SPDS and informs CRS. • PO recognizes isolation of RBVS via closed indication for HD-9414B and informs CRS. • RO/PO dispatches RBEO to check HD-9414B and FRVS ready for start. • CRS implements HC.OP-AB.ZZ-0115 and directs actions to correct RBVS problem. • OS/CRS evaluates Tech Specs 3.6.5.1 and 3.6.5.2 for applicability; enters 3.6.5.2. • CRS directs actions to investigate cause of HD-9414B closure. • CRS directs placing FRVS in service. • PO places FRVS in service IAW HC.OP-SO.GU-0001. • RO/PO dispatches maintenance personnel to determine cause of HD-9414B closure IAW CRS direction. 	
<p><u>NOTE:</u></p> <p>Tech Spec 3.6.5.1 may not be referenced if Rx bldg dP is maintained negative.</p>		

Event / Instructor Activity	Expected Plant/Student Response	Comments
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5. CRD Pump Trip.
 TRIGGER RT-3 after FRVS is in service, or at the discretion of the Lead Examiner.

- Crew recognizes pump trip via annunciator CRD SYSTEM TROUBLE (C6-F2), CRIDS, and Bezel indications, and informs CRS.
- CRS directs actions to start the standby pump IAW HC.OP-AB.ZZ-0105.
- PO starts the B CRD Pump IAW HC.OP-SO.BF-0001 Section 5.2.7(either method is acceptable)

6. RCIC Steam Leak w/ Failure to isolate/High HPCI Pump Room Temperatures/Scram.
 TRIGGER RT-4 after FRVS is in service, or at the discretion of the Lead Examiner.

- Crew recognizes RCIC steam leak via: RCIC STEAM LINE DIFF PRESSURE HI (B1-A2); RCIC OUT OF SERVICE (B1-B2); RCIC TURBINE TRIP (B1-A1); RADIATION MONITORING ALARM/TRBL (C6-C1), CRIDS, SPDS Room Temperatures, and/or RCIC panel indications of lowering steam pressure, and informs CRS.

Note:
 May report as EO that while inside the RCIC room a steam leak had developed on the RCIC turbine.

- CRS directs actions to isolate RCIC IAW EOP-103.
- PO attempts to isolate RCIC.
- PO recognizes failure of RCIC to isolate and informs the CRS.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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RAISE HPCI room temperature to maintain 15-25F less than RCIC room temperature using Monitor Items; OPEN
d:\hopecrk\monitor\roomtemp.
RAISE temperature in HPCI Room (line 2) and RCIC Room (line 8).

If unable to open roomtemp file, USE Monitor Items variable hvtr4111 for HPCI and hvtr4110 for RCIC.

- Crew recognizes HPCI room temperatures are rising via SPDS.

- Crew determines that the RCIC room will reach its Maximum Safe Operating Temperature.
- CRS orders Recirc run to minimum and Mode Switch to SHUTDOWN.
- * Crew scrams the Reactor before RCIC room temperatures exceed the Maximum Safe Operating Temperature (250F).
- RO/PO performs scram actions of HC.OP-AB.ZZ-0000 / HC.OP-EO.ZZ-0101.
- PO restores/maintains RPV level +12.5" to +54" with FWLC and/or CRS directions.
- RO:
 - ⇒ Locks the MS in shutdown
 - ⇒ Inserts SRMs and IRMs
 - ⇒ Verifies the Reactor is shutdown
 - ⇒ Selects IRM recorders
 - ⇒ Trips the Main Generator when 0 Mwe are reached
 - ⇒ Locks out the Main Generator

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- CRS may anticipate an Emergency Depressurization and open all Turbine Bypass Valves IAW EO-101.
- RO/PO opens BPV if directed by the CRS using the BPV Jack.
- CRS determines that both the HPCI and RCIC room temperatures are greater than their Maximum Safe Operating Temperatures and enters EOP-202 to emergency depressurize the Reactor.
- CRS orders ADS valves opened
- PO initiates ADS IAW HC.OP-AB.ZZ-0001, by arming and depressing the ADS initiating push buttons (4).

7. ADS Failure to Initiate.

- PO recognizes failure of ADS to open the 5 ADS valves, opens 5 SRVs IAW HC.OP-AB.ZZ-0001, and informs CRS.
- * Crew enters HC.OP-EO.ZZ-0202, Emergency Depressurization, and opens at least 5 SRVs to depressurize the Reactor within 3 minutes of RCIC and HPCI room temperatures exceeding their Maximum Safe Operating Temperature (250F).

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Termination Requirements.

When the Reactor is depressurized and RPV level is being maintained 12.5-54", or at the discretion of the Lead Examiner.

VII. SCENARIO REFERENCES:

- A. Conduct of Simulator Training.
- B. NUREG 1021, Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Alarm Response Procedures (Various)
- G. HC.OP-AB.ZZ-0115 Loss Of Reactor Building Integrity
- H. HC.OP-EO.ZZ-0101 RPV Control
- I. HC.OP-EO.ZZ-0101A ATWS-RPV Control
- J. HC.OP-EO.ZZ-0102 Primary Containment Control
- K. HC.OP-EO.ZZ-0103/4 Reactor Building & Rad Release Control
- L. HC.OP-EO.ZZ-0202 Emergency RPV Depressurization
- M. HC.OP-SO.AE-0001 Feedwater System Operation
- N. SH.OP-AS.ZZ-0001 Operations Standards
- O. HC.OP-SO.SF-0001 Reactor Manual Control System Operation
- P. HC.OP-SO.GU.0001 Filtration Recirculation and Ventilation System Operation
- Q. HC.OP-AB.ZZ-0105 Loss of CRD Regulating Function
- R. HC.OP-IO.ZZ-0004 Shutdown from Rated Power to Cold Shutdown
- S. HC.OP-AB.ZZ-0001 Transient Plant Conditions
- T.
- U.
- V.

VIII. ESG CRITICAL TASK RATIONAL

ESG-NRC / 1

1.

*** Crew scrams the Reactor before RCIC room temperatures exceed the Maximum Safe Operating Temperature (250F).
(K/A 217000A2.15 3.8/3.8)**

Temperatures approaching the Maximum Safe Operating Temperature of any one room imply that adequate core cooling, containment integrity, safety of personnel, or continued operation of equipment to perform EOP actions can no longer be assured. Actions taken to scram the reactor IAW HC.OP-EO.ZZ-0103, Reactor Building & Rad Release Control, will reduce to decay heat levels the energy that the RPV may be discharging to the Reactor Building.

2.

*** Crew enters HC.OP-EO.ZZ-0202, Emergency Depressurization, and opens at least 5 SRVs to depressurize the Reactor within 3 minutes of RCIC and HPCI room temperatures exceeding their Maximum Safe Operating Temperature (250F).
(K/A 295032EK3.01 3.5/3.8) (K/A 239002A4.01 4.4/4.4) (K/A 218002A4.02 4.2/4.2)**

The reactor must be depressurized to preclude further temperature increases. More than one area above the Maximum Safe Operating Temperature indicates a possible wide spread problem that may pose a direct and immediate threat to Reactor Building integrity, equipment located in the Reactor Building, and continued safe operation of the plant. 5 SRVs are the minimum required to remove all the decay heat from the core and maintain the RPV depressurized. 3 minutes is deemed adequate time to recognize and open 5 SRVs when RCIC and HPCI room temperatures exceed their Maximum Safe Operating Temperature (250F).

Hope Creek SIMULATOR Turnover Sheet

FOR TRAINING USE ONLY

Oncoming Shift: Days [X] Nights []

Op Con: 1

Risk Color: Green 'B' Channel Work Week

SMD Warning: NONE

Reactor Power: 80%

Generator Power: 850 MWe

Major activities accomplished on the last shift:

- Commenced Reactor shutdown IAW IO-4 Step 5.1.5.
- Shutdown to inspect SRVs flange gaskets

Major activities scheduled for this shift:

- Continue Reactor Shutdown
- Place C RFP in Recirc
- Reduce power to 70% with Control Rods, contact RE for further guidance

Safety Issues: Safety Issue Hot Line Call "SAFE" (extension 7233)					
Notif/Date	Description	Immediate Mitigation	Additional Action	Assigned To	Date

Operations Superintendent Issues:	
Protected Equip.	•
Emergent Problems	•
WIN Team	•
Operator Workarounds	•

Active Technical Specification Action Statements:					
Index	Planned	LCO	DEFICIENCY	Expires	Additional Action
SIM-001					

Compensatory Actions in Effect (Required by CROD/CRFA for Operability)			
Number	DEFICIENCY	COMPENSATORY ACTIONS	Due Date

Follow-up Operability Assessments (CRFA) Assigned			
Number	DEFICIENCY	ASSIGNED	Due Date

Reactivity Controls:

- Plant MOL, Step #723 Shutdown Sequence
- RE guidance is that continuously inserting control rods in accordance with the Shutdown Sequence is acceptable.
- Lower power at <15%/hour

Standby Safety Systems:

-
-

Balance of Plant:

-
-

Restricted/Emergency Use Only Equipment:

-

Electrical:

-

Chemistry:

-

Cooling Water:

-

Computer:

-

Radiation Monitoring Systems:

-

Cold Weather Issues:

-

Administrative:

-

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 02-01 NRC EXAMINATION SCENARIO GUIDE

SCENARIO NUMBER:

~~Spare~~

#2

EFFECTIVE DATE:

EXPECTED DURATION:

1.5 Hours

REVISION NUMBER:

00

PROGRAM:

L.O. REQUAL

INITIAL LICENSE

OTHER _____

REVISION SUMMARY:

I. OBJECTIVE(S):

Enabling Objectives

- A.
- B.

II. MAJOR EVENTS:

- A. Transfer B RPS to the Alternate Power Supply
- B. Raise power with Control Rods
- C. APRM Malfunction
- D. Loss of a RACS pump B
- E. Loss of SWC/ATWS/SLC Pump Failure/Loss of Off-site Power
- F. Failure of RWCU Isolation Logic
- G. HPCI auto initiation failure

III. SCENARIO SUMMARY:

The scenario commences with Reactor power at 36%. The crew will transfer B RPS to its alternate power supply due to required MG set maintenance. Following completion of the transfer, the startup will continue with Control Rod withdrawal.

The D APRM will fail requiring it to be bypassed and Technical Specifications reviewed.

A loss of B RACS pump requires the standby pump to be placed in service.

A Reactor scram will be required due to a loss of SWC above 25% power. An ATWS occurs on the scram. The crew will take actions IAW the EOPs. When SLC is started, the RWCU system will fail to isolate. The operators will be required to isolate RWCU to prevent SLC solution removal.

The Main Turbine will trip, and a loss of off-site power occurs when the Main Generator is locked out. In order to maintain RPV level, the HPCI system will have to be started manually due to a failure of its Auxiliary Oil Pump to auto start. If water level cannot be restored and maintained above -190 inches, then the crew will emergency depressurize and restore level with low pressure injection systems.

The scenario can be terminated when the RPV pressure and RPV level are being controlled in the bands required by the EOPs.

IV. INITIAL CONDITIONS:

Initialize the simulator to IC-05; 36% power, MOL, Xe equilibrium, pull sequence step #485
 Complete Attachment 1 "Simulator Ready-for-Training/Examination Checklist."

OTHER CONDITIONS: (i.e., computer set points, procedures, bevel covers)

Initial	Description
___ 1.	

EVENT TRIGGERS:

Initial	ET #	Description
___ 1.		EVENT ACTION: IRP:K14A // RPS LOGIC A COMMAND: PURPOSE: Initiates ATWS and MT Trip (Delayed)
___ 2.		
___ 3.		EVENT ACTION: TC:TRIP // MAIN TURBINE TRIP COMMAND: PURPOSE: INITIATES LOSS OF OFF-SITE POWER

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	EG04A Stator cooling pump A trip			4/None		
___ 2.	EG04B Stator cooling pump B trip			4/None		
___ 3.	RP06 Half-core ATWS - left side	2		None/1		
___ 4.	CU11A RWCU isolation valve F001 failure			Preinsert		
___ 5.	CU11B RWCU isolation valve F004 failure			Preinsert		
___ 6.	HP06E HPCI aux. oil pump failure to auto			Preinsert		
___ 7.	NM21D APRM channel D reads high or low			1/None		0
___ 8.	AN-D1B3 CRYWOLF ANN D1B3			9/None		
___ 9.	AN-C8E5 CRYWOLF ANN C8E5			9/None		
___ 10.	CD18 High rod worth's			Preinsert		20
___ 11.	CW08B RACS pump BP209 trip			3/None		
___ 12.	EG12 Loss of all off site power			None/3		
___ 13.	RP07 Half-core ATWS - right side	2		None/1		
___ 14.	TC09 Turbine Trip	360		None/1		

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	ET020 GROUP 7A HV-F004 RWCU Supply Isol			2/None		RACK OPEN

I/O OVERRIDE SUMMARY:

<i>Initial</i>	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	3A106 A OVLO HV-F019 OVLD/PWR FAIL-CTMT INBD STEAMLINE			9/None		ON
___ 2.	3A106 E OVLO HV-F019 OPEN-CTMT INBD STEAMLINE DRAIN HEAD			9/None		OFF
___ 3.	3A106 F OVLO HV-F019 CLOSE-CTMT INBD STEAMLINE DRAIN HEAD			9/None		OFF
___ 4.	7DS4 A OVLO CH D INBD-CONTAINMENT ISOLATION VALVE			9/None		ON
___ 5.	7DS12 A OVLO HV-F019 OPEN-CONTAINMENT ISOLATION VALVE			9/None		OFF
___ 6.	7DS12 B OVLO HV-F019 CLOSED-CONTAINMENT ISOLATION VALVE			9/None		OFF
___ 7.	3A106 E OVLO HV-F019 OPEN-CTMT INBD STEAMLINE DRAIN HEAD			9/None		ON
___ 8.						

V. SEQUENCE OF EVENTS:

- A. Crew and individual evaluations shall be performed by all evaluators using the simulator examination evaluation instruments IAW NC.TQ-WB.ZZ-0003(Z).
- B. State shift job assignments.
- C. Hold a shift briefing, detailing instruction to the shift.
(Provide crewmembers a copy of the shift turnover sheet)
- D. Unfreeze the simulator and inform the crew:

"The simulator is running. You may commence panel walk downs at this time. OS/CRS please inform me when your crew is ready to assume the shift."
- E. Allow sufficient time for panel walk-downs. When informed by the OS/CRS that the crew is ready to assume the shift, inform the crew the scenario has commenced.
- F. Incorporate/evaluate the following activities during the scenario exam:

VI. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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1. Transfer B RPS to the Alternate Power Supply.

Note:

Respond as EO to Control Room instructions to remove power from HV-F004 (**INSERT RT-2**) and HV-F019 (**INSERT RT-9**).

- CRS directs placing the B RPS on its alternate power supply IAW HC.OP-SO.SB-0001.
- PO with CRS permission has the power removed from HV-F004 and HV-F019.
- CRS refers to Technical Specifications 3.6.1.1, 3.6.3, and 3.3.7.5.
- PO observes the ALTERNATE B FEED and GENERATOR B FEED is illuminated. (10-C610)
- PO turns the RPS MG SET TRANSFER SW to ALT B. (10-C610)

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- PO directs the RO to refer to Section 5.3 and reset the Half Scram. RO:
 - ⇒ Turns RPS TRIP SYSTEM B TRIP LOGIC B1 and B2 to RESET AND RETURN to NORM
 - ⇒ Observes the TRIP LOGICB1 and B2 NORMAL/RESET lights are illuminated.
 - ⇒ Observes the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS A NORMAL AND B NORMAL lights are illuminated (Four Control Rod Groups).
 - ⇒ Observes the REACTOR SCRAM TRIP LOGIC B1 and B2 annunciators are de-energized.
- PO directs the RO to refer to HC.OP-SO.SM-0001(Q), Primary Containment Isolation System Operation, and reset Nuclear Steam Supply Shutoff System and PCIS.
 - ⇒ Depresses the RESET push buttons for all four channels of PCIS and NSSSS.
- PO resets PAMs Recorders by pressing the High Speed Chart Drive Reset push buttons. (10C650C)

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Note: Respond as EO to Control Room instructions to and restore power to HV-F004 (Change Rem ET020 TO NORMAL) and HV-F019 (Delete RT-9 Malfunction and I/O events).</p>	<ul style="list-style-type: none"> PO directs restoration of power to the valves that were de-energized in Step 5.4.4. 	
<p>Note: Respond as Chemistry that valves are closed.</p>	<ul style="list-style-type: none"> PO directs Chemistry to close P-RC-V9670 RWR SAMPLE ISLN TO PANEL 10-C251 and 1-RC-V006, RWCU SAMPLE PNL 10-C251 ISLN VLV. When P-RC-V9670 and 1-RC-V006 are CLOSED then the PO has the RO open BB-SV-4311, Reactor Water Sample Valve 	
<p>Note: Respond as Chemistry that the valves are open.</p>	<ul style="list-style-type: none"> PO directs Chemistry to open P-RC-V9670 RWR Sample Isln to Panel 10-C251 and 1-RC-V006, RWCU Sample Pnl 10-C251 Isln Vlv 	
<p>2. Raise power with Control Rods.</p>	<ul style="list-style-type: none"> CRS directs power rise IAW RE guidance. RO withdraws control rods IAW CRS/RE directions and HC.OP-SO.SF-0001. 	
<p>3. APRM 'D' Malfunction.</p> <p>TRIGGER RT-1 (NM21D) after sufficient rods have been withdrawn at the discretion of the Lead Examiner.</p>	<ul style="list-style-type: none"> RO determines a failure of the D APRM by observing CRIDS, Recorder, and overhead annunciator and informs CRS. RO determines that the D APRM has failed downscale 	

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- CRS directs actions IAW HC.OP-AB.ZZ-0108
 - ⇒ Bypass D APRM
 - ⇒ Observe Technical Specifications 3.3.1 and 3.3.6.
- RO bypasses the D APRM by placing the B, D, F APRM Bypass to position D.

4. Loss of a RACS pump B.
TRIGGER RT-3 after actions for the APRM failure are complete, or at the discretion of the Lead Examiner.

- RO/PO recognizes loss of B RACS Pump via CRIDS digital alarm and/or CRIDS page indications, and informs CRS.
- CRS directs actions to IAW HC.OP-AB.ZZ-0123.
 - ⇒ Attempt to start any available standby pumps
- PO starts the A RACS Pump IAW HC.OP-SO.ED-0001.
- CRS directs troubleshooting of B RACS pump.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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5. Loss of SWC/ATWS/SLC Pump Failure/Loss of Off-site Power.

TRIGGER RT-4 after the RACS Pump is started, or at the discretion of the Lead Examiner.

- RO / PO recognizes loss of SWC via CRIDS and overhead annunciators and informs the CRS

- CRS enters / directs actions IAW HC.OP-AB.ZZ-0138 and HC.OP-AB.ZZ-0300
 - ⇒ Dispatches operator to local panel 10C120 to start both Stator Cooling Pumps and ensure tank level is normal
 - ⇒ Directs RO to monitor for power oscillations
 - ⇒ Directs RO to insert Control Rods per stuff sheet to reduce power
 - ⇒ Directs PO to runback main turbine to < 7055 amps and reduce MVARs to zero
 - ⇒ Directs PO/RO to open all available Steam Line Drains

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- * CRS enters/directs actions and CREW performs IAW HC.OP-EO.ZZ-0101A to:
 - LOWER RPV level by TERMINATING and PREVENTING injection (except for SLC, CRD and RCIC) UNTIL RPV level drops below -50 in

OR

- IF Supp Pool Temp > 110 °F and Drywell Press > 1.68 psig or SRV open or cycling, LOWER RPV level by TERMINATING and PREVENT injection (except for SLC, CRD and RCIC) until any of the following:
 - Rx Power < 4%, or
 - RPV Level reaches - 129", or
 - All SRVs remain closed and Drywell press remains < 1.68 psig

(K/A 203000A4.02 4.3/4.1)

(K/A 209001A4.01 3.8/3.6)

- RO inserts control rods per ATWS guidance as directed by the CRS.
- PO manually runs back main turbine to less than 7055 amps and reduces generator MVARs to zero.
- CRS monitors Reactor Power and if > 25% and Stator Water Cooling has not been restored within 2 minutes, Directs CREW to Scram the Reactor, trip the Turbine and implements HC.OP-EO.ZZ-101

Event / Instructor Activity	Expected Plant/Student Response	Comments
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NOTE:

Ensure Main Turbine trips approximately 7 minutes into the ATWS.

- RO carries out immediate scram actions.
 - ⇒ Locks the MS in shutdown
 - ⇒ Inserts SRMs and IRMs
 - ⇒ Verifies the Reactor is shutdown
 - ⇒ Selects IRM recorders
 - ⇒ Trips the Main Generator when 0 Mwe are reached
 - ⇒ Locks out the Main Generator
- PO maintains RPV water level with condensate / FW, as directed by the CRS.
- RO recognizes the failure to scram, informs CRS
- CRS enters / directs actions IAW HC.OP-EO.ZZ-0101A;
 - ⇒ Directs initiation of SLC
 - ⇒ Directs RR pumps tripped
 - ⇒ Directs inhibit ADS
 - ⇒ Directs alternate control rod insertion methods
- RO records tank level and initiates SLC;
 - ⇒ Verifies RWCU isolation
- PO inhibits ADS by placing the four Inhibit switches to inhibit.
- * Crew prevents an uncontrolled depressurization during ATWS conditions by placing ADS Actuation Timer Inhibit switches to INHIBIT position.

(K/A 218000A4.04 4.1/4.1)

(K/A 218000A4.05 4.2/4.2)

Event / Instructor Activity	Expected Plant/Student Response	Comments
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6. Failure of RWCU Isolation Logic.

- RO recognizes RWCU failure to isolate upon SLC initiation and manually closes HV-F001 AND HV-F004 to isolate RWCU, and informs CRS.
- PO monitors / maintains RPV level as directed by the CRS.
- CRS directs the crew to terminate and prevent except from CRD, RCIC and SLC to lower RPV level to less than -50 inches.
- RO/PO terminate and prevent injection into the RPV IAW CRS directions
- PO controls RPV level and pressure IAW CRS directions.
- PO takes manual control of RFPs and HPCI.

7. HPCI auto initiation failure.

Note:

Delay report of EOP-322 completion until RPV water level is controlled between -50 and -129 with feedwater, or do not report completion if full flow on HPCI is required to restore and maintain RPV level above -190 inches.

- PO recognizes HPCI Auxiliary Oil Pump failure and informs CRS.
- CRS directs PO to inject with HPCI if RPV level gets <-129 inches.
- PO starts the HPCI Auxiliary Oil Pump and injects with HPCI IAW CRS directions

Event / Instructor Activity	Expected Plant/Student Response	Comments
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NOTE:

The following actions would be taken only if the crew were unable to restore and maintain level above -190 inches.

- * CREW assures adequate core cooling by:
 - Restoring/Maintaining Reactor water level to > -190", or
 - Emergency depressurizing by opening at least 5 ADS valves and restoring above RPV level above -190" with low pressure systems
IAW HC.OP-EO.ZZ-0101A.
- CRS orders termination of injection systems, emergency depressurization, and restoration of RPV level to above -190, IAW EOP-101A IF the determination is made that RPV level cannot be restored and maintained above -190".
- RO/PO terminate injection systems IAW CRS instructions
- PO opens 5 ADS valves IAW HC.OP-AB.ZZ-0001.
- CRS determines the MARFP based on the number of SRVs open, and directs lining up and injecting with low-pressure injection systems when pressure falls below the MARFP.
- RO/PO restore injection systems IAW CRS directions
- RO/PO restore and maintain RPV water level above -190" IAW CRS instructions.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Termination Requirements.

When the Reactor pressure, power, and RPV level are being maintained in appropriate bands IAW EOPs, or at the discretion of the Lead Examiner.

VII. SCENARIO REFERENCES:

- A. Conduct of Simulator Training.
- B. NUREG 1021, Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Emergency Plan (ECG)
- G. Alarm Response Procedures (Various)
- H. HC.OP-SO.SB-0001 Reactor Protection System Operation
- I. HC.OP-SO.SM-0001 Isolation Systems Operation
- J. HC.OP-SO.SF-0001 Reactor Manual Control System Operation
- K. HC.OP-SO.ED-0001 Reactor Auxiliaries Cooling System Operation
- L. HC.OP-IO.ZZ-0003 Startup from Cold Shutdown to Rated Power
- M. HC.OP-AB.ZZ-0108 LPRM/APRM Malfunction
- N. HC.OP-AB.ZZ-0138 Main Turbine Trip/Malfunction
- O. HC.OP-AB.ZZ-0300 Reactor Power Oscillations
- P. HC.OP-EO.ZZ-101 RPV Control
- Q. HC.OP-EO.ZZ-101A ATWS – RPV Control
- R. HC.OP-EO.ZZ-301 Bypassing MSIV Isolation Interlocks
- S. HC.OP-EO.ZZ-311 Defeating PCIG Isolation Interlocks
- T. HC.OP-EO.ZZ-319 Restoring Instrument Air in an Emergency
- U. HC.OP-EO.ZZ-322 Core Spray Injection Valve Override
- V. HC.OP-EO.ZZ-0202 Emergency Depressurization
- W.
- X.

VIII. ESG CRITICAL TASK RATIONAL

ESG - NRC 2

1.

*** Crew prevents an uncontrolled depressurization during ATWS conditions by placing ADS Actuation Timer Inhibit switches to INHIBIT position.
(K/A 218000A4.04 4.1/4.1) (K/A 218000A4.05 4.2/4.2)**

Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor. EOPs direct this action under the current conditions.

2.

- *** CREW assures adequate core cooling by:**
 - **Restoring/Maintaining Reactor water level to > -190", or**
 - **Emergency depressurizing by opening at least 5 ADS valves and restoring above RPV level above -190" with low pressure systems**

**IAW HC.OP-EO.ZZ-0101A.
(K/A 295037 EA2.02 4.1/4.2)**

Maintaining adequate Core cooling under ATWS conditions is accomplished by restoring/maintaining RPV level above -190".

Hope Creek SIMULATOR Turnover Sheet

FOR TRAINING USE ONLY

Oncoming Shift: Days [X] Nights []
 Op Con: 1 Risk Color: Green 'C' Channel Work Week SMD Warning: NONE
 Reactor Power: 36% Generator Power: XXX MWe

Major activities accomplished on the last shift:

- Continued with Reactor Startup through IO-3, Step 5.4.19.d
- Higher than normal vibrations reported on the B RPS MG set

Major activities scheduled for this shift:

- Transfer B RPS to its Alternate Power Supply
- Continue with power increase per RE directions

Safety Issues: Safety Issue Hot Line Call "SAFE" (extension 7233)					
Not/Date	Description	Immediate Mitigation	Additional Action	Assigned To	Date

Operations Superintendent Issues:	
Protected Equip.	•
Emergent Problems	•
WIN Team	•
Operator Workarounds	•

Active Technical Specification Action Statements:					
Index	Planned	LCO	DEFICIENCY	Expires	Additional Action

Compensatory Actions in Effect (Required by CROD/CRFA for Operability)			
Number	DEFICIENCY	COMPENSATORY ACTIONS	Due Date

Follow-up Operability Assessments (CRFA) Assigned			
Number	DEFICIENCY	ASSIGNED	Due Date

Reactivity Controls:

- Plant MOL, Step 485
- RE guidance, raise power with Control Rods. Withdraw through RWM group ?????.

Standby Safety Systems:

-
-

Balance of Plant:

-
-

Restricted/Emergency Use Only Equipment:

-

Electrical:

-

Chemistry:

-

Cooling Water:

-

Computer:

-

Radiation Monitoring Systems:

-

Cold Weather Issues:

-

Administrative:

-

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 02-01 NRC EXAMINATION SCENARIO GUIDE

SCENARIO NUMBER: 2

EFFECTIVE DATE:

SPARE

EXPECTED DURATION: 1.5 Hours

REVISION NUMBER: 00

PROGRAM: L.O. REQUAL

INITIAL LICENSE

OTHER _____

REVISION SUMMARY:

I. OBJECTIVE(S):

Enabling Objectives

- A.
- B.

II. MAJOR EVENTS:

- A. Place Reactor Feed Pump in service.
- B. Inadvertent Loss of a Circulating Water Pump
- C. Reduce Reactor power
- D. Dual Recirculation Pump seal failure
- E. Recirculation Pump speed control failure/High vibrations/Scram
- F. Recirculation Line Break/Primary Containment Failure
- G. Containment Spray Valve Failure

III. SCENARIO SUMMARY:

The scenario commences with Reactor power at 95%. D Circulating Water Pump is OOS for maintenance. B Reactor Feed Pump will be placed in service.

When the RFP is in service, an inadvertent loss of the B Circulating Water Pump will require: reducing power to maintain Condenser vacuum, and restoration of Circulating Water pump or overriding and opening the remaining pump discharge valves to prevent a Main Turbine trip.

A dual Recirculation Pump seal failure occurs on the A RR pump. This will require tripping and isolating the pump. Once the pump is isolated, the B RR pump runs away causing a high vibration condition occurs. This will require a scram and trip of the B RR pump.

Once initial actions for the scram are completed, a leak develops from the B RR piping. Entry into the Primary Containment Control Emergency Operating Procedure will be required. The containment fails during the leak. This will require RHR to be placed into Drywell Spray to prevent exceeding the Pressure Suppression capabilities.

The scenario will be terminated when the Drywell pressure is lowering and RPV pressure and RPV level are being controlled in the bands required by the EOPs.

IV. INITIAL CONDITIONS:

- ___ Initialize the simulator to IC-01; 100% power, MOL, Xe equilibrium, pull sequence step #723
- ___ Reduce Reactor power with Recirc to 95%.
- ___ Complete Attachment 1 "Simulator Ready-for-Training/Examination Checklist."

OTHER CONDITIONS: (i.e., computer set points, procedures, bevel covers)

Initial	Description
___ 1.	

EVENT TRIGGERS:

Initial	ET #	Description
___ 1.	1	EVENT ACTION: ZCRPSUDN //MODE SWITCH IN SHUTDOWN COMMAND: PURPOSE: Initiates RR break
___ 2.	2	EVENT ACTION: ZDRHF00(38) >= 1 && ET_ARRAY(3) < 1 COMMAND: PURPOSE: Overload F021A IF opened before F021B
___ 3.	3	EVENT ACTION: ZDRHF00(40) >= 1 && ET_ARRAY(2) < 1 COMMAND: PURPOSE: Overload F021B IF opened before F021A

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	RR05A Recirc pump A inboard seal failure		120	2/None		100
___ 2.	RR06A Recirc pump A outboard seal failure	120	300	2/None		100
___ 3.	RR08B Recirc system B speed controller failure			3/None		
___ 4.	RR26B Recirc pump BP201 high vibration			3/None		
___ 5.	RR31B2 Recirc loop B large break	60	300	None/1		20
___ 6.	AN-A2E5 CRYWOLF ANN A2E5 CW PUMP 1DP501TROUBLE			Preinsert		
___ 7.	PC04 Downcomer break			None/1		

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	AN06 A2-C5 CW System Panel 10C520			7/None		NORM RACK CLOSE
___ 2.	ET071 HV-F021A RHR CTMT SPRAY VALVE			None/2		
___ 3.	ET102 HV-F021B RHR CTMT SPRAY VALVE			None/3		TAGGED

I/O OVERRIDE SUMMARY:

<i>Initial</i>	Description	Delay	Ramp	Remote/Event	Init	Final
___ 1.	5A80 A1 OVLO DP501 OVLD/PWR FAIL			Preinsert		OFF
___ 2.	5A80 D1 OVLO DP501 ENABLE			Preinsert		OFF
___ 3.	5A80 D2 OVLO DP501 START			Preinsert		OFF
___ 4.	5A80 E2 OVLO DP501 STOP			Preinsert		OFF
___ 5.	5A80 A2 OVLO DP501 INOP			Preinsert		ON
___ 6.	5A78F OVDI BP501 EMERG TRIP			1/None		ON

V. SEQUENCE OF EVENTS:

- A. Crew and individual evaluations shall be performed by all evaluators using the simulator examination evaluation instruments IAW NC.TQ-WB.ZZ-0003(Z).
- B. State shift job assignments.
- C. Hold a shift briefing, detailing instruction to the shift.
(Provide crewmembers a copy of the shift turnover sheet)
- D. Unfreeze the simulator and inform the crew:

"The simulator is running. You may commence panel walk downs at this time. OS/CRS please inform me when your crew is ready to assume the shift."
- E. Allow sufficient time for panel walk-downs. When informed by the OS/CRS that the crew is ready to assume the shift, inform the crew the scenario has commenced.
- F. Incorporate/evaluate the following activities during the scenario exam:

VI. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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1. B RFP Placed In Service.

- CRS directs placing the B RFP in service.
- PO places the B RFP in service IAW HC.OP-SO.AE-0001:
 - ⇒ Opens HV-1769B, Reactor Feed Pump B Disch Stop Chk Vlv Mot Oper
 - ⇒ Closes HV-1772B, RFPT B Steam Low Pressure Supply Stop Vlv Below Seat Drain Mov
 - ⇒ Selects DEMAND indication on the RFPT(S) in AUTO whose demand will be matched
 - ⇒ Selects RFPT B SPEED CTRLR DMND
 - ⇒ Presses RFPT B Speed Ctrlr Dmnd Inc Or Dec Push-Button's as required until Demand is equal to the Reactor Feed Pump operating in auto on the Master Level Controller
 - ⇒ Transfers RFPT B SPEED CTRLR to automatic by pressing the A/M push-button AND observing "A" illuminates.

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>2. Inadvertent Loss of a Circulating Water Pump.</p> <p>TRIGGER RT-1 after C RFP is in service, or at the discretion of the lead examiner.</p> <p>THEN DELETE I/O 5A78F to remove the Emergency Trip signal for B CW Pump.</p>	<ul style="list-style-type: none"> • Crew recognizes the loss of B CW pump. • CRS directs actions IAW HC.OP-AB.ZZ-0125 and 0208. <ul style="list-style-type: none"> ⇒ Reduce Reactor power as necessary to maintain Condenser vacuum less than 5.0 inches Hg A. ⇒ Terminate Surveillance testing ⇒ Ensure that the discharge valve on the tripped pump is closed ⇒ Open remaining CW Pump Discharge Valves from OPEN/CLOSE MID to FULL OPEN to maintain Condenser vacuum. • PO ensures that the B CW Pump Discharge Valve is closed 	
<p>Note:</p> <p>The CRS may decide not to override and open the CW Discharge Valves for the operating CW Pumps.</p> <p><u>If</u> the discharge valves are not overridden and opened for the A and C CW pumps, then Report as EO that you determined that workers on the D CW pump had inadvertently tripped the B Circ Water Pump breaker, and that all conditions are satisfactory for a restart.</p>		

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- PO overrides and opens the A and C CW Pump Discharge valves, OR starts the B CW pump and opens the A, B, & C CW Pump Discharge Valves per CRS directions.

3. Reduce Reactor power.

- RO reduces Reactor power IAW Stuff Sheet instructions and CRS directions to maintain vacuum less than 5 inches Hg A.
 - ⇒ Uses RR Master controller to reduce RR Pump speed
 - ⇒ Inserts control rods per Stuff Sheet groups
- RO inserts Control Rods to clear APRM Upscale alarms IAW CRS/Stuff Sheet directions.

Note:

If APRM Upscale alarms are received, the CRS will direct the RO to insert Control Rods to clear the APRM Upscales.

4. Dual Recirculation Pump Seal Failure.
TRIGGER RT-2 after condenser pressure has stabilized at less than 5 inches HgA, or at the discretion of the Lead Examiner.

- RO recognizes RR seal problem via CRIDS digital alarm and/or RR CRIDS page indications, and informs CRS.
 - ⇒ CRS directs actions to monitor seal conditions IAW HC.OP-AB.ZZ-0112.
 - ⇒ Monitor seal parameters and record data every two hours
- RO monitors for power oscillations IAW AB-300.
- RO/PO recognizes a dual seal failure has occurred on the A RR pump and informs the CRS.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- CRS directs securing and isolating the A RR pump IAW HC.OP-AB.ZZ-0112.
- PO secures and isolates "A" Recirc Pump IAW HC.OP-AB.ZZ-0112:
 - ⇒ Trips the pump by depressing the motor bkr trip pushbutton
 - ⇒ Closes suction valve (F023A) when pump is stopped
 - ⇒ Closes pump seal purge and RWCU suction valves (HV-3800A & HV-F100A)
 - ⇒ Closes pump discharge valve (F031A) when the suction valve is fully closed
- * CREW isolates the RR Pump A seal failure before DRWL pressure reaches 1.68 psig.
- CRS may direct maximizing DW Cooling IAW HC.OP-AB.ZZ-0201.
- PO maximizes DW Cooling IAW CRS instructions.
- RO / PO monitors plant parameters / assists as directed including drywell temperatures and pressures after pump secured and isolated.
- CRS refers to TS 3.4.1.1 and checks operation within limits of figure 3.4.1.1-1.
- Crew notifies Rad Pro and Chemistry of >15% power change in one hour for T.S samples IAW SH.OP-AP.ZZ-0108 Exhibit 4.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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5. Recirculation Pump speed control failure/High vibrations/Scram.
TRIGGER RT-3 after the RR pump is isolated and Technical Specifications have been addressed, or at the discretion of the Lead Examiner.

- RO / PO recognizes / takes action for rising "B" RR pump speed, and informs CS;
 - ⇒ Recognizes rising pump vibrations, and informs CRS
 - ⇒ Recognizes / takes actions IAW C1-E4

- CRS continues actions IAW HC.OP-AB.ZZ-0112 & 204 and directs a manual scram and tripping of "B" Recirc Pump.
- RO / PO places mode switch in S/D and trips "B" RR Pump as directed.
- CRS enters / directs actions IAW HC.OP-EO.ZZ-0101.
- RO verifies proper operation of EHC for pressure control, and maintains condenser vacuum, as directed by the CRS.
- RO carries out immediate scram actions.
 - ⇒ Locks the MS in shutdown
 - ⇒ Inserts SRMs and IRMs
 - ⇒ Verifies the Reactor is shutdown
 - ⇒ Selects IRM recorders
 - ⇒ Trips the Main Generator when 0 Mwe are reached
 - ⇒ Locks out the Main Generator
- PO maintains RPV water level with condensate / FW, as directed by the CRS.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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6. Recirculation Line Break/Primary Containment Failure.
ENSURE ET-1 is active on the Mode Switch being placed in Shutdown.

- CRS directs investigation on "B" Recirc Pump.
- CREW recognizes / takes action for rising D/W press / temp, OHAs C6-B1, A7-E4 & D4, C5-B5, and informs CRS.
- CRS re-enters / directs actions IAW HC.OP-AB.ZZ-0201;
 - Directs investigation of increasing drywell pressure / temperature
 - Ensures DRWL cooling is maximized
- At 1.68 psig DRWL pressure, enters/re-enters/directs actions IAW HC.OP-EO.ZZ-0101 and 0102.
 - ⇒ Verifies proper D/W cooling
 - ⇒ Monitors D/W sump for leaks
 - ⇒ Verifies scram signal
 - ⇒ Verifies isolations, ECCS actions, EDG operations
 - ⇒ Monitors RPV pressure decrease for low ECCS injection pressure
 - ⇒ Directs Suppression Chamber sprays before 9.5 psig
 - ⇒ May direct rapid depressurization with bypass valves
- PO monitors / maintains RPV level +12.5" to + 54" as directed by the CRS.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- *CREW controls and maintains RPV water level >-190" during the loss of coolant accident.

7. Containment Spray Valve Failure.

NOTE:

Delete appropriate IO-Ovrd (10S117 or 10S200) to allow operation of the other RHR Drywell Spray Valve

- PO initiates DRWL sprays
 - ⇒ Ensures DRWL fans are off
 - ⇒ Ensures RR pumps secured
 - ⇒ Recognizes spray valve failure to open and informs CRS
- CRS directs placing the other RHR loop in Drywell Spray.
- PO place other RHR loop in Drywell Spray
- PO initiates Drywell Sprays as directed by the CRS.
- PO reports to CRS that Drywell Sprays in service
- CREW monitors Pressure Suppression Pressure (PSP) Curve, recognizes rapid rise toward "Action Required" Region and informs CRS
- CRS implements HC.OP-EO.ZZ-0202, Emergency RPV Depressurization, IF the CRS determines that Supp Chamber Press cannot be maintained below curve SCP-L

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Termination Requirements.

When the Reactor pressure and RPV level are being maintained in appropriate bands IAW EOPs, or at the discretion of the Lead Examiner.

VII. SCENARIO REFERENCES:

- A. Conduct of Simulator Training.
- B. NUREG 1021, Examiner Standards
- C. JTA Listing
- D. Technical Specifications
- E. Alarm Response Procedures (Various)
- F. HC.OP-SO.AE-0001 Feedwater System Operation
- G. HC.OP-SO.BB-0001 Reactor Recirculation System Operation
- H. HC.OP-AB.ZZ-0112 Recirc Pump Trip
- I. HC.OP-AB.ZZ-0125 Circulating Water System Malfunction
- J. HC.OP-AB.ZZ-0201 Drywell High Pressure/Loss of Drywell Cooling
- K. HC.OP-AB.ZZ-0204 Positive Reactivity Addition
- L. HC.OP-AB.ZZ-0208 Main Condenser Low Vacuum
- M. HC.OP-AB.ZZ-0300 Reactor Power Oscillations
- N. HC.OP-EO.ZZ-0101 RPV Control
- O. HC.OP-EO.ZZ-0102 Primary Containment Control
- P. HC.OP-EO.ZZ-0202 Emergency Depressurization
- Q. SH.OP-AP.ZZ-0108 Operability Assessment and Equipment Control Program
- R.

VIII. ESG CRITICAL TASK RATIONAL

ESG - NRC 2

1.

- * **CREW isolates the RR pump A seal failure before DRWL pressure reaches 1.68 psig.**

(K/A 202001A2.10 3.5/3.9)

Isolation of the dual seal failure terminates a loss of coolant to the drywell. Accomplishing this task before reaching a high drywell pressure precludes an automatic reactor scram and ECCS actuation.

2.

- * **CREW controls and maintains RPV water level > -190" during the loss of coolant accident.**

(K/A 202001A2.02 3.7/3.9)

Maintaining RPV level above -190" will assure adequate core cooling throughout the LOCA. Condensate/Feedwater as well as RCIC and HPCI are available for injection.

Hope Creek SIMULATOR Turnover Sheet

FOR TRAINING USE ONLY

Oncoming Shift: Days [X] Nights []
 Op Con: 1 Risk Color: Green 'C' Channel Work Week SMD Warning: NONE
 Reactor Power: 95% Generator Power: 1030 MWe

Major activities accomplished on the last shift:

- Continued maintenance on D CW pump (Motor problems)
- Maintenance completed on B RFP. B RFP is in Recirc
-

Major activities scheduled for this shift:

- Place B RFP in service on Master Level Control
- Raise Reactor power to 100% with RR @ $\leq 1\%/min$

Safety Issues: Safety Issue Hot Line Call "SAFE" (extension 7233)					
Not/Date	Description	Immediate Mitigation	Additional Action	Assigned To	Date

Operations Superintendent Issues:	
Protected Equip.	•
Emergent Problems	•
WIN Team	•
Operator Workarounds	•

Active Technical Specification Action Statements:					
Index	Planned	LCO	DEFICIENCY	Expires	Additional Action

Compensatory Actions in Effect (Required by CROD/CRFA for Operability)			
Number	DEFICIENCY	COMPENSATORY ACTIONS	Due Date

Follow-up Operability Assessments (CRFA) Assigned			
Number	DEFICIENCY	ASSIGNED	Due Date

Reactivity Controls:

- Plant MOL, Step 727
- RE guidance, raise power with RR @ $\leq 1\%/min$. No PCIOMR/Ramp restrictions in effect.

Standby Safety Systems:

-
-

Balance of Plant:

-
-

Restricted/Emergency Use Only Equipment:

-

Electrical:

-

Chemistry:

-

Cooling Water:

-

Computer:

-

Radiation Monitoring Systems:

-

Cold Weather Issues:

-

Administrative:

-