

Facility: Brunswick Scenario No.: NRC-1

Op-Test No.: 1

Examiners: _____

_____Operators: _____

Objectives: Place RHR in Suppression Pool Cooling, RHR Pump Trip, APRM Flow Unit Failure, Incoming Line Trip, CRD Pump Trip, Loss Of Off-Site Power with DG3 Failure, Small Break LOCA Requiring Emergency Depressurization.

Initial Conditions: The plant is operating at 100% power, End Of Cycle. EHC Pump 2B is under clearance and APRM Channel D is failed downscale and bypassed.

Turnover: (Attached)

Event No.	Malf. No.	Event Type*	Event Description
			Shift Turnover
1		N (+)	RHR Pump Trip (Direct RHR Loop A be placed in suppression pool cooling per OP-17)
2		I (+)	APRM Flow Unit Failure
3		C/R (+)	Transmission Line trip
4		C (+)	CRD Pump Trip
5a		C (+)	Loss of Off Site Power
5b		C (+)	DG3 will fail to auto start and must be manually started.
6		M (+)	Scram
7			LOOP Actions
8			Small Break LOCA
9			Emergency Depressurization
10			RPV Level Restoration

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

+ RO/BOP to be put in during Prep week

SCENARIO DESCRIPTION

The plant is operating at 100% power, End Of Cycle. EHC Pump 2B is under clearance and APRM Channel D is failed downscale and bypassed.

The crew will place RHR Loop A in suppression pool cooling in preparation of a HPCI Operability PT. Whichever Pump is started (A or C) will trip after flow is established. The RHR Pump should be declared Inoperable, the HPCI PT deferred and the RHR Loop returned to standby alignment.

APRM Flow Unit C will fail resulting in a ½ scram and rod block. The flow unit must be bypassed in the back panel and on P603 to reset the scram and rod block. One required channel of APRMs in Trip System A must be declared Inoperable.

An incoming Off-Site power line will trip. The load dispatcher will request Generator load be reduced to £ 680 MWe.

The suction filter will plug on the CRD system causing the CRD Pump to trip on low suction pressure. The crew will respond per AOP-02.0, request the standby suction filter placed in service and restart CRD.

Off-Site Power will be lost resulting in a Reactor scram and MSIV closure. DG4 will start and briefly tie to E4, then trip on differential overcurrent. DG3 will fail to auto start and must be manually started. If requested, the tie breakers for E7-E8 will be racked in for E Bus cross-tie.

SRVs are available for pressure control (but have no acoustic monitoring) and RCIC, CRD (after restarting) and SLC using demin water are available for level control. RCIC will fail to auto start on LL2. HPCI Flow Control Power will be lost and HPCI will be unavailable.

A small line break will develop on a Recirculation loop. The line break results in rising drywell pressure and temperature. RHR should be operated in containment cooling.

The line break will get larger and RPV level will drop. At LL3, Core Spray Pump A will fail to start automatically or manually. The ADS timer will initiate, but with only one RHR Pump in each loop, the ECCS permissive will not be met and ADS will not initiate. The crew must perform manual depressurization when adequate core cooling cannot be assured.

When the Reactor has been depressurized and RPV level restored to normal band, RHR should be placed back in containment cooling. The scenario may then be terminated.

SHIFT BRIEFING

Plant Status:

The plant is operating at 100% power near the end of the current operating cycle.

Equipment Out of Service:

APRM Channel Delta is failed downscale and bypassed. I&C is currently investigating the cause of the failure.

EHC Pump B is under clearance for motor replacement and is expected to remain out of service for three days.

No other equipment is out of service

Plan of the Day:

Maintain 100% power.

HPCI Operability PT-9.2 is scheduled to be performed this shift.

RHR SW Loop 2A has been placed in service by the offgoing shift in preparation for RHR Suppression Pool Cooling.

Place RHR Loop 2A in suppression pool cooling when shift turnover is complete.

CREW CRITICAL TASKS

Critical Task		SAT/ UNSAT
No.	Description	
1	Manually Start Diesel Generator #3	
2	Emergency Depressurize the RPV when RPV water level cannot be maintained above LL4	
3		

Facility: Brunswick Scenario No.: NRC-2

Op-Test No.: 1

Examiners: _____

_____Operators: _____

Objectives: the 'A' recirculation pump #1 seal will fail. The crew will respond per the APPs and OP-02. A main steam line radiation monitor will fail downscale. The crew will transfer BOP Buses from the UAT to the SAT per OP-50. Main Steam Line "D" will develop a steam leak in the steam tunnel, causing a group 1 isolation signal. The MSIVs will fail to automatically isolate. The SRV has a cracked tailpipe and will discharge steam into the Torus air space creating a high primary containment pressure condition. While restoring RPV water level, hotwell levels will become low out of the indicating range, resulting in Condensate Pump cavitation. Emergency depressurize and initiate containment spray.

Initial Conditions: The plant is operating steady state at 70% power per the Load Dispatchers request with 2C CSW pump and 2A SLC pump under clearance. When the crew has the watch, the load dispatcher will call and request power be raised to near 100%.

Turnover: (Attached)

Event No.	Malf. No.	Event Type*	Event Description
			Shift Turnover
1		R (+)	Power Increase
2		C (+)	2A Recirculation Pump Seal #1 Failure with Turbine Building High Radiation
3		N (+)	Transfer BOP Buses 2C and 2D to the SAT per OP-50
4		I(+)	"B" Main Steam Line Rad Monitor Failure
5		C (+)	Main steam Line Leak in the Steam Tunnel (Ramp)
6a		M (+)	Failure of MSIVs to Auto Isolate
6b			Reactor Scram
7			SRV Sticks Open, SRV Tail Pipe Broken
8			Rising Drywell Pressure
9			Suppression Pressure Limit Exceeded

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

+ RO/BOP to be put in during Prep week

SCENARIO DESCRIPTION

The plant is operating steady state at 70% power per the Load Dispatchers request with 2C CSW pump and 2A SLC pump under clearance.

When the crew has the watch, the load dispatcher will call and request power be raised to near 100%.

When the crew has raised power about 10%, the 'A' recirculation pump #1 seal will fail. The crew will respond per the APPs and OP-02.

A main steam line radiation monitor will fail downscale. The crew should respond per Technical Specifications and APPs. Tech Specs will require the channel to be placed in the tripped condition.

The crew will transfer BOP Buses from the UAT to the SAT per OP-50 due to the ground alarm.

Main Steam Line "D" will develop a steam leak in the steam tunnel, causing a group 1 isolation signal. The MSIVs will fail to automatically isolate. The crew should manually close the MSIVs.

If an attempt is made to operate HPCI, the auxiliary oil pump breaker will trip. When SRV "B" is opened for pressure control, it will fail open.

The SRV has a cracked tailpipe and will discharge steam into the Torus air space creating a high primary containment pressure condition, which will require the suppression pool and Drywell to be sprayed. The sprays will be unable to control pressure and the reactor will be depressurized due to exceeding the Pressure Suppression Pressure Limit.

While restoring RPV water level, hotwell levels will become low out of the indicating range, resulting in Condensate Pump cavitation. The crew should secure the Condensate System and transfer level control to ECCS systems.

When the reactor has been emergency depressurized, RPV water level has been restored $> +170"$ and containment sprays have been initiated, the scenario may be terminated.

SHIFT BRIEFING

Plant Status:

Unit 2 has been operating for 166 days.

Current power level was reduced to approximately 75% last shift per Load Dispatchers request.

A refueling outage for this unit is scheduled for next week.

Unit 1 is in a forced outage due to high coolant activity resulting from leaking fuel. It is in the process of flooding up the reactor cavity.

Equipment Out of Service:

2C CSW pump is tagged out for motor bearing replacement and is expected to be returned to service in 3 days.

2A SLC pump is under clearance due to leaking seals. It is expected back in service within 1 day.

No other equipment is out of service.

Plan of the Day:

The Daily Instructions are to maintain current power level until contacted by the load dispatcher.

Due to the valid ground alarm, transfer BOP Buses to the SAT per guidance of the APP and OP-50. Inform I&C of ground alarm status after the transfer.

CREW CRITICAL TASKS

Critical Task		SAT/ UNSAT
No.	Description	
1	Manually close the MSIVs.	
2	Emergency depressurize the reactor when suppression chamber pressure cannot be maintained below Pressure Suppression Pressure Limit.	
3		