

Facility:	CPNPP 1 & 2	Scenario No.:	1	Op Test No.:	July 2010 NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: <ul style="list-style-type: none"> 100% power MOL - RCS Boron is 910 ppm by Chemistry sample. Train A Emergency Diesel Generator is OOS for governor repair. 					
Turnover: Maintain steady-state 100% power conditions.					
Critical Tasks: <ul style="list-style-type: none"> Trip Reactor Coolant Pumps Upon Loss of Subcooling. Manually Initiate Containment Isolation Phase A Upon Failure to Automatically Actuate. Maintain Core Cooling During a Loss of Cold Leg Recirculation. 					

Event No.	Malf. No.	Event Type*	Event Description
1 +5 min	RP06A	I (RO, SRO) TS (SRO)	Loop 1 N-16 Channel I (1-JI-411A/B) Fails High.
2 +10 min	RX18	I (BOP, SRO)	Feed Header Pressure Transmitter (PT-508) Fails High.
3 +15 min	CH03	C (BOP, SRO)	Neutron Detector Well Fan (FN-09) Motor Overcurrent.
4 +25 min	RX05B	I (RO, SRO) TS (SRO)	Pressurizer Level Channel (LT-460) Fails Low.
5 +30 min	RC17A	M (RO, BOP, SRO)	Large Break Loss of Coolant Accident (60 second ramp).
6 +35 min	RP09A RP09B	C (BOP)	Phase A Containment Isolation Trains A and B Fail to Automatically Actuate.
7 +35 min	RH01B	C (BOP)	Residual Heat Removal Pump (1-02) Trip Upon SI Sequencer Start.
8 +50 min	RHR15	C (RO)	Containment Sump to Residual Heat Removal Pump (1-01) Suction Isolation Valve (1-8811A) Will Not Open.

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

Scenario Event Description
NRC Scenario #1

SCENARIO SUMMARY NRC #1

The crew will assume the watch and maintain steady-state conditions per IPO-003A, Power Operations. Train A Emergency Diesel Generator is out of service for governor repair.

The first event is a high failure of Loop 1 N-16 Channel I. Operator actions are per ABN-704, Tc/N-16 Instrumentation Malfunction, and include placing Rod Control in Manual and identifying the failed channel. The SRO will refer to Technical Specifications.

Once Technical Specifications are addressed, a Feedwater Header Pressure Transmitter fails high causing Main Feed Pump speed to decrease resulting in a drop in Feedwater flow. Operator actions are per ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1st Stage Pressure, and Feed Header Pressure Instrument Malfunction, Section 5.0, and require manual Feedwater Header pressure control until repairs are made.

When Feedwater Header pressure is stable, the running Neutron Detector Well Fan will trip. Actions are per ALM-0031A, 1-ALB-3A, Window 2.1 – CNTMT FN MASTER TRIP. The BOP will start the standby Neutron Detector Well Fan per SOP-801A, Containment Ventilation System, and monitor for proper operation.

The next event is a Pressurizer Level instrument failure. Actions are per ABN-706, Pressurizer Level Instrumentation Malfunction. The RO will take manual control of Pressurizer level or Charging flow to maintain Pressurizer Level on program. When the failed instrument is identified, an alternate controlling channel is selected and Charging flow and Pressurizer Level control will be returned to Automatic. Letdown flow will be restored per the Job Aid. The SRO will refer to Technical Specifications.

When Letdown flow is restored, a Large Break Loss of Coolant Accident develops inside Containment resulting in generation of signals for Safety Injection, Containment Isolation Phase A and Phase B. Train B Residual Heat Removal Pump will trip upon pump start and the Train A Containment Sump to RHR Pump Suction Isolation Valve will NOT open. Reactor Coolant Pumps must be manually tripped due to a loss of subcooling and Containment Isolation Phase A must be manually initiated.

The crew enters EOP-0.0A, Reactor Trip or Safety Injection and at Step 14, transitions to EOP-1.0A, Loss of Reactor or Secondary Coolant. While in EOP-1.0A, the crew should recognize and transition to ECA-1.1A, Loss of Emergency Coolant Recirculation, at Step 11. When in ECA-1.1A, the crew will secure Containment Spray Pumps as required per Containment pressure conditions.

The scenario is terminated when Containment Spray flow is reduced in ECA-1.1A or when the conditions of FRZ-0.1A, Response to High Containment Pressure, have been met.

Risk Significance:

- Risk important components out of service: Train A Emergency Diesel Generator
- Risk significant core damage sequence: LBLOCA with Loss of Coolant Recirculation
- Risk significant operator actions:
 - Manually Trip Reactor Coolant Pumps
 - Manually Initiate Containment Isolation
 - Manually Secure Containment Spray Pumps

Scenario Event Description
NRC Scenario #1

BOOTH OPERATOR INSTRUCTIONS for SIMULATOR SETUP

Initialize to IC #18 and Event File for NRC Scenario #1.

EVENT	TYPE	MALF #	DESCRIPTION	DEMAND VALUE	INITIATING PARAMETER
SETUP		-	Train A EDG OOS	PULLOUT	-
		RHR15	CNTMT Sump to RHRP 1-01 SUC ISOL VLV Breaker 1-8811A rackout	RACKOUT	Conditional on Rx Trip
		RP09A	Containment Isolation Train A actuation failure	-	K0
		RP09B	Containment Isolation Train B actuation failure	-	K0
1		RP06A	Loop 1 N-16 Channel I failure	150	K1
2		RX18	Feed Header Press (PT-508) transmitter failure	1500	K2
3		CH03	Neutron Detector Well Fan Motor overcurrent	TRIP	K3
3		AN3A 02	CB03 1-ALB-3A Window 2.1 Alarm OFF	TRIP	K9
4		RX05B	Pressurizer Level Channel (LT-460) fails low	0%	K4
5		RC17A	Large Break Loss of Coolant Accident	5,000 gpm	K5 (60 second ramp)
6		RP09A	Containment Isolation Train A actuation failure	-	K0
6		RP09B	Containment Isolation Train B actuation failure	-	K0
7		RH01B	RHR Pump (1-02) trip	TRIP	K0 upon SI
8		RHR15	CNTMT Sump to RHRP 1-01 SUC ISOL VLV Breaker 1-8811A rackout	RACKOUT	Conditional on Rx Trip

Scenario Event Description
NRC Scenario #1

Booth Operator: INITIALIZE to IC #18 and NRC Scenario #1 SETUP file.
ENSURE all Simulator Annunciator Alarms are ACTIVE.
ENSURE Control Board Tags are hung:
- Red tag Train A Emergency Diesel Generator 1-01 & Breaker DG1 BKR 1EG1.
ENSURE Operator Aid Tags reflect current boron conditions.
ENSURE Control Rods are in AUTO with Bank D at 215 steps.
ENSURE Rod Bank Update (RBU) is performed.
ENSURE Turbine Load Rate set at 10 MWe/minute.
ENSURE Reactivity Briefing Sheet printout provided with Turnover.
ENSURE procedures in progress are on SRO desk:
- COPY of IPO-003A, Power Operations, Section 5.5, Operating at Constant Turbine Load.

Significant Control Room Annunciators in Alarm:

PCIP-1.1 – SR TRN A RX TRIP BLK
PCIP-1.2 – IR TRN A RX TRIP BLK
PCIP-1.4 – CNDSR AVAIL STM DMP ARMED C-9
PCIP-1.6 – RX \geq 10% PWR P-10
PCIP-2.1 – SR TRN B RX TRIP BLK
PCIP-2.2 – IR TRN B RX TRIP BLK
PCIP-2.5 – SR RX TRIP BLK PERM P-6
PCIP-3.2 – PR TRN A LO SETPT RX TRIP BLK
PCIP-4.2 – PR TRN B LO SETPT RX TRIP BLK
10B-1.8 – DG 1 DISABLED

Operating Test :	NRC	Scenario #	1	Event #	1	Page	5	of	22
Event Description: Loop 1 N-16 Channel I Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 1. - RP06A, Loop 1 N-16 Channel I (1-JI-411A/B) fails high.		
Indications Available: 5C-1.5 – ANY N 16 DEV HI/LO 5C-2.5 – 1 OF 4 OT N 16 HI 5C-3.5 – ANY T _{AVE} DEV HI/LO 5C-2.6 – 1 OF 4 OP N 16 HI 6D-1.10 – ANY T _{AVE} T _{REF} DEV 6D-2.13 – 1 OF 4 OP N 16 ROD STOP & TURB RUNBACK 6D-3.14 – 1 OF 4 OT N 16 ROD STOP & TURB RUNBACK 6D-1.7 – ANY ROD BANK AT LO LIMIT (May come in depending on time rods are in AUTO)		
+30 secs	RO	RESPOND to Annunciator Alarm Procedures.
	RO	RECOGNIZE Loop 1 N-16 Channel failure at JI-411A/B on CB-05 and/or CB-07.
	US	DIRECT performance of ABN-704, Tc / N16 Instrumentation Malfunction, Section 2.0.
	RO	PLACE 1/1-RBSS Control Rod Bank Select Switch in MANUAL.
	RO	PLACE 1-TS-412T, Tave CHAN DEFEAT in LOOP 1 position.
	BOP	VERIFY Steam Dump System is NOT actuated and NOT armed.
	RO	RESTORE T _{AVE} to within 1°F of T _{REF} .
	RO	SELECT LOOP 1 on 1/1-JS-411E, N16 Power Channel Defeat.
	RO	ENSURE a valid N16 channel supplying recorder on 1/1-TS-411E, 1-TR-411 CHAN SELECT.
	BOP	VERIFY Steam Dump System is NOT armed by OBSERVING PCIP-3.4 alarm not LIT.

Operating Test : <u> NRC </u> Scenario # <u> 1 </u> Event # <u> 1 </u> Page <u> 6 </u> of <u> 22 </u>		
Event Description: <u> Loop 1 N-16 Channel I Failure </u>		
Time	Position	Applicant's Actions or Behavior

+5 min	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.1.E, Reactor Trip System Instrumentation
		<ul style="list-style-type: none"> CONDITION E - One channel INOPERABLE. ACTION E.1 - Place channel in trip within 72 hours or be in MODE 3 within 78 hours.
<i>When Technical Specifications are addressed, or at Lead Examiner discretion, PROCEED to Event 2.</i>		

Operating Test :	NRC	Scenario #	1	Event #	2	Page	7	of	22
Event Description: Feed Header Pressure Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 2.

- RX18, Feed Header Pressure (PT-508) transmitter fails high.

Indications Available:

8A-1.8 – SG 1 STM & FW FLO MISMATCH

8A-2.8 – SG 2 STM & FW FLO MISMATCH

8A-3.8 – SG 3 STM & FW FLO MISMATCH

8A-4.8 – SG 4 STM & FW FLO MISMATCH

9A-3.2 – HDP 1 DISCH PRESS HI

9A-7.2 – HDP 2 DISCH PRESS HI

1-PI-508, Feed Header Pressure Indication pegged high

+1 min	BOP	RESPOND to Annunciator Alarm Procedures.
	BOP	RECOGNIZE Feed Header Pressure 1-PT-508 transmitter failure.
	US	DIRECT performance of ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1 st -Stage Pressure, and Feed Header Pressure Instrument Malfunction, Section 5.0.
	BOP	PLACE 1-SK-509A, FWPT Master Speed Controller in MANUAL.
	BOP	ADJUST 1-SK-509A, FWPT Master Speed Controller to maintain 80 psig to 170 psig between FWP discharge pressure and steam line pressure.
+5 min	US	INITIATE a Work Request per STA-606.
<i>When manual control of feedwater is attained, or at Lead Examiner discretion, PROCEED to Event 3.</i>		

Operating Test :	NRC	Scenario #	1	Event #	3	Page	8	of	22
Event Description: Neutron Detector Well Fan Motor Overcurrent									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 3.

- CH03, Neutron Detector Well Fan (1-09) overcurrent trip.

Indications Available:

3A-2.1 – CNTMT FN MASTER TRIP

11A-1.5 – NEUT DET WELL CH WTR RET FLO LO (on Panel CV-01)

1-HS-5435, NEUT DET WELL FN CLR FN 9 & DMPR green DAMPER & FAN and white TRIP lights illuminated

+1 min

BOP

RESPOND to Annunciator Alarm Procedures.

BOP

RECOGNIZE Neutron Detector Well Fan 1-09 tripped.

US

DIRECT performance of ALM-0031A, 1-ALB-3A, Window 2.1 – CNTMT FN MASTER TRIP.

Examiner Note: BOP may start fan per assumed operator knowledge prior to referencing the ALM.

BOP

If NO fans are in service, START Neutron Detector Well Fan 10 per SOP-801A, Containment Ventilation System.

Examiner Note: The following steps are from SOP-801A, Containment Ventilation System.

BOP

DETERMINE Prerequisites in Section 2.2 of SOP-801A are met.

BOP

PLACE 1-HS-5440, NEUT DET WELL FN CLR, FN 10 and DMPR in START.

- VERIFY Fan 10 Suction Damper OPEN and Fan 9 Suction Damper CLOSED.

BOP

VERIFY 1-HS-6079, NEUT DET WELL FN CLR 10 CH WTR RET VLV automatically OPENS on Panel CV-01.

BOP

ENSURE 1-HS-6084, CH WTR SPLY ISOL VLV ORC is OPEN.

Operating Test : <u> NRC </u> Scenario # <u> 1 </u> Event # <u> 3 </u> Page <u> 9 </u> of <u> 22 </u>		
Event Description: Neutron Detector Well Fan Motor Overcurrent		
Time	Position	Applicant's Actions or Behavior

Examiner Note: The following steps are from Window 2.1 – CNTMT FN MASTER TRIP.

	BOP	PLACE 1-HS-5435, NEUT DET WELL FN CLR FN 9 & DMPR in PULLOUT/STOP.
<u>Booth Operator:</u> When contacted, WAIT one minute then REPORT Fan 9 Breaker appears to have tripped due to overload.		
	US	DISPATCH an operator to Fan 9 Breaker to determine cause of trip.
	US	When conditions permit, PERFORM a Containment Entry per STA-620 to determine cause of fan failure.
+5 min	US	INITIATE a work request per STA-606.
<i>When Neutron Detector Well cooling is restored, or at Lead Examiner discretion, PROCEED to Event 4.</i>		

Operating Test :	NRC	Scenario #	1	Event #	4	Page	10	of	22
Event Description: Pressurizer Level Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 4.**- RX05B, Pressurizer Level Transmitter (LT-460) fails low.****Indications Available:****5B-1.4 – PRZR HTR GRP C CTRL TRBL****5B-3.6 – PRZR LVL LO****6A-3.8 – CVCS HELB PS-5385A****6A-4.8 – CVCS HELB PS-5385****1-LI-460A, PRZR LVL CHAN II indication failed low**

+30 secs	RO	RESPOND to Annunciator Alarm Procedures.
	RO	RECOGNIZE Letdown isolated and all PRZR Heaters deenergized and DETERMINE Pressurizer Level Channel (LT-460) malfunction.
	RO	REPORT Pressurizer Level Channel I (LT-460) failed low.
	US	DIRECT performance of ABN-706, Pressurizer Level Instrumentation Malfunction, Section 2.0.
	RO	PLACE PZR Level Control <u>or</u> Charging Flow in MANUAL to maintain level on program using one of the following controllers:
		• 1-LK-459, PRZR LVL CTRL
		• 1-FK-121, CCP CHRG FLO CTRL
	RO	TRANSFER 1/1-LS-459D, PZR Level Control Channel Select to an OPERABLE channel.
	RO	TRANSFER 1/1-LS-459E, 1/1-LR-459 PZR Level Select to an OPERABLE channel.
	RO	RESTORE Letdown per Job Aid.
		• OPEN or VERIFY OPEN both Letdown Isolation Valves.
		• ENSURE 1-PK-131, LTDN HX OUT PRESS CTRL in MANUAL and 30% (75 gpm) or 50% (120 gpm) DEMAND.
		• ENSURE 1-TK-130, LTDN HX OUT TEMP CTRL in MANUAL and 50% DEMAND.

Operating Test :	NRC	Scenario #	1	Event #	4	Page	11	of	22
Event Description: Pressurizer Level Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> ADJUST Charging to desired flow and MAINTAIN Seal Injection flow between 6 and 13 gpm.
		<ul style="list-style-type: none"> OPEN the desired Orifice Isolation Valves.
		<ul style="list-style-type: none"> ADJUST 1-PK-131, LTDN HX OUT PRESS CTRL to ~310 psig on 1-PI-131, LTDN HX OUT PRESS then PLACE in AUTO.
		<ul style="list-style-type: none"> ADJUST 1-TK-130, LTDN HX OUT TEMP CTRL to obtain ~95°F on 1-TI-130, LTDN HX OUT TEMP, then place in AUTOMATIC.
	RO	RESTORE PZR Control Heater Group C.
Examiner Note: AUTO Pressurizer Level Control will not be restored until level is manually returned to program.		
	RO	RESTORE PZR Level Control <u>or</u> Charging Flow Control to AUTO as desired.
	RO	VERIFY instruments on common instrument line – NORMAL.
		<ul style="list-style-type: none"> DETERMINE PT-0456 and PT-0458 readings are NORMAL.
+10 min	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.1.M, Reactor Trip System Instrumentation.
		<ul style="list-style-type: none"> CONDITION M – One channel inoperable. ACTION M.1 – Place channel in trip within 72 hours.
When Technical Specifications are addressed, or at Lead Examiner discretion, PROCEED to Events 5, 6, 7, and 8.		

Operating Test : <u>NRC</u>		Scenario # <u>1</u>	Event # <u>5, 6, 7, & 8</u>	Page <u>12</u> of <u>22</u>
Event Description: <u>Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation</u>				
Time	Position	Applicant's Actions or Behavior		

Booth Operator: When directed, EXECUTE Events 5, 6, 7, and 8.

- RC17A, Loss of Coolant Accident @ 5,000 gpm on 60 second ramp.
- RP09A, Containment Isolation Train A actuation failure.
- RP09B, Containment Isolation Train B actuation failure.
- RH01B, Residual Heat Removal Pump (1-02) trip.
- RH15, Containment Sump to RHR Pump (1-01) Suction Isolation Valve Breaker 1-8811A trip.

Indications Available:**Numerous Reactor Trip and Safety Injection related alarms**

+10 secs	RO	RESPOND to Annunciator Alarm Procedures.
	RO	RECOGNIZE PRZR pressure decreasing.
	RO/BOP	INITIATE a Reactor Trip and Safety Injection.
	US	DIRECT performance of EOP-0.0A, Reactor Trip or Safety Injection.
	RO	VERIFY Reactor Trip:
		<ul style="list-style-type: none"> • DETERMINE Reactor trip breakers – OPEN. • DETERMINE Neutron flux – DECREASING.
	RO	DETERMINE all Control Rod Position Rod Bottom Lights – ON.
	BOP	VERIFY Turbine Trip:
		<ul style="list-style-type: none"> • DETERMINE all HP Turbine Stop Valves – CLOSED.
	BOP	VERIFY Power to AC Safeguards Buses:
		<ul style="list-style-type: none"> • DETERMINE both AC Safeguards Buses – ENERGIZED.
	RO	DETERMINE both Trains of SI actuated.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	13	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

Examiner Note: EOP-0.0A, Attachment 2 steps performed by BOP are identified later in the scenario.

	US/BOP	INITIATE Proper Safeguards Equipment Operation Per Attachment 2.
	RO	VERIFY AFW Alignment:
		• DETERMINE both MDAFW Pumps – RUNNING.
		• DETERMINE Turbine Driven AFW Pump – RUNNING.
		• DETERMINE AFW total flow – GREATER THAN 460 GPM.
		• DETERMINE AFW valve alignment – PROPER ALIGNMENT.
	RO	VERIFY Containment Spray Not Required:
		• VERIFY 1-ALB-2B Window 1-8, CS ACT NOT illuminated.
		• VERIFY 1-ALB-2B Window 4-11, CNTMT ISOL PHASE B ACT NOT illuminated.
		• VERIFY Containment pressure < 18.0 PSIG.
		• VERIFY Containment Spray Heat Exchanger Outlet Valves – CLOSED.
		• VERIFY all Containment Spray Pumps – RUNNING.
<p>Examiner Note: Operators may manually isolate the Main Steam Lines in anticipation of Containment HI-2 pressure (6.2 psig) prior to automatic isolation. If not performed here the isolation will occur later as Containment pressure rises.</p>		
	RO	DETERMINE Main Steam Lines Should Be Isolated:
		• VERIFY Main Steam Isolation complete:
		• DETERMINE Main Steam Isolation Valves – CLOSED.
		• DETERMINE before MSIV Drippot Isolation Valves – CLOSED.
	RO	CHECK RCS Temperature -
		• DETERMINE RCS AVERAGE TEMPERATURE less than 557°F.
	RO	STOP dumping steam.
	RO	REDUCE total AFW flow to minimize the cooldown:

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	14	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> MAINTAIN a minimum of 460 gpm <u>UNTIL</u> narrow range level greater than 50% in at least one SG.
		<ul style="list-style-type: none"> VERIFY Turbine Driven AFW Pump – STOPPED.
	RO	CHECK PRZR Valve Status:
		<ul style="list-style-type: none"> DETERMINE PRZR Safeties – CLOSED.
		<ul style="list-style-type: none"> DETERMINE PRZR Spray Valves – CLOSED.
		<ul style="list-style-type: none"> DETERMINE PORVs – CLOSED.
		<ul style="list-style-type: none"> DETERMINE power to both PORV Block Valves – AVAILABLE.
		<ul style="list-style-type: none"> DETERMINE both PORV Block Valves – OPEN.
	US/RO	CHECK If RCPs Should Be Stopped:
		<ul style="list-style-type: none"> DETERMINE all ECCS Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE RCS subcooling – LESS THAN 25°F (55 °F adverse).
CRITICAL TASK STATEMENT		Manually Trip Reactor Coolant Pumps due to Loss of Subcooling Prior to Exiting EOP-0.0A.
CRITICAL TASK	RO	DETERMINE RCS subcooling less than 25°F (55°F adverse) and STOP all RCPs.
	RO/BOP	CHECK if Any Steam Generator Is Faulted:
		<ul style="list-style-type: none"> DETERMINE pressure in all Steam Generators – NORMAL.
	RO/BOP	CHECK if any Steam Generator is Ruptured:
		<ul style="list-style-type: none"> DETERMINE radiation levels in all Steam Generators – NORMAL.
	RO/BOP	CHECK if RCS is intact:
		<ul style="list-style-type: none"> DETERMINE Containment pressure, radiation level and sump levels increasing.
+10 min	US	TRANSITION to EOP-1.0A, Loss of Reactor or Secondary Coolant, Step 1.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	15	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

Examiner Note: These steps are performed by the BOP as required per EOP-0.0A, Attachment 2. EOP-1.0A steps are identified later in the scenario.

	BOP	VERIFY SSW Alignment:
		<ul style="list-style-type: none"> DETERMINE both SSW Pumps – RUNNING.
		<ul style="list-style-type: none"> VERIFY Train B Diesel Generator Cooler SSW return flow.
	BOP	VERIFY Safety Injection Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE both Safety Injection Pumps – RUNNING.
CRITICAL TASK STATEMENT		Manually Initiate Containment Isolation Phase A due to Failure to Automatically Actuate Prior to Exiting EOP-0.0A.
CRITICAL TASK	BOP	Manually INITIATE both Trains of Containment Isolation Phase A.
		<ul style="list-style-type: none"> PLACE 1/1-CIPAA1 CNTMT ISOL – PHASE A CONT VENT ISOL Switch in ACT position.
	BOP	VERIFY Containment Isolation Phase A.
	BOP	VERIFY Containment Ventilation Isolation.
	BOP	VERIFY both CCW Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE both CCW Pumps – RUNNING.
	BOP	VERIFY both RHR Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE Train A RHR Pump – RUNNING.
		<ul style="list-style-type: none"> DETERMINE Train B RHR Pump – TRIPPED.
	BOP	VERIFY Proper CVCS Alignment:
		<ul style="list-style-type: none"> DETERMINE both CCPs – RUNNING.
		<ul style="list-style-type: none"> VERIFY Letdown Relief Valve isolation:
		<ul style="list-style-type: none"> DETERMINE Letdown Orifice Isolation Valves – CLOSED.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	16	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> DETERMINE Letdown Isolation Valves – CLOSED. 		
	BOP	VERIFY ECCS flow:		
		<ul style="list-style-type: none"> VERIFY CCP SI flow indicated. 		
		<ul style="list-style-type: none"> VERIFY RCS pressure < 1800 PSIG. 		
		<ul style="list-style-type: none"> VERIFY SIP discharge flow indicators. 		
		<ul style="list-style-type: none"> DETERMINE RCS pressure < 425 PSIG. 		
		<ul style="list-style-type: none"> RHR to Cold Leg Injection Flow Indicators – CHECK FOR FLOW 		
		<ul style="list-style-type: none"> DETERMINE Train A RHR flow – INDICATED. 		
	BOP	VERIFY Feedwater Isolation Complete:		
		<ul style="list-style-type: none"> VERIFY Feedwater Isolation Valves – CLOSED. 		
		<ul style="list-style-type: none"> VERIFY Feedwater Isolation Bypass Valves – CLOSED. 		
		<ul style="list-style-type: none"> VERIFY Feedwater Bypass Control Valves – CLOSED. 		
		<ul style="list-style-type: none"> VERIFY Feedwater Control Valves – CLOSED. 		
	BOP	VERIFY Train B Diesel Generator – RUNNING.		
	BOP	VERIFY Monitor Lights For SI Load Shedding illuminated.		
	BOP	VERIFY Proper SI alignment per MLB light indication.		
	BOP	VERIFY Components Properly Aligned per Table 1.		
		<u>Location</u>	<u>Equipment</u>	<u>Description</u>
		CB-03	X-HS-5534	H2 PRG SPLY FN 4
		CB-03	X-HS-5532	H2 PRG SPLY FN 3
		CB-04	1/1-8716A	RHRP 1 XTIE VLV
		CB-04	1/1-8716B	RHRP 2 XTIE VLV
		CB-06	1/1-8153	XS LTDN ISOL VLV
		CB-06	1/1-8154	XS LTDN ISOL VLV
		CB-07	1/1-RTBAL	RX TRIP BKR
		CB-07	1/1-RTBBL	RX TRIP BKR
				<u>Condition</u>
				STOPPED
				STOPPED
				OPEN
				OPEN
				CLOSED
				CLOSED
				OPEN
				OPEN

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	17	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

	CB-07	1/1-BBAL	RX TRIP BYP BKR	OPEN/DEENERGIZED
	CB-07	1/1-BBBL	RX TRIP BYP BKR	OPEN/DEENERGIZED
	CB-08	1-HS-2397A	SG 1 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2398A	SG 2 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2399A	SG 3 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2400A	SG 4 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2111C	FWPT A TRIP	TRIPPED
	CB-08	1-HS-2112C	FWPT B TRIP	TRIPPED
	CB-09	1-HS-2490	CNDS XFER PUMP	STOPPED (MCC deenergized on SI)
	CV-01	X-HS-6181	PRI PLT SPLY FN 17 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6188	PRI PLT SPLY FN 18 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6195	PRI PLT SPLY FN 19 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6202	PRI PLT SPLY FN 20 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6209	PRI PLT SPLY FN 21 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6216	PRI PLT SPLY FN 22 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6223	PRI PLT SPLY FN 23 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6230	PRI PLT SPLY FN 24 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-3631	UPS & DISTR RM A/C FN 1 & BSTR FN 42	STARTED
	CV-01	X-HS-3632	UPS & DISTR RM A/C FN 2 & BSTR FN 43	STARTED
	CV-01	1-HS-5600	ELEC AREA EXH FN 1	STOPPED/DEENERGIZED
	CV-01	1-HS-5601	ELEC AREA EXH FN 2	STOPPED/DEENERGIZED
	CV-01	1-HS-5602	MS & FW PIPE AREA EXH FN 3 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5603	MS & FW PIPE AREA EXH FN 4 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5618	MS & FW PIPE AREA SPLY FN 17	STOPPED/DEENERGIZED
	CV-01	1-HS-5620	MS & FW PIPE AREA SPLY FN 18	STOPPED/DEENERGIZED

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	18	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

	CV-03	X-HS-5855	CR EXH FN 1	STOPPED/DEENERGIZED
	CV-03	X-HS-5856	CR EXH FN 2	STOPPED/DEENERGIZED
	CV-03	X-HS-5731	SFP EXH FN 33	STOPPED/DEENERGIZED
	CV-03	X-HS-5733	SFP EXH FN 34	STOPPED/DEENERGIZED
	CV-03	X-HS-5727	SFP EXH FN 35	STOPPED/DEENERGIZED
	CV-03	X-HS-5729	SFP EXH FN 36	STOPPED/DEENERGIZED

Examiner Note: The next four (4) steps would be performed on Unit 2.

	CB-03	2-HS-5538	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5539	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5537	AIR PRG SPLY ISOL DMPR	CLOSED
	CB-03	2-HS-5536	AIR PRG SPLY ISOL DMPR	CLOSED

	BOP	NOTIFY Unit Supervisor Attachment instructions complete and to IMPLEMENT FRGs as required.
--	-----	--

Examiner Note: EOP-1.0A, Loss of Reactor or Secondary Coolant, steps begin here. Steps for FRZ-0.1A, Response to High Containment Pressure, are identified later in the scenario.

	US	CHECK if RCPs Should Be Stopped:
		<ul style="list-style-type: none"> DETERMINE all RCPs STOPPED.

	US	CHECK if Any Steam Generator Is Faulted:
		<ul style="list-style-type: none"> DETERMINE pressure in all Steam Generators – NORMAL.

	US	CHECK Intact Steam Generator Levels:
		<ul style="list-style-type: none"> DETERMINE Narrow range levels – GREATER THAN 50%. CONTROL AFW flow to maintain NR level between 50% and 60%.

	US	CHECK Secondary Radiation NORMAL:
		<ul style="list-style-type: none"> DETERMINE no Steam Generator tubes ruptured.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	19	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

	US	CHECK PRZR PORVs and Block Valves:
		<ul style="list-style-type: none"> DETERMINE power to both PORV Block Valves – AVAILABLE.
		<ul style="list-style-type: none"> DETERMINE PORVs – CLOSED.
		<ul style="list-style-type: none"> DETERMINE both PORV Block Valves – OPEN.
	US/RO	DETERMINE ECCS Flow Should NOT Be Reduced:
		<ul style="list-style-type: none"> VERIFY Secondary heat sink:
		<ul style="list-style-type: none"> DETERMINE total AFW flow to intact SGs > 460 GPM.
		<ul style="list-style-type: none"> DETERMINE Narrow range level in all SGs > 50%.
		<ul style="list-style-type: none"> DETERMINE RCS subcooling < 25°F (55°F adverse).
	RO/BOP	RESET ESF Actuation Signals.
	RO/BOP	PLACE Train B Diesel Generator EMERG STOP/START Handswitch in START.
	RO/BOP	RESET SI.
	RO/BOP	RESET SI Sequencers.
	RO/BOP	RESET Containment Isolation Phase A and Phase B.
	RO/BOP	RESET Containment Spray Signal.
	US	CHECK If RHR Pumps Should Be Stopped.
		<ul style="list-style-type: none"> DETERMINE RCS pressure > 325 PSIG (425 PSIG adverse).
		<ul style="list-style-type: none"> STOP RHR Pump 1-01 and PLACE in standby.
		<ul style="list-style-type: none"> RESET RHR Auto Switchover.
	US	CHECK RCS and SG Pressures.
		<ul style="list-style-type: none"> DETERMINE RCS pressure STABLE or DECREASING, AND

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	20	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> DETERMINE all SG pressures are STABLE or INCREASING.
	RO/BOP	DETERMINE AC Safeguards Buses ENERGIZED by Offsite Power.
		<ul style="list-style-type: none"> PLACE Train B DG EMERG STOP/START Handswitch in STOP.
Booth Operator: When contacted, WAIT five minutes then REPORT Train B RHR Pump has Phase B 50/51 overcurrent relay flags dropped and the motor has an acrid odor.		
Booth Operator: If contacted to investigate breaker status for 1/1-8811A, WAIT three minutes and REPORT breaker is tripped free and will not reset. If dispatched to locally open 1/1-8811A, REPORT that RP will not allow entry into area due to high radiation levels.		
	US	INITIATE Evaluation of Plant Status:
		<ul style="list-style-type: none"> DETERMINE Cold Leg Recirculation Capability - NOT AVAILABLE.
		<ul style="list-style-type: none"> DETERMINE 1-8811A, Containment Sump to Train A RHR Pump Suction Isolation Valve will NOT open.
		<ul style="list-style-type: none"> DETERMINE Train B RHR Pump – TRIPPED.
+20 min	US	TRANSITION to ECA-1.1A, Loss of Emergency Coolant Recirculation, Step 1.
Examiner Note: ECA-1.1A, Loss of Emergency Coolant Recirculation, steps begin here.		
	US	CHECK If Emergency Coolant Recirculation Equipment – AVAILABLE PER ATTACHMENT 2.
		<ul style="list-style-type: none"> ATTEMPT to restore at least one train.
	US	VERIFY Train B EDG – STOPPED.
	RO/BOP	VERIFY SI reset.
	RO/BOP	VERIFY SI Sequencers reset.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	21	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

	RO/BOP	VERIFY Containment Isolation Phase A and Phase B reset.
	RO/BOP	VERIFY Containment Spray Signal reset.
	RO/BOP	RESET RHR Auto Switchover.
	US	NOTIFY Plant Staff to DETERMINE if Containment Fan Coolers should be started.
	US	CHECK RWST Level – GREATER THAN RWST EMPTY.
	US/RO	DETERMINE Containment Spray Requirements:
		• DETERMINE Containment Spray Pump suction – ALIGNED TO RWST.
		• DETERMINE Containment pressure – less than 18 PSIG AND LOWERING.
		• DETERMINE zero (0) Containment Spray Pumps REQUIRED from Table 1.
CRITICAL TASK STATEMENT		Determine Cold Leg Recirculation Capability Does NOT Exist and Maintain Core Cooling Prior to Refueling Water Storage Tank Level Reaching 0%.
CRITICAL TASK	BOP	STOP all Containment Spray Pumps.
Examiner Note: FRZ-0.1A, Response to High Containment Pressure, steps begin here.		
	US	ENTER FRZ-0.1A, Response to High Containment Pressure, due to an ORANGE Path.
	US	DETERMINE Containment Pressure NOT GREATER THAN 50 PSIG and alignment was NOT verified in EOP-0.0A.
	RO/BOP	VERIFY Containment Isolation Phase A – APPROPRIATE MLB LIGHT INDICATION.

Operating Test :	NRC	Scenario #	1	Event #	5, 6, 7, & 8	Page	22	of	22
Event Description: Large Break LOCA / Phase A Containment Isolation Failure / Loss of Emergency Coolant Recirculation									
Time	Position	Applicant's Actions or Behavior							

	RO/BOP	VERIFY Containment Ventilation Isolation – APPROPRIATE MLB LIGHT INDICATION.
	RO/BOP	CHECK If Containment Spray Is Required:
		<ul style="list-style-type: none"> DETERMINE Containment pressure was >18.0 PSIG.
		<ul style="list-style-type: none"> DETERMINE Containment Spray AND Phase B Actuation – INITIATED.
		<ul style="list-style-type: none"> DETERMINE all RCPs – STOPPED.
		<ul style="list-style-type: none"> DETERMINE ECA-1.1A, Loss of Emergency Coolant Recirculation, is in effect.
		<ul style="list-style-type: none"> OPERATE Containment Spray per ECA-1.1A, Loss of Emergency Coolant Recirculation.
	RO/BOP	VERIFY Main Steam Isolation Valves – CLOSED.
	US	DETERMINE Feed Flow Should NOT Be Isolated To Any SG.
+30 min	US	RETURN To Procedure And Step In Effect.
<i>When Containment Spray flow is secured <u>or</u> the actions of FRZ are complete, TERMINATE the scenario.</i>		

Facility:	CPNPP 1 & 2	Scenario No.:	2	Op Test No.:	July 2010 NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: <ul style="list-style-type: none"> 72% power MOL - RCS Boron is 916 ppm by Chemistry sample. Train A Emergency Diesel Generator is OOS for governor repair. 					
Turnover: Maintaining 72% power per Load Controller direction. Rod Control in AUTO.					
Critical Tasks: <ul style="list-style-type: none"> Emergency Borate Required for Two Stuck Control Rods. Perform Actions to Identify and Isolate Faulted Steam Generator. Perform Actions to Initiate Feed Isolation to Faulted Steam Generator. 					
Event No.	Malf. No.	Event Type*	Event Description		
1 +10 min	RX09A	I (RO, BOP, SRO) TS (SRO)	Main Turbine 1 st Stage Pressure Transmitter (PT-505) Fails Low.		
2 +20 min	CC02A CC03A	C (BOP, SRO) TS (SRO)	Train A Component Cooling Water Pump (1-01) Trip. Train B Component Cooling Water Pump (1-02) Auto Start Failure.		
3 +30 min	RX08A	I (RO, SRO) TS (SRO)	Pressurizer Pressure Channel (PT-455) Fails Low.		
4 +40 min	RX04A	I (BOP, SRO) TS (SRO)	Steam Generator (1-01) Level Channel (LT-551) Fails High.		
5 +45 min	MS03A	M (RO, BOP, SRO)	Steam Generator (1-01) Steam Line Break Outside Containment Before Main Steam Isolation Valve (300 second ramp).		
6 +45 min	RD04K6 RD04K8	C (RO)	Two Control Rods Fail to Insert Upon Reactor Trip. Emergency Boration Required.		
7 +55 min	SI04D	C (BOP)	Safety Injection Pump (1-02) Fails to Start.		
8 +55 min	FW38 A/B/C/D	C (BOP)	Feed Line Isolation Valves (HV-2134 to HV-2137) Fail to Close.		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Technical Specifications					

Scenario Event Description
NRC Scenario #2

SCENARIO SUMMARY NRC #2

The crew will assume the watch at 72% power with no scheduled activities per IPO-003A, Power Operations. The Grid Controller has requested that power remain at this level due to transmission line overload until further notice. Train A Emergency Diesel Generator is out of service for governor repair.

The first event is a Main Turbine 1st Stage Pressure Transmitter failure. The crew responds per ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1st-Stage Pressure and Feed Header Pressure Instrument Malfunction, Section 4.0. Several actions are required on the part of the RO and BOP to stabilize plant conditions. The SRO will refer to Technical Specifications.

When plant conditions are stable, the Train A Component Cooling Water (CCW) Pump will trip and the Train B CCW Pump will fail to automatically start. The crew will respond per ABN-502, Component Cooling Water System Malfunctions, Section 2.0, and manually start Train B CCW Pump and perform equipment adjustments as required by procedure. The SRO will refer to Technical Specifications.

When ABN-502 actions are complete, a Pressurizer Pressure Channel will fail low. Response is per ABN-705, Pressurizer Pressure Malfunction, Section 2.0, to ensure Pressurizer Heaters are controlled and Power Operated Relief Valves remain closed. The SRO will refer to Technical Specifications.

Once systems are stable, a Steam Generator Level Transmitter fails high. ABN-710, Steam Generator Level Instrumentation Malfunction is referenced and the BOP takes Manual control of the Feedwater Control Valve to prevent a Unit trip on low Steam Generator level. Once identified, an Alternate Channel is selected and Automatic control restored. The SRO will refer to Technical Specifications.

When Technical Specifications have been addressed, a Main Steam Line Break Outside Containment before the Main Steam Isolation Valve will ramp in over five minutes on Steam Generator 1-01. With lowering Pressurizer pressure and Reactor Coolant System temperature, the Unit Supervisor will direct a Reactor and Turbine Trip.

The crew will enter EOP-0.0A, Reactor Trip or Safety Injection, and then transition to EOP-2.0A, Faulted Steam Generator Isolation, at Step 12. While performing the actions of EOP-0.0A, the RO will be required to manually initiate an Emergency Boration due to two stuck Control Rods and the BOP will start a Safety Injection Pump and manually close the Feed Line Isolation Valves while in Attachment 2.

Once the faulted Steam Generator is isolated, the Unit Supervisor will transition to EOS-1.1A, Safety Injection Termination. The scenario is terminated after EOS-1.1A, Safety Injection Termination, is entered and the actions to secure Safety Injection flow are performed.

Risk Significance:

- Risk important components out of service: Train A Emergency Diesel Generator
- Failure of risk important system prior to trip: Train A Component Cooling Water System
- Risk significant core damage sequence: Main Steam Line Break Outside Containment
- Risk significant operator actions: Emergency Borate Due to Two Stuck Rods
Isolate Faulted Steam Generator
Isolate Feedwater to Faulted SG

Scenario Event Description
NRC Scenario #2

BOOTH OPERATOR INSTRUCTIONS for SIMULATOR SETUP

Initialize to IC #50 and Event File for NRC Scenario #2. Rods in AUTO.

EVENT	TYPE	MALF #	DESCRIPTION	DEMAND VALUE	INITIATING PARAMETER
SETUP		-	Train A EDG OOS	PULLOUT	-
		RD04K6	Control Rod fails to insert	12 Steps	K0
		RD04K8	Control Rod fails to insert	228 Steps	K0
		COND	Feed Line Isolation Valves close with handswitch DIFWHS 2134.Value=0 DMF FW 38A DIFWHS 2135.Value=0 DMF FW 38B DIFWHS 2136.Value=0 DMF FW 38C DIFWHS 2137.Value=0 DMF FW 38D	CLOSE	K0
		SI04D	Safety Injection Pump 1-02 auto start failure	—	K0
1		RX09A	Turbine 1 st Stage PT-505 failure	0%	K1
2		CC02A	Train A CCW Pump 1-01 trip	TRIP	K2
2		CC03A	Train B CCW Pump 1-02 auto start failure	START FAILURE	K2
3		RX08A	Pressurizer Pressure Channel PT-455 failure	1700 psig	K3
4		RX04A	SG 1-01 Level Transmitter LT-551 fails high	100%	K4
5		MS03A	Steam Generator 1-01 Main Steam Line Break Outside Containment before MSIV	9.5 ft ²	K5 (300 sec ramp)
6		RD04K6	Control Rod fails to insert	12 Steps	K0
6		RD04K8	Control Rod fails to insert	228 Steps	K0
7		SI04D	Safety Injection Pump 1-02 auto start failure	—	K0
8		FW38 A/B/C/D	Feed Line Isolation Valves fail to close	OPEN	K0

Scenario Event Description
NRC Scenario #2

Booth Operator: INITIALIZE to IC #50 and NRC Scenario #2 SETUP file.
ENSURE all Simulator Annunciator Alarms are ACTIVE.
ENSURE Control Board Tags are hung:
- Red tag Train A Emergency Diesel Generator 1-01& Breaker DG1 BKR 1EG1.
ENSURE Operator Aid Tags reflect current boron conditions.
ENSURE Rod Bank Update (RBU) is performed.
ENSURE Turbine Load Rate set at 10 MWe/minute.
ENSURE Reactivity Briefing Sheet printout provided with Turnover.
ENSURE procedures in progress are on SRO desk:
- COPY of IPO-003A, Power Operations, Section 5.5, Operating at Constant Turbine Load.
ENSURE Control Rods are in AUTO at 179 steps.

Control Room Annunciators in Alarm:

PCIP-1.1 – SR TRN A RX TRIP BLK
PCIP-1.2 – IR TRN A RX TRIP BLK
PCIP-1.4 – CNDSR AVAIL STM DMP ARMED C-9
PCIP-1.6 – RX \geq 10% PWR P-10
PCIP-2.1 – SR TRN B RX TRIP BLK
PCIP-2.2 – IR TRN B RX TRIP BLK
PCIP-2.5 – SR RX TRIP BLK PERM P-6
PCIP-3.2 – PR TRN A LO SETPT RX TRIP BLK
PCIP-4.2 – PR TRN B LO SETPT RX TRIP BLK
10B-1.8 – DG 1 DISABLED

Operating Test :	NRC	Scenario #	2	Event #	1	Page	5	of	23
Event Description: Main Turbine Pressure Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 1.

- RX09A, Main Turbine Pressure Transmitter (PT-505) fails low.

Indications Available:

6D-1.10 – AVE T_{AVE} T_{REF} DEV

PCIP-2.4 – LO TURB PWR ROD WITHDRW BLK C-5

1-PI-505 – Turbine Impulse Pressure Channel I indication fails low

1-TI-412A – Ave T_{AVE} T_{REF} Deviation indication to maximum

+30 secs	RO/BOP	RESPOND to Annunciator Alarm Procedures.
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	RO/BOP	RECOGNIZE Control Rods INSERTING due to Turbine Impulse Pressure Instrument failure.
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	RO/BOP	REPORT PT-505, Turbine Impulse Pressure Channel I has failed low.
--	--------	---

	US	DIRECT implementation of ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1 st -Stage Pressure, and Feed Header Pressure Instrument Malfunction, Section 4.0.
--	----	--

	RO	DETERMINE Control Rods INSERTING in AUTO and PLACE 1/1-RBSS Control Rod Bank Select Switch in MANUAL.
--	----	---

	BOP	DETERMINE Steam Dumps - CLOSED with 100% DEMAND.
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- | | | |
|--|--|---|
| | | <ul style="list-style-type: none"> OBSERVE 1-UI-500, STM DMP DEMAND indicates 100% DEMAND. |
|--|--|---|

	BOP	PLACE at least one (1) Steam Dump Interlock Switch in OFF.
--	-----	--

Examiner Note: The following five (5) steps are from ABN-709, Attachment 7, Transferring Steam Dumps and are performed using the Job Aid.

	BOP	ENSURE 1-PK-507, STM DMP PRESS CTRL is in MANUAL.
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	BOP	MATCH 1-PK-507, STM DUMP PRESS CTRL demand to current Steam Dump Valve position.
--	-----	--

Operating Test :	NRC	Scenario #	2	Event #	1	Page	6	of	23
Event Description: Main Turbine Pressure Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	VERIFY window PCIP-1.4, CNDSR AVAIL STM DMP ARMED C-9 is ON.
	BOP	PLACE 43/1-SD, STM DMP MODE SELECT in STM PRESS.
	BOP	ENSURE both STM DMP INTLK SELECT switches are ON.
	US	DIRECT transfer of 1-PS-505Z, Turbine Impulse Pressure Channel Select to PT-506.
	RO	PLACE PT-506, Turbine Impulse Pressure Channel II in service.
Examiner Note: Crew should hold reactivity brief to establish plan for restoring rods to pre-event position (179 steps on Control Bank D).		
	RO	ENSURE T_{AVE} within 1°F of T_{REF} then PLACE 1/1-RBSS Control Rod Bank Select Switch in AUTO.
Examiner Note: Performing the next step meets the REQUIRED ACTION for Technical Specification LCO 3.3.1, Table 3.3.1-1. A Procedure Enhancement will be submitted for ABN-709 specifically identifying Technical Specifications should be referenced to ensure compliance with the LCO.		
	US	Within 1 hour, VERIFY PCIP Window 4.6, TURB ≤ 10% PWR P-13, in proper state for existing plant conditions (DARK).
	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.1.T, Reactor Trip System Instrumentation.
		<ul style="list-style-type: none"> CONDITION T - One or more required channels inoperable. ACTION T.1 - Verify interlock is in required state for existing unit conditions within one (1) hour.

Operating Test : <u> NRC </u> Scenario # <u> 2 </u> Event # <u> 1 </u> Page <u> 7 </u> of <u> 23 </u>		
Event Description: <u> Main Turbine Pressure Transmitter Failure </u>		
Time	Position	Applicant's Actions or Behavior

	US	VERIFY PCIP Window 1.3, AMSAC BLK TURB < 40% PWR C-20 (LIT).
		<ul style="list-style-type: none"> If AMSAC actuation blocked <u>and</u> Turbine power >40%, ENSURE Automatic Actions of ALB-9B Window 3.7, AMSAC ACT TURB TRIP as necessary.
+10 min	US	INITIATE a Work Request per STA-606.
<i>When the Turbine impulse pressure transmitter actions are addressed, or at Lead Evaluator's discretion, PROCEED to Event 2.</i>		

Operating Test :	NRC	Scenario #	2	Event #	2	Page	8	of	23
Event Description: Train A CCW Pump Trip / Train B CCW Pump Start Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 2.

- CC02A, Train A CCW Pump (1-01) trip.
- CC03A, Train B CCW Pump (1-02) start failure.

Indications Available:

3C-1.6 – CSP 1 & 3 SEAL CLR CCW RET FLO LO
 3C-1.8 – SFP HX 1 CCW RET FLO LO
 3C-1.14 – RCDT HX CCW RET FLO LO
 3C-1.16 – SEAL WTR HX CCW RET FLO LO
 3C-2.3 – CCWP 1 / 2 OVLD TRIP
 3C-2.6 – CSP 2 & 4 SEAL CLR CCW RET FLO LO
 3C-2.12 – ANY RCP MTR CLR CCW RET FLO LO
 3C-3.3 – CCW TRAIN B SFGD LOOP PRESS LO
 3C-3.11 – ANY RCP THBR CLR CCW RET FLO LO
 3C-3.12 – ANY RCP UP BRG L/O CLR CCW RET FLO LO
 3C-4.7 – RHRP 2 SEAL CLR CCW RET FLO LO
 3C-4.12 – ANY RCP LOW BRG L/O CLR CCW RET FLO LO
 3C-4.13 – XS LTDN HX CCW RET FLO LO
 4A-1.7 – SFTY CH WTR TR A/B TRBL/TRIP
 01-1.10 – SSW TO CCW TRN A HX ΔP LO
 01-2.10 – SSW TO CCW TRN B HX ΔP LO

+1 min	BOP	RESPOND to Annunciator Alarm Procedures.
	BOP	RECOGNIZE Train A CCW Pump trip with failure of Train B CCW Pump to start.
	US	DIRECT implementation of ABN-502, Component Cooling Water System Malfunctions, Section 2.0.
	BOP	DETERMINE Train B CCW Pump did NOT auto start and START CCW Pump 1-02.
	BOP	VERIFY Train B Station Service Water Pump running.
	RO/BOP	VERIFY Train B Safety Chiller Recirc Pump 1-06 is running.
	BOP	VERIFY CCW heat exchanger outlet flow < 17,500 gpm per heat exchanger.
		<ul style="list-style-type: none"> • 1-FI-4536A, CCW Heat Exchanger #1 Outlet Flow
		<ul style="list-style-type: none"> • 1-FI-4537A, CCW Heat Exchanger #2 Outlet Flow

Operating Test : <u> NRC </u> Scenario # <u> 2 </u> Event # <u> 2 </u> Page <u> 9 </u> of <u> 23 </u>		
Event Description: Train A CCW Pump Trip / Train B CCW Pump Start Failure		
Time	Position	Applicant's Actions or Behavior

	BOP	STOP equipment on Train A as necessary for plant conditions.
	BOP	VERIFY CCW Heat Exchanger outlet temperature did NOT exceed 122°F with pump running.
	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.7.7.A, Component Cooling Water System.
		<ul style="list-style-type: none"> CONDITION A - One CCW train inoperable. ACTION A.1 - Restore CCW train to OPERABLE status within 72 hours.
+10 min	US	INITIATE a Work Request per STA-606.
<p><i>When the Technical Specification actions are addressed, or at Lead Evaluator's discretion, PROCEED to Event 3.</i></p>		

Operating Test :	NRC	Scenario #	2	Event #	3	Page	10	of	23
Event Description: Pressurizer Pressure Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 3.
 - RX08A, Pressurizer Pressure Channel (PT-455) fails low.

Indications Available:

5B-3.4 – PRZR 1 OF 4 PRESS LO
 5B-4.4 – PRZR 1 OF 4 SI PRESS LO
 5C-3.3 – PRZR PRESS LO BACKUP HTRS ON
 5C-3.6 – CORE CLG MICRO PROC TRN A SYS FAIL

+1 min	RO	RESPOND to Annunciator Alarm Procedures.
	RO	RECOGNIZE PRZR pressure rising with PRZR heaters ON.
	US	DIRECT performance of ABN-705, Pressurizer Pressure Malfunction, Section 2.0.
<u>Examiner Note:</u> The next three (3) steps are Initial Operator Actions.		
	RO	VERIFY PORV closed.
	RO	PLACE 1-PK-455A, PRZR Master Pressure Control in MANUAL.
	RO	ADJUST 1-PK-455A for current RCS pressure.
	RO	TRANSFER to an alternate controlling channel, 1/1-PS-455F, PRZR Press Control Channel Select.
	RO	PLACE 1-PK-455A in AUTO.
	RO	VERIFY automatic control restoring Pressurizer pressure to 2235 psig.
	RO	ENSURE a valid channel selected to recorder 1/1-PS-455G, 1-PR-455 PRZR Pressure Select.

Operating Test :	NRC	Scenario #	2	Event #	3	Page	11	of	23
Event Description: Pressurizer Pressure Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Examiner Note: Performing the next step meets the **REQUIRED ACTION** for Technical Specification LCO 3.3.2, Table 3.3.2-1. A Procedure Enhancement will be submitted for ABN-705 specifically identifying Technical Specifications should be referenced to ensure compliance with the LCO.

	US	Within 1 hour, VERIFY PCIP window 2.6, PRZR PRESS SI BLK PERM P-11 in required state for current pressure (DARK).
	US/RO	VERIFY other instruments on common instrument line – NORMAL.
		<ul style="list-style-type: none"> DETERMINE LT-459, LT-459F, and PT-455F readings are NORMAL.
+10 min	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.1.E, Reactor Trip System Instrumentation.
		<ul style="list-style-type: none"> CONDITION E - One channel inoperable. ACTION E.1 - Place channel in trip within 72 hours.
		<ul style="list-style-type: none"> LCO 3.3.1.M, Reactor Trip System Instrumentation.
		<ul style="list-style-type: none"> CONDITION M - One channel inoperable. ACTION M.1 - Place channel in trip within 72 hours.
		<ul style="list-style-type: none"> LCO 3.3.2.L, ESFAS Instrumentation.
		<ul style="list-style-type: none"> CONDITION L - One channel inoperable. ACTION L.1- Verify interlock in required state for existing condition within 1 hour.
		<ul style="list-style-type: none"> LCO 3.3.2.D, ESFAS Instrumentation.
		<ul style="list-style-type: none"> CONDITION D - One channel inoperable. ACTION D.1 - Place channel in trip within 72 hours.
When Technical Specifications are addressed, or at Lead Examiner discretion, PROCEED to Event 4.		

Operating Test :	NRC	Scenario #	2	Event #	4	Page	12	of	23
Event Description: Steam Generator Level Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 4.**- RX04A, SG 1-01 Level Transmitter (LT-551) fails high.****Indications Available:****8A-1.12 – SG 1 LVL DEV****8A-1.8 – SG 1 STM & FW FLO MISMATCH****9A-3.2 – HDP 1 DISCH PRESS HI****9A-7.2 – HDP 2 DISCH PRESS HI****1-LI-551, SG 1 LVL (NR) CHAN I indication fails high****1-FK-510, SG 1 FW FLO CTRL VLV starts to close**

+30 sec	BOP	REFER to Annunciator Alarm Procedures.
	BOP	RECOGNIZE Steam Generator 1-01 Level Transmitter (LT-551) failed high.
	US	DIRECT implementation of ABN-710, Steam Generator Level Instrumentation Malfunction, Section 2.0.
	BOP	DETERMINE controlling level channel has failed.
	BOP	PLACE 1-FK-510, SG 1 FW FLO CTRL in MANUAL and OPEN valve to CONTROL level.
	BOP	VERIFY instruments on common instrument line – NORMAL.
		<ul style="list-style-type: none"> DETERMINE LT-501 reading is NORMAL.
	RO	VERIFY all HI-HI level bistable Windows on TSLB-3 for SG 1-01 – DARK.
		<ul style="list-style-type: none"> DETERMINE Windows 2.2, 3.2, and 4.2 are DARK.
	BOP	VERIFY automatic SG 1-01 level control AVAILABLE and DESIRED:
		<ul style="list-style-type: none"> DETERMINE Alternate Level Control Channel responding normally.
	BOP	SELECT an alternate channel.
		<ul style="list-style-type: none"> PLACE 1-LS-519C, SG 1 LVL CHAN SELECT to 1-LY-519 position.
	BOP	VERIFY Steam Generator 1-01 ready for AUTO Level Control:

Operating Test :	NRC	Scenario #	2	Event #	4	Page	13	of	23
Event Description: Steam Generator Level Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> DETERMINE Feedwater and Steam Flows matched.
		<ul style="list-style-type: none"> VERIFY Steam Generator level stable at program.
	BOP	PLACE 1-FK-510, SG 1 FW FLO CTRL in AUTO and MONITOR operation.
	US	INITIATE repairs per STA-606.
+10 min	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.1.E, Reactor Trip System Instrumentation.
		<ul style="list-style-type: none"> CONDITION E - One channel inoperable. ACTION E.1 - Place channel in trip within 72 hours.
		<ul style="list-style-type: none"> LCO 3.3.2.D, ESFAS Instrumentation.
		<ul style="list-style-type: none"> CONDITION D - One channel inoperable. ACTION D.1 - Place channel in trip within 72 hours.
		<ul style="list-style-type: none"> LCO 3.3.2.I, ESFAS Instrumentation.
		<ul style="list-style-type: none"> CONDITION I - One channel inoperable. ACTION I.1 - Place channel in trip within 72 hours.
When Feedwater Control is restored, or at Lead Evaluator's discretion, PROCEED to Events 5, 6, 7, and 8.		

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	14	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Events 5, 6, 7, and 8.

- MS03A, Steam Generator (1-01) Steam Line Break outside Containment.
- RD04K6 @ 12 steps, Control Rod fails to insert upon Reactor trip.
- RD04K8 @ 228 steps, Control Rod fails to insert upon Reactor trip.
- SI04D, Safety Injection Pump (1-02) fails to auto start.
- FW38A/B/C/D, Feed Line Isolation Valves (HV-2134 to HV-2137) fail to close.

Indications Available:

6C-3.7 – MSL PRESS LO SI ACT

Numerous plant trip alarms

+30 secs	RO/BOP	RECOGNIZE lowering RCS temperature and pressure.
	RO/BOP	DETERMINE Reactor Trip required and manually TRIP Reactor.
	US	DIRECT performance of EOP-0.0A, Reactor Trip or Safety Injection.
	RO	VERIFY Reactor Trip:
		• DETERMINE Reactor trip breakers – OPEN.
		• DETERMINE Neutron flux – DECREASING.
	RO	DETERMINE all Control Rod Position Rod Bottom Lights – NOT LIT (two (2) stuck rods).
	BOP	VERIFY Turbine Trip:
		• DETERMINE all HP Turbine Stop Valves – CLOSED.
	BOP	VERIFY Power to AC Safeguards Buses:
		• DETERMINE both AC Safeguards Buses – ENERGIZED.
	RO	DETERMINE both Trains of Safety Injection actuated.
CRITICAL TASK STATEMENT		Initiate Emergency Boration with Two or More Stuck Control Rods Prior to Exiting EOP-0.0.

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	15	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

CRITICAL TASK	RO	INITIATE Emergency Boration of 3600 gallons of Boric Acid.
		<ul style="list-style-type: none"> ENSURE a Charging Pump is RUNNING.
		<ul style="list-style-type: none"> START either Boric Acid Transfer Pump.
		<ul style="list-style-type: none"> PLACE 1/1-APBA1, BA XFER PMP 1 in START.
		<ul style="list-style-type: none"> PLACE 1/1-APBA1, BA XFER PMP 2 in START.
		<ul style="list-style-type: none"> PLACE 1/1-8104, EMER BORATE VLV in OPEN.
		<ul style="list-style-type: none"> VERIFY flow on 1-FI-183A, EMER BORATE FLO.
		<ul style="list-style-type: none"> VERIFY flow on 1-FI-121A, CHRGR FLO.
Examiner Note: EOP-0.0A, Attachment 2, steps performed by BOP are identified later in the scenario. Ensure CRITICAL TASK listed is performed during Attachment 2.		
	US/BOP	INITIATE Proper Safeguards Equipment Operation Per Attachment 2.
	RO	VERIFY AFW Alignment:
		<ul style="list-style-type: none"> DETERMINE both MDAFW Pumps – RUNNING.
		<ul style="list-style-type: none"> PLACE Turbine Driven AFW Pump in PULL-OUT per Foldout Page.
		<ul style="list-style-type: none"> CONTROL AFW Flow as follows:
		<ul style="list-style-type: none"> CONTROL AFW flow as necessary to maintain narrow range level > 43% in any SG or total AFW flow > 460 gpm per Foldout Page.
		<ul style="list-style-type: none"> STOP AFW flow to Faulted SG 1-01 per Foldout Page.
		<ul style="list-style-type: none"> MAINTAIN proper AFW valve alignment.
	RO	VERIFY Containment Spray Not Required:
		<ul style="list-style-type: none"> VERIFY 1-ALB-2B Window 1-8, CS ACT NOT illuminated.
		<ul style="list-style-type: none"> VERIFY 1-ALB-2B Window 4-11, CNTMT ISOL PHASE B ACT NOT illuminated.
		<ul style="list-style-type: none"> VERIFY Containment pressure remained < 18.0 PSIG.
		<ul style="list-style-type: none"> VERIFY Containment Spray Heat Exchanger Outlet Valves – CLOSED.
		<ul style="list-style-type: none"> VERIFY all Containment Spray Pumps – RUNNING.

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	16	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

	RO	DETERMINE Main Steam Lines Should be Isolated and PERFORM the following:
		<ul style="list-style-type: none"> VERIFY Main Steam Isolation Complete:
		<ul style="list-style-type: none"> DETERMINE Main Steam Isolation Valves – CLOSED.
		<ul style="list-style-type: none"> DETERMINE Before MSIV Drip Pot Isolation Valves – CLOSED.
	RO	CHECK RCS Temperature -
		<ul style="list-style-type: none"> DETERMINE RCS Average Temperature less than 557°F.
	RO	VERIFY NOT dumping steam.
	RO	REDUCE total AFW flow to minimize the cooldown:
		<ul style="list-style-type: none"> MAINTAIN a minimum of 460 gpm <u>UNTIL</u> narrow range level greater than 43% in at least one SG.
		<ul style="list-style-type: none"> If necessary, STOP Turbine Driven AFW Pump.
	RO	CHECK PRZR Valve Status:
		<ul style="list-style-type: none"> VERIFY PRZR Safeties – CLOSED.
		<ul style="list-style-type: none"> VERIFY Normal PRZR Spray Valves – CLOSED.
		<ul style="list-style-type: none"> VERIFY PORVs – CLOSED.
		<ul style="list-style-type: none"> VERIFY Power to at least one Block Valve – AVAILABLE.
		<ul style="list-style-type: none"> VERIFY Block Valves – AT LEAST ONE OPEN.
	RO	CHECK if RCPs Should Be Stopped:
		<ul style="list-style-type: none"> DETERMINE all ECCS Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE RCS subcooling – GREATER THAN 25°F.
		<ul style="list-style-type: none"> Continue RUNNING Reactor Coolant Pumps.
	RO	CHECK If Any SG Is Faulted:
		<ul style="list-style-type: none"> DETERMINE SG 1-01 completely DEPRESSURIZED.

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	17	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

	US	TRANSITION to EOP 2.0A, Faulted Steam Generator Isolation, Step 1.
Examiner Note: These steps are performed by the BOP as required per EOP-0.0A, Attachment 2. EOP-2.0A steps are identified later in the scenario.		
	BOP	VERIFY SSW Alignment:
		<ul style="list-style-type: none"> VERIFY both SSW Pumps – RUNNING.
		<ul style="list-style-type: none"> VERIFY Train B Diesel Generator Cooler SSW return flow.
	BOP	VERIFY Safety Injection Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE Safety Injection Pump 1-02 failed to start and MANUALLY START Safety Injection Pump 1-02.
	BOP	VERIFY Containment Isolation Phase A.
	BOP	VERIFY Containment Ventilation Isolation.
	BOP	VERIFY CCW Pump 1-02 – RUNNING.
	BOP	VERIFY both RHR Pumps – RUNNING.
	BOP	VERIFY Proper CVCS Alignment:
		<ul style="list-style-type: none"> DETERMINE both CCPs – RUNNING.
		<ul style="list-style-type: none"> VERIFY Letdown Relief Valve isolation: <ul style="list-style-type: none"> DETERMINE Letdown Orifice Isolation Valves – CLOSED. DETERMINE Letdown Isolation Valves - CLOSED.
	BOP	VERIFY ECCS flow:
		<ul style="list-style-type: none"> VERIFY CCP SI flow indicated.
		<ul style="list-style-type: none"> VERIFY RCS pressure < 1700 PSIG (1800 PSIG adverse).
		<ul style="list-style-type: none"> VERIFY SIP discharge flow indicators.
		<ul style="list-style-type: none"> DETERMINE RCS pressure > 325 PSIG (425 PSIG adverse).

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	18	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

CRITICAL TASK STATEMENT		Isolate Feedwater Flow to a Faulted Steam Generator Prior to Exiting From EOP-2.0.		
CRITICAL TASK	BOP	DETERMINE Feedwater Isolation Valves NOT closed and manually CLOSE Valves to all Steam Generators.		
		• HV-2134 – CLOSED.		
		• HV-2135 – CLOSED.		
		• HV-2136 – CLOSED.		
		• HV-2137 – CLOSED.		
	BOP	VERIFY Feedwater Isolation Complete:		
		• VERIFY Feedwater Isolation Valves – CLOSED.		
		• VERIFY Feedwater Isolation Bypass Valves – CLOSED.		
		• VERIFY Feedwater Bypass Control Valves – CLOSED.		
		• VERIFY Feedwater Control Valves – CLOSED.		
	BOP	VERIFY Train B Diesel Generator – RUNNING.		
	BOP	VERIFY Monitor Lights For SI Load Shedding illuminated.		
	BOP	VERIFY Proper SI alignment per MLB light indication.		
	BOP	VERIFY Components Properly Aligned per Table 1.		
		<u>Location</u>	<u>Equipment</u>	<u>Description</u>
		CB-03	X-HS-5534	H2 PRG SPLY FN 4
		CB-03	X-HS-5532	H2 PRG SPLY FN 3
		CB-04	1/1-8716A	RHRP 1 XTIE VLV
		CB-04	1/1-8716B	RHRP 2 XTIE VLV
		CB-06	1/1-8153	XS LTDN ISOL VLV
		CB-06	1/1-8154	XS LTDN ISOL VLV
		CB-07	1/1-RTBAL	RX TRIP BKR
		CB-07	1/1-RTBBL	RX TRIP BKR
				<u>Condition</u>
				STOPPED
				STOPPED
				OPEN
				OPEN
				CLOSED
				CLOSED
				OPEN
				OPEN

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	19	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

	CB-07	1/1-BBAL	RX TRIP BYP BKR	OPEN/DEENERGIZED
	CB-07	1/1-BBBL	RX TRIP BYP BKR	OPEN/DEENERGIZED
	CB-08	1-HS-2397A	SG 1 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2398A	SG 2 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2399A	SG 3 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2400A	SG 4 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2111C	FWPT A TRIP	TRIPPED
	CB-08	1-HS-2112C	FWPT B TRIP	TRIPPED
	CB-09	1-HS-2490	CNDS XFER PUMP	STOPPED (MCC deenergized on SI)
	CV-01	X-HS-6181	PRI PLT SPLY FN 17 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6188	PRI PLT SPLY FN 18 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6195	PRI PLT SPLY FN 19 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6202	PRI PLT SPLY FN 20 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6209	PRI PLT SPLY FN 21 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6216	PRI PLT SPLY FN 22 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6223	PRI PLT SPLY FN 23 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6230	PRI PLT SPLY FN 24 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-3631	UPS & DISTR RM A/C FN 1 & BSTR FN 42	STARTED
	CV-01	X-HS-3632	UPS & DISTR RM A/C FN 2 & BSTR FN 43	STARTED
	CV-01	1-HS-5600	ELEC AREA EXH FN 1	STOPPED/DEENERGIZED
	CV-01	1-HS-5601	ELEC AREA EXH FN 2	STOPPED/DEENERGIZED
	CV-01	1-HS-5602	MS & FW PIPE AREA EXH FN 3 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5603	MS & FW PIPE AREA EXH FN 4 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5618	MS & FW PIPE AREA SPLY FN 17	STOPPED/DEENERGIZED

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	20	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

	CV-01	1-HS-5620	MS & FW PIPE AREA SPLY FN 18	STOPPED/DEENERGIZED
	CV-03	X-HS-5855	CR EXH FN 1	STOPPED/DEENERGIZED
	CV-03	X-HS-5856	CR EXH FN 2	STOPPED/DEENERGIZED
	CV-03	X-HS-5731	SFP EXH FN 33	STOPPED/DEENERGIZED
	CV-03	X-HS-5733	SFP EXH FN 34	STOPPED/DEENERGIZED
	CV-03	X-HS-5727	SFP EXH FN 35	STOPPED/DEENERGIZED
	CV-03	X-HS-5729	SFP EXH FN 36	STOPPED/DEENERGIZED

Examiner Note: The next four (4) steps would be performed on Unit 2.

	CB-03	2-HS-5538	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5539	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5537	AIR PRG SPLY ISOL DMPR	CLOSED
	CB-03	2-HS-5536	AIR PRG SPLY ISOL DMPR	CLOSED

	BOP	NOTIFY Unit Supervisor attachment instructions complete and to IMPLEMENT FRGs as required.
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Examiner Note: EOP-2.0A, Faulted Steam Generator Isolation steps begin here.

+15 min	US/RO	CHECK Main Steam line Isolation Valves – CLOSED.
	US/RO	CHECK at Least One Steam Generator Pressure – STABLE OR INCREASING.
	US/RO	IDENTIFY Faulted Steam Generator 1-01.
CRITICAL TASK STATEMENT		Perform Actions to Identify and Isolate Faulted Steam Generator Prior to exiting EOP-2.0A.
CRITICAL TASK	RO/BOP	ISOLATE Faulted Steam Generator 1-01.
		• ISOLATE Main Feed Line to Steam Generator 1-01.
		• ISOLATE AFW flow to Steam Generator 1-01.
		• ISOLATE Blowdown and Sample Lines to Steam Generator 1-01.

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	21	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> ENSURE 1-HS-2452-2, AFWPT STM SPLY VLV MSL 1 in PULL OUT.
		<ul style="list-style-type: none"> ENSURE Steam Generator 1-01 Atmospheric Valve – CLOSED.
		<ul style="list-style-type: none"> ENSURE Main Steam Line Drip Pot Isolation Valve – CLOSED.
	RO	CHECK CST Level – GREATER THAN 10%.
<u>Examiner Note:</u> EOP-2.0A, Attachment 2 actions are performed outside of the Control Room.		
	US/BOP	VERIFY Faulted Steam Generator 1-01 Break Outside Containment.
		<ul style="list-style-type: none"> DIRECT performance of EOP-2.0A, Attachment 2.
	US/RO	CHECK Secondary Radiation:
		<ul style="list-style-type: none"> REQUEST periodic activity samples of all Steam Generators.
		<ul style="list-style-type: none"> CHECK available Secondary Radiation Monitors – NORMAL.
	US/RO	CHECK if ECCS Flow to Should Be Reduced:
		<ul style="list-style-type: none"> VERIFY Secondary heat sink: <ul style="list-style-type: none"> DETERMINE Total AFW Flow to intact SGs > 460 GPM. DETERMINE Narrow Range Level in SGs 1-02, 1-03, & 1-04 > 43%. VERIFY RCS subcooling > 25°F. VERIFY RCS pressure – STABLE <u>OR</u> INCREASING. VERIFY PRZR level > 13%.
	US	DETERMINE ECCS flow should be reduced and TRANSITION to EOS-1.1A, Safety Injection Termination, Step 1.
<u>Examiner Note:</u> EOS-1.1A, Safety Injection Termination, steps begin here.		
<u>Examiner Note:</u> The following six (6) steps are performed per EOS-1.1A, Attachment 1.D.		
	BOP	[1.D] PLACE Train B Diesel EMER START/STOP Handswitch in START.

Operating Test :	NRC	Scenario #	2	Event #	5, 6, 7, & 8	Page	22	of	23
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure									
Time	Position	Applicant's Actions or Behavior							

	BOP	[1.D] RESET SI.
	BOP	[1.D] RESET SI Sequencers.
	BOP	[1.D] RESET Containment Isolation Phase A and B.
	BOP	[1.D] RESET Containment Spray Signal.
	BOP/RO	[1.D] ESTABLISH Instrument Air and Nitrogen to Containment.
	RO	STOP one CCP and PLACE in Standby.
	US/RO	CHECK RCS Pressure – STABLE OR INCREASING.
<u>Examiner Note:</u> The following two (2) steps are performed per EOS-1.1A, Attachment 1.J.		
	RO	[1.J] ISOLATE CCP Injection Line Flow Path:
		• VERIFY CCP – SUCTION ALIGNED TO RWST.
		• ALIGN CCP Miniflow Valves:
		• OPEN 1/1-8110 and 1/1-8111, CCP Miniflow Valves.
		• CLOSE 1/1-8511A and 1/1-8511B, CCP Alternate Miniflow Isolation Valves.
		• PLACE Charging Flow Control Valve in MANUAL and 35% demand.
		• CLOSE 1/1-8801A and 1/1-8801B, CCP Injection Line Isolation Valves.

Operating Test : <u>NRC</u> Scenario # <u>2</u> Event # <u>5, 6, 7, & 8</u> Page <u>23</u> of <u>23</u>		
Event Description: Steam Line Break Outside Containment Before MSIV / Two Stuck Control Rods / Safety Injection Pump Start Failure / Feed Line Isolation Valve Failure		
Time	Position	Applicant's Actions or Behavior

	RO	[1.J] ESTABLISH Charging Flow Path:
		<ul style="list-style-type: none"> • OPEN 1/1-8105 and 1/1-8106, Charging Line Isolation Valves.
		<ul style="list-style-type: none"> • ADJUST Charging Flow Control Valve to establish Charging flow.
		<ul style="list-style-type: none"> • ADJUST RCP seal flow to maintain between 6 gpm and 13 gpm.
<p><i>When EOS-1.1A, Safety Injection Termination, Attachment 1.J is complete, TERMINATE the scenario.</i></p>		

CP 2010-07 Retake Exam (Scenarios Only, No JPMs)

Shift turnover sheets for both scenarios follow this cover sheet.

UNIT: 1

UNIT SUPERVISOR RELIEF CHECKLIST (NRC Scenario #1)

PART I TO BE PREPARED BY THE OFF-GOING UNIT SUPERVISOR.

1.0 SHIFT ACTIVITIES:

1.1 Activities Completed This Shift: None

1.2 Activities In-Progress: None

1.3 Planned Activities: None

2.0 PLANT AND EQUIPMENT STATUS:

2.1 Technical Specification Related Equipment Summary:

Train A Emergency Diesel Generator 1-01 out-of-service for Governor repair.

Estimated Return-to-Service time is four (4) hours.

2.2 Non-Technical Specification Equipment Summary:

3.0 GENERAL INFORMATION:

Maintain steady state conditions per IPO-003A, Power Operation.

Diluted 45 gallons three (3) times last shift.

4.0 END OF SHIFT REVIEW:

LOGS – RO/BOP	<u>X</u>	LOGS-PEO	<u>X</u>	CLOSED eLCOARs ARCHIVED	<u>X</u>
OPTS COMPLETED	<u>X</u>	DAILY ACTIVITIES LIST	<u>X</u>	LCOARs REVIEWED	<u>X</u>

PART II TO BE COMPLETED BY THE ON-COMING UNIT SUPERVISOR.

1.0 CRITICAL PARAMETERS:

MODE: <u>1</u>	REACTOR POWER: <u>100%</u>	MWE: <u>1264</u>
RCS	CONTROL ROD	
TAVE: <u>585 °F</u>	POSITION <u>215</u>	ON BANK <u>D</u>
	RCS	
C _b : <u>910 ppm</u>	PRESS: <u>2235</u> psig	

<input checked="" type="checkbox"/>	Protected Train – Train A
<input checked="" type="checkbox"/>	Risk Assessment – GREEN

<input checked="" type="checkbox"/>	Unit 2 is in Mode 1 @ 100% power
<input checked="" type="checkbox"/>	BAT C _B = 7447 ppm

UNIT: 1

UNIT SUPERVISOR RELIEF CHECKLIST (NRC Scenario #2)

PART I TO BE PREPARED BY THE OFF-GOING UNIT SUPERVISOR.

1.0 SHIFT ACTIVITIES:

1.1 Activities Completed This Shift: None

1.2 Activities In-Progress: None

1.3 Planned Activities: None

2.0 PLANT AND EQUIPMENT STATUS:

2.1 Technical Specification Related Equipment Summary:
Train A Emergency Diesel Generator 1-01 out-of-service for Governor repair.
Estimated Return-to-Service time is four (4) hours.

2.2 Non-Technical Specification Equipment Summary:

3.0 GENERAL INFORMATION:

Maintaining 875 MWe in accordance with Load Controller direction per IPO-003A, Power Operation.
Diluted 35 gallons three (3) times last shift.

4.0 END OF SHIFT REVIEW:

LOGS – RO/BOP	<u> X </u>	LOGS-PEO	<u> X </u>	CLOSED eLCOARs ARCHIVED	<u> X </u>
OPTS COMPLETED	<u> X </u>	DAILY ACTIVITIES LIST	<u> X </u>	LCOARs REVIEWED	<u> X </u>

PART II TO BE COMPLETED BY THE ON-COMING UNIT SUPERVISOR.

1.0 CRITICAL PARAMETERS:

MODE: <u> 1 </u>	REACTOR POWER: <u> 72% </u>	MWE: <u> 875 </u>
RCS	CONTROL ROD	
TAVE: <u> 577 </u> °F	POSITION <u> 179 </u>	ON BANK <u> D </u>
	RCS	
C _b : <u> 916 </u> ppm	PRESS: <u> 2235 </u> psig	

<input checked="" type="checkbox"/>	Protected Train – Train A
<input checked="" type="checkbox"/>	Risk Assessment – GREEN

<input checked="" type="checkbox"/>	Unit 2 is in Mode 1 @ 100% power
<input checked="" type="checkbox"/>	BAT C _B = 7447 ppm

Facility:	CPNPP 1 & 2	Scenario No.: 3 (Spare)	Op Test No.:	July 2010 NRC
Examiners:	_____	Operators:	_____	
	_____		_____	
	_____		_____	
Initial Conditions:	<ul style="list-style-type: none"> $\sim 1 \times 10^{-8}$ amps BOL - RCS Boron is 1545 ppm by Chemistry sample. Steam Dump System in service for RCS Temperature Control. 			
Turnover:	Raise Power to 2% in preparation for plant startup to 100% power.			
Critical Tasks:	<ul style="list-style-type: none"> Restore Feedwater Flow to any Affected Steam Generator. Determine Inadvertent Safety Injection & Secure Charging Prior to Pressurizer Overfill. Determine Loss of Coolant Accident in Progress and Reinitiate Safety Injection. 			
Event No.	Malf. No.	Event Type*	Event Description	
1 +20 min		R (RO) N (BOP, SRO)	Raise Reactor power to 2%.	
2 +30 min	FW24A	C (BOP) TS (SRO)	Motor Driven Auxiliary Feedwater Pump (1-01) Trip.	
3 +35 min	RP17D	TS (SRO)	Containment Pressure Transmitter (PT-937) Fails High.	
4 +40 min	MS13B	I (BOP, SRO)	Atmospheric Relief Valve (1-02) Fails Open due to Steam Pressure Transmitter (PT-2326) Failure.	
5 +45 min	RP14A	M (RO, BOP, SRO)	Spurious Train A Safety Injection Actuation Signal.	
6 +45 min	CV01B CV01E	C (RO)	Centrifugal Charging Pump (1-01) Trip. Centrifugal Charging Pump (1-02) SI Sequencer Start Failure.	
7 +60 min	RC17C	C (RO)	Loss of Coolant Accident at 1700 gpm Following Isolation of High Head Injection.	
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Technical Specifications				

Scenario Event Description NRC Scenario #3	
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SCENARIO SUMMARY NRC #3

The crew will assume the watch with a Plant Startup in progress and will continue raising power to approximately 2% per IPO-002A, Plant Startup from Hot Standby.

When conditions are stable, Motor Driven Auxiliary Feedwater Pump 1-01 will trip. The crew will refer to ABN-305, Auxiliary Feedwater System Malfunction, Section 3.0, and determine that Steam Generator levels are slowly decreasing and start the Turbine Driven Auxiliary Feedwater Pump. The SRO will refer to Technical Specifications.

When the Steam Generator levels are stable, a Containment Pressure Transmitter will fail high. Crew response will be per ALM-0022A, 1-ALB-2B, Window 3.10, CNTMT 1 OF 4 PRESS HI-3, and include verifying that only one channel is affected. The SRO will refer to Technical Specifications.

When Technical Specifications have been referenced, a Steam Generator Atmospheric Relief Valve (ARV) fails open due to a Main Steam Pressure Transmitter failure. This event is recognized by a Reactor power increase and the ARV Controller indicating 100% demand. The BOP will place the affected Controller in Manual and close the ARV. ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1st-Stage Pressure, and Feed Header Pressure Instrument Malfunction, Section 2.0, will be referenced.

The major event begins with a spurious Train A Safety Injection Actuation Signal. The crew will enter EOP-0.0A, Reactor Trip or Safety Injection, and perform immediate actions including actuation of both Trains of Safety Injection.

When it is determined that a spurious Safety Injection actuation has occurred, the crew will transition to EOS-1.1A, Safety Injection Termination. During the event the Train A Centrifugal Charging Pump will trip and the Train B Centrifugal Charging Pump will fail to auto start on the Safety Injection Sequencer.

When the high head injection alignment is secured in EOS-1.1A, a Small Break Loss of Coolant Accident will occur. This will require re-initiation of Safety Injection flow per the Foldout Page Criteria of EOS-1.1A.

Event termination will occur when the crew has reinitiated Safety Injection and transitioned to EOP-1.0A, Loss of Reactor or Secondary Coolant.

Risk Significance:

- | | |
|---|---|
| <ul style="list-style-type: none"> Failure of risk important system prior to trip: | <ul style="list-style-type: none"> Loss of MDAFW Pump SG Atmospheric Relief Valve Failure |
| <ul style="list-style-type: none"> Risk significant core damage sequence: | <ul style="list-style-type: none"> Small Break LOCA Following SI Termination |
| <ul style="list-style-type: none"> Risk significant operator actions: | <ul style="list-style-type: none"> Initiate Charging Flow upon Safety Injection Secure Charging Prior To Pressurizer Overfill Reinitiate Safety Injection Flow |

Scenario Event Description
NRC Scenario #3

BOOTH OPERATOR INSTRUCTIONS for SIMULATOR SETUP

Initialize to IC #8 and Event File for NRC Scenario #3.

EVENT	TYPE	MALF #	DESCRIPTION	DEMAND VALUE	INITIATING PARAMETER
SETUP		CV01E	Centrifugal Charging Pump (1-02) start failure	-	K0
1		N/A	Raise Reactor power to 2%	-	-
2		FW24A	Train A Auxiliary Feedwater Pump (1-01) trip	TRIP	K2
3		RP17D	Containment pressure channel (PT-937) failure	60 psig	K3
4		MS13B	PT-2326 failure fails ARV 1-02 open	1300 psig	K4
5		RP14A	Spurious Train A Safety Injection actuation	-	K5
6		CV01B	Centrifugal Charging Pump (1-01) trip (NOTE 1)	TRIP	K6
6		CV01E	Centrifugal Charging Pump (1-02) start failure	START FAILURE	K0
NOTE 1: Initiate K6 after EOP-0.0A Immediate Actions are complete.					
7		RC17C	Loss of Coolant Accident (NOTE 2)	1700 gpm	K7
NOTE 2: Initiate K7 after RHR Pumps are stopped at Step 13 of EOS-1.1A.					

Scenario Event Description
NRC Scenario #3

Booth Operator: INITIALIZE to IC #8 and NRC Scenario #3 SETUP file.
ENSURE all Simulator Annunciator Alarms are ACTIVE.
VERIFY all Control Board Tags are removed.
ENSURE Control Rods are in MANUAL with Control Rod Bank C @ 215 steps and Bank D @ 100 steps.
ENSURE Rod Bank Update (RBU) is performed.
PLACE Plant Computer, right hand RO and US Computer screens for MODE 2.
ENSURE Operator Aid Tags reflect current boron conditions.
ENSURE all PRZR Heaters energized.
ENSURE Reactivity Briefing Sheet printout provided with Turnover.
ENSURE procedures in progress are on SRO desk:
- COPY of IPO-002A, Plant Startup from Hot Standby, Section 5.4, Increasing Reactor Power to ~2% Following Reactor Startup.

Significant Control Room Annunciators in Alarm:

PCIP-1.1 – SR TRN A RX TRIP BLK
PCIP-1.3 – AMSAC BLK TURB <40% PWR C-20
PCIP-1.4 – CNDNSR AVAIL STM DUMP ARMED C-9
PCIP-1.7 – RX \leq 50% PWR TURB TRIP PERM P-9
PCIP-2.1 – SR TRN B RX TRIP BLK
PCIP-2.4 – LO TURB PWR ROD WTHDRWL BLK C-5
PCIP-2.5 – SR RX TRIP BLK PERM P-6
PCIP-3.5 – RX & TURB \leq 10% PWR P-7
PCIP-4.5 – RX \leq 48% PWR 3-LOOP FLO PERM P-8
PCIP-4.6 – TURB \leq 10% PWR P-13
6D-1.1 – SR HI VOLT FAIL
6D-1.3 – SR SHTDN FLUX ALM BLK
7B-1.6 – FW FLUSH VLV NOT CLOSE HV-2166
7B-4.8 – FWP A / B RECIRC VLV NOT CLOSED
8A-1.3 – FWPT B TRIP
8A-1.10 – 1 OF 4 TURB STOP VLV CLOSE
Numerous 9A Feedwater alarms

Operating Test :	NRC	Scenario #	3	Event #	1	Page	5	of	20
Event Description: Power Ascension to ~2%									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: ENSURE Simulator in RUN when crew is ready to assume the watch.

+1 min	US	DIRECT performance of IPO-002A, Plant Startup from Hot Standby.
	RO	ESTABLISH a startup rate of ~ 0.5 DPM to increase Reactor power to ~ 2%.
	RO	Gradually REDUCE startup rate to ~0.2 DPM as the Intermediate Range channels approach 3×10^{-6} amps.
	RO	VERIFY Power Range channels begin to respond when the Intermediate Range Channels are between 3×10^{-6} amps and 5×10^{-6} amps.
	BOP	VERIFY Steam Dump operations maintain RCS temperature at 557°F and Main Steam pressure at 1092 psig.
	RO	VERIFY annunciator alarm PCIP-3.6, TAVE LO LO P-12 is DARK.
	RO	MAINTAIN Reactor power between 2% and 3%.
	BOP	ADJUST Auxiliary Feedwater flow as necessary to maintain SG levels between 60% and 75%.
<i>When power has been raised to 2 - 3%, or at Lead Examiner discretion, PROCEED to Event 2.</i>		

Operating Test :	NRC	Scenario #	3	Event #	2	Page	6	of	20
Event Description: Motor Driven Auxiliary Feedwater Pump Trip									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 2.

- FW24A, Motor Driven Auxiliary Feedwater Pump 1-01 trip.

Indications Available:

8B-4.3 – MD AFWP 1 / 2 OVRLOAD / TRIP

1-PI-2453A, MD AFWP 1 DISCH PRESS indication reading 0 psig

1-FI-2456A, MD AFWP 1 DISCH FLO indication reading 0 gpm

1-HS-2450A, MD AFWP 1 white TRIP light lit

+1 min	BOP	RESPOND to Annunciator Alarm Procedure.
	BOP	RECOGNIZE Motor Driven Auxiliary Feedwater Pump 1-01 trip.
	US	DIRECT performance of ABN-305, Auxiliary Feedwater System Malfunction, Section 3.0.
	BOP	DETERMINE MDAFW Pump 1-02 running and PLACE MDAFW Pump 1-01 in STOP or PULLOUT.
	BOP	DETERMINE Steam Generator Levels trending down.
CRITICAL TASK STATEMENT		Restore Feedwater Flow to Steam Generators 1-01 and 1-02 Prior to Reaching 0% Wide Range Steam Generator Level.
CRITICAL TASK	BOP	START the TDAFW Pump and FEED Steam Generators 1-01 and 1-02.
		• OPEN 1-HS-2452-1, AFWPT STM SPLY VLV MSL 4 from SG 1-04.
		• OPEN 1-HS-2452-2, AFWPT STM SPLY VLV MSL 1 from SG 1-01.
	RO/BOP	DISPATCH a Plant Equipment Operator to check breaker status of Auxiliary Feedwater Pump 1-01.
		• 1EA1/5/BKR, 1APMD1, Auxiliary Feedwater Pump 1-01 BKR.
<u>Booth Operator:</u> When contacted about the condition of the MDAFW Pump breaker, REPORT an acrid smell and overcurrent flag on Phase B 50/51 relays.		
	BOP	VERIFY MDAFW Pump suction pressure \geq 10 psig.

Operating Test : <u> NRC </u> Scenario # <u> 3 </u> Event # <u> 2 </u> Page <u> 7 </u> of <u> 20 </u>		
Event Description: Motor Driven Auxiliary Feedwater Pump Trip		
Time	Position	Applicant's Actions or Behavior

	RO/BOP	DISPATCH a Nuclear Equipment Operator to check Auxiliary Feedwater Pump 1-01.
<u>Booth Operator:</u> When contacted about the condition of MDAFW Pump 1-01, REPORT that the pump motor is hot.		
+10 min	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.7.5.B, Auxiliary Feedwater (AFW) System.
		<ul style="list-style-type: none"> CONDITION B - One AFW train inoperable for reasons other than Condition A. ACTION B.1 - Restore AFW train to OPERABLE status within 72 hours.
<i>When Technical Specifications are addressed, or at Lead Examiner discretion, PROCEED to Event 3.</i>		

Operating Test :	NRC	Scenario #	3	Event #	3	Page	8	of	20
Event Description: Containment Pressure Transmitter Failure									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 3.

- RP17D, Containment Pressure Transmitter (PT-937) fails high.

Indications Available:

2B-3.10 – CNTMT 1 OF 4 PRESS HI-3

1-PT-937, CNTMT PRESS (IR) CHAN I Containment pressure transmitter indication failed high

+30 secs	RO	RESPOND to Annunciator Alarm Procedures.
	RO	RECOGNIZE Containment pressure transmitter 1-PT-937, CNTMT PRESS (IR) CHAN I failed high.
	US	DIRECT performance of ALM-0022A, 1-ALB-2B, Window 3.10, CNTMT 1 OF 4 PRESS HI-3.
	RO	MONITOR Containment pressure.
		<ul style="list-style-type: none"> 1-PI-934, CNTMT PRESS (IR) CHAN IV 1-PI-935, CNTMT PRESS (IR) CHAN III 1-PI-936, CNTMT PRESS (IR) CHAN II 1-PI-937, CNTMT PRESS (IR) CHAN I
	RO	DETERMINE 1-PI-937, CNTMT PRESS (IR) CHAN I is reading greater than or equal to 2.5 psig from the other channels.
	RO	REPORT to Unit Supervisor to REFER to Technical Specifications.
	US	EVALUATE Technical Specifications.
		<ul style="list-style-type: none"> LCO 3.3.2.E, ESFAS Instrumentation. CONDITION E - One Containment Pressure channel inoperable. ACTION E.1 - Place channel in bypass within 72 hours.

Operating Test : <u> NRC </u> Scenario # <u> 3 </u> Event # <u> 3 </u> Page <u> 9 </u> of <u> 20 </u>		
Event Description: Containment Pressure Transmitter Failure		
Time	Position	Applicant's Actions or Behavior

+5 min	US	CORRECT the condition or INITIATE a Work Request per STA-606.
<p><i>When Technical Specifications are addressed, or at Lead Examiner discretion, PROCEED to Event 4.</i></p>		

Operating Test :	NRC	Scenario #	3	Event #	4	Page	10	of	20
Event Description: Steam Pressure Control Channel Fails High									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 4.

-MS13B, Steam Pressure Channel (PT-2326) fails high.

Indications Available:

1-PI-2326, MSL 2 PRESS pegged high

1-ZL-2326, SG 2 ATMOS RLF VLV read OPEN light LIT

Y6845D Plant Computer alarm

+1 min	BOP	RESPOND to Dynamic Alarm Display (DAD) Alarm.
	BOP	RECOGNIZE Steam Generator 1-02 Steam Pressure Transmitter (PT-2326) failed high.
	US	DIRECT performance of ABN-709, Steam Line Pressure, Steam Header Pressure, Turbine 1st-Stage Pressure, and Feed Header Pressure Instrument Malfunction, Section 2.0.
	BOP	DETERMINE Steam Generator Atmospheric Relief Valve – OPEN.
	US	DIRECT closing of Steam Generator 1-02, Atmospheric Relief Valve.
	BOP	PLACE 1-PK-2326, SG 2 ATMOS RLF VLV CTRL in MANUAL and 0% DEMAND to CLOSE Valve.
+5 min	US	NOTIFY Chemistry that a release has occurred.
<p><i>When the Atmospheric Relief Valve is closed, or at Lead Examiner discretion, PROCEED to Events 5, 6, and 7.</i></p>		

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	11	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When directed, EXECUTE Event 5.**- RP14A, Spurious Train A Safety Injection Actuation Signal.****Indications Available:****6C-1.1 – MAN RX TRIP****Numerous plant trip alarms**

+30 secs	RO/BOP	RECOGNIZE Reactor Trip and Safety Injection.
	US	DIRECT performance of EOP-0.0A, Reactor Trip or Safety Injection.
	RO	VERIFY Reactor Trip:
		• DETERMINE Reactor Trip Breakers – OPEN.
		• DETERMINE Neutron flux – DECREASING.
	RO	DETERMINE all Control Rod Position Rod Bottom Lights – ON.
	BOP	VERIFY Turbine Trip:
		• DETERMINE all HP Turbine Stop Valves – CLOSED.
	BOP	VERIFY Power to AC Safeguards Buses:
		• DETERMINE both AC Safeguard Buses – ENERGIZED.
	RO	CHECK if SI is Actuated:
		• DETERMINE SI is actuated on Train A.
		• Manually ACTUATE SI to initiate dual train SI.
		• PLACE 1/1-SI2, SI MAN ACT Switch to ACT position.
	RO	VERIFY both Trains of Safety Injection actuated.

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	12	of	20
Event Description:	Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident								
Time	Position	Applicant's Actions or Behavior							

Booth Operator: When EOP-0.0A, Step 4 has been verbally verified AND the Master Silence Alarm has timed out, EXECUTE Event 6.

- CV01B, Centrifugal Charging Pump (1-01) trip.
- CV01E, Centrifugal Charging Pump (1-02) fails to start.

	RO	RECOGNIZE CCP 1-01 trip.
		<ul style="list-style-type: none"> START CCP 1-02.
		<ul style="list-style-type: none"> VERIFY at least one CCP - RUNNING.
		<ul style="list-style-type: none"> VERIFY Seal Injection Flow to each RCP -BETWEEN 6 GPM AND 13 GPM.
Examiner Note: EOP-0.0A, Attachment 2 steps performed by BOP are identified later in the scenario.		
	US/BOP	INITIATE Proper Safeguards Equipment Operation Per Attachment 2.
	RO	VERIFY AFW Alignment:
		<ul style="list-style-type: none"> DETERMINE MDAFW Pump 1-02 – RUNNING.
		<ul style="list-style-type: none"> DETERMINE Turbine Driven AFW Pump – RUNNING.
		<ul style="list-style-type: none"> DETERMINE AFW total flow – GREATER THAN 460 GPM.
		<ul style="list-style-type: none"> DETERMINE AFW valve alignment – PROPER ALIGNMENT.
	RO	VERIFY Containment Spray NOT Required:
		<ul style="list-style-type: none"> VERIFY 1-ALB-2B Window 1-8, CS ACT NOT illuminated.
		<ul style="list-style-type: none"> VERIFY 1-ALB-2B Window 4-11, CNTMT ISOL PHASE B ACT NOT illuminated.
		<ul style="list-style-type: none"> DETERMINE Containment pressure remained < 18.0 PSIG.
		<ul style="list-style-type: none"> VERIFY Containment Spray Heat Exchanger Outlet Valves – CLOSED.
		<ul style="list-style-type: none"> VERIFY all Containment Spray Pumps – RUNNING.
	RO	DETERMINE Main Steam Lines Should NOT Be Isolated:
		<ul style="list-style-type: none"> VERIFY Containment pressure < 6 PSIG.

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	13	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> VERIFY Main Steam Line pressure > 610 PSIG.
	RO	CHECK RCS Temperature:
		<ul style="list-style-type: none"> DETERMINE RCS average temperature stable at or trending to 557°F.
	RO	CHECK PRZR Valve Status:
		<ul style="list-style-type: none"> VERIFY PRZR Safeties – CLOSED.
		<ul style="list-style-type: none"> VERIFY Normal PRZR Spray Valves – CLOSED.
		<ul style="list-style-type: none"> VERIFY PORVs – CLOSED.
		<ul style="list-style-type: none"> VERIFY Power to at least one Block Valve – AVAILABLE.
		<ul style="list-style-type: none"> VERIFY Block Valves – AT LEAST ONE OPEN.
	RO	CHECK if RCPs Should Be Stopped:
		<ul style="list-style-type: none"> DETERMINE both SI Pumps – RUNNING.
		<ul style="list-style-type: none"> DETERMINE Train A CCP Pump 1-01 – TRIPPED.
		<ul style="list-style-type: none"> START Train B CCP Pump 1-02.
		<ul style="list-style-type: none"> DETERMINE RCS subcooling – GREATER THAN 25°F (55°F adverse).
		<ul style="list-style-type: none"> Continue RUNNING Reactor Coolant Pumps.
	RO/BOP	CHECK if Any Steam Generator Is Faulted:
		<ul style="list-style-type: none"> DETERMINE pressure in all Steam Generators – NORMAL.
	RO/BOP	CHECK if any Steam Generator is Ruptured:
		<ul style="list-style-type: none"> DETERMINE radiation levels in all Steam Generators – NORMAL.
	RO/BOP	CHECK if RCS is intact:
		<ul style="list-style-type: none"> DETERMINE Containment pressure, radiation level and sump levels – NORMAL.
	US/RO	CHECK if ECCS Flow to Should Be Reduced:
		<ul style="list-style-type: none"> VERIFY Secondary heat sink:

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	14	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> • DETERMINE Total AFW Flow to intact SGs > 460 GPM.
		<ul style="list-style-type: none"> • DETERMINE Narrow Range Level in SGs > 43%.
		<ul style="list-style-type: none"> • VERIFY RCS subcooling > 25°F.
		<ul style="list-style-type: none"> • VERIFY RCS pressure – STABLE <u>OR</u> INCREASING.
		<ul style="list-style-type: none"> • VERIFY PRZR level > 13%.
	US	DETERMINE ECCS flow <u>should</u> be reduced and TRANSITION to EOS-1.1A, Safety Injection Termination.
Examiner Note: These steps are performed by the BOP as required per EOP-0.0A, Attachment 2. EOS-1.1A steps are identified later in the scenario.		
	BOP	VERIFY SSW Alignment:
		<ul style="list-style-type: none"> • VERIFY both SSW Pumps – RUNNING.
		<ul style="list-style-type: none"> • VERIFY Diesel Generator Cooler SSW return flow.
	BOP	VERIFY both Safety Injection Pumps – RUNNING.
	BOP	VERIFY Containment Isolation Phase A.
	BOP	VERIFY Containment Ventilation Isolation.
	BOP	VERIFY both CCW Pumps – RUNNING.
	BOP	VERIFY both RHR Pumps – RUNNING.
	BOP	VERIFY Proper CVCS Alignment:
		<ul style="list-style-type: none"> • DETERMINE Train A CCP Pump – TRIPPED.
		<ul style="list-style-type: none"> • If secured, START Train B CCP Pump.
		<ul style="list-style-type: none"> • VERIFY CCP 1-02 – RUNNING.
		<ul style="list-style-type: none"> • VERIFY Letdown Relief Valve isolation:
		<ul style="list-style-type: none"> • DETERMINE Letdown Orifice Isolation Valves – CLOSED.

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	15	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

		• DETERMINE Letdown Isolation Valves - CLOSED.		
	BOP	VERIFY ECCS flow:		
		• DETERMINE Train B CCP SI flow indicated.		
		• DETERMINE RCS pressure > 1700 PSIG (1800 PSIG adverse).		
		• DETERMINE NO SI Pump flow indicated.		
		• DETERMINE RCS pressure > 325 PSIG (425 PSIG adverse).		
	BOP	VERIFY Feedwater Isolation Complete:		
		• VERIFY Feedwater Isolation Valves – CLOSED.		
		• VERIFY Feedwater Isolation Bypass Valves – CLOSED.		
		• VERIFY Feedwater Bypass Control Valves – CLOSED.		
		• VERIFY Feedwater Control Valves – CLOSED.		
	BOP	VERIFY both Diesel Generators – RUNNING.		
	BOP	VERIFY Monitor Lights For SI Load Shedding illuminated.		
	BOP	VERIFY Proper SI alignment per MLB light indication.		
	BOP	VERIFY Components Properly Aligned per Table 1.		
		<u>Location</u>	<u>Equipment</u>	<u>Description</u>
		CB-03	X-HS-5534	H2 PRG SPLY FN 4
		CB-03	X-HS-5532	H2 PRG SPLY FN 3
		CB-04	1/1-8716A	RHRP 1 XTIE VLV
		CB-04	1/1-8716B	RHRP 2 XTIE VLV
		CB-06	1/1-8153	XS LTDN ISOL VLV
		CB-06	1/1-8154	XS LTDN ISOL VLV
		CB-07	1/1-RTBAL	RX TRIP BKR
		CB-07	1/1-RTBBL	RX TRIP BKR
		CB-07	1/1-BBAL	RX TRIP BYP BKR
		CB-07	1/1-BBBL	RX TRIP BYP BKR

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	16	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

	CB-08	1-HS-2397A	SG 1 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2398A	SG 2 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2399A	SG 3 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2400A	SG 4 BLDN HELB ISOL VLV	CLOSED
	CB-08	1-HS-2111C	FWPT A TRIP	TRIPPED
	CB-08	1-HS-2112C	FWPT B TRIP	TRIPPED
	CB-09	1-HS-2490	CNDS XFER PUMP	STOPPED (MCC deenergized on SI)
	CV-01	X-HS-6181	PRI PLT SPLY FN 17 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6188	PRI PLT SPLY FN 18 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6195	PRI PLT SPLY FN 19 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6202	PRI PLT SPLY FN 20 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6209	PRI PLT SPLY FN 21 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6216	PRI PLT SPLY FN 22 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6223	PRI PLT SPLY FN 23 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-6230	PRI PLT SPLY FN 24 & INTK DMPR	STOPPED/DEENERGIZED
	CV-01	X-HS-3631	UPS & DISTR RM A/C FN 1 & BSTR FN 42	STARTED
	CV-01	X-HS-3632	UPS & DISTR RM A/C FN 2 & BSTR FN 43	STARTED
	CV-01	1-HS-5600	ELEC AREA EXH FN 1	STOPPED/DEENERGIZED
	CV-01	1-HS-5601	ELEC AREA EXH FN 2	STOPPED/DEENERGIZED
	CV-01	1-HS-5602	MS & FW PIPE AREA EXH FN 3 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5603	MS & FW PIPE AREA EXH FN 4 & EXH DMPR	STOPPED/DEENERGIZED
	CV-01	1-HS-5618	MS & FW PIPE AREA SPLY FN 17	STOPPED/DEENERGIZED
	CV-01	1-HS-5620	MS & FW PIPE AREA SPLY FN 18	STOPPED/DEENERGIZED
	CV-03	X-HS-5855	CR EXH FN 1	STOPPED/DEENERGIZED

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	17	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

	CV-03	X-HS-5856	CR EXH FN 2	STOPPED/DEENERGIZED
	CV-03	X-HS-5731	SFP EXH FN 33	STOPPED/DEENERGIZED
	CV-03	X-HS-5733	SFP EXH FN 34	STOPPED/DEENERGIZED
	CV-03	X-HS-5727	SFP EXH FN 35	STOPPED/DEENERGIZED
	CV-03	X-HS-5729	SFP EXH FN 36	STOPPED/DEENERGIZED

Examiner Note: The next four (4) steps would be performed on Unit 2.

	CB-03	2-HS-5538	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5539	AIR PRG EXH ISOL DMPR	CLOSED
	CB-03	2-HS-5537	AIR PRG SPLY ISOL DMPR	CLOSED
	CB-03	2-HS-5536	AIR PRG SPLY ISOL DMPR	CLOSED

	BOP	NOTIFY Unit Supervisor attachment instructions complete and to IMPLEMENT FRGs as required.
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Examiner Note: EOS-1.1A, Safety Injection Termination steps begin here.

Examiner Note: The following six (6) steps are performed per EOS-1.1A, Attachment 1.D.

	BOP	[1.D] PLACE Train B Diesel EMER START/STOP Handswitch in START.
	BOP	[1.D] RESET SI.
	BOP	[1.D] RESET SI Sequencers.
	BOP	[1.D] RESET Containment Isolation Phase A and B.
	BOP	[1.D] RESET Containment Spray Signal.
	BOP/RO	[1.D] ESTABLISH Instrument Air and Nitrogen to Containment.
	RO	DETERMINE CCP 1-02 – RUNNING.

Operating Test :	NRC	Scenario #	3	Event #	5, 6, & 7	Page	18	of	20
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident									
Time	Position	Applicant's Actions or Behavior							

	US/RO	CHECK RCS Pressure – STABLE OR INCREASING.
Examiner Note: The following two (2) steps are performed per EOS-1.1A, Attachment 1.J.		
CRITICAL TASK STATEMENT		Determine Inadvertent Safety Injection & Terminate ECCS flow prior to exiting EOS-1.1A.
CRITICAL TASK	RO	[1.J] ISOLATE CCP Injection Line Flow Path:
		<ul style="list-style-type: none"> • VERIFY CCP – SUCTION ALIGNED TO RWST.
		<ul style="list-style-type: none"> • ALIGN CCP Miniflow Valves:
		<ul style="list-style-type: none"> • OPEN 1/1-8110 and 1/1-8111, CCP Miniflow Valves.
		<ul style="list-style-type: none"> • CLOSE 1/1-8511A and 1/1-8511B, CCP Alternate Miniflow Isolation Valves.
		<ul style="list-style-type: none"> • PLACE Charging Flow Control Valve in MANUAL and 35% demand.
		<ul style="list-style-type: none"> • CLOSE 1/1-8801A and 1/1-8801B, CCP Injection Line Isolation Valves.
	RO	[1.J] ESTABLISH Charging Flow Path:
		<ul style="list-style-type: none"> • OPEN 1/1-8105 and 1/1-8106, Charging Line Isolation Valves.
		<ul style="list-style-type: none"> • ADJUST Charging Flow Control Valve to establish Charging flow.
		<ul style="list-style-type: none"> • ADJUST RCP seal flow to maintain between 6 gpm and 13 gpm.
	RO	CONTROL Charging Flow to maintain PRZR Level.
	RO	CHECK If SI Pumps Should Be Stopped:
		<ul style="list-style-type: none"> • CHECK RCS pressure:
		<ul style="list-style-type: none"> • DETERMINE RCS pressure – STABLE OR INCREASING.
		<ul style="list-style-type: none"> • DETERMINE RCS pressure > 1700 PSIG.
		<ul style="list-style-type: none"> • STOP both SI Pumps and PLACE in Standby.
	RO	CHECK If RHR Pumps Should Be Stopped:
		<ul style="list-style-type: none"> • DETERMINE RHR Pumps RUNNING with suction aligned to RWST.

Operating Test : <u>NRC</u>		Scenario # <u>3</u>	Event # <u>5, 6, & 7</u>	Page <u>19</u> of <u>20</u>
Event Description: Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident				
Time	Position	Applicant's Actions or Behavior		
		<ul style="list-style-type: none"> STOP both RHR Pumps and PLACE in Standby. 		
		<ul style="list-style-type: none"> RESET RHR Auto Switchover. 		
Booth Operator: When RHR Pumps are stopped and RHR Auto Switchover is reset, EXECUTE Event 7. - RC17C, Small Break Loss of Coolant Accident @ 1700 gpm.				
+20 min	US/RO	RECOGNIZE PZR level and subcooling lowering and TRANSITION to EOP-1.0.A, Loss of Reactor or Secondary Coolant.		
Examiner Note: Crew may choose to start ECCS Pumps, open High Head Injection Valves or initiate Safety Injection. Any of these actions meets the CPNPP EOP Guidelines.				
CRITICAL TASK STATEMENT		Manually Initiate Safety Injection Flow Prior to exiting EOS-1.1A.		
CRITICAL TASK	RO/BOP	START ECCS Pumps and/or REALIGN High Head Injection Valves and/or manually INITIATE Safety Injection.		
Examiner Note: EOP-1.0A, Loss of Reactor or Secondary Coolant, steps begin here.				
	RO	CHECK If RCPs Should Be Stopped:		
		<ul style="list-style-type: none"> DETERMINE ECCS Pumps – AT LEAST ONE RUNNING. 		
		<ul style="list-style-type: none"> DETERMINE RCS subcooling < 25°F (55°F adverse). 		
		<ul style="list-style-type: none"> STOP all RCPs. 		
	RO	DETERMINE That NO Steam Generator Is Faulted.		
	BOP	CHECK Intact SG Levels:		
		<ul style="list-style-type: none"> DETERMINE Steam Generator narrow range levels > 43% (50% adverse). 		
		<ul style="list-style-type: none"> CONTROL AFW Flow to maintain level between 50% and 60%. 		

Operating Test : <u>NRC</u> Scenario # <u>3</u> Event # <u>5, 6, & 7</u> Page <u>20</u> of <u>20</u>		
Event Description: <u>Spurious Train A Safety Injection Actuation Signal / Centrifugal Charging Pump Trip / Centrifugal Charging Pump Start Failure / Small Break Loss of Coolant Accident</u>		
Time	Position	Applicant's Actions or Behavior

	RO/BOP	CHECK Secondary Radiation – NORMAL.
	RO	CHECK PRZR PORVs And Block Valves – AVAILABLE.
+40 min	US	DETERMINE ECCS Flow Should NOT Be Reduced.
<i>When High Head Safety Injection flow is restored, TERMINATE the scenario.</i>		

Facility:		CPNPP 1 and 2		Date of Exam:		07/07/10		Operating Test No.:		NRC							
A P P L I C A N T	E V E N T T Y P E	SCENARIOS												T O T A L	MINIMUM(*)		
		CPNPP #1			CPNPP #2			CPNPP #3 (Spare)									
		CREW POSITION			CREW POSITION			CREW POSITION			CREW POSITION						
		S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P	S R O	A T C	B O P		R	I	U
SROI-1	RX	-	-	-	-	-	-							0	1	1	0
	NOR	-	-	-	-	-	-							0	1	1	1
	I/C	1,2,3,4	-	-	-	1,3,6	-							7	4	4	2
	MAJ	5	-	-	-	5	-							2	2	2	1
	TS	1,4	-	-	-	-	-							2	0	2	2
RO-1	RX	-	-	-	-	-	-							0	1	1	0
	NOR	-	-	-	-	-	-							0	1	1	1
	I/C	-	1,4,8	-	-	-	1,2,4,7,8							8	4	4	2
	MAJ	-	5	-	-	-	5							2	2	2	1
	TS	-	-	-	-	-	-							0	0	2	2
Instructions:																	
1.	Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO <i>additionally</i> serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.																
2.	Reactivity manipulations may be conducted under normal or <i>controlled</i> abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.																
3.	Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.																

Facility: CPNPP		Date of Examination: 07/07/10		Operating Test No. NRC 1, 2, 3								
	Applicants											
Competencies	SROI-1				RO-1							
	SCENARIO				SCENARIO				SCENARIO			
	1	2			1	2						
Interpret/Diagnose Events and Conditions	1,2,3,4,5	1,3,5,6			1,4,5,8	1,2,4,5,7,8						
Comply With and Use Procedures (1)	ALL	1,3,5,6			1,4,5,8	1,2,4,5,7,8						
Operate Control Boards (2)	N/A	1,3,5,6			1,4,5,8	1,2,4,5,7,8						
Communicate and Interact	ALL	1,2,3,5,6			1,4,5,6,7,8	1,2,4,5,7,8						
Demonstrate Supervisory Ability (3)	ALL	N/A			N/A	N/A						
Comply With and Use Tech. Specs. (3)	1,4	N/A			N/A	N/A						
Notes: (1) Includes Technical Specification compliance for an RO. (2) Optional for an SRO-U. (3) Only applicable to SROs.												