

Facility:	BVPS-1	Scenario No.:	1	Op Test No.:	NRC
Examiners:	_____	Candidates:	_____		CRS
	_____		_____		RO
	_____		_____		PO
<u>Initial Conditions:</u> MOL, 90% Power, EQU Xe, CB "D" = 198, RCS Boron = 940 PPM (IC 211) LHSI Pump B OOS. (PMP suction vlv MOV-SI-862B maintenance) MDAFW B OOS (Pump Brng replacement) PZR Spray Valve B in manual due to controller problems					
<u>Turnover:</u> Reduce power to 80% due to high bushing temperature on the Main Transformer. Engineering is requesting immediate reduction, OPS Mngmt concurs, crew is to use reactivity placard, Rx engineering will provide detailed plan should further reductions be required.					
<u>Critical Tasks:</u> Establish 1 train of Quench Spray flow Establish 1 train of LHSI flow					

  

Event No.	Malf. No.	Event Type*	Event Description
1		(R) RO (N) PO, US	Reduce Power due to high bushing temperature on Main Transformer
2		(I) PO, US (TS) US	First Stage Pressure Transmitter PT-447 Fails Low
3		(C) PO, US	River Water Pump Trip – Manual start of backup pump required
4		(C) RO, US (TS) US	RCS leak (80 gpm)
5		(I) RO, US (TS) US	Pzr Master Pressure Controller setpoint fails low
6		(M) ALL	RCS leak degrades to LOCA (LB)
7		(C) RO	Train A QSS Pump Discharge Valve fails to open in AUTO. Manual operation required
8		(C) PO	LHSI Pump A fails to start in AUTO. Manual start required.

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

<p>Scenario 1 Scenario Overview</p>
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The crew will assume the shift with instructions to reduce power to 80% due to high bushing temperature on the Main Transformer. Engineering is requesting immediate reduction, OPS Mngmt concurs, crew is to use reactivity placard, Rx engineering will provide detailed plan should further reductions be required.

When the power reduction has been started, the Turbine First Stage pressure transmitter will fail low. The crew will take action to stop any rod motion and stabilize the plant. Technical Specifications will be addressed for P-13

When plant conditions have been stabilized, A River Water Pump will trip, and the backup pump will fail to start, requiring manual start and alignment of the backup pump.

An RCS leak will develop, requiring the crew to raise charging and isolate letdown. The SM/US will evaluate and enter Technical Specifications.

When actions to address the leak have been completed, the PZR Master Pressure Controller setpoint will fail low, requiring action to stop the RCS pressure decrease. The RO will take manual control of spray and energize PZR backup heaters. Technical Specifications will be addressed.

The RCS leak will degrade to a Large Break LOCA, resulting in a reactor trip, SI, CIA and CIB/CNMT Spray actuation.

Train B emergency bus normal feeder will trip on differential, making the bus unavailable.

Train A QSS Pump discharge valve will fail to open in response to an automatic signal. The critical task is to open the valve manually.

Train A LHSI Pump will fail to start automatically. The critical task is to manually start the Train A LHSI pump.

EOP Flow Path: E-0, E-1

(Possibly FR-P.1 on rapid RCS cooldown)

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INITIAL CONDITIONS:

- 100% Power, MOL, 905 ppm boron, CB D = 228 steps
- LHSI B OOS
- MDAFW B OOS, Place placard stating FW-P-2 aligned to "B" Header
- PZR Spray Valve B Controller in manual

<u>ADDITIONAL LINEUP CHANGES</u>	<u>STICKERS</u>	<u>VOND MARKINGS</u>
MOV-SI-862B shut /de-energized	YCT	Fig 11-1, G3 MOV-SI-862B SHUT
SI-P-1B PTL	YCT	
FW-P-3B PTL	YCT	Fig 24-2, F5 WT-227 SHUT
PCV-RC-455B controller MANUAL/0%	YCT	Fig 24-2, E5 FW-41 SHUT
TV-DG-108B CLOSED	YCT	Fig 24-2, D7 FW-39 OPEN, FW-36 SHUT
<u>EQUIPMENT STATUS</u>	<u>DATE/TIME OOS</u>	<u>TECHNICAL SPECIFICATION(S)</u>
SI-P-1B/MOV-SI-862B	Yesterday 0100	3.5.2
FW-P-3B FW-P-2 aligned to "B" Header	Today 0600	3.7.5
PCV-RC-455B	Today 0700	N/A

SHIFT TURNOVER INFORMATION

1. Protected Train is Train "A"
2. High bushing temperature on Main Transformer requires power reduction to 80%
3. SI-P-1B OOS due to maintenance on MOV-SI-862B (pmp suction vlv). Pump WILL NOT be returned this shift

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4. FW-P-3B OOS due to pump bearing replacement. FW-P-2 has been aligned to the "B" header. FW-P-3B isolated and WILL NOT be returned this shift
5. PCV-RC-455B in MANUAL and SHUT due to erratic operation in AUTO. PCV-RC-455A is controlling pressure in auto without problems. PCV-RC-455B can be used IN MANUAL ONLY, if required. I&C has been informed
6. Rx Engineering will provide detailed reactivity plans for power reductions less than 90% should they be required

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for MOL

1OM-52.4.B Load Follow Procedure

Placard for FW-P-2 position stating FW-P-2 is aligned to "B" header

Place plaque on wall for Protected Train "A"

Ensure ESF Status Lights LIT for TRAIN "B" LHSI Pmp, HHSI Pmp and FW-P-3B

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**EVENT #1**

Reduce Power due to high bushing  
temperature on Main Transformer

Lower Reactor Power at least 2%.

Turbine load and reactor power  
reduction at 12%/Hr or less

Following the Reactivity Plan, Crew  
lowers reactor power.

US directs load decrease. Initiates  
Turbine load reduction

PO initiates turbine load decrease.

Set the desired terminal load on the  
SETTER to < 98%

Set the desired rate on the LOAD  
RATE thumbwheel (5%/min.  
maximum).

As the turbine load reduces, maintain  
the valve position limiter approximately  
5% above turbine load to prevent load  
excursions.

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Depress the GO pushbutton.

When Power is < 98%, transfer the turbine control to the 1<sup>st</sup> Stage pressure feedback mode by depressing the 1<sup>ST</sup> STG IN pushbutton **AND** Verify the following:

1. The 1<sup>ST</sup> STG OUT lamp is OFF.
2. The 1<sup>ST</sup> STG IN lamp is ON.

After transfer to the 1<sup>ST</sup> Stage pressure feedback mode, Set the desired terminal load on the SETTER.

Set the desired rate on the LOAD RATE thumbwheel (5%/min. maximum).

As the turbine load reduces, maintain the valve position limiter approximately 5% above turbine load to prevent load excursions.

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Depress the GO pushbutton.

RO initiates RCS boration as  
necessary to maintain Tavg-Tref.

Estimate the volume of boric acid to be  
added to the RCS using any of the  
following:

- a. 1OM-7.5, Figure 7.7, "Boron  
Addition", **AND** Table 1,  
"Nomograph Correction Factors".
- b. WAG tables.
- c. Reactor Engineer approved  
computer based methods.

Estimate the rate of boron  
concentration change as a function of  
boric acid flow rate using 1OM-7.5,  
Figure 7-8, "Boron Addition Rate",  
**AND** Table 1, "Nomograph Correction  
Factors".

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			Place the 1MU control switch to STOP for greater than 1 second to allow the blender to unarm. (BB-A)
			Place 43/MU control switch to BOR. (BB-A)
			Set [FCV-1CH-113A], Boric Acid to Blender FCV, to the desired boric acid flowrate. (BB-A)
			Set Boric Acid Integrator [YIC-1CH-113] for the desired quantity. (BB-A)
			a. Reset Boric Acid Integrator [YIC-1CH-113].
			Start the Reactor Makeup Control System by placing 1MU control switch to START. (BB-A)
			Verify boric acid to Blender flow on [FR-1CH-113], Boric Acid Flow. (VB-A)



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When at 98% or at Lead Examiners (LE) discretion, proceed with next event			<p>Operate the pressurizer spray as required to limit the difference between boron concentration in the pressurizer and that of the RCS to less than 50 ppm.</p> <p>Verify boration automatically stops when Boric Acid Integrator [YIC-1CH-113] reaches the setpoint. (BB-A)</p> <p>When boration is complete, perform the following:</p> <ol style="list-style-type: none"> <li>Place the 1MU control switch to STOP for greater than 1 second.</li> <li>Place 43/MU control switch to AUTO. (BB-A)</li> <li>Reset Boric Acid Integrator [YIC-1CH-113]. (BB-A)</li> <li>Adjust makeup controls for the new RCS boron concentration.</li> <li>Place the 1MU control switch to START.</li> </ol>

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**EVENT #2**

First Stage Pressure Transmitter  
Fails Low

PT-MS-447 (selected) fails low.

**IMF TUR18B (0 0) 0**

PT-MS-447 failed low.

Crew notes alarms and informs US  
that PT-MS-447 failed low.

Alarms received:

PO informs Crew that PT-447 is the  
current controlling channel.

[A6-88], Feedwater Htr Bypass Valve  
Open

[A7-14], LP Feedwater 5<sup>th</sup> Point Htr 5A  
Level High

US enters OM 1.24.4.IF, Attachment 5.

[A7-15], LP Feedwater 5<sup>th</sup> Point Htr 5B  
Level High

PO selects HSS-1PM-446 as the  
controlling channel

[A7-27], HP Feedwater 1st Point Htr 1B  
Level High

US directs Power and Temperature to  
be stabilized

PO Resets Steam dumps

[A7-28]Steam Generator Blowdown  
Flash Tank No. 3 Level High-High

Crew verifies load rejection bistable  
status lights are off

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	C-20 AMSAC bypassed status light energizes after 3 minutes.		<p>Verify Feedwater Heater bypass valve closed</p> <p>PO places Steam Pressure controller with 0 % output</p> <p>PO adjusts setpoint for equivalent of 1005 psig</p> <p>PO places Steam Dump Controller in STM PRESS Mode and in AUTO</p> <p>PO ensures steam dump valves remain closed</p> <p>PO directs Turbine Plant Operator to re-arm AMSAC per OM 1.45.B.4AAE and 1.45.B.4.AAC.</p> <p>US Directs tripping bistables listed on Table 1</p> <p>US refers to TS for P-13. TS 3.3.1 item 17F condition P – verify in required state W/I 1 hr</p> <p>(possible DNBR TS 3.4.1 condition A)</p>
Not necessary to actually trip B/S once US has identified TS or, at LE discretion, move on to next event			

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**EVENT #3**

<b>IMF AUX10A (0 0)</b>	1WR-P-1A trips,		PO recognizes loss of WR-P-1A and reports to US.
<b>IMF INHINH33 (0 0) (PRE-LOAD)</b>	1WR-P-1B fails to auto start.		RO recognizes and reports WR-P-1B failure to auto start. RO manually starts WR-P-1B.
	1WR-P-1B manually started.		
	Alarms received:		US refers to AOP 1.30.2 Loss of River Water/Intake Structure
	<ul style="list-style-type: none"> <li>A1-40, CC WTR HT EXCH River WTR PP Disch Line 'A' Press Low.</li> </ul>		Crew verifies PI-RW-113A,B > 20 PSIG
When directed to report the status of WR-P-1A, report that the motor windings are hot and smell of burnt insulation	<ul style="list-style-type: none"> <li>A1-48, CC WTR HT EXCH River WTR PP Disch Line 'B' Press Low.</li> </ul>		Crew checks Turbine Plant RW system status - SAT
Report WR-P-1A breaker tripped on overcurrent	<ul style="list-style-type: none"> <li>A1-59, Intake Struct River WTR PP Disch Line 'A' Press Low.</li> </ul>		US directs WR-P-1C racked onto bus.
<b>NOTE: Perform the following immediately upon request and report WR-P-1C is racked onto the AE bus</b>			

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<p><b>Align WR-P-1C:</b></p> <p><b>IRF EPS003 (0 0) 0</b></p> <p><b>IRF EPS005 (0 0) 1</b></p> <p>Then report WR-P-1C is racked onto the AE bus</p> <p><b>NOTE:</b> WR-P-1C <b>Must</b> be aligned to the AE bus before moving to the next event to support the loss of DF bus</p> <p>WHEN WR-P-1C is aligned to AE bus then proceed to the next event</p>	<ul style="list-style-type: none"> <li>A1-67, Intake Struct River WTR PP Disch Line 'B' Press Low.</li> <li>A1-82, River Water PP Auto Start-Stop.</li> </ul>		
<p><b><u>EVENT #4</u></b></p> <p><b>RCS Leak</b></p> <p><b>IMF RCS02A (0 0) 80</b></p>	<p>Annunciators:</p> <p>[A4-71], Radiation Monitor Hi</p> <p>[A4-72], Radiation Monitor Hi-Hi</p> <p>[A1-35], Cnmt Air Total Pressure Hi/Lo Channel 1</p> <p>[A1-43], Cnmt Air Total Pressure Hi/Lo Channel 2</p> <p>RM-204 in alarm</p>		<p>US refers to AOP-1.6.7, Excessive Primary Plant Leakage</p> <p>Check if PZR level can be maintained</p> <p>RO controls charging flow as necessary to maintain PZR level on program</p> <p>US requests SM to evaluate EPP</p>

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<p><b>NOTE:</b> Possible E-Plan classification of UE TAB 2.5 Unidentified Leakage or 2.6 Identified leakage since leakage is 80gpm</p>	RM-215A, B in alarm		RO checks if VCT level can be maintained by normal makeup
	[RM-1MS-102A, B, C], N-16 steam generator leak monitors normal		PO checks secondary plant radiation trends normal
	[RIS-SV100], Condenser Air Ejector Vent is normal		
	[RM-BD-101], High Capacity B/D monitor is normal		Crew may request STA perform leak rate calculation
	PRT pressure, level, and temperature are normal		RO checks PRT conditions consistent with pre-event values
	Slight rise in containment temperature may not be noticeable		RO checks Containment Temperature normal
	Aux Bldg radiation is normal		PO checks Aux Building radiation levels normal
	PZR level remains stable		RO isolates Charging and letdown to check for CVCS leakage
	Cnmt pressure is below 5.0 psig. Rise is very slight		RO restores Charging and Letdown
			RO checks Containment Pressure less than 5.0 psig and stable
The remaining actions are not necessary unless a T.S. determination must be made	[A3-96] is NOT alarming		RO checks annunciator [A3-96] NOT in alarm

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Once US has made TS 3.4.13 evaluation, OR at LE discretion, proceed with next event	All RCP Thermal Barrier flows are less than 50 GPM		Crew checks for leakage in CCR system
	All RCP thermal barrier CCR isolation valves are open		
	[RIS-CC100], CCR radiation monitor, is normal		US checks if plant should be shut down
	Leak Rate approximately 80 GPM		Crew performs RCS Water Inventory Balance
			US determines leak rate is not within limits of TS 3.4.13
			US determines method of plant shutdown

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<b><u>EVENT #5</u></b>	Annunciators:		RO takes manual control of Pressurizer Master Pressure Controller, adjusts to approx. 40% (NSA value)
Pressurizer Master Pressure Control Setpoint Fails Low	[A4-12], Pressurizer Control Low Pressure Deviation		RO reduces output of controller to close PORV, Spray.
<b>IOR X07A090P (0 0) 120</b>	Spray Valves open		
	PORV 455C opens		RO energizes pressurizer heaters as required
	PZR Heaters off		
Once US has referred to TS OR, at LE discretion, proceed to next event			US refers to TS 3.4.1 for RCS pressure



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**Event #6**

**DBA LOCA**

**IMF RCS02D (0 0)**

DBA LOCA "A" Loop

Reactor Trip, SI, CIA, CIB/CNMT  
Spray actuate

**PRE-LOAD ITEM:**

DF Buss and #2 EDG are tripped  
on differential on transfer to off site  
power. "B" Train **WILL NOT** be  
restored

Crew enters E-0, performs  
immediate operator actions.

**Loss of "B" Train components**

RO and PO commence immediate  
actions of E-0, US references E-0 to  
verify immediate actions.

Crew performs IMAs of E-0.

Reactor trip and bypass breakers -  
OPEN  
Power range indication - LESS THAN  
5%  
Neutron flux - DROPPING

RO verifies reactor tripped.

Throttle Valves - ALL CLOSED  
OR  
Governor Valves - ALL CLOSED  
Main Generator Output Bkrs - OPEN  
Exciter Circuit Bkr - OPEN

PO verifies turbine tripped.

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	AC Emergency Busses - AT LEAST ONE ENERGIZED		PO verifies power to AC Emergency Buses.
	DF Bus De-energized		PO reports DF Bus de-energized, #2 EDG tripped on differential
	Check SI - ACTUATED		RO checks SI status
Crew continues E-0	Manually actuate SI (both trains)		RO manually actuates SI both trains
	Alert Plant Personnel		RO/PO sound Standby Alarm, announce reactor trip and safety injection
	Check [1VS-F-4A(B)], Leak Coll Exhaust Fan - ONE RUNNING		PO checks Leak Collection Exhaust Fan status
When requested to align WR H <sub>2</sub> analyzers insert:	Start CNMT Hydrogen Analyzers		Crew directs operator to perform 1OM-46.4.G to place WR H <sub>2</sub> analyzers in service
<b>IMF XN02097 (0 0) 1</b> <b>IMF XN02105 (0 0) 1</b>	Annun A2-97 energizes. Annun A2-105 energizes. H <sub>2</sub> analyzers in service.		
and report actions to the control room	Charging Pumps – ONE RUNNING LHSI Pumps – NONE RUNNING BIT Flow – INDICATED		RO verifies SI System status

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<b>CRITICAL TASK</b> – Manually Initiate LHSI Flow in at least one train	SI-P-1A Manually started		RO reports auto start failure of SI-P-1A and manually starts SI-P-1A
	RCPs Manually tripped due to loss of CCR on CIB		RO manually trips RCPs due to CIB/Loss of CCR
	Motor-driven AFW Pumps – FW-P-3A RUNNING Turbine-driven AFW Pump – RUNNING [TV-MS-105A, B] – OPEN Annunciator A7-7, “STM UNAVAILABLE TURB DRIVEN FEED PP FW-P-2” – NOT LIT AFW Throttle Vlvs – FULL OPEN Total AFW Flow – GREATER THAN 370 GPM		PO verifies AFW System status
<b>Refer to PAGE 26 for details of Attachment 1-K</b>	Perform Attachment 1-K in a timely manner		US directs performance of Attachment 1-K when time/manpower permit
	All of Train “B” components are de-energized due to loss of DF buss & #2 EDG QS-P-1A discharge valve MOV-QS-101A fails to auto open, requires manual operation to open.		RO/PO opens MOV-QS-101A, reports to US
<b>Critical Task</b> <b>Initiate Quench Spray Flow prior to completing Attachment 1-K</b>	RCPs STOPPED – MONITOR Tcold		RO/PO check RCS Tavg stable at or trending to 547°F
	RCS temperature < 200F due to DBA LOCA		RO reports Tcold < 200F

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	Check Recirc Spray Pumps – ANY RUNNING Check Recirc Spray Pumps – Train “A” pumps RUNNING (time delay) Check Recirc Spray Pumps – NOT CAVITATING		RO checks Recirc Spray Pump status
	PORVs – CLOSED Spray Valves – CLOSED Safety relief valves – CLOSED Check PRT conditions – CONSISTENT WITH EXPECTED VALUES Power to at least one block valve – AVAILABLE Block valves – AT LEAST ONE OPEN		RO verifies PZR isolated
	RCPs previously secured due to CIB/Loss of CCR flow		RO checks if RCPs should be stopped
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		PO checks if any SGs are faulted. PO reports SGs are not faulted

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	Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES [RM-BD-101] High capacity SGBD sample [RM-SV-100] Condenser air ejector vent [RM-SS-100] SGBD sample [RM-MS-100A,B,C] Steam relief monitors [RM-MS-101] FW-P-2 monitor		Crew checks if SG tubes are intact  Crew reports SG tubes are intact
	Check the following consistent with pre-event: CNMT Radiation – NO, elevated CNMT Pressure – NO, elevated CNMT Sump Level – NO, elevated		Crew checks if RCS is intact  Crew determines the RCS IS NOT intact
<b>Crew transitions to E-1 STEP 1</b>			US directs transition to E-1
<b>NOTE:</b> STA may report entry conditions for FR-P.1 exceeded, crew may enter FR-P.1 and then exit when LHSI flow is verified			US directs STA to monitor status trees.
	Control Room radiation monitor [RM-RM-218A,B] – NOT IN HIGH ALARM  CIB – HAS OCCURRED, CREVS actuated		Crew checks if CREVS should be actuated

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	RCPs previously secured due to CIB/Loss of CCR flow		RO checks if RCPs should be stopped
	Check Recirc Spray Pumps – ANY RUNNING Check Recirc Spray Pumps – “A” Train pumps RUNNING (time delay) Check Recirc Spray Pumps – NOT CAVITATING		RO checks Recirc Spray Pump status
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		PO checks if any SGs are faulted. PO reports SGs are not faulted
	Narrow Range Levels – GREATER THAN 31% [50% ADVERSE CNMT]		PO checks intact SG levels  PO controls feed flow to intact SGs to maintain NR level between 31% [50% ADVERSE CNMT] and 65%
	Station Inst Air HDR Press - > 100 PSIG		PO checks IA System status

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	<p>Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER</p> <p>Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES</p> <p>[RM-BD-101] High capacity SGBD sample</p> <p>[RM-SV-100] Condenser air ejector vent</p> <p>[RM-SS-100] SGBD sample</p> <p>[RM-MS-100A,B,C] Steam relief monitors</p> <p>[RM-MS-101] FW-P-2 monitor</p>		<p>Crew checks if SG tubes are intact</p> <p>Crew reports SG tubes are intact</p>
	<p>Power to the Block Vlvs – AVAILABLE</p> <p>PORVs – CLOSED</p> <p>Block Vlvs – AT LEAST ONE OPEN</p>		RO checks PRZR PORVs and Block Valves
	<p>RCS Subcooling based on core exit TCs &gt; 46F [54F ADVERSE CNMT]</p> <p>Secondary heat sink:</p> <p>Total feed flow to intact SGs – GREATER THAN 370 GPM</p> <p>OR</p> <p>Narrow range level in at least one intact SG – GREATER THAN 31% [50% ADVERSE CNMT]</p>		RO/PO check if SI flow can be reduced
	<p>RCS pressure – STABLE OR RISING</p> <p>PRZR level – GREATER THAN 17% [38% ADVERSE CNMT]</p>		RO/PO reports conditions DO NOT support SI flow reduction/termination
			US directs crew to continue in E-1

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Any Quench spray or recirc spray pump – RUNNING		RO/PO check if CNMT Spray should be stopped
	CNMT pressure – LESS THAN 8 PSIG		RO reports CNMT pressure < 8 PSIG
	Reset CIB		RO resets CIB
	Check SGs – ANY FAULTED		PO checks for faulted SGs  PO reports SGs are not faulted
	CNMT Pressure - > (-4) PSIG		RO checks CNMT pressure  RO reports CNMT pressure > (-4) psig
	[RW-99] RW flow to U2 blowdown vlv – CLOSED		Crew verifies 1RW-99 closed
	[RW-200] RW flow from Recirc Spray HX throttled as required to maintain CNMT pressure between 8 PSIG and (-4) PSIG		US directs operator to throttle 1RW- 200
	SI & CIA - RESET		RO resets SI and CIA
	RCS Pressure - > 275 PSIG [400 PSIG ADVERSE CNMT] RCS Pressure – STABLE OR RISING LHSI Pumps – ANY RUNNING WITH SUCTION ALIGNED TO THE RWST		RO checks if LHSI Pmps should be stopped  RO reports that LHSI pmps should not be stopped



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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<p>Terminate scenario when crew determines Cold Leg Recirc Capability exists for Train "A" components</p> <p>After scenario, have the US determine the E-Plan classification</p>	<p>Check pressures in all SGs – STABLE OR RISING</p> <p>Check RCS Pressure – STABLE OR DROPPING</p>		<p>RO/PO check RCS and SG Pressures</p> <p>RO/PO report SG/RCS pressures as expected for DBA LOCA conditions</p> <p>US directs crew to continue with E-1 based on SG/RCS pressure response</p>
	<p>AE Emergency bus is energized from offsite</p> <p>DF bus is de-energized, #2 EDG not running</p>		<p>PO checks if EDGs should be stopped</p> <p>PO stops #1 EDG</p>
	<p>Attachment 1-F satisfactory for Train "A" components</p>		<p>US directs operators to perform Att 1-F and verify cold leg recirculation capability</p>
			<p>ALERT, TAB 1.2.3, RCS Leak Rate</p>

**Attachment 1-K Verification of Automatic Actions**

ALL TRAIN "B" Components are De-energized

#1 EDG – RUNNING

Diesel Generators – BOTH RUNNING.

#2 EDG – NOT RUNNING

> 100 psig

Check Station instrument Air Header Pressure – GREATER THAN 100 PSIG.

Verify [MOV-MS-100A, B] CLOSED.

Ensure Reheat Steam Isolation.

Reset reheater controller.

CIB - ACTUATED

CCR Pumps – NONE RUNNING.

Transfer [NR-NI-45] Nuclear Recorder to operable source and intermediate range displays.

Align Neutron Flux Monitoring For Shutdown.

WR-P-1C – RUNNING

Verify River Water System in Service.

CCR Heat EX RW pressure – GREATER THAN 20 PSIG.

MSLI – ACTUATED

CIB – ACTUATED

Check If Main Steamline Isolation  
Required.

a. Check the following:

- CNMT pressure – GREATER  
THAN 7 PSIG

OR

- Steamline pressure – LESS  
THAN 500 PSIG

OR

- Steamline pressure high rate of  
change – ANY ANNUNCIATOR  
LIT
  - Annunciator A7-41
  - Annunciator A7-49
  - Annunciator A7-57

b. Verify steamline isolation

- YELLOW SLI marks – LIT

**Critical Task**

**Initiate Quench Spray Flow prior  
to completing Attachment 1-K**

CNMT pressure > 11psig

MOV-QS-101A fails to auto open,  
MANUAL open successful

Check CIB and CNMT Spray Status

TRAIN "B" Components de-energized

ALL RED SIS MARKS – LIT

ALL ORANGE CIA MARKS – LIT

ALL GREEN FWI MARKS – LIT

AE bus – Energized

DF bus De-energized

Verify ESF Equipment Status

Verify Power to Both AC Emergency  
Busses

Upon Completion, Report Any  
Discrepancies to SM/US

Facility:	BVPS-1	Scenario No.:	2	Op Test No.:	NRC
Examiners:	_____	Candidates:	_____	CRS	
	_____		_____	RO	
	_____		_____	PO	
<u>Initial Conditions:</u>	MOL, 48% power, EQU Xe, CB "D" = 166, RCS Boron = 1121 PPM, (IC-212) LHSI Pump B OOS. (PMP suction vlv MOV-SI-862B maintenance) MDAFW B OOS (Pump Brng replacement) PZR Spray Valve B in manual due to controller problems				
<u>Turnover:</u>	Maintain current plant conditions				
<u>Critical Tasks:</u>	Manually Trip the Reactor Manual start of MDAFW Pump A Establish Feed with Main Feed flow				

Event No.	Malf. No.	Event Type*	Event Description
1		(TS) US	LHSI A Common Mode failure (TS 3.0.3)
2		(R) RO (N) PO, US	Reduce Power
3		(I) PO, US (TS) US	SG steam pressure transmitter fails low
4		(C) RO, US	Letdown Pressure Control Valve, PCV-CH-145, fails closed in AUTO, Manual control functions correctly
5		(C) RO, US	PZR Spray Valve A drifts open in auto
6		(M) ALL	Feed Pump Trip. Reactor Trip required. (Assumes 1 Feed Pump running prior to trip)
7		(C) RO	Auto reactor trip failure. Manual trip required
8		(C) PO	TDAFW Pump overspeed A MDAFW Pump fails to auto start. Manual start available
9		(C) PO	A MDAFW Pump trip. Feed restored using MFP in FR-H.1

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

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## Scenario Event Description

### NRC Scenario 2

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When the crew assumes the shift, a report of LHSI common mode failure involving MOV-SI-862A will require the US to determine that TS 3.0.3 applies. Shift management directs plant shutdown to comply with T.S.

As power is being reduced, one SG steam pressure transmitter will fail requiring the BOP to place the affected FRV in manual and the Unit Supervisor to refer to Technical Specifications.

When Technical Specifications have been addressed, the Letdown Pressure Control valve will fail closed, requiring the RO to take manual control to restore letdown flow.

When letdown is restored, a PZR Spray valve will drift open in automatic (due to PT-RC-444 drifts high), requiring manual control to close the valve.

When RCS Pressure control is restored, a Main Feedwater pump will trip. Reactor trip is required, but automatic trip is defeated. The reactor must be manually tripped

The TDAFW Pump will overspeed and be unavailable. A MDAFW Pump will fail to automatically start, but may be manually started. After A MDAFW pump is running, it will trip, requiring entry to FR-H.1.

The scenario may be terminated when the crew establishes Main Feedwater flow in FR-H.1.

EOP Flow path: E-0, ES-0.1, FR-H.1

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INITIAL CONDITIONS:

- 48% Power, MOL, 1121 ppm boron, CB D = 166 steps
- LHSI B OOS
- MDAFW B OOS, Place placard stating FW-P-2 aligned to "B" Header
- PZR Spray Valve B Controller in manual

<u>ADDITIONAL LINEUP CHANGES</u>	<u>STICKERS</u>	<u>VOND MARKINGS</u>
MOV-SI-862B shut /de-energized	YCT	Fig 11-1, G3 MOV-SI-862B SHUT
SI-P-1B PTL	YCT	
FW-P-3B PTL	YCT	Fig 24-2, F5 WT-227 SHUT
PCV-RC-455B controller MANUAL/0%	YCT	Fig 24-2, E5 FW-41 SHUT
TV-DG-108B CLOSED	YCT	Fig 24-2, D7 FW-39 OPEN, FW-36 SHUT
<u>EQUIPMENT STATUS</u>	<u>DATE/TIME OOS</u>	<u>TECHNICAL SPECIFICATION(S)</u>
SI-P-1B/MOV-SI-862B	Yesterday 0100	3.5.2
FW-P-3B FW-P-2 aligned to "B" Header	Today 0600	3.7.5
PCV-RC-455B	Today 0700	N/A

SHIFT TURNOVER INFORMATION

1. Protected Train is Train "A"
2. Maintain current plant conditions until further notice
3. SI-P-1B OOS due to maintenance on MOV-SI-862B (pmp suction vlv). Pump WILL NOT be returned this shift

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4. FW-P-3B OOS due to pump bearing replacement. FW-P-2 has been aligned to the "B" header. FW-P-3B isolated and WILL NOT be returned this shift
5. PCV-RC-455B in MANUAL and SHUT due to erratic operation in AUTO. PCV-RC-455A is controlling pressure in auto without problems. PCV-RC-455B can be used IN MANUAL ONLY, if required. I&C has been informed
6. Rx Engineering will provide detailed reactivity plans for power reductions less than 40% should they be required

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for MOL

10M-52.4.B Load Follow Procedure

Placard for FW-P-2 position stating FW-P-2 is aligned to "B" header

Place plaque on wall for Protected Train "A"

Ensure ESF Status Lights LIT for TRAIN "B" LHSI Pmp, HHSI Pmp and FW-P-3B



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**EVENT #1**

**Report of LHSI Common Mode  
Failure on LHSI Pump "A"**

Report as Plant Engineering that while maintenance was working MOV-SI-862B, they found that MOV-SI-862B was assembled incorrectly and last week, they also assembled MOV-SI-862A incorrectly and it is now also inoperable. The "B" train can be recovered in approximately two hours.

US Refers to Technical Specifications

Call the control room as plant management and direct an immediate plant S/D at 12%/Hr. Begin the S/D using the reactivity placard. Rx Engineering will provide a detailed reactivity plan as soon as possible.

US determines the unit is in LCO 3.0.3

Proceed to next event when US determines that TS 3.0.3 applies or at LE discretion

**EVENT #2**

**Reduce Power**

Crew commences power reduction in accordance with approved reactivity plan.

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Power lowering.

US directs load decrease

PO initiates Turbine Load decrease

PO transfers the turbine control to the 1<sup>st</sup> Stage pressure feedback mode by depressing the 1<sup>ST</sup> STG IN pushbutton **AND** Verify the following:

1. The 1<sup>ST</sup> STG OUT lamp is OFF.
2. The 1<sup>ST</sup> STG IN lamp is ON.

After transfer to the 1<sup>ST</sup> Stage pressure feedback mode, Set the desired terminal load on the SETTER.

Set the desired rate on the LOAD RATE thumbwheel (5%/min. maximum).

As the turbine load reduces, maintain the valve position limiter approximately 5% above turbine load to prevent load excursions.

Depress the GO pushbutton.

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RO initiates RCS boration as necessary to maintain Tavg - Tref

Estimate the volume of boric acid to be added to the RCS using any of the following:

- a. 10M-7.5, Figure 7.7, "Boron Addition", **AND** Table 1, "Nomograph Correction Factors".
- b. WAG tables.
- c. Reactor Engineer approved computer based methods.

Estimate the rate of boron concentration change as a function of boric acid flow rate using 10M-7.5, Figure 7-8, "Boron Addition Rate", **AND** Table 1, "Nomograph Correction Factors".

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			Place the 1MU control switch to STOP for greater than 1 second to allow the blender to unarm. (BB-A)
			Place 43/MU control switch to BOR. (BB-A)
			Set [FCV-1CH-113A], Boric Acid to Blender FCV, to the desired boric acid flowrate. (BB-A)
			Set Boric Acid Integrator [YIC-1CH-113] for the desired quantity. (BB-A)
			a. Reset Boric Acid Integrator [YIC-1CH-113].
			Start the Reactor Makeup Control System by placing 1MU control switch to START. (BB-A)
			Verify boric acid to Blender flow on [FR-1CH-113], Boric Acid Flow. (VB-A)

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Operate the pressurizer spray as required to limit the difference between boron concentration in the pressurizer and that of the RCS to less than 50 ppm.

Verify boration automatically stops when Boric Acid Integrator [YIC-1CH-113] reaches the setpoint. (BB-A)

When boration is complete, perform the following:

- Place the 1MU control switch to STOP for greater than 1 second.
- Place 43/MU control switch to AUTO. (BB-A)
- Reset Boric Acid Integrator [YIC-1CH-113]. (BB-A)
- Adjust makeup controls for the new RCS boron concentration.
- Place the 1MU control switch to START.

**Proceed with next event at Lead Examiners (LE) discretion**

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
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**EVENT #3**

SG B Steam Pressure Transmitter  
failure

**IMF MSS16E (0 0) 0**

PT-MS-485 Fails low.

[A7-49] Loop 2 Steam Line Press Low or  
Press Rate High

[A7-50], Loop 2 Feedwater Flow Greater  
than Steam Flow

[A7-53], Steam Generator 1B Level  
Deviation from Setpoint

Feedwater flow decreases causing SG  
levels to decrease.

SG level stabilizes.

US refers to 1OM-24.4.IF

US determines that 1OM-24.4.IF  
Attachment 4 is to be implemented.

PO determines which channel has  
failed by comparing with other steam  
flow indicators.

PO places "B" SG FRV in manual and  
stabilizes steam generator level.

PO selects redundant steam flow  
transmitter by placing FC-1FW-488 to  
FM-486 position.

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PO returns "B" FRV to auto when SG level is returned to normal range.

**NOTE: It is not required to trip B/S, may proceed to next event at LE discretion**

**If requested to trip bistables:**

IOR XS03C23 1	Protection CH III door 18 open
IMF BST-RCS056 (0 0) 0	BS-488B tripped
IMF BST-RCS157 (0 0) 0	BS-488C tripped
DOR XS03C23	Protection CH III door 18 closed
IOR XS03C23 1	Protection CH III door 35 open
IMF BST-RCS092 (0 0) 0	BS-485A Tripped
IMF BST-RCS102 (0 0) 0	BS-485B Tripped
DOR XS03C23	Protection CH III door 35 closed

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**EVENT #4**

Letdown Pressure Control Valve  
fails closed in auto

**IOR X06A087P (0 0) 1.0**

PCV-1CH-145 fails closed, resulting in a  
loss of normal letdown.

[A3-107], NRHX Disch Press High.

RO notes indications and alarms.

RO notifies US. Refers to ARP.

Letdown Backpressure rising

US may refer to AOP 1.7.1.

Letdown flow lowering

Crew minimizes any power changes in  
progress

RO reports zero flow indicated on  
1CHS-FI150.

RO takes manual control of PCV-1CH-  
145 and restores letdown flow to  
previous value.

US contacts I&C to investigate failure  
of PCV-CH-145.



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**EVENT #5**

Pzr Spray Valve fails open slowly  
(Recoverable)

At Examiner's direction, insert:

**IMF PRS08D (0 0) 2500 600**

PT-RC-444 slowly fails high causing  
PCV-RC-455A Spray valve to slowly fail  
open. RCS pressure slowly drops.

Alarms received:

- [A4-11], PRESSURIZER CONTROL  
PRESSURE HIGH/LOW
- [A4-12], PRESSURIZER CONTROL  
LOW PRESS DEVIATION  
HIGH/LOW

RO notes alarms and indications,  
informs US.

US refers to ARP's.

US directs RO to close PRZR spray  
valve.

RO places Spray Valve 455A in  
Manual and closes valve

US refers to TS 3.2.1 for DNBR

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**EVENT #6,7,8,9**

**IMF FWM01A**

Feed Pump Trip – Reactor Trip.  
Auto reactor trip fails (Manual  
available); TDAFW Pump  
Overspeed. Train A MDAFW  
Pump Trip 30 seconds after start

Main Feed Pump trips

Crew acknowledges alarms

Crew diagnoses Trip of Main Feed  
Pump

Other failures pre-loaded

[A7-53], Steam Generator 1B Level  
Deviation from Setpoint

US directs reactor trip when automatic  
reactor trip fails

[A7-45], Steam Generator 1A Level  
Deviation from Setpoint

[A7-61], Steam Generator 1C Level  
Deviation from Setpoint

**CRITICAL TASK:**

**RO manually trips reactor**

**Manually Trip Reactor**

**NOTE: May go undetected due to  
IMA to trip the reactor IAW AOP  
1.24.1**

**Crew enters E-0, performs  
immediate operator actions.**

Crew performs IMAs of E-0.

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Reactor trip and bypass breakers OPEN Power range indication LESS THAN 5% Neutron flux DROPPING		RO verifies reactor tripped.
	Throttle Valves ALL CLOSED OR Governor Valves ALL CLOSED Main Generator Output Bkrs OPEN Exciter Circuit Bkr OPEN		PO verifies turbine tripped.
	AC Emergency Busses AT LEAST ONE ENERGIZED		PO verifies power to AC Emergency Buses.
	Check SI ACTUATED		RO checks SI status
<b>Crew transitions to ES-0.1</b>	SI NOT ACTUATED, NOT REQUIRED		Crew transitions to ES-0.1

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<b>CRITICAL TASK</b>	Check AFW Pumps – ANY RUNNING		PO verifies AFW status.
<b>Manually Start AFW Pump</b>	FW-P-3B OOS and P2 tripped. FW-P-3A manually started		<b>Manually starts FW-P-3A in ES-0.1</b>
	Alert Plant Personnel		Crew sounds Standby Alarm to alert plant personnel
	Check RCS Temperature – STABLE AT OR TRENDING TO 547F		RO checks RCS temperature trend
	If any RCP running, monitor Tavg		
	If no RCP running, monitor Tcold		
	FW-P-3A trips 30 seconds after start		PO notes/reports trip of FW-P-3A and that AFW flow is ZERO
<b>Crew transitions to FR-H.1</b>			US directs entry to FR-H.1
	RCS Pressure is > SG pressure		Crew checks if Secondary Heat Sink is required
	RCS Hot Leg Temperature > 350F		
	WR level in at least 2 SGs is above 14%		Crew checks if RCS Bleed and Feed should be initiated
	PZR pressure is <2325 psig		
	PPDWST >27.5 feet		PO checks PPDWST level >27.5 feet

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<b>CRITICAL TASK:</b>  <b>Establish MFW Flow to at least 1 SG</b>	[TV-BD-100A,B,C ] CLOSED		PO try to establish AFW flow to at least one SG
	[TV-SS-117A,B,C] CLOSED		
	<b>No Motor Driven AFW pumps available</b>		
	<b>FW-P-2 Tripped/mechanical damage</b>		
	AFW throttle valves – open		
	Local suction pressure > 8 PSIG		
	AFW Flow <b>LESS THAN</b> 370 GPM		US directs performance of Attachment 2-K to establishing alternate AFW flow using the Dedicated AFW pump
			US/Crew continues with FR-H.1
	RCPs – Stopped		RO stop RCPs
	Condensate system – <b>AVAILABLE, IN SERVICE</b>		PO try to establish MFW flow to at least 1 SG
	[HYV-1FW-100A,B,C] – <b>OPEN</b>		
	FW-P-1B - RUNNING		PO starts FW-P-1B
	SG Feed flow established		PO feeds SGs with BPFRVs
			US/Crew returns to Procedure/step in effect, returns to ES-0.1

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**Scenario may be terminated  
when MFW flow is established**

**Classify Event at the end of the  
scenario**

SAE Tab 2.2 – CSF RED PATH on  
HEAT SINK

Facility:	BVPS-1	Scenario No.:	3	Op Test No.:	NRC
Examiners:	_____	Candidates:	_____		CRS
	_____		_____		RO
	_____		_____		PO
<u>Initial Conditions</u>	MOL, 67% Power, EQU Xe, CB "D" = 185, RCS Boron = 1037 PPM (IC 213) LHSI Pump B OOS. (PMP suction vlv MOV-SI-862B maintenance) MDAFW B OOS (Pump Brng replacement) PZR Spray Valve B in manual due to controller problems				
<u>Turnover:</u>	Raise power to 100% at 10% per hour IAW 1OM-52.4.B Load Follow				
<u>Critical Tasks:</u>	Manually Isolate Stuck Open PORV Isolate the faulted SG				

Event No.	Malf. No.	Event Type*	Event Description
1		(R) RO (N) PO, US	Raise Power
2		(I) RO, US (TS) US	PZR level transmitter fails low
3		(C) ALL (TS) US	Load Rejection approximately 20%
4		(TS) US	C/R Ventilation inoperability, air line downstream of SOV
5		(C) PO, US	SG B Feed Flow Transmitter fails LOW
6		(M) ALL	Turbine Trip. 1 PZR PORV opens and sticks open. (Can be isolated) Reactor Trip required.
7		(C) RO	One Reactor Trip Breaker fails closed. (For later SI reset problem)
8		(C) PO	ADV on each SG sticks open on trip.  When one ADV is closed, crew will go to E-2 and isolate SG

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

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## Scenario Event Description

### NRC Scenario 3

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The crew will assume the shift with directions to raise power from 67% to 100% IAW 1OM-52.4.B Load Follow at 10%/Hr

When the power increase has been started, a PZR level transmitter will fail low. The crew will be required to control charging and letdown manually and switch to an operable PZR level channel. The US will refer to technical specifications.

When PZR level control is selected to operable channel and TS have been addressed, a load rejection of approximately 20% will occur. The crew will stabilize the plant using control rods and steam dump, and the US will refer to technical specifications.

When the plant is stable, a report of Control Room Ventilation inoperability will require the US to determine TS actions

When TS have been addressed, a feed flow transmitter will fail on SG B. The crew will take manual control of the FRV on SG B to stabilize the plant.

A turbine trip will occur. A PZR PORV will open and stick open. It may be isolated by the block valve, but reactor trip will be required.

One reactor trip breaker will fail closed, requiring additional action for SI termination later in the event.

One ADV on each SG will stick open on the trip. When one ADV is closed in accordance with ECA-2.1, the crew may transition to E-2.

The scenario may be terminated when the crew completes E-2 and transitions to ES-1.1

EOP Flow Path: E-0, E-2, ECA-2.1, E-2, ES-1.1



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**INITIAL CONDITIONS:**

- 67% Power, MOL, EQU Xe, 1037 ppm boron, CB D = 185 steps
- LHSI B OOS
- MDAFW B OOS, Place placard stating FW-P-2 aligned to "B" Header
- PZR Spray Valve B Controller in manual

<b><u>ADDITIONAL LINEUP CHANGES</u></b>	<b><u>STICKERS</u></b>	<b><u>VOND MARKINGS</u></b>
MOV-SI-862B shut /de-energized	YCT	Fig 11-1, G3 MOV-SI-862B SHUT
SI-P-1B PTL	YCT	
FW-P-3B PTL	YCT	Fig 24-2, F5 WT-227 SHUT
PCV-RC-455B controller MANUAL/0%	YCT	Fig 24-2, E5 FW-41 SHUT
TV-DG-108B CLOSED	YCT	Fig 24-2, D7 FW-39 OPEN, FW-36 SHUT
<b><u>EQUIPMENT STATUS</u></b>	<b><u>DATE/TIME OOS</u></b>	<b><u>TECHNICAL SPECIFICATION(S)</u></b>
SI-P-1B/MOV-SI-862B	Yesterday 0100	3.5.2
FW-P-3B FW-P-2 aligned to "B" Header	Today 0600	3.7.5
PCV-RC-455B	Today 0700	N/A

**SHIFT TURNOVER INFORMATION**

1. Protected Train is Train "A"
2. Raise Power to 100% at 10%/Hr IAW 10M-52.4.B
3. SI-P-1B OOS due to maintenance on MOV-SI-862B (pmp suction vlv). Pump WILL NOT be returned this shift

4. FW-P-3B OOS due to pump bearing replacement. FW-P-2 has been aligned to the "B" header. FW-P-3B isolated and WILL NOT be returned this shift
5. PCV-RC-455B in MANUAL and SHUT due to erratic operation in AUTO. PCV-RC-455A is controlling pressure in auto without problems. PCV-RC-455B can be used IN MANUAL ONLY, if required. I&C has been informed

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for MOL

Reactivity plan for power increase to 100% at 10%/Hr

1OM-52.4.B Load Follow Procedure

Placard for FW-P-2 position stating FW-P-2 is aligned to "B" header

Place plaque on wall for Protected Train "A"

Ensure ESF Status Lights LIT for TRAIN "B" LHSI Pmp, HHSI Pmp and FW-P-3B

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**EVENT #1**

Raise power to 100%			US assumes control and directs Operators to increase reactor power to 100% IAW 10M-52.4.B Part B
	Turbine load and reactor power increasing at 10/hr.		Crew reviews/agrees with reactivity plan. US approves for use. Crew begins power increase.
	[AM-MS-464B] set at 1005 psig		PO verifies steam dump controller setpoint
	VPL Light – OFF		
	The 1ST STG OUT light – OFF		PO transfers turbine control to 1 <sup>st</sup> IN mode
	The 1ST STG IN light - ON		
	Power has remained above 50% since the last startup at the end of the refueling outage		US/Crew review procedure steps for initial power increase > 50% and determine steps shall be monitored as applicable for axial flux, QPTR
			Crew initiates load increase
	SETTER - set to desired load		PO sets the SETTER to desired load
	Load rate setting verified		PO sets the load rate thumbwheel to 1%/min

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	VPL adjusted during power increase as required		PO maintains VPL set approximately 5% above turbine load during power increase
	Turbine load increasing		PO depresses GO pushbutton, informs crew that turbine load is increasing
	Parameters maintained W/I limits:		Crew monitors plant parameters and maintains W/I limits
	Axial Flux		
	RIL		
	Generator PF		
	Exciter base at NULL (zero)		
	Tavg equal to Tref ( $\pm 2F$ )		
Proceed with next event after 2% power increase OR at Lead Examiners (LE) discretion			Crew notifies chemistry to sample RCS as required for power changes > 15% in one hour

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**EVENT #2**

When directed by Lead Evaluator:

Controlling Pressurizer Level  
Instrument Fails low

**IMF PRS06A (0 0) 0**

LT459 fails low.

RO recognizes problem with PRZR  
level channel, informs US.

The following alarms actuate:  
[A3-58] CHARGING PUMP DISCH  
FLOW HIGH-LOW  
[A3-78] REACT COOL PP SEAL  
INJECTION FLOW LOW  
[A4-3] PRESSURIZER CONTROL  
LOW LEVEL  
[A4-4] PRESSURIZER CONTROL  
LOW LEVEL DEVIATION  
[A4-35] PRESSURIZER CONTROL  
HEATER GROUP AUTO TRIP

PRZR heaters off.

Crew refers to ARPs as necessary,  
then 1OM-6.4.IF Attachment 1.

Letdown isolates

RO informs US that LT459 failed low.

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NOTE: It is not required to trip the B/S, may proceed to next event at LE discretion			US directs Operator to defeat LT459 control function with PRZR level selector switch.
			RO places [HSS-1LM-459], PRZR Level Channel Sel Switch, in POS 3 461 460
When directed to Trip Bistable:			RO places PRZR level channel recorder to controlling channel
IOR XS03A23 1	Protection Rack 1 Door 3 Open		RO informs US that Channels 460 and 461 are selected.
IMF BST-RCS035 (0 0) 0	BS-459A-1 tripped		
DOR XS03A23	Protection Rack 1 Door 3 Closed		Crew ensures adequate VCT makeup, proper PRZR heater operation, and proper charging flow control.
			Crew establishes letdown per 10M-7.4.AF, Restoring Charging and Letdown
	Table 3.3.1-1, Function 9		US refers to Tech. Spec. 3.3.1, 3.3.4 and 3.3.3 (PAMS)
			RO informs the US that letdown has been reestablished.
			Per Tech. Spec. requirements, Crew directs I&C to trip appropriate bistable within one hour.

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**EVENT #3**

Valve Position Limiter failure  
(Load Reject – VPL fails to 25%)

**IMF TUR15 (0 0) 25**

NOTE: Control Rods may be in manual at the start of the event due to the controlled power increase

Power decreasing.

Crew acknowledges alarms, notifies US and investigates.

Tavg increasing.

Crew informs US of the loss of electrical load.

Steam Dumps opening

US refers to AOP 1.35.2

Pressure increasing.

MW decreasing.

Control Rods inserting. Tavg dropping to Tref

RO places control rods in AUTO

Crew sounds standby alarm and announces Unit 1 load rejection.

Expected alarms:

[A4-46], Tavg Deviation from Tref

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	[A4-124], Rod Control Bank D Low Low (Possible)		May initiate Emergency Boration
	[A4-12], Pressurizer Control Low Pressure Deviation		
	[A4-52], Delta Flux Out of Target Band		
	EHC system normal except for valve position limiter.		PO verifies Normal EHC Operation.
	<b>Valve position limiter failure;</b> vibration and load satisfactory for condition.		Crew checks if governor valves have closed in sequence, checks turbine vibration recorders.  Crew refers to OM-26.4.AK to recover GVs from VPL  Crew monitors for subsequent load reductions > 90 Mwe.
	Generator load > 270 MW and vacuum is greater than 27 inches HG.		Crew checks if turbine should be tripped, verifies load is greater than 270 MW and if vacuum is adequate.
	Generator output breakers closed. Generator volts, amps, and power factor satisfactory.		PO verifies if the main generator is on line.



INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Tavg being reduced to Tref value.		RO checks Tavg-Tref within 2°F.
	Steam Dump valves closed		PO resets Steam Dump Controller <ul style="list-style-type: none"> <li>Verifies steam dump valves closed</li> <li>Places steam dump control mode to reset</li> <li>Allows switch to spring return to Tave position</li> <li>Verifies load rejection bistables NOT lit</li> </ul>
	Bistables are extinguished		US notifies Wadsworth (FE) system control center and Duquesne light system control center
Crew may perform actions to recover GV control from the valve position limiter; 10M-26.4.AK is the appropriate procedure.			US directs I&C to investigate problem with governor valve.
	TV-1CN-100 closed		US checks for load reduction of > 15% and informs Chemistry, if necessary.
	Supervisory limits-normal.		Crew checks TV-1CN-100 closed. Monitor Turbine Supervisory Limits

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Continue with scenario when limiter problem is identified, Tavg-Tref is within 2°F, and TS actions have been identified OR at LE discretion			Crew should review Tech. Spec 3.2.3 to ensure compliance.
<b><u>EVENT #4</u></b> C/R Ventilation inoperability <b>IMF XN11018 (0 0) 1</b>	Annunciator: [A11-18], Control Room Temp Control Press Low		US declares control room ventilation inoperable
If requested to investigate, report that the intake damper air line downstream of SOV 112 is broken  Report as investigating operator that the leak can be isolated by shutting VS-194-1 and VS-581			US determines TS 3.7.10 Condition "A" applies 7 days to repair
Proceed to next event at LE discretion			
<b><u>EVENT 5</u></b> <b>IMF FWM014 (0 0) 60, selected feedwater flow transmitter fails low.</b>	Feed flow transmitter FT-FW-487 (B SG) fails low.		PO notes problem with SG level control, takes manual control of SG level.

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<p><b>NOTE: Level deviation dependent on time of establishing normal MFRV control to restore SG level.</b></p>	<p>Annunciators:</p> <ul style="list-style-type: none"> <li>• A7-56, Loop 2 Steam-Feedwater Flow Mismatch.</li> <li>• A7-50, Loop 2 Feedwater Flow greater than Steam Flow.</li> <li>• A7-53, SG 1B Level Deviation from setpoint.</li> </ul> <p>SG feed flow, NR level rises.</p> <p>FCV-FW-488 modulates closed in automatic.</p>		<p>Crew determines Feed Flow transmitter failed.</p>
	<p>SG level control in manual.</p> <p>FT-FW-487 failed low</p>		<p>Crew refers to ARPs and 1OM-24.4.IF ATT 2.</p> <p>US directs PO to restore SG level to normal value.</p> <p>US directs I&amp;C to investigate Feed Flow Transmitter failure.</p> <p>Crew implements 1OM-24.4.IF ATT 2.</p> <p>Crew identifies FT-FW-487 has failed low</p>

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	FCV-488 previously placed in MANUAL		PO maintains SG level via manual control of FCV-488
	Redundant feed flow channel selected		PO places FC-1FW-488 to the FM-486 position
	Redundant steam flow channel selected		PO places FC-1FW-488 to the FM-485 position
	FCV-FW-488 in auto		US directs PO to place FCV-FW-488 in auto when "B" SG level at program and stable
<b>NOTE: It is not required to trip B/S, may proceed to next event at LE discretion</b>  If desired to trip B/S:  IOR XS03C23 1  IMF BST-RCS056 (0 0) 0  IMF BST-RCS157 (0 0) 0  DOR XS03C23			US contacts I&C to trip B/S
	Protection channel 3 rack 18 door open		
	BS-488B tripped		
	BS-488C tripped		
	Protection channel 3 rack 18 door closed		

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**EVENT #6, 7, & 8**

**Turbine Trip**

Manual Reactor Trip required due to Condenser Steam Dumps failure to operate, One RTB Fails to open; One PZR PORV sticks open but may be isolated, 1 ADV on each SG fails open

**IMF TUR01 (0 0)**

Other failures preloaded

Throttle Valves – ALL CLOSED

Governor Valves – ALL CLOSED

Main Generator Output Breakers – OPEN

Exciter Circuit Breaker – OPEN

Condenser Steam Dumps failed to operate

Crew diagnoses Turbine Trip

US directs entry into AOP 1.26.1

PO verifies Turbine Tripped

PO Checks Condenser Steam Dump operation.

PO reports the Condenser Steam Dumps failed to operate.

US directs Manual Reactor Trip and transition to E-0

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Crew enters E-0, performs immediate operator actions.			Crew performs IMAs of E-0.
<b>When directed</b> to locally open the "B" reactor trip breaker:	Reactor trip and bypass breakers – OPEN		RO verifies reactor tripped.
<b>IMF CRF14B</b>	<b>"B" Trip breaker stuck CLOSED</b>		
And report "B" trip breaker is open	Power range indication - LESS THAN 5%		
	Neutron flux - DROPPING		
	Throttle Valves - ALL CLOSED OR Governor Valves - ALL CLOSED Main Generator Output Bkrs - OPEN Exciter Circuit Bkr - OPEN		PO verifies turbine tripped.
	AC Emergency Busses - AT LEAST ONE ENERGIZED		PO verifies power to AC Emergency Buses.
	Check SI - ACTUATED		RO checks SI status
Crew continues E-0	Manually actuate SI (both trains)		RO manually actuates SI both trains
	Alert Plant Personnel		RO/PO sound Standby Alarm, announce reactor trip and safety injection
	Check [1VS-F-4A(B)], Leak Coll Exhaust Fan - ONE RUNNING		PO checks Leak Collection Exhaust Fan status

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<p>When requested to align WR H<sub>2</sub> analyzers insert:</p> <p><b>IMF XN02097 (0 0) 1</b> <b>IMF XN02105 (0 0) 1</b></p> <p>and report actions to the control room</p>	<p>Start CNMT Hydrogen Analyzers</p> <p>Annun A2-97 energizes. Annun A2-105 energizes. H<sub>2</sub> analyzers in service.</p> <p>Charging Pumps – TWO RUNNING LHSI Pumps – TWO RUNNING BIT Flow – INDICATED</p> <p>FW-P-3A AFW Pump – RUNNING Turbine-driven AFW Pump – RUNNING [TV-MS-105A, B] – OPEN Annunciator A7-7, "STM UNAVAILABLE TURB DRIVEN FEED PP FW-P-2" – NOT LIT AFW Throttle Vlvs – FULL OPEN Total AFW Flow – GREATER THAN 370 GPM</p> <p>Perform Attachment 1-K in a timely manner</p>	<p>Crew directs operator to perform 10M-46.4.G to place WR H<sub>2</sub> analyzers in service</p> <p>RO verifies SI System status</p> <p>PO verifies AFW System status</p> <p>US directs performance of Attachment 1-K when time/manpower permit</p>	
<p>NOTE: Attachment 1-K detail starts on page 30 of this scenario</p>	<p>ATTACHMENT 1-K DISCREPANCIES</p> <p>FW-P-3B on clearance SI-P-1B on clearance</p>		

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<p>NOTE: If crew does not identify the stuck open SG Atmospheric relief valves in E-0, they will identify this in E-2</p>	<p>Tavg &lt; 547°F and dropping rapidly. RCPs OPERATING – MONITOR Tavg RCPs STOPPED – MONITOR Tcold</p>		<p>RO/PO check RCS Tavg stable at or trending to 547°F, report Cold Leg temperatures dropping.</p>
	<p>Check Recirc Spray Pumps – ANY RUNNING -- <b>NO</b> Check Recirc Spray Pumps – ALL RUNNING -- <b>NO</b> Check Recirc Spray Pumps – NOT CAVITATING</p>		<p>Crew identifies atmospheric relief valves on each SG stuck open</p> <p>RO checks Recirc Spray Pump status</p>
<p><b><u>Critical Task:</u></b></p> <p>Crew isolates PCV-RC-455C by closing MOV-RC-535</p>	<p>PORVs – CLOSED <b>PCV-RC-455C FAILED TO RESEAT, ISOLATED BY BLOCK VALVE</b> Spray Valves – CLOSED Safety relief valves – CLOSED Check PRT conditions – CONSISTENT WITH EXPECTED VALUES Power to at least one block valve – AVAILABLE Block valves – AT LEAST ONE OPEN</p>		<p>RO verifies PZR isolated</p> <p>RO manually closes MOV-RC-535 to isolate PCV-RC-455C</p>



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	D/P between RCS pressure and highest SG pressure – LESS THAN 200 PSID [350 PSID ADVERSE CNMT] AND HHSI Flow – INDICATED		RO checks if RCPs should be stopped
	Stop all RCPs (possible)		RO stops RCPs if required
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		PO checks if any SGs are faulted.  PO reports indications of one or more faulted SGs
Crew transitions to E-2 STEP 1			US directs transition to E-2  US directs STA to monitor status trees.
As U-2 operator, when requested, report proper CREVS actuation.	Check CREVS actuated: Control room air intake and exhaust dampers – CLOSED  Request U2 operator to verify CREVS actuation  Commence Control Room ventilation actions IAW ATT 4-E  Check All yellow SLI marks – LIT		PO verifies CREVS actuated, requests Unit 2 CREVS verification.      Crew verifies steam line isolation.

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Crew transitions to ECA-2.1.	Check all SG pressures – ANY STABLE OR RISING		PO checks for any non-faulted SG.  PO reports all SG pressures reducing in an uncontrolled manor US directs transition to ECA-2.1
	All SGs pressures DROPPING.		PO checks all SGs pressure boundaries
	"A" MDAFW is running		PO checks motor-driven AFW Pumps – AT LEAST ONE RUNNING.
	MOV-MS-105 – CLOSED		Close [MOV-1MS-105], AFW TURB Steam Isolation Valve  Check SG isolation
	Steamline Isolation has occurred – all indicating lights with YELLOW SLI mark – LIT.  Feedwater isolation has occurred – all indicating lights with GREEN FWI mark – LIT.  ADVs are open on each SG  PCV-MS-104 – CLOSED		<ul style="list-style-type: none"> <li>• Steam Line isolation</li> <li>• Feedwater isolation</li> <li>• PO reports all SG atmospheric relief valves open</li> <li>• Residual Heat Release Valve</li> </ul>

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	[TV-1BD-100A, B, C], SG Bldn CNMT Isol Vlv CLOSED.		<ul style="list-style-type: none"> <li>SG B/D Ctmt isolation valves</li> </ul> <p>Attempt to close ADVs or dispatch an operator to manually close valves or isolation valves, one loop at a time</p> <p>Crew monitors shutdown margin during RCS cooldown.</p> <ul style="list-style-type: none"> <li>US requests Chemistry obtain hourly RCS boron samples.</li> </ul> <p>When boron results are reported, US verifies RCS boron concentration is greater than the 200F boron concentration required by CB-27A, "Minimum Shutdown Boron Concentration Vs. Burnup, 1.77% <math>\Delta K/K</math>".</p>
	50 gpm feed flow to each SG.		PO controls feed flow to minimize RCS Cooldown.
	SG NR levels < 65%		PO controls feed flow to maintain < 65% level

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Checks RCS hot leg temperatures – STABLE OR DROPPING.		PO controls feed flow to maintain RCS hot leg temperatures stable
	PI-11A-106 indicates > 100 psig.		PO checks station Instrument Air Header Pressure on [PI-11A-106] – GREATER THAN 100 PSIG.
	D/P between RCS pressure and highest SG pressure – LESS THAN 200 PSID [350 PSID ADVERSE CNMT] AND HHSI Flow – INDICATED		RO checks if RCPs should be stopped.  RO does not stop RCPs
	Power to [MOV-1RC-535, 536, 537] PRZR PORV Isol MOVs – AVAILABLE		RO checks PRZR PORVs and Block Valves.
	PRZR pressure – LESS THAN 2325 PSIG.		
	[PCV-1RC-456, 455D] PRZR PORVs – CLOSED.		RO reports PCV-RC-455C failed to reseal, and is now isolated by MOV- RC-535 Block Valve
	PRZR PORVs ISOL MOVs - AT LEAST ONE OPEN		
	Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER.		PO checks if SG tubes are intact  PO reports SG tubes intact

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Check secondary radiation trend values on recorders is CONSISTENT WITH PRE-EVENT VALUES.		PO reports secondary radiation consistent with pre-event
	SI Train B will not reset. RTB B is closed		RO/PO reset SI, report status due to "B" trip breaker  RO/PO reset CIA/CIB
	LHSI Pumps – ANY RUNNING WITH SUCTION ALIGNED TO RWST  RCS pressure is GREATER THAN 275 PSIG [400 PSIG ADVERSE CNMT].  Check RCS pressure – STABLE OR RISING		RO checks if LHSI Pumps should be stopped.  RO stops LHSI Pumps AND place in AUTO.
	CIB NOT actuated. Spray not running		RO/PO check if Containment Spray should be stopped
	RCS Hot Leg temps are >370F		RO/PO check if SI Accumulators should be isolated

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
<p><b>Isolate 1 SG at a time on performance of step 14</b></p> <p>NOTE Obtain concurrence from LE prior to isolating any SGs</p> <p>When directed, isolate one SG by use of the following</p> <p>IRF MSS07 (0 0) 0</p> <p>IRF MSS08 (0 0) 0</p> <p>IRF MSS09 (0 0) 0</p> <p>IRF FWM34 (0 0) 0</p> <p>IRF FWM35 (0 0) 0</p> <p>IRF FWM36 (0 0) 0</p> <p><b><u>Critical Task:</u></b></p> <p>Isolate at least one SG</p>	<p>RCS Subcooling based on CETCs &gt; 46F [54F ADVERSE CNMT]</p> <p>RCS Pressure stable or rising</p> <p>PZR - &gt;17% [38% ADVERSE CNMT]</p> <p>MS-23 CLOSED, PCV-MS-101A isolated</p> <p>MS-24 CLOSED, PCV-MS-101B isolated</p> <p>MS-25 CLOSED, PCV-MS-101C isolated</p> <p>MS-15 CLOSED, Stm Sup to FW-P-2</p> <p>MS-16 CLOSED, Stm Sup to FW-P-2</p> <p>MS-17 CLOSED, Stm Sup to FW-P-2</p> <p>SG press rising in 1 SG.</p>	<p>Check if SI flow should be reduced</p> <p><b>PO report ADV on at least one SG isolated and its associated pressure rising</b></p> <p>US determine that SI Termination sequence has begun, and will be completed through step 23 prior to transition to E-2</p>	

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Station Air > 100 psig		PO energize 4160 V and 480 V stub busses
	TV-11A-400 Open		Verify Ctmt Instrument Air available
	Ctmt Air > 85 psig		
	CH-P-1B Charging stopped and in auto		RO stop all but 1 Charging Pump
	RCS pressure rising		RO check RCS Pressure stable or rising
	[MOV-SI-867A,B,C,D] – SHUT		Isolate the BIT
	[FCV-CH-122] – CLOSED		Establish normal Charging flow
	[MOV-CH-310] – OPEN		
	[MOV-CH-289] - OPEN		
	[FCV-CH-122] adjusted as required		Control Charging flow to maintain PZR level
	LHSI Pumps – ANY RUNNING WITH ITS SUCTION ALIGNED TO RWST		Check if LHSI pumps should be stopped
	SI-P-1A stopped and in auto		RO stops SI-P-1A and places in auto
	SI Auto Recirc Changeover - RESET		Reset SI Auto Recirc Changeover
	RCS Subcooling > 46F [54F ADVERSE CNMT]		Verify SI flow not required

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
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PZR Level >17% [38% ADVERSE  
CNMT]

SI Termination steps complete, US  
directs return to E-2

US directs transition to E-2

US directs STA to monitor status trees.

PO verifies CREVS actuated, requests  
Unit 2 CREVS verification.

Crew transitions to E-2 STEP 1

**CRITICAL TASK was performed  
in ECA-2.1 – ISOLATE A  
FAULTED SG**

As U-2 operator, when requested,  
report proper CREVS actuation.

Check CREVS actuated:

Control room air intake and exhaust  
dampers – CLOSED

Request U2 operator to verify CREVS  
actuation

Commence Control Room ventilation  
actions IAW ATT 4-E

Check All yellow SLI marks – LIT

Crew verifies steam line isolation.



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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Check all SG pressures – ANY STABLE OR RISING		PO checks for any non-faulted SG
	Check all SGs pressure – ANY SG PRESSURE DROPPING IN AN UNCONTROLLED MANER		PO identifies "B & C" SGs as faulted.
	OR		
	ANY SG COMPLETELY DEPRESSURIZED		
	"B & C" SG pressure dropping uncontrollably.		
	Check FWI – PREVIOUSLY VERIFIED		Crew isolates faulted (B & C) SGs
	HYV-1FW-100B,C closed		PO verifies "B & C" SG CNMT isolation vlv closed
	FCV-FW-488, 498 closed.		PO verifies "B & C" MFRV closed.

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	FCV-FW-489, 499 closed.		PO verifies "B & C" BPFRV closed.
	MOV-FW-151A, B, C, D closed.		PO closes MOV-FW-151A, B, C, D.
IRF FWM35 (0 0) 0 IRF FWM36 (0 0) 0	MS-16 CLOSED MS-17 CLOSED.		Crew addresses the fact that TDAFW supply valve MS-16 is NSA open, it must be closed and MS-17 is NSA shut.
	PCV-MS-101A,B,C – OPEN. HCV-MS-104 closed.		RO/PO verify "B & C" S/G atmospheric dump valve and RHR valve closed.  PO reports PCV-MS-101A,B,C are open
	Check [1WT-TK-10] PPDWST level - > 27.5.FEET		Crew checks PPDWST level > 27.5 feet

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	Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER		Crew checks if SG tubes are intact.
	Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES		SG tubes are intact
	[RM-BD-101] High capacity SGBD sample		
	[RM-SV-100] Condenser air ejector vent		
	[RM-SS-100] SGBD sample		
	[RM-MS-100A,B,C] Steam relief monitors		
	[RM-MS-101] FW-P-2 monitor		
	SI flow previously reduced/terminated in ECA-2.1		Check if SI flow can be reduced
TERMINATE scenario when crew transitions to ES-1.1			US directs transition to ES-1.1
Classify Event after terminating scenario			UE based on TAB 2.10

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**Attachment 1-K**

**Verification of Automatic Actions**

Diesel Generators – BOTH RUNNING.

Check Station instrument Air Header  
Pressure – GREATER THAN 100  
PSIG.

Ensure Reheat Steam Isolation.

a. Verify [MOV-1MS-100A, B]  
CLOSED.

b. Reset reheater controller.

Verify CCR Pumps – TWO RUNNING.

Align Neutron Flux Monitoring For  
Shutdown.

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- a. Transfer [NR-1NI-45] Nuclear Recorder to operable source and intermediate range displays.

Verify River Water System in Service.

- a. RPRW Pumps – TWO RUNNING.

- b. Check CCR Heat EX RW pressure – GREATER THAN 20 PSIG.

Check If Main Steamline Isolation Required.

- a. Check the following:
  - CNMT pressure – GREATER THAN 7 PSIG

OR

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- Steamline pressure – LESS THAN 500 PSIG

OR

- Steamline pressure high rate of change – ANY ANNUNCIATOR LIT
  - Annunciator A7-41
  - Annunciator A7-49
  - Annunciator A7-57

b. Verify steamline isolation

- YELLOW SLI marks – LIT

Check CIB and CNMT S[ray Status

- Containment pressure – HAS REMAINED LESS THAN 11 PSIG

Verify ESF Equipment Status

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INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
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EXCEPTIONS:

SI-P-1B – on clearance

FW-P-3B – on clearance

a. Verify SI status by checking all  
RED SIS marks – LIT

b. Verify CIA by checking all  
ORANGE CIA marks – LIT

c. Verify FWI by checking all GREEN  
FWI marks – LIT

Verify Power to Both AC Emergency  
Busses

Upon Completion, Report Any  
Discrepancies to SM/US