(16) FILE

Facility: Pilgrim Scenario No.: 1-1 Op-Test No.: 1

Examiners: Operators:

Initial Conditions: 60% power, Shutdown Transformer (SDT) is OOS, 'A' SBLC pump OOS

Turnover: The Plant was brought down to 60% power last shift following a rod pattern exchange, which is now, complete. Instructions for the shift are to raise power back to 100% power. We are on step [7](7.2[8]) in section 7.3 of PNPS 2.1.14 The Turbine Building operator reports that the 3rd RFP is ready to be started per 2.2.96 and is complete through step 7.3.1[7] IAW 7.3.2 step 7 of 7.3.1. Reactor Engineering reports we are in a limiting control rod pattern (MCPR = 1.70). The RBM has been verified operable. The SDT is OOS for testing (day 1 of a 7 day LCO). 'A' SBLC is OOS for relief valve replacement (day 2 of 7 day LCO).

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Raise power using Recirc from 60% to 65%. (Direction given in shift turnover)
2	N/A	N	Place the third Reactor Feed Pump in service. (Direction given in shift turnover)
3	F1L8	I	'B' FWLC level instrument fails high. (TS Implications). (Inserted upon direction of Chief Examiner)
4	I/O	I	HPCI inadvertent start causing fuel damage/HPCI steam leak. (Inserted upon direction of Chief Examiner)
5	N/A	M	Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization. (Inserted with HPCI inadvertent start malfunction)
6	COR4	C	HPCI fails to isolate. (Pre-inserted)
7	MS15	C	'D' SRV fails to open. (Inserted prior to entry into EOP-17)

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

Op-Test No.: 1 Scenario No.: 1 Event No.: 1 Page 1 of 1

Event Description: Raise power using Recirc from 60% to 65%

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power increase from 60 to 65%.
	RO	At Panel 904, use the Recirc. pump speed controllers to raise power to 65%.
	RO	Monitors power, pressure and level.

Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 1 of 1

Event Description: Place the third Reactor Feed Pump in service

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct start of RFP.
	BOP	Verify RFP suction greater than 250 psig.
	BOP	Open Recirc valve for the RFP being started.
	BOP	Verify RFP TRIP SEQUENCE ENABLE switch is in "OFF" (Panel C1).
	BOP	Start the RFP.
	RO	Verify Reactor water level is normal.
	BOP	Place RFP Recirc Valve in 'AUTO'.
	BOP	Verify the following at panel C1: ➢ RFP suction pressure is normal. ➢ RFP discharge pressures are normal. ➢ RFP motor amps are normal. ➢ Aux. oil pump for RFP started has stopped.
	BOP	Have the Turbine Building Operator verify RFP lube oil cooler TBCCW outlet valves are full open. **IF OPERATOR:** If called as the TBO to verify the position of the TBCCW valves to the RFP lube oil cooler, report that they are full open.
	BOP	Place 'RFP TRIP SEQUENCE SELECT' switch in position desired and place the 'RFP TRIP SEQUENCE ENABLE' switch to the 'ON' position.

Op-Test No.: 1 Scenario No.: 1 Event No.: 3 Page 1 of 1

Event Description: 'B' FWLC level instrument fails high

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the 'B' FWLC level instrument failure.
	RO	Recognize/announce annunciators RX FEED PUMP HI WTR LEVEL TRIP, REACTOR WTR LEVEL HI, RX FEED PUMP HI WTR LEVEL CHAN UPSCL are in alarm.
	RO/BOP	Refer to ARPs.
	RO	Check FWLC range level indication and Narrow Range level indication on C905.
	RO	Determine that channel 'B' of the FWLC range has failed upscale and is currently selected.
	RO	Select channel 'A' on the REACTOR LEVEL SELECTOR switch on C905. **NOTE: CRITICAL TASK**
	RO	Acknowledge and announce that REACTOR WTR LEVEL HI alarm has cleared.
	CRS	Direct I&C to investigate and correct cause of alarm.
	CRS	Refer to Tech. Specs. Table 3.2.F.
	CRS	Enter 30 day active LCO for failure of one FWLC level instrument.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4 Page 1 of 1

Event Description: HPCI inadvertent start causing fuel damage/HPCI steam leak

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the HPCI Inadvertent start, HPCI steam leak and the Fuel Failure malfunctions.
	ALL	Recognize that HPCI has started.
	CRS	Enters PNPS 2.4.35, "Inadvertent Initiation of Core Standby Cooling Systems".
	CRS/BOP	Inadvertent initiation is verified (Drywell < 2.2 psig/RPV level > -46 inches) on two independent instruments.
	BOP	Depress and hold the HPCI Turbine Trip pushbutton.
	BOP	After the turbine has come to a complete stop, places the Aux. Oil Pump (P-229) control switch to the PULL TO LOCK position.
	BOP	Releases the Turbine Trip push button.
	CRS/RO	Assess operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map, then perform action required IAW 2.1.14 Section 7.10.
	CRS	References 2.1.14 Section 7.10.
	RO	Monitor PBDS Recorders for any indications of power oscillations.
	CRS/BOP	Check process Radiation Monitors for indications of Fuel damage.
	CRS/RO	Verify that peak power and pressure did not exceed any limits.
	CRS	Investigate cause of inadvertent initiation by calling I&C.

Op-Test No.: 1 Scenario No.: 1 Event No.: 5 Page 1 of 2

Event Description: Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces 'MAIN STEAM LINE RAD HI alarm and refers to the ARP C904LC-B6.
	BOP	Checks Main Steam Line Radiation Monitors, 40-RR-1705 on panel C902 and 1705-2A-D on C910 (readings rising).
	CRS/BOP	Enters 2.4.40, "Rapid Increase in Main Steam Line or Offgas Activity".
	CRS	Reduces power as necessary per PNPS 2.1.14, Section 7.11 to lower radiation levels.
	CRS	Investigate cause of high rad levels IAW 2.4.148, Abnormal Water Chemistry.
	CRS	Refers to Tech Specs section 3.8.2.
	CRS/RO	Assess operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map, then perform action required IAW 2.1.14 Section 7.10.
	RO	Monitor PBDS Recorders for any indications of power oscillations.
	BOP	Recognizes/announces 'MAIN STEAM LINE RAD HI HI alarm and refers to the ARP C904LC-A6.
	CRS	Confirm high radiation levels exists: ➢ Check MSL Radiation Monitor recorder trend. ➢ Check SJAE Offgas (pretreatment monitor) radiation trend. ➢ Sample Rx coolant (Radiochem Lab) for evidence of fuel failure.
	BOP	Closes or verifies closed AO-220-44 and AO-220-45.
	CRS/RO	Reduces power IAW PNPS 2.1.14 Sections 7.10 and 7.11 to maintain SJAE release rate within Tech Spec Sections 3.8.1/4.8.1.b limits. Note: limit is 500,000 μ Ci/second. May commence an orderly shutdown and enter PNPS 2.1.5.
	CRS	With the power reduction in progress and radiation levels still rising, determines a scram is required and the MSIVs closed, due to indications of fuel damage. Note: The CRS may determine that a degraded core condition exist and exercise the EOP-04 Override and order Drywell Floor and Equipment Sump Pump Breakers opened. This can be done later as determined by the Emergency Response Organization.

Op-Test No.: 1 Scenario No.: 1 Event No.: 5 Page 2 of 2

Event Description: Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: If asked as Chemistry to sample Rx Coolant for evidence of fuel failure, wait 5 minutes after the MAIN STEAM LINE RAD HI HI alarm and then report there is evidence of gross fuel failure.
	CRS	Briefs the crew on the actions to be taken as due to indications of fuel damage as follows: ➢ Scram the reactor. ➢ RPV water level to be maintained +20 to +40 inches. ➢ RPV pressure maintained 900 to 1050 psig. ➢ The MSIVs closed to isolate the reactor.
	CRS	Orders reactor scram by taking the MODE switch to the "SHUTDOWN" position and the RO to take the actions of 2.1.6.
	RO	Places the mode switch in the "SHUTDOWN" position and follows the Immediate Operator Actions of PNPS 2.1.6: ➢ Verify and announce the status of APRM downscales. ➢ Verify and announce all control rods inserted. ➢ Insert IRM and SRM detectors, select two SRM for recording and place selector switch for APRM/IRM to IRM. ➢ Verify turbine trip. ➢ Verify Recirc. pumps at min. speed.
	CRS	Enters EOP-01.
	RO	Maintains RPV level +20 to +40 inches.
	BOP	Maintains RPV pressure 900 to 1050 psig.
	CRS	Orders the MSIVs closed.
	BOP	Closes the MSIVs.
	CRS	Verifies the following as applicable: ➢ Isolation ➢ ECCS initiations ➢ Emergency Diesel generator initiation
	CRS	When RPV pressure has stabilized, orders a cooldown < 100°F/hr.
	BOP	Commences a cooldown at < 100°F/hr.

Op-Test No.: 1 Scenario No.: 1 Event No.: 6 Page 1 of 2

Event Description: HPCI fails to Isolate

Time	Position	Applicant's Actions or Behavior
	BOP	Responds to Fire Panel alarm, recognizes and announces HPCI Quad area is in alarm.
	CRS	Sends an operator to investigate the alarm.
	BOP	Recognizes/announces 'Steam Leakage Area Temperature High" alarm and refers to the ARP C904L-A6. **IF OPERATOR:** When the Steam Leakage Alarm comes in call as the Reactor Building Operator and report that there is steam coming from the HPCI room.
	CRS	Directs BOP operator to monitor area temperatures on Steam Leak Detection Panel.
	BOP	Monitors temperatures on Steam Leakage Detection Panel. Reports to the CRS HPCI Area Hi Temperature Alarm.
	CRS	Enters and directs the activities of EOP-04. Calls RP to perform surveys per 5.3.33.
	CRS	Directs the RO/BOP operator to isolate HPCI.
	RO/BOP	Attempts to isolate HPCI. Reports to the CRS that HPCI cannot be isolated.
	CRS	Directs that maintenance and an operator to attempt to isolate HPCI locally.
	CRS	➢ Determines that a primary system is discharging into secondary containment. ➢ Directs that all available area coolers be started. ➢ Directs that the Quads be checked for leakage. Reminds the operator about the steam leak in the HPCI quad. **IF OPERATOR:** If asked to start available area coolers, after a few minutes report back that all available area coolers are started and that the quad levels have been checked with no sign of leakage with the exception of the HPCI quad which you cannot enter.
		IF OPERATOR: Prior to the first RP report, insert the Rx Building Hi Alarm malfunction.
	BOP	Recognizes/announces "Reactor Bldg. Rad Hi" alarm and refers to ARP C904LC-A7. Reports to the CRS that the area needs to be evacuated per the ARP. Checks Channels 8,10 on recorder 40-RR-1815-6 and the Indicator/Trip Units RIS-1815-2B, RIS-1815-2B. Reports the recorder and indictor for RIS-1815-2B (unit 8) is pegged high.

Op-Test No.: 1 Scenario No.: 1 Event No.: 6 Page 2 of 2

Event Description: HPCI fails to Isolate

Time	Position	Applicant's Actions or Behavior
	CRS/BOP	Ensures that the area is evacuated per the ARP.
		IF OPERATOR: After the ARM has been responded to call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are above max normal per PNPS6.3-064 (reading 900 milli Rem) and appear to be rising. The survey is still in progress.
	CRS	If not already done, directs the BOP operator to isolate the HPCI turbine and directs the RO to scram the reactor and reenters EOP-01 based on actions taken prior to exceeding Max safe radiation in one area per EOP-04.
		IF OPERATOR: When directed by the Chief Examiner call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are reading 1.5 Rem and appear to be rising . The radiation levels in the CRD HCU west area-23 ft El are 700 milli Rem and rising. The survey is still in progress.
	CRS	EOP-01 override would normally allow for Anticipate Alternate RPV Depressurization based on one area above Max Safe, but the MSIVs should be closed so this should not be possible.
		IF OPERATOR: When directed by the Chief Examiner call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are reading 2.0 Rem and appear to be rising. The radiation levels in the CRD HCU west area-23 ft El are 1.5 Rem and rising. The survey is still in progress.
	CRS	Enters EOP-17 based on two areas above max safe. ➢ Determines steam cooling is not required. ➢ Verifies torus water level > 50 inches. ➢ Directs the BOP operator to open all 4 SRVs.
	BOP	Takes the control switch for all 4 SRVs to the open position and takes actions to verify that all 4 SRVs have opened. ➢ Checks acoustic monitor on Panel C171. ➢ Checks the C921 Panel for rising tailpipe temperatures.

Op-Test No.: 1 Scenario No.: 1 Event No.: 7 Page 1 of 1

Event Description: 'D' SRV fails to open

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes and announces that the 'D' SRV has not opened.
	CRS/BOP	Enters and executes of PNPS 5.3.24, "Alternate Methods for Venting and Depressurizing the RPV under Emergency Conditions. **NOTE: CRITICAL TASK**
	BOP/RO	Calls the Reactor Building operator to open the 'D' SRV from the Alternate Shutdown panel. **NOTE TO IF OPERATOR:** If asked to open 'D' SRV from the ASP wait approx. 5 minutes and then execute the step for opening the 'D' from the ASP. The operator should continue to pursue alternate methods of depressurizing the RPV until all 4 SRVs are open. These include: ➢ HPCI steam line ➢ If HPCI is operating then raise HPCI flow to 4250 gpm. If necessary open full flow test valves. ➢ If HPCI is not operating and is not isolated or tripped then start HPCI in test mode IAW 2.2.21.5. If necessary bypass auto-closure of valves IAW 5.3.21. ➢ RCIC steam line ➢ If RCIC is operating then raise RCIC flow to 400 gpm. If necessary open full flow test valves. ➢ If RCIC is not operating and is not isolated or tripped then start RCIC in test mode IAW 2.2.22.5. If necessary bypass auto-closure of valves IAW 5.3.21. ➢ RPV Head Vent ➢ If Rx pressure is above 100 psig ask OSS for permission to use head vent. ➢ Terminate and prevent pumping from Drywell sumps. ➢ Open head vents to Drywell sumps. ➢ Have chemistry monitor Drywell atmosphere for increased particulate levels. Note: Steps, which dump steam to the main condenser, should not be pursued.
		Terminate the scenario when all 4 SRV are open and water level has been stabilized between +20 and +40. EAL is "Site Area Emergency" 6.2.2.3 or 4.3.1.3

FILE

Facility: Pilgrim Scenario No.: 1-2 Op-Test No.: 1

Examiners: Operators:

Initial Conditions: 60% power, Shutdown Transformer (SDT) is OOS, 'A' SBLC pump OOS

Turnover: The Plant was brought down to 60% power last shift following a rod pattern exchange, which is now, complete. Instructions for the shift are to raise power back to 100% power. We are on step [7](7.2[8]) in section 7.3 of PNPS 2.1.14 The Turbine Building operator reports that the 3rd RFP is ready to be started per 2.2.96 and is complete through step 7.3.1[7] IAW 7.3.2 step 7 of 7.3.1. Reactor Engineering reports we are in a limiting control rod pattern (MCPR = 1.70). The RBM has been verified operable. The SDT is OOS for testing (day 1 of a 7 day LCO). 'A' SBLC is OOS for relief valve replacement (day 2 of 7 day LCO).

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Raise power using Recirc from 60% to 65%. (Direction given in shift turnover)
2	N/A	N	Place the third Reactor Feed Pump in service. (Direction given in shift turnover)
3	F1L8	I	'B' FWLC level instrument fails high. (TS Implications). (Inserted upon direction of Chief Examiner)
4	I/O	I	HPCI inadvertent start causing fuel damage/HPCI steam leak. (Inserted upon direction of Chief Examiner)
5	N/A	M	Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization. (Inserted with HPCI inadvertent start malfunction)
6	COR4	C	HPCI fails to isolate. (Pre-inserted)
7	MS15	C	'D' SRV fails to open. (Inserted prior to entry into EOP-17)

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

Op-Test No.: 1 Scenario No.: 1 Event No.: 1 Page 1 of 1

Event Description: Raise power using Recirc from 60% to 65%

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power increase from 60 to 65%.
	RO	At Panel 904, use the Recirc. pump speed controllers to raise power to 65%.
	RO	Monitors power, pressure and level.

Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 1 of 1

Event Description: Place the third Reactor Feed Pump in service

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct start of RFP.
	BOP	Verify RFP suction greater than 250 psig.
	BOP	Open Recirc valve for the RFP being started.
	BOP	Verify RFP TRIP SEQUENCE ENABLE switch is in "OFF" (Panel C1).
	BOP	Start the RFP.
	RO	Verify Reactor water level is normal.
	BOP	Place RFP Recirc Valve in 'AUTO'.
	BOP	Verify the following at panel C1: ➢ RFP suction pressure is normal. ➢ RFP discharge pressures are normal. ➢ RFP motor amps are normal. ➢ Aux. oil pump for RFP started has stopped.
	BOP	Have the Turbine Building Operator verify RFP lube oil cooler TBCCW outlet valves are full open. **IF OPERATOR:** If called as the TBO to verify the position of the TBCCW valves to the RFP lube oil cooler, report that they are full open.
	BOP	Place 'RFP TRIP SEQUENCE SELECT' switch in position desired and place the 'RFP TRIP SEQUENCE ENABLE' switch to the 'ON' position.

Op-Test No.: 1 Scenario No.: 1 Event No.: 3 Page 1 of 1

Event Description: 'B' FWLC level instrument fails high

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the 'B' FWLC level instrument failure.
	RO	Recognize/announce annunciators RX FEED PUMP HI WTR LEVEL TRIP, REACTOR WTR LEVEL HI, RX FEED PUMP HI WTR LEVEL CHAN UPSCL are in alarm.
	RO/BOP	Refer to ARPs.
	RO	Check FWLC range level indication and Narrow Range level indication on C905.
	RO	Determine that channel 'B' of the FWLC range has failed upscale and is currently selected.
	RO	Select channel 'A' on the REACTOR LEVEL SELECTOR switch on C905. **NOTE: CRITICAL TASK**
	RO	Acknowledge and announce that REACTOR WTR LEVEL HI alarm has cleared.
	CRS	Direct I&C to investigate and correct cause of alarm.
	CRS	Refer to Tech. Specs. Table 3.2.F.
	CRS	Enter 30 day active LCO for failure of one FWLC level instrument.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4 Page 1 of 1

Event Description: HPCI inadvertent start causing fuel damage/HPCI steam leak

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the HPCI Inadvertent start, HPCI steam leak and the Fuel Failure malfunctions.
	ALL	Recognize that HPCI has started.
	CRS	Enters PNPS 2.4.35, "Inadvertent Initiation of Core Standby Cooling Systems".
	CRS/BOP	Inadvertent initiation is verified (Drywell < 2.2 psig/RPV level > -46 inches) on two independent instruments.
	BOP	Depress and hold the HPCI Turbine Trip pushbutton.
	BOP	After the turbine has come to a complete stop, places the Aux. Oil Pump (P-229) control switch to the PULL TO LOCK position.
	BOP	Releases the Turbine Trip push button.
	CRS/RO	Assess operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map, then perform action required IAW 2.1.14 Section 7.10.
	CRS	References 2.1.14 Section 7.10.
	RO	Monitor PBDS Recorders for any indications of power oscillations.
	CRS/BOP	Check process Radiation Monitors for indications of Fuel damage.
	CRS/RO	Verify that peak power and pressure did not exceed any limits.
	CRS	Investigate cause of inadvertent initiation by calling I&C.

Op-Test No.: 1 Scenario No.: 1 Event No.: 5 Page 1 of 2

Event Description: Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces 'MAIN STEAM LINE RAD HI alarm and refers to the ARP C904LC-B6.
	BOP	Checks Main Steam Line Radiation Monitors, 40-RR-1705 on panel C902 and 1705-2A-D on C910 (readings rising).
	CRS/BOP	Enters 2.4.40, "Rapid Increase in Main Steam Line or Offgas Activity".
	CRS	Reduces power as necessary per PNPS 2.1.14, Section 7.11 to lower radiation levels.
	CRS	Investigate cause of high rad levels IAW 2.4.148, Abnormal Water Chemistry.
	CRS	Refers to Tech Specs section 3.8.2.
	CRS/RO	Assess operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map, then perform action required IAW 2.1.14 Section 7.10.
	RO	Monitor PBDS Recorders for any indications of power oscillations.
	BOP	Recognizes/announces 'MAIN STEAM LINE RAD HI HI alarm and refers to the ARP C904LC-A6.
	CRS	Confirm high radiation levels exists: ➢ Check MSL Radiation Monitor recorder trend. ➢ Check SJAE Offgas (pretreatment monitor) radiation trend. ➢ Sample Rx coolant (Radiochem Lab) for evidence of fuel failure.
	BOP	Closes or verifies closed AO-220-44 and AO-220-45.
	CRS/RO	Reduces power IAW PNPS 2.1.14 Sections 7.10 and 7.11 to maintain SJAE release rate within Tech Spec Sections 3.8.1/4.8.1.b limits. Note: limit is 500,000 μ Ci/second. May commence an orderly shutdown and enter PNPS 2.1.5.
	CRS	With the power reduction in progress and radiation levels still rising, determines a scram is required and the MSIVs closed, due to indications of fuel damage. Note: The CRS may determine that a degraded core condition exist and exercise the EOP-04 Override and order Drywell Floor and Equipment Sump Pump Breakers opened. This can be done later as determined by the Emergency Response Organization.

Op-Test No.: 1 Scenario No.: 1 Event No.: 5 Page 2 of 2

Event Description: Abnormal radiation levels in Secondary Containment leading to Alternate RPV Depressurization

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: If asked as Chemistry to sample Rx Coolant for evidence of fuel failure, wait 5 minutes after the MAIN STEAM LINE RAD HI HI alarm and then report there is evidence of gross fuel failure.
	CRS	Briefs the crew on the actions to be taken as due to indications of fuel damage as follows: ➢ Scram the reactor. ➢ RPV water level to be maintained +20 to +40 inches. ➢ RPV pressure maintained 900 to 1050 psig. ➢ The MSIVs closed to isolate the reactor.
	CRS	Orders reactor scram by taking the MODE switch to the "SHUTDOWN" position and the RO to take the actions of 2.1.6.
	RO	Places the mode switch in the "SHUTDOWN" position and follows the Immediate Operator Actions of PNPS 2.1.6: ➢ Verify and announce the status of APRM downscales. ➢ Verify and announce all control rods inserted. ➢ Insert IRM and SRM detectors, select two SRM for recording and place selector switch for APRM/IRM to IRM. ➢ Verify turbine trip. ➢ Verify Recirc. pumps at min. speed.
	CRS	Enters EOP-01.
	RO	Maintains RPV level +20 to +40 inches.
	BOP	Maintains RPV pressure 900 to 1050 psig.
	CRS	Orders the MSIVs closed.
	BOP	Closes the MSIVs.
	CRS	Verifies the following as applicable: ➢ Isolation ➢ ECCS initiations ➢ Emergency Diesel generator initiation
	CRS	When RPV pressure has stabilized, orders a cooldown < 100°F/hr.
	BOP	Commences a cooldown at < 100°F/hr.

Op-Test No.: 1 Scenario No.: 1 Event No.: 6 Page 1 of 2

Event Description: HPCI fails to Isolate

Time	Position	Applicant's Actions or Behavior
	BOP	Responds to Fire Panel alarm, recognizes and announces HPCI Quad area is in alarm.
	CRS	Sends an operator to investigate the alarm.
	BOP	Recognizes/announces 'Steam Leakage Area Temperature High" alarm and refers to the ARP C904L-A6. **IF OPERATOR:** When the Steam Leakage Alarm comes in call as the Reactor Building Operator and report that there is steam coming from the HPCI room.
	CRS	Directs BOP operator to monitor area temperatures on Steam Leak Detection Panel.
	BOP	Monitors temperatures on Steam Leakage Detection Panel. Reports to the CRS HPCI Area Hi Temperature Alarm.
	CRS	Enters and directs the activities of EOP-04. Calls RP to perform surveys per 5.3.33.
	CRS	Directs the RO/BOP operator to isolate HPCI.
	RO/BOP	Attempts to isolate HPCI. Reports to the CRS that HPCI cannot be isolated.
	CRS	Directs that maintenance and an operator to attempt to isolate HPCI locally.
	CRS	➢ Determines that a primary system is discharging into secondary containment. ➢ Directs that all available area coolers be started. ➢ Directs that the Quads be checked for leakage. Reminds the operator about the steam leak in the HPCI quad. **IF OPERATOR:** If asked to start available area coolers, after a few minutes report back that all available area coolers are started and that the quad levels have been checked with no sign of leakage with the exception of the HPCI quad which you cannot enter.
		IF OPERATOR: Prior to the first RP report, insert the Rx Building Hi Alarm malfunction.
	BOP	Recognizes/announces "Reactor Bldg. Rad Hi" alarm and refers to ARP C904LC-A7. Reports to the CRS that the area needs to be evacuated per the ARP. Checks Channels 8,10 on recorder 40-RR-1815-6 and the Indicator/Trip Units RIS-1815-2B, RIS-1815-2B. Reports the recorder and indictor for RIS-1815-2B (unit 8) is pegged high.

Op-Test No.: 1 Scenario No.: 1 Event No.: 6 Page 2 of 2

Event Description: HPCI fails to Isolate

Time	Position	Applicant's Actions or Behavior
	CRS/BOP	Ensures that the area is evacuated per the ARP.
		IF OPERATOR: After the ARM has been responded to call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are above max normal per PNPS6.3-064 (reading 900 milli Rem) and appear to be rising. The survey is still in progress.
	CRS	If not already done, directs the BOP operator to isolate the HPCI turbine and directs the RO to scram the reactor and reenters EOP-01 based on actions taken prior to exceeding Max safe radiation in one area per EOP-04.
		IF OPERATOR: When directed by the Chief Examiner call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are reading 1.5 Rem and appear to be rising . The radiation levels in the CRD HCU west area-23 ft El are 700 milli Rem and rising. The survey is still in progress.
	CRS	EOP-01 override would normally allow for Anticipate Alternate RPV Depressurization based on one area above Max Safe, but the MSIVs should be closed so this should not be possible.
		IF OPERATOR: When directed by the Chief Examiner call the control room as RP and report radiation levels in NW Equipment Space/HPCI Pump Room EL. – 17.6 are reading 2.0 Rem and appear to be rising. The radiation levels in the CRD HCU west area-23 ft El are 1.5 Rem and rising. The survey is still in progress.
	CRS	Enters EOP-17 based on two areas above max safe. ➢ Determines steam cooling is not required. ➢ Verifies torus water level > 50 inches. ➢ Directs the BOP operator to open all 4 SRVs.
	BOP	Takes the control switch for all 4 SRVs to the open position and takes actions to verify that all 4 SRVs have opened. ➢ Checks acoustic monitor on Panel C171. ➢ Checks the C921 Panel for rising tailpipe temperatures.

Op-Test No.: 1 Scenario No.: 1 Event No.: 7 Page 1 of 1

Event Description: 'D' SRV fails to open

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes and announces that the 'D' SRV has not opened.
	CRS/BOP	Enters and executes of PNPS 5.3.24, "Alternate Methods for Venting and Depressurizing the RPV under Emergency Conditions. **NOTE: CRITICAL TASK**
	BOP/RO	Calls the Reactor Building operator to open the 'D' SRV from the Alternate Shutdown panel. **NOTE TO IF OPERATOR:** If asked to open 'D' SRV from the ASP wait approx. 5 minutes and then execute the step for opening the 'D' from the ASP. The operator should continue to pursue alternate methods of depressurizing the RPV until all 4 SRVs are open. These include: ➢ HPCI steam line ➢ If HPCI is operating then raise HPCI flow to 4250 gpm. If necessary open full flow test valves. ➢ If HPCI is not operating and is not isolated or tripped then start HPCI in test mode IAW 2.2.21.5. If necessary bypass auto-closure of valves IAW 5.3.21. ➢ RCIC steam line ➢ If RCIC is operating then raise RCIC flow to 400 gpm. If necessary open full flow test valves. ➢ If RCIC is not operating and is not isolated or tripped then start RCIC in test mode IAW 2.2.22.5. If necessary bypass auto-closure of valves IAW 5.3.21. ➢ RPV Head Vent ➢ If Rx pressure is above 100 psig ask OSS for permission to use head vent. ➢ Terminate and prevent pumping from Drywell sumps. ➢ Open head vents to Drywell sumps. ➢ Have chemistry monitor Drywell atmosphere for increased particulate levels. Note: Steps, which dump steam to the main condenser, should not be pursued.
		Terminate the scenario when all 4 SRV are open and water level has been stabilized between +20 and +40. EAL is "Site Area Emergency" 6.2.2.3 or 4.3.1.3

FILE

Facility: Pilgrim Scenario No.: 2 - 1 Op-Test No.: 1

Examiners: Operators:

Initial Conditions: 85% power, 'F' APRM is bypassed, 'B' SBLC system OOS

Turnover: The plant is operating at 85% power, 'F' APRM has failed downscale and is bypassed (Tracking LCO). 'B' SBLC system is OOS for squib valve replacement (Day 1 of a 7 day LCO). The orders for the shift are to continue reducing power so that a backwash may be performed on the main condenser. Currently on Step [4a] in Section 7.3 of 2.1.14, place 'B' FRV in 'MANUAL'. The feedwater correction factor has been blocked.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Reduce power using Recirc from 85% to 80%. (Direction given in shift turnover)
2	N/A	N	Place 'B' FWLC in 'MANUAL'. (Direction given in shift turnover)
3	I/O	I	'A' Recirc. pump # 1 speed limiter failure (TS implications). (Inserted upon direction of Chief Examiner)
4	CW10	C	Intake Structure Fouling ('A' Bay/'B' Seawater pump). (Inserted upon direction of Chief Examiner)
5	MC03	M	Loss of Vacuum (Condenser Fouling) – ATWS (Q leg). (Condenser Fouling inserted upon direction of Chief Examiner – ATWS pre-inserted)
6	LP01	C	'A' SBLC pump fails to start. (Pre-inserted)
7	COR6	I	RWCU fails to isolate. (Pre-inserted)

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

Op-Test No.: 1 Scenario No.: 2 Event No.: 1 Page 1 of 1

Event Description: Reduce power using Recirc from 85% to 80%

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power decrease from 85 to 80%
	RO	At Panel 904, use the Recirc. pump speed controllers to lower power to 80%.
	RO	Monitor power, pressure and level.

Op-Test No.: 1 Scenario No.: 2 Event No.: 2 Page 1 of 1

Event Description: Place 'B' FWLC in 'MANUAL'

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/direct placing 'B' FRV in MANUAL.
	BOP	Turn the selector switch on the 'B' Flow Control Valve Controller to the BALANCE position.
	BOP	Slowly remove the bias signal or verify the bias signal is at zero.
	BOP	Null the deviation meter for the 'B' Flow Control Valve Controller using the MANUAL control knob.
	BOP	Switch the selector switch to the MANUAL position.

Op-Test No.: 1 Scenario No.: 2 Event No.: 3 Page 1 of 1

Event Description: 'A' Recirc pump # 1 speed limiter failure (TS implications)

Time	Position	Applicant's Actions or Behavior
	RO	Recognize/announce annunciators "MG A SPEED LIMITER ON" and "MG A SPEED DEVIATION HI" at Panel C904RC and refers to the ARPs.
	CRS/RO	Enter PNPS 2.4.20, Reactor Recirculation System Speed or Flow Control System Malfunction.
	RO	Initiates a scoop tube lockup by depressing the Manual Scoop Tube Positioner Lockup push button and refers to PNPS 2.4.19, "Recirculation Pump MG Set Scoop Tube Lockup".
	CRS/RO	Assess the operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map and performs the required actions IAW 2.1.14 Sections 7.10 and 7.11. **IF OPERATOR:** If asked as the CR Annex/3rd SRO if PBDS is operable, report that PBDS is operable.
	RO	Monitor PBDS recorders for any indications power oscillations.
	CRS	Refers to Tech Specs. Section 3.6.F.1. Recognize/announce that the percent mismatch is outside the Tech Spec limit. That if the mismatch is not corrected within 30 minutes, an orderly shutdown must be initiated and the reactor in "Cold Shutdown" within 24 hours unless the speed mismatch is brought within limits.
	CRS	Attempts to bring the mismatch to within limits by either raising the 'A' Recirc. pump speed locally at the scoop tube positioner or lowering the speed of the 'B' Recirc. pump using the speed controller at C904. The correct action is dependent on the plant's position on the Power/Flow map.
	RO	Either coordinates with the licensed operator in the field to bring the mismatch to within limits using the 'A' Recirc. pump scoop tube positioner or by lowering the speed of the 'B' Recirc. pump using the speed controller at C904.
	CRS	Call maintenance (I&C) to investigate the 'A' Recirc. pump speed controller failure.

Op-Test No.: 1 Scenario No.: 2 Event No.: 4 Page 1 of 1

Event Description: Intake Structure Fouling ('A' Bay/'B' Seawater pump)

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize/announce annunicator "Travelling Screen ΔP Hi" and refers to ARP C1R-C3. Verifies the alarm using the EPIC SW/SSW graphic display. Recognizes that 'A' Seawater bay's level is lowering. Monitors Seawater bay level on the LI-3831B at C1.
	CRS	Enters PNPS 2.4.154, "Intake Structure Fouling". Directs that screenwash for all travelling screens be placed in service per 2.2.94. Refers to Attachment 1 of 2.2.154. Enters and executes concurrently PNPS 2.4.36, "Decreasing Condenser Vacuum". Orders power reduced per PNPS 2.1.14 section 7.10 and 7.11 to maintain vacuum above 26 inches hg. The CRS should establish a limit below which the reactor should be scrammed. Note: Section 7.11 will send the operator to section 7.9, which provides direction for using the RPR array.
	RO	Reduce power by reducing core flow to 39 Mlbm/hr. Insert control rods using the RPR array instruction sheet as necessary to stabilize vacuum above the limit set by the CRS.
	BOP	Recognize/announce that 'A' Seawater bay's level is approaching –10 ft and/or 8 ft. differential between the East Screenwell/Seawater pump bay vs West Screenwell/Seawater pump bay is observed.
	CRS	Directs that 'B' Seawater pump be stopped.
	BOP	➢ Stops 'B' Seawater pump. ➢ Closes MO-3872, Waterbox #1 Inlet Valve. ➢ Closes MO-3870, Waterbox #3 Inlet valve. ➢ Close condenser vapor valves AO-3704 and AO-3710. ➢ Establish flow from the operating pump to one of the two isolated water boxes by opening the respective crossover inlet valve and when circulating water outlet temperatures have stabilized (approximately 5 minutes), then open the associated condenser vapor valve.
	CRS	Directs the RO to adjust 'B' FRV manually as necessary to control water level while lowering power.
	RO	Adjust 'B' FRV manually as necessary to control water level as the RPR Array is inserted.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 1 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner, call the control room as the outside operator and report the shear pin for 'A' traveling screen is broken and that you are attempting to replace it. Report that seaweed appears to be carrying over past the travelling screen. Following the report, wait one minute, then insert the condenser-fouling malfunction.
	BOP	Recognize/announce any/all of the following: ➢ Motor current amps for 'A' Seawater pump rising ➢ Degrading condenser vacuum (PR-3392 on Panel C2) ➢ "Vacuum Lo" annunicator
	CRS	Recognizes unrecoverable situation. Establishes RPV level and pressure bands. Discusses using HPCI or SRV for RPV pressure control and closing the MSIVs due to the loss of cooling to the main condenser to prevent over pressurizing the main condenser. Ends the brief.
	CRS	Directs a reactor scram by taking the MODE switch to the "SHUTDOWN" position and the RO to take the actions of 2.1.6. Directs RPV level maintained +20 to +40 inches and RPV pressure 900 - 1050 psig.
	RO	Places the mode switch in the "SHUTDOWN" position. Recognizes/announces that APRM downscales are not in. Recognizes/announces that all rods are not in.
	CRS	Directs the MSIVs closed and the SRVs used for pressure control.
	BOP	Takes the control switches for the MSIVs to the CLOSE position. Uses the SRVs for pressure control.
	CRS	Enters EOP-01 and immediately transitions to EOP-02 based on all controls rods not at or beyond position 02.
	RO	Performs the following actions: ➢ verifies mode switch in "SHUTDOWN". ➢ Initiates both channels of ARI. ➢ Recognizes the turbine has tripped. ➢ Recognizes reactor power is above 3%. ➢ Trips/verifies tripped both Recirc. pumps.
	CRS	Verifies the immediate actions required by EOP-02: ➢ Verifies mode switch in "SHUTDOWN". ➢ Verifies both channels of ARI initiated. ➢ Verifies the turbine has tripped. ➢ Recognizes reactor power is above 3%. ➢ Verifies both Recirc. pumps are tripped.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 2 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	CRS	Orders new RPV level and pressure bands: ➢ Level –20 to +10 inches. ➢ Pressure 1000 to 1050 psig. Orders the RO to enter into PNPS 5.3.23, "Alternate Rod Insertion". Note: The CRS may determine immediately that Primary Containment is being threatened and order SBLC be injected into the vessel.
	RO	Enters PNPS 5.3 23, "Alternate Rod Insertion". Determines that there is an hydraulic lock and goes to Section 2.3 of the procedure and performs it concurrently with the "General Actions" section of the procedure.
	BOP	Pushes the RCIC Injection pushbutton to establish injection into the vessel and maintain RPV level –20 to +10. Uses the SRVs to maintain RPV pressure 1000 to 1050 psig.
	CRS	Verifies: ➢ Isolations ➢ ECCS initiations ➢ Emergency Diesel Generator initiations
	CRS	Orders the BOP operator to place the ADS Inhibit Switch in the "INHIBIT" position.
	BOP	Takes the ADS Inhibit Switch to the "INHIBIT" position. **NOTE: CRITICAL TASK**

	RO	Performs the following actions per 5.3.23:
		➢ Notifies Reactor Engineering of the ATWS.
		➢ Verifies the CRD pump running.
		➢ Calls the Reactor Building operator to close 301-25 (CRD 25 valve).
		➢ Calls I&C to perform Attachments 1&2 of 5.3.23.
		➢ Bypasses the Rod Worth Minimizer.
		➢ Increases drive pressure 50 psi above its present value by throttling closed MO-302-8.
		➢ Begins inserting control rods using the EMERG IN switch
		  ➢ Inserts all steps of the RPR array first.
		  ➢ Inserts the remaining control rods in any order.

	CRS	Before torus water temperature reaches 110°F (Boron Injection Initiation Temperature) orders SBLC injection using the 'A' SBLC pump.
	RO	Attempts to inject with SBLC.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 3 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	CRS	When torus water temperature reaches 110°F (Boron Injection Initiation Temperature) enters the 'Q' Leg of EOP-02 and performs the following steps: ➢ Orders stop and prevent all injection into the vessel except from SBLC and CRD. ➢ Orders the MSIV low RPV water level isolation bypassed. Note: This is not necessary if the MSIVs are closed.
	RO	Closes/verifies closed the feedwater heater downstream block valves and Startup Feed Reg. Valve. **NOTE: CRITICAL TASK**
	BOP	Places the control switches for the RHR and Core Spray pumps in the PTL position. Trips/verifies stopped the HPCI turbine and places the Aux. Oil pump control switch in the PTL position. Trips the RCIC turbine. **NOTE: CRITICAL TASK**
	CRS	Asks the crew to report any of the following plant conditions: ➢ Rx power < 3% (APRM downscales are in). ➢ RPV water level reaches –125 inches - TAF ➢ All SRV's remain closed and drywell pressure remains below 2.2 psig. Note: Indicated level for TAF is dependent on RPV pressure and must be figured using the chart from PNPS 2.2.80 or the water wheel.
	RO	Reports when the APRM downscales have are in.
	BOP	Reports when RPV level reaches TAF.
	CRS	Ask for RPV water level and records the "LL". Orders that RPV water level be maintain between indicated level for TAF and "LL" using Outside Shroud Injection Systems, Table E. Note: If "LL" is TAF then the band would be –150 to TAF.
	BOP	Maintains RPV level between TAF and "LL" or –150 and TAF using Outside Shroud Injection Systems, Table E. **NOTE: CRITICAL TASK**
		IF OPERATOR: When water level has stabilized with an "LL" established, call as I&C and report that Attachments 1 and 2 of 5.3.23 have been completed. (RPS and ATWS/ARI bypassed).

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 4 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	RO	Performs the following actions to reset and scram the reactor: ➢ Resets and verifies reset the scram using the RPS reset switch. ➢ Places the Air Dump System Test Switch to "ISOLATE". ➢ Waits for/verifies the "SPVAH Pressure Lo" alarm clears. ➢ Places the Air Dump System Test Switch to "NORMAL". ➢ Verifies either SDIV Level Hi or SDIV East Not Drained and SDIV West Not Drained alarms are clear. ➢ Initiates a manual scram. ➢ Verifies and announces all rods in.
	CRS	When all rods are in transitions to EOP-01. Orders RPV water level be restored and maintained between +20 and +40 inches. Initiates a cooldown using HPCI or SRVs at less than 100° per hour.
	BOP	Restores and maintains RPV level +20 to +40. Initiates a cooldown at less than 100° per hour.
		Terminate the scenario when level has been restored to between +20 and +40 and a cooldown has been initiated. EAL is "General Emergency" 2.3.1.4.

Op-Test No.: 1 Scenario No.: 2 Event No.: 6 Page 1 of 1

Event Description: 'A' SBLC pump fails to start

Time	Position	Applicant's Actions or Behavior
	CRS	Directs that SBLC be injected using the 'A' SBLC system.
	RO	Takes the SBLC key lock switch to the "SYS A" position. Recognizes/announces that the 'A' SBLC pump did not start.
	CRS	Directs Alternate Boron Injection using PNPS 5.3.20.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 1 of 1

Event Description: RWCU fails to isolate

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces that RWCU did not isolate. Note: This should happen if RPV level goes below +12 following the scram or when the SBLC key lock switch is taken to the "SYS A" position.
	CRS	Enters and executes PNPS 2.4.27, "RWCU System Malfunctions. Orders that RWCU be isolated manually.
	BOP	Manually isolates RWCU. ➢ Trips the running RWCU pump. ➢ Closes MO-1201-2 ➢ Closes MO-1201-5 ➢ Closes MO-1201-80

FILE

Facility: Pilgrim Scenario No.: 2-2 Op-Test No.: 1

Examiners: Operators:

Initial Conditions: 85% power, 'F' APRM is bypassed, 'B' SBLC system OOS

Turnover: The plant is operating at 85% power, 'F' APRM has failed downscale and is bypassed (Tracking LCO). 'B' SBLC system is OOS for squib valve replacement (Day 1 of a 7 day LCO). The orders for the shift are to continue reducing power so that a backwash may be performed on the main condenser. Currently on Step [4a] in Section 7.3 of 2.1.14, place 'B' FRV in 'MANUAL'. The feedwater correction factor has been blocked.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Reduce power using Recirc from 85% to 80%. (Direction given in shift turnover)
2	N/A	N	Place 'B' FWLC in 'MANUAL'. (Direction given in shift turnover)
3	I/O	I	'A' Recirc. pump # 1 speed limiter failure (TS implications). (Inserted upon direction of Chief Examiner)
4	CW10	C	Intake Structure Fouling ('A' Bay/'B' Seawater pump). (Inserted upon direction of Chief Examiner)
5	MC03	M	Loss of Vacuum (Condenser Fouling) – ATWS (Q leg). (Condenser Fouling inserted upon direction of Chief Examiner – ATWS pre-inserted)
6	LP01	C	'A' SBLC pump fails to start. (Pre-inserted)
7	COR6	I	RWCU fails to isolate. (Pre-inserted)

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

Op-Test No.: 1 Scenario No.: 2 Event No.: 1 Page 1 of 1

Event Description: Reduce power using Recirc from 85% to 80%

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power decrease from 85 to 80%
	RO	At Panel 904, use the Recirc. pump speed controllers to lower power to 80%.
	RO	Monitor power, pressure and level.

Op-Test No.: 1 Scenario No.: 2 Event No.: 2 Page 1 of 1

Event Description: Place 'B' FWLC in 'MANUAL'

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/direct placing 'B' FRV in MANUAL.
	BOP	Turn the selector switch on the 'B' Flow Control Valve Controller to the BALANCE position.
	BOP	Slowly remove the bias signal or verify the bias signal is at zero.
	BOP	Null the deviation meter for the 'B' Flow Control Valve Controller using the MANUAL control knob.
	BOP	Switch the selector switch to the MANUAL position.

Op-Test No.: 1 Scenario No.: 2 Event No.: 3 Page 1 of 1

Event Description: 'A' Recirc pump # 1 speed limiter failure (TS implications)

Time	Position	Applicant's Actions or Behavior
	RO	Recognize/announce annunciators "MG A SPEED LIMITER ON" and "MG A SPEED DEVIATION HI" at Panel C904RC and refers to the ARPs.
	CRS/RO	Enter PNPS 2.4.20, Reactor Recirculation System Speed or Flow Control System Malfunction.
	RO	Initiates a scoop tube lockup by depressing the Manual Scoop Tube Positioner Lockup push button and refers to PNPS 2.4.19, "Recirculation Pump MG Set Scoop Tube Lockup".
	CRS/RO	Assess the operating conditions by plotting power versus core flow on the Pilgrim Power/Flow Map and performs the required actions IAW 2.1.14 Sections 7.10 and 7.11. **IF OPERATOR:** If asked as the CR Annex/3rd SRO if PBDS is operable, report that PBDS is operable.
	RO	Monitor PBDS recorders for any indications power oscillations.
	CRS	Refers to Tech Specs. Section 3.6.F.1. Recognize/announce that the percent mismatch is outside the Tech Spec limit. That if the mismatch is not corrected within 30 minutes, an orderly shutdown must be initiated and the reactor in "Cold Shutdown" within 24 hours unless the speed mismatch is brought within limits.
	CRS	Attempts to bring the mismatch to within limits by either raising the 'A' Recirc. pump speed locally at the scoop tube positioner or lowering the speed of the 'B' Recirc. pump using the speed controller at C904. The correct action is dependent on the plant's position on the Power/Flow map.
	RO	Either coordinates with the licensed operator in the field to bring the mismatch to within limits using the 'A' Recirc. pump scoop tube positioner or by lowering the speed of the 'B' Recirc. pump using the speed controller at C904.
	CRS	Call maintenance (I&C) to investigate the 'A' Recirc. pump speed controller failure.

Op-Test No.: 1 Scenario No.: 2 Event No.: 4 Page 1 of 1

Event Description: Intake Structure Fouling ('A' Bay/'B' Seawater pump)

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize/announce annunicator "Travelling Screen ΔP Hi" and refers to ARP C1R-C3. Verifies the alarm using the EPIC SW/SSW graphic display. Recognizes that 'A' Seawater bay's level is lowering. Monitors Seawater bay level on the LI-3831B at C1.
	CRS	Enters PNPS 2.4.154, "Intake Structure Fouling". Directs that screenwash for all travelling screens be placed in service per 2.2.94. Refers to Attachment 1 of 2.2.154. Enters and executes concurrently PNPS 2.4.36, "Decreasing Condenser Vacuum". Orders power reduced per PNPS 2.1.14 section 7.10 and 7.11 to maintain vacuum above 26 inches hg. The CRS should establish a limit below which the reactor should be scrammed. Note: Section 7.11 will send the operator to section 7.9, which provides direction for using the RPR array.
	RO	Reduce power by reducing core flow to 39 Mlbm/hr. Insert control rods using the RPR array instruction sheet as necessary to stabilize vacuum above the limit set by the CRS.
	BOP	Recognize/announce that 'A' Seawater bay's level is approaching –10 ft and/or 8 ft. differential between the East Screenwell/Seawater pump bay vs West Screenwell/Seawater pump bay is observed.
	CRS	Directs that 'B' Seawater pump be stopped.
	BOP	➢ Stops 'B' Seawater pump. ➢ Closes MO-3872, Waterbox #1 Inlet Valve. ➢ Closes MO-3870, Waterbox #3 Inlet valve. ➢ Close condenser vapor valves AO-3704 and AO-3710. ➢ Establish flow from the operating pump to one of the two isolated water boxes by opening the respective crossover inlet valve and when circulating water outlet temperatures have stabilized (approximately 5 minutes), then open the associated condenser vapor valve.
	CRS	Directs the RO to adjust 'B' FRV manually as necessary to control water level while lowering power.
	RO	Adjust 'B' FRV manually as necessary to control water level as the RPR Array is inserted.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 1 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner, call the control room as the outside operator and report the shear pin for 'A' traveling screen is broken and that you are attempting to replace it. Report that seaweed appears to be carrying over past the travelling screen. Following the report, wait one minute, then insert the condenser-fouling malfunction.
	BOP	Recognize/announce any/all of the following: ➢ Motor current amps for 'A' Seawater pump rising ➢ Degrading condenser vacuum (PR-3392 on Panel C2) ➢ "Vacuum Lo" annunicator
	CRS	Recognizes unrecoverable situation. Establishes RPV level and pressure bands. Discusses using HPCI or SRV for RPV pressure control and closing the MSIVs due to the loss of cooling to the main condenser to prevent over pressurizing the main condenser. Ends the brief.
	CRS	Directs a reactor scram by taking the MODE switch to the "SHUTDOWN" position and the RO to take the actions of 2.1.6. Directs RPV level maintained +20 to +40 inches and RPV pressure 900 - 1050 psig.
	RO	Places the mode switch in the "SHUTDOWN" position. Recognizes/announces that APRM downscales are not in. Recognizes/announces that all rods are not in.
	CRS	Directs the MSIVs closed and the SRVs used for pressure control.
	BOP	Takes the control switches for the MSIVs to the CLOSE position. Uses the SRVs for pressure control.
	CRS	Enters EOP-01 and immediately transitions to EOP-02 based on all controls rods not at or beyond position 02.
	RO	Performs the following actions: ➢ verifies mode switch in "SHUTDOWN". ➢ Initiates both channels of ARI. ➢ Recognizes the turbine has tripped. ➢ Recognizes reactor power is above 3%. ➢ Trips/verifies tripped both Recirc. pumps.
	CRS	Verifies the immediate actions required by EOP-02: ➢ Verifies mode switch in "SHUTDOWN". ➢ Verifies both channels of ARI initiated. ➢ Verifies the turbine has tripped. ➢ Recognizes reactor power is above 3%. ➢ Verifies both Recirc. pumps are tripped.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 2 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	CRS	Orders new RPV level and pressure bands: ➢ Level –20 to +10 inches. ➢ Pressure 1000 to 1050 psig. Orders the RO to enter into PNPS 5.3.23, "Alternate Rod Insertion". Note: The CRS may determine immediately that Primary Containment is being threatened and order SBLC be injected into the vessel.
	RO	Enters PNPS 5.3 23, "Alternate Rod Insertion". Determines that there is an hydraulic lock and goes to Section 2.3 of the procedure and performs it concurrently with the "General Actions" section of the procedure.
	BOP	Pushes the RCIC Injection pushbutton to establish injection into the vessel and maintain RPV level –20 to +10. Uses the SRVs to maintain RPV pressure 1000 to 1050 psig.
	CRS	Verifies: ➢ Isolations ➢ ECCS initiations ➢ Emergency Diesel Generator initiations
	CRS	Orders the BOP operator to place the ADS Inhibit Switch in the "INHIBIT" position.
	BOP	Takes the ADS Inhibit Switch to the "INHIBIT" position. **NOTE: CRITICAL TASK**

	RO	Performs the following actions per 5.3.23:
		➢ Notifies Reactor Engineering of the ATWS.
		➢ Verifies the CRD pump running.
		➢ Calls the Reactor Building operator to close 301-25 (CRD 25 valve).
		➢ Calls I&C to perform Attachments 1&2 of 5.3.23.
		➢ Bypasses the Rod Worth Minimizer.
		➢ Increases drive pressure 50 psi above its present value by throttling closed MO-302-8.
		➢ Begins inserting control rods using the EMERG IN switch
		  ➢ Inserts all steps of the RPR array first.
		  ➢ Inserts the remaining control rods in any order.

	CRS	Before torus water temperature reaches 110°F (Boron Injection Initiation Temperature) orders SBLC injection using the 'A' SBLC pump.
	RO	Attempts to inject with SBLC.

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 3 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	CRS	When torus water temperature reaches 110°F (Boron Injection Initiation Temperature) enters the 'Q' Leg of EOP-02 and performs the following steps: ➢ Orders stop and prevent all injection into the vessel except from SBLC and CRD. ➢ Orders the MSIV low RPV water level isolation bypassed. Note: This is not necessary if the MSIVs are closed.
	RO	Closes/verifies closed the feedwater heater downstream block valves and Startup Feed Reg. Valve. **NOTE: CRITICAL TASK**
	BOP	Places the control switches for the RHR and Core Spray pumps in the PTL position. Trips/verifies stopped the HPCI turbine and places the Aux. Oil pump control switch in the PTL position. Trips the RCIC turbine. **NOTE: CRITICAL TASK**
	CRS	Asks the crew to report any of the following plant conditions: ➢ Rx power < 3% (APRM downscales are in). ➢ RPV water level reaches –125 inches - TAF ➢ All SRV's remain closed and drywell pressure remains below 2.2 psig. Note: Indicated level for TAF is dependent on RPV pressure and must be figured using the chart from PNPS 2.2.80 or the water wheel.
	RO	Reports when the APRM downscales have are in.
	BOP	Reports when RPV level reaches TAF.
	CRS	Ask for RPV water level and records the "LL". Orders that RPV water level be maintain between indicated level for TAF and "LL" using Outside Shroud Injection Systems, Table E. Note: If "LL" is TAF then the band would be –150 to TAF.
	BOP	Maintains RPV level between TAF and "LL" or –150 and TAF using Outside Shroud Injection Systems, Table E. **NOTE: CRITICAL TASK**
		IF OPERATOR: When water level has stabilized with an "LL" established, call as I&C and report that Attachments 1 and 2 of 5.3.23 have been completed. (RPS and ATWS/ARI bypassed).

Op-Test No.: 1 Scenario No.: 2 Event No.: 5 Page 4 of 4

Event Description: Loss of Vacuum (Condenser Fouling) – ATWS (Q leg)

Time	Position	Applicant's Actions or Behavior
	RO	Performs the following actions to reset and scram the reactor: ➢ Resets and verifies reset the scram using the RPS reset switch. ➢ Places the Air Dump System Test Switch to "ISOLATE". ➢ Waits for/verifies the "SPVAH Pressure Lo" alarm clears. ➢ Places the Air Dump System Test Switch to "NORMAL". ➢ Verifies either SDIV Level Hi or SDIV East Not Drained and SDIV West Not Drained alarms are clear. ➢ Initiates a manual scram. ➢ Verifies and announces all rods in.
	CRS	When all rods are in transitions to EOP-01. Orders RPV water level be restored and maintained between +20 and +40 inches. Initiates a cooldown using HPCI or SRVs at less than 100° per hour.
	BOP	Restores and maintains RPV level +20 to +40. Initiates a cooldown at less than 100° per hour.
		Terminate the scenario when level has been restored to between +20 and +40 and a cooldown has been initiated. EAL is "General Emergency" 2.3.1.4.

Op-Test No.: 1 Scenario No.: 2 Event No.: 6 Page 1 of 1

Event Description: 'A' SBLC pump fails to start

Time	Position	Applicant's Actions or Behavior
	CRS	Directs that SBLC be injected using the 'A' SBLC system.
	RO	Takes the SBLC key lock switch to the "SYS A" position. Recognizes/announces that the 'A' SBLC pump did not start.
	CRS	Directs Alternate Boron Injection using PNPS 5.3.20.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 1 of 1

Event Description: RWCU fails to isolate

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces that RWCU did not isolate. Note: This should happen if RPV level goes below +12 following the scram or when the SBLC key lock switch is taken to the "SYS A" position.
	CRS	Enters and executes PNPS 2.4.27, "RWCU System Malfunctions. Orders that RWCU be isolated manually.
	BOP	Manually isolates RWCU. ➢ Trips the running RWCU pump. ➢ Closes MO-1201-2 ➢ Closes MO-1201-5 ➢ Closes MO-1201-80

FILE

Facility: Pilgrim Scenario No.: 3-1 Op-Test No.: 1

Examiners: Operators:

Initial Conditions: 2% power with the mode switch in 'STARTUP', SRM 'B' is bypassed, 'B' RFP is OOS

Turnover: The plant is at 2% power during a plant startup following a Mid Cycle Outage. PNPS 2.1.1 is in progress and on step 112. Getting ready to place the mode switch in 'RUN'. SRM 'B' failed to retract and is bypassed (Tracking LCO). 'B' RFP is tagged out for a leaking seal, expected back next shift. The APRM Functional surveillance was completed last shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Raise reactor power from 2% to 5% using control rods. (Direction given in shift turnover)
2	N/A	N	Place the mode switch in the 'RUN' position. (Direction given in shift turnover)
3	NM20/ RD11	I	'B' APRM fails upscale with a coincident blown RPS fuse.(Tech Spec Implications). (Inserted upon direction of Chief Examiner)
4	TC06	I	EPR oscillation. (Inserted upon direction of Chief Examiner)
5	RX28	M	Reference line leak/rupture (small break LOCA), HPCI isolates on false low-pressure signal. (Inserted upon direction of Chief Examiner)
6	ED08	C	A1 lockout following scram (loss of normal high-pressure feed) leading to Alternate RPV depressurization on low RPV level. (Pre-inserted, conditional on Mode switch to 'Shutdown")
7	I/O	C	RCIC cooling water valve fails to open leading to a loss of RCIC. (Pre-inserted)

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

Op-Test No.: 1 Scenario No.: 3 Event No.: 1 Page 1 of 1

Event Description: Raise reactor power from 2% to 5% using control rods.

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power increase from 2 to 5% Note: A surrogate can be used as the Reactivity Manager as determined by the Chief Examiner.
	RO	Withdraws control rods in a safe and controlled manner. Makes regular checks of APRM channel indications.
	BOP	Serves as peer checker/second verifier during control rod movement.
	RO	Monitors RPV power, pressure and level.

Op-Test No.: 1 Scenario No.: 3 Event No.: 2 Page 1 of 1

Event Description: Place the mode switch in the 'RUN' position

Time	Position	Applicant's Actions or Behavior
	RO	Verifies the following indications: ➢ APRM Downscale annunciator is clear. ➢ All APRM Downscale indicators are clear. ➢ Low main steam pressure annunciators are clear.
	CRS	Directs the Reactor Mode switch placed in the "RUN" position.
	RO	Transfers the Reactor Mode switch to the "RUN" position.
	CRS	Logs the time and date the mode switch was placed in the "RUN" position. Notifies Chemistry that the mode switch was placed in the "RUN" position. Verifies that the APRM Function Test has been completed in the last 7 days and records the date in 2.1.1.
	RO	Continues withdrawing control rods in order to raise power to approximately 10%.

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 1 of 1

Event Description: 'B' APRM fails upscale with a coincident blown RPS fuse.(Tech Spec Implications)

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When the RO begins raising power to 10% and per the direction of the Chief Examiner, insert the 'B' APRM fails upscale malfunction and the RPS fuse malfunction.
	RO	Recognizes/announces ½ scram. Recognizes/announces the following annunciators at panel C905: ➢ RPS Chan B APRM Hi-Hi/INOP (C905L-A9). ➢ APRM Hi Restricted Region Entry (C905L-C8). ➢ Auto Scram Chan B (C905R-A4). ➢ Neutron Monitoring Trip (C905R-C3). Refers to the ARP's for the Annunciators in alarm. Determines that 'B'APRM is the source of the alarms.
	CRS	Sends the BOP operator to check the failed APRM on Panel C937.
	BOP	Goes to C937 to verify that 'B' APRM has failed high based on meter indication and the lights in alarm.
	CRS	Orders the RO to place the 'B' APRM in the "BYPASS" position and to reset the scram. Refers to Tech Specs. Table 3.1.1 and Table 3.2.C.1 for the failed APRM. Recognize/announce that the plant will enter a tracking LCO for the failed APRM.
	RO	Places the 'B' APRM in the BYPASS position and resets the ½ scram. Recognizes/announces that one of the RPS group lights on the 'B' channel of RPS is not lit. Verifies that it is not a burnt out light bulb.
	CRS	Calls I&C to troubleshoot the light being out. May look at prints to determine possible cause. May brief 2.4.11, Control Rod Positioning Malfunctions based on a possible situation where a ½ scram signal is received on the 'A" channel and ¼ of the control rods go in. In this case would manually scram the reactor due to six or more control rods have scrammed.
		IF OPERATOR: After a few minutes, if called, report to the control room as I&C. Allow the crew the opportunity to diagnose the problem using the electrical prints. When directed by the Chief Examiner report/confirm that the problem appears to be a blown RPS fuse (5A-F18D). Recommend replacing the fuse per PNPS 3.M.1-34, "Generic Troubleshooting and Maintenance Procedure". All necessary approvals have been obtained. Note: Print referenced is MIN21-9.
	CRS	Direct I&C to replace the fuse. **IF OPERATOR:** If requested as I&C to replace fuse5A-F18D, wait a few minutes, then delete the malfunction for the fuse failure.

Op-Test No.: 1 Scenario No.: 3 Event No.: 4 Page 1 of 1

Event Description: EPR oscillation

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner, insert the EPR oscillation malfunction.
	RO	Recognizes power and pressure oscillations.
	BOP	Monitor instrumentation and alarms and determine the type of malfunction that has occurred. Recognize that there is a MHC malfunction.
	CRS/BOP	Enters and executes PNPS 2.4.37, "Turbine Control System Malfunctions".
	CRS/RO	Recognizes that power does not have to be reduced.
	BOP	➢ Attempts to take control of Reactor pressure with the MPR by holding the MPR SET PT control switch in the "LOWER" position. ➢ When the MPR takes control, places the EPR power control switch to the "OFF" position.
	CRS/RO	Asses operating conditions by plotting power versus flow on the Pilgrim Power/Flow Map.
	RO	Monitors PBDS recorders for any indications of power oscillations.
	BOP	When pressure is under control returns Reactor pressure to the pre-transient setpoint as indicated on PR-3050 on Panel C2.
	CRS	Calls Reactor Engineering to do an evaluation based on loss of a backup pressure regulator. Contacts I&C to perform trouble shooting.

Op-Test No.: 1 Scenario No.: 3 Event No.: 5 Page 1 of 2

Event Description: Reference line leak/rupture (small break LOCA), HPCI isolates on false low pressure signal.

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the Reference Leg leak malfunction.
	RO	Recognizes/announces a slow rise in 'A' Narrow Range Level indicators. **IF OPERATOR:** Allow the RO a chance to recognize the discrepancy in NR level indicators. At the direction of the Chief examiner, call the control room as the Tour Operator and report that there is a discrepancy between the 'A' and 'B' Narrow Range indicators on the ATS panel.
	BOP	Recognizes/announces a slight rise in drywell parameters.
	CRS	The CRS may direct the BOP to vent the torus using the SBGT system.
	BOP	If directed to vent the torus using SBGT, uses PNPS 2.2.70 to do so.
	ALL	Diagnose that the Reference leg is leaking inside the drywell.
		IF OPERATOR: When the crew diagnoses the Reference leg leak and/or when directed by the Chief Examiner, insert the Reference Leg rupture malfunction.
	RO	Recognizes/announces RPV level instruments failing upscale and RPV instruments failing downscale.
	BOP	Recognizes/announces isolation of HPCI. Recognizes/announces "Lo RPV Press Injection Permissive Satisfied" annunciator is in alarm.
	ALL	Determine that the Reference Leg has ruptured.
	BOP	Recognizes/announces rising drywell temperature and pressure.
	CRS	Directs that the reactor be manually scrammed.
	RO	Places the mode switch in the "SHUTDOWN" position and follows the Immediate Operator Actions of PNPS 2.1.6: ➢ Verify and announce the status of APRM downscales. ➢ Verify and announce all control rods inserted. ➢ Insert IRM and SRM detectors, select two SRM for recording and place selector switch for APRM/IRM to IRM. ➢ Verify turbine trip. ➢ Verify Recirc. pumps at min. speed.

Op-Test No.: 1 Scenario No.: 3 Event No.: 5 Page 2 of 2

Event Description: Reference line leak/rupture (small break LOCA), HPCI isolates on false low pressure signal.

Time	Position	Applicant's Actions or Behavior
	CRS	Establishes RPV level and pressure bands. RPV level +20 to +40 inches using the condensate and feed systems and RPV pressure 900 to 1050 psig using MHC.
	BOP/RO	Report EOP-03 entry conditions.
	CRS	Enters EOP-03.
	CRS	When drywell temperature cannot be maintained below 150°F, directs that drywell cooling be maximized.
	BOP	➢ Maximizes RBCCW. ➢ Maximizes drywell cooling.
	CRS	Before torus bottom pressure exceeds 16 psig, directs that torus spray placed in service. Directs that torus spray secured if drywell pressure goes below 2.2 psig.
	BOP	➢ Places A/B Loops of RHR in torus cooling. ➢ Places either A or B Loop of RHR in torus spray.
	CRS	When torus bottom pressure exceeds 16 psig: ➢ Verifies requirements of DSIL met. ➢ Verifies torus water level below 180 inches. ➢ Verifies/directs shutdown of Recirc. pumps. ➢ Directs that Drywell Spray placed in service in A/B loops. ➢ Directs that drywell spray secured if drywell pressure goes below 2.2 psig.
	BOP	Places A/B loops of RHR in Drywell Spray. **NOTE: CRITICAL TASK**
	BOP	Secures torus and drywell spray when drywell pressure goes below 2.2 psig. **Note:** If drywell pressure goes below 1.8 psig, containment sprays will secure automatically.

Op-Test No.: 1 Scenario No.: 3 Event No.: 6 Page 1 of 3

Event Description: A1 lockout following scram (loss of normal high pressure feed) leading to Alternate RPV depressurization on low RPV level

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces that A1 is de-energized due to a Bus Lockout. Recognizes/announces that there are no feed pumps available.
	CRS	➢ Directs that RCIC be placed in service for level control. ➢ Directs that Electrical Maintenance investigate the A1 lockout.
	BOP/RO	Report EOP-01 entry conditions.
	CRS	Enters EOP-1. Verifies: ➢ Isolations ➢ ECCS initiations ➢ Emergency Diesel Generator initiations May initiates a cooldown using Turbine Bypass Valves at a rate no greater than 100°F/hr. Note: The leak will slowly depressurize the reactor.
	RO	Monitors RPV pressure and reports when outside the band given by the CRS.
	BOP	When RPV pressure goes below 810 psig, recognize/announce that the MSIVs and the INBD steam line drain have gone closed. Note: This is a result of the Reference leg rupture and the Group I logic arrangement.
	CRS	Directs RPV level restored and maintained +12 to +45 per EOP-01.
	RO	Reports that level is out of band and will need a new band.
	CRS	Determines water level cannot be maintained above + 12 and establishes a new band between -125 and +45. The CRS should step the band down as water level approaches –125. Attempts to maintain RPV level using Injections systems from Table A and directs systems from Table B lined up for injection per PNPS 5.3.26. Directs CRD be placed in two-pump operation.
		IF OPERATOR: If directed as the Reactor Building Operator to ready the CRD pumps for two pump operation, wait 5 minutes and then report the pumps are ready.
	RO	Monitors level within the band established by the CRS. Asks for a new band when level drops below the current band. Places CRD in 2-pump operation. Note: At this point CRD may be the only high-pressure system available.

Op-Test No.: 1 Scenario No.: 3 Event No.: 6 Page 2 of 3

Event Description: A1 lockout following scram (loss of normal high pressure feed) leading to Alternate RPV depressurization on low RPV level

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes/announces any or all of the following: ➢ RPV water level at or below –46 inches. ➢ 2 minute timer initiated annunciator.
	CRS	Directs that the ADS Inhibit switch be taken to the "INHIBIT" position.
	BOP	Places the ADS Inhibit switches in the "INHIBIT" position. **NOTE: CRITICAL TASK**
	CRS	Determines water level can not be maintained above –125. ➢ Lines up for injections 2 or more subsystems from Table C. ➢ Directs all RHR and Core Spray Pumps be started. ➢ Directs the injection rate be maximized. **Note:** 'B' Loop of RHR will automatically secure when the 'B' level instrument goes below 2/3 coverage. 'A' will not secure due to the failed ref. leg.
	BOP	Starts/verified started all RHR and Core Spray pumps. Lines up the RHR and Core Spray systems in the Injection mode.
	BOP/RO	Recognizes/announces when RPV reaches –125. **Note:** Indicated level for TAF is dependent on RPV pressure and must be figured using the chart from PNPS 2.2.80 or the water wheel.
	CRS	Recognizes that Alternate RPV Depressurization is required and enters and executed EOP-17.
	CRS	➢ Determines steam cooling is not required. ➢ Verifies torus water level > 50 inches. ➢ Directs the BOP operator to open all 4 SRVs. Directs that water level be restored +20 to +40 with final level control with a Core Spray pump. (could be 'A' or 'B')
	BOP	Takes all 4 SRV control switches to the "OPEN" position. Verifies that all 4 SRVs have opened by checking the acoustic monitors lights on Panel C171 and the SRV tail pipe temperatures on Panel C921. **NOTE: CRITICAL TASK**
	CRS	Asks if RPV water level can be determined.
	BOP/RO	Report that RPV water level can be determined.

Op-Test No.: 1 Scenario No.: 3 Event No.: 6 Page 3 of 3

Event Description: A1 lockout following scram (loss of normal high pressure feed) leading to Alternate RPV depressurization on low RPV level

Time	Position	Applicant's Actions or Behavior
	BOP	Monitors RPV pressure instruments for lowering pressure. Monitors the RHR system for indications that the pumps are injecting. Monitors RPV water level and begins sequencing off pumps when level has returned to the Narrow Range indicators. Stabilizes level within the +20 to +40 level band using one of the Core Spray pumps.
		Terminate the scenario when level has been restored and maintained between +20 and +40. EAL Alert 3.4.1.2

Op-Test No.: 1 Scenario No.: 3 Event No.: 7 Page 1 of 1

Event Description: RCIC cooling water valve fails to open leading to a loss of RCIC.

Time	Position	Applicant's Actions or Behavior
	BOP	Recognizes that the RCIC cooling water supply valve MO-1301-62 did not open.
	CRS	Directs Electrical Maintenance/Reactor Building Operator to attempt to open MO-1301-62 locally.
		Note: The crew may elect to continue running RCIC due to the fact the only other high-pressure system available is CRD. RCIC will trip when the "Gov End Bearing Hi Temperature" alarm comes in.

file

Facility: Pilgrim Scenario No.: 3-2 Op-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions: 2% power with the mode switch in 'STARTUP', SRM 'B' is bypassed, 'B' RFP is OOS

Turnover: The plant is at 2% power during a plant startup following a Mid Cycle Outage. PNPS 2.1.1 is in progress and on step 112. Getting ready to place the mode switch in 'RUN'. SRM 'B' failed to retract and is bypassed (Tracking LCO). 'B' RFP is tagged out for a leaking seal, expected back next shift. The APRM Functional surveillance was completed last shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R-RO N-SRO	Raise reactor power from 2% to 5% using control rods. (Direction given in shift turnover)
2	N/A	N	Place the mode switch in the 'RUN' position. (Direction given in shift turnover)
3	NM20/ RD11	I	'B' APRM fails upscale with a coincident blown RPS fuse.(Tech Spec Implications). (Inserted upon direction of Chief Examiner)
4	TC06	I	EPR oscillation. (Inserted upon direction of Chief Examiner)
5	RX28	M	Reference line leak/rupture (small break LOCA), HPCI isolates on false low-pressure signal. (Inserted upon direction of Chief Examiner)
6	ED08	C	A1 lockout following scram (loss of normal high-pressure feed) leading to Alternate RPV depressurization on low RPV level. (Pre-inserted, conditional on Mode switch to 'Shutdown")
7	I/O	C	RCIC cooling water valve fails to open leading to a loss of RCIC. (Pre-inserted)

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

Op-Test No.: 1 Scenario No.: 3 Event No.: 1 Page 1 of 1

Event Description: Raise reactor power from 2% to 5% using control rods.

Time	Position	Applicant's Actions or Behavior
	CRS	Brief/Direct power increase from 2 to 5% Note: A surrogate can be used as the Reactivity Manager as determined by the Chief Examiner.
	RO	Withdraws control rods in a safe and controlled manner. Makes regular checks of APRM channel indications.
	BOP	Serves as peer checker/second verifier during control rod movement.
	RO	Monitors RPV power, pressure and level.

Op-Test No.: 1 Scenario No.: 3 Event No.: 2 Page 1 of 1

Event Description: Place the mode switch in the 'RUN' position

Time	Position	Applicant's Actions or Behavior
	RO	Verifies the following indications: ➢ APRM Downscale annunciator is clear. ➢ All APRM Downscale indicators are clear. ➢ Low main steam pressure annunciators are clear.
	CRS	Directs the Reactor Mode switch placed in the "RUN" position.
	RO	Transfers the Reactor Mode switch to the "RUN" position.
	CRS	Logs the time and date the mode switch was placed in the "RUN" position. Notifies Chemistry that the mode switch was placed in the "RUN" position. Verifies that the APRM Function Test has been completed in the last 7 days and records the date in 2.1.1.
	RO	Continues withdrawing control rods in order to raise power to approximately 10%.

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 1 of 1

Event Description: 'B' APRM fails upscale with a coincident blown RPS fuse.(Tech Spec Implications)

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When the RO begins raising power to 10% and per the direction of the Chief Examiner, insert the 'B' APRM fails upscale malfunction and the RPS fuse malfunction.
	RO	Recognizes/announces ½ scram. Recognizes/announces the following annunciators at panel C905: ➢ RPS Chan B APRM Hi-Hi/INOP (C905L-A9). ➢ APRM Hi Restricted Region Entry (C905L-C8). ➢ Auto Scram Chan B (C905R-A4). ➢ Neutron Monitoring Trip (C905R-C3). Refers to the ARP's for the Annunciators in alarm. Determines that 'B'APRM is the source of the alarms.
	CRS	Sends the BOP operator to check the failed APRM on Panel C937.
	BOP	Goes to C937 to verify that 'B' APRM has failed high based on meter indication and the lights in alarm.
	CRS	Orders the RO to place the 'B' APRM in the "BYPASS" position and to reset the scram. Refers to Tech Specs. Table 3.1.1 and Table 3.2.C.1 for the failed APRM. Recognize/announce that the plant will enter a tracking LCO for the failed APRM.
	RO	Places the 'B' APRM in the BYPASS position and resets the ½ scram. Recognizes/announces that one of the RPS group lights on the 'B' channel of RPS is not lit. Verifies that it is not a burnt out light bulb.
	CRS	Calls I&C to troubleshoot the light being out. May look at prints to determine possible cause. May brief 2.4.11, Control Rod Positioning Malfunctions based on a possible situation where a ½ scram signal is received on the 'A" channel and ¼ of the control rods go in. In this case would manually scram the reactor due to six or more control rods have scrammed.
		IF OPERATOR: After a few minutes, if called, report to the control room as I&C. Allow the crew the opportunity to diagnose the problem using the electrical prints. When directed by the Chief Examiner report/confirm that the problem appears to be a blown RPS fuse (5A-F18D). Recommend replacing the fuse per PNPS 3.M.1-34, "Generic Troubleshooting and Maintenance Procedure". All necessary approvals have been obtained. Note: Print referenced is MIN21-9.
	CRS	Direct I&C to replace the fuse. **IF OPERATOR:** If requested as I&C to replace fuse5A-F18D, wait a few minutes, then delete the malfunction for the fuse failure.

Op-Test No.: 1 Scenario No.: 3 Event No.: 4 Page 1 of 1

Event Description: EPR oscillation

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner, insert the EPR oscillation malfunction.
	RO	Recognizes power and pressure oscillations.
	BOP	Monitor instrumentation and alarms and determine the type of malfunction that has occurred. Recognize that there is a MHC malfunction.
	CRS/BOP	Enters and executes PNPS 2.4.37, "Turbine Control System Malfunctions".
	CRS/RO	Recognizes that power does not have to be reduced.
	BOP	➢ Attempts to take control of Reactor pressure with the MPR by holding the MPR SET PT control switch in the "LOWER" position. ➢ When the MPR takes control, places the EPR power control switch to the "OFF" position.
	CRS/RO	Asses operating conditions by plotting power versus flow on the Pilgrim Power/Flow Map.
	RO	Monitors PBDS recorders for any indications of power oscillations.
	BOP	When pressure is under control returns Reactor pressure to the pre-transient setpoint as indicated on PR-3050 on Panel C2.
	CRS	Calls Reactor Engineering to do an evaluation based on loss of a backup pressure regulator. Contacts I&C to perform trouble shooting.

Op-Test No.: 1 Scenario No.: 3 Event No.: 5 Page 1 of 2

Event Description: Reference line leak/rupture (small break LOCA), HPCI isolates on false low pressure signal.

Time	Position	Applicant's Actions or Behavior
		IF OPERATOR: When directed by the Chief Examiner insert the Reference Leg leak malfunction.
	RO	Recognizes/announces a slow rise in 'A' Narrow Range Level indicators. **IF OPERATOR:** Allow the RO a chance to recognize the discrepancy in NR level indicators. At the direction of the Chief examiner, call the control room as the Tour Operator and report that there is a discrepancy between the 'A' and 'B' Narrow Range indicators on the ATS panel.
	BOP	Recognizes/announces a slight rise in drywell parameters.
	CRS	The CRS may direct the BOP to vent the torus using the SBGT system.
	BOP	If directed to vent the torus using SBGT, uses PNPS 2.2.70 to do so.
	ALL	Diagnose that the Reference leg is leaking inside the drywell.
		IF OPERATOR: When the crew diagnoses the Reference leg leak and/or when directed by the Chief Examiner, insert the Reference Leg rupture malfunction..
	RO	Recognizes/announces RPV level instruments failing upscale and RPV instruments failing downscale.
	BOP	Recognizes/announces isolation of HPCI. Recognizes/announces "Lo RPV Press Injection Permissive Satisfied" annunciator is in alarm.
	ALL	Determine that the Reference Leg has ruptured.
	BOP	Recognizes/announces rising drywell temperature and pressure.
	CRS	Directs that the reactor be manually scrammed.
	RO	Places the mode switch in the "SHUTDOWN" position and follows the Immediate Operator Actions of PNPS 2.1.6: ➢ Verify and announce the status of APRM downscales. ➢ Verify and announce all control rods inserted. ➢ Insert IRM and SRM detectors, select two SRM for recording and place selector switch for APRM/IRM to IRM. ➢ Verify turbine trip. ➢ Verify Recirc. pumps at min. speed.