

Task Summary

Facility: <b>CPNPP Units 1 and 2</b>		Date of Examination: <b>September 2021</b>	
Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: <b>NRC</b>	
Administrative Topic (See Note)	Type Code*	Describe activity to be performed	
Conduct of Operations (RA1)	R, M	2.1.25	Ability to interpret reference materials, such as graphs, curves, tables, etc. (3.9) JPM: Determine Loss of RHR Impact on Indication (RO1413)
Conduct of Operations (RA2)	R, D	2.1.4	Knowledge of individual licensed responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc. (3.3) JPM: Determine Licensed Operator License Status (RO5001)
Equipment Control (RA3)	R, D	2.2.12	Knowledge of surveillance procedures. (3.7) JPM: Perform Control Room Air Conditioning Surveillance (RO5007)
Radiation Control (RA4)	R, D	2.3.4	Knowledge of radiation exposure limits under normal or emergency conditions. (3.2) JPM: Determine Escorted Radiation Worker Allowable Dose (BA1402)
Emergency Procedures/Plan	—	—	
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.			
* Type Codes & Criteria: <ul style="list-style-type: none"> <li>(C)ontrol room, (S)imulator, or Class(R)oom</li> <li>(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs &amp; RO retakes)</li> <li>(N)ew or (M)odified from bank (≥ 1)</li> <li>(P)revious 2 exams (≤ 1; randomly selected)</li> </ul>			

- RA1 The applicant is presented with a set of RCS conditions including time after shutdown, Reactor Vessel water level, and RCS temperature. The applicant will utilize ABN-104, Residual Heat Removal System Malfunction and determine the time to saturation from initial RCS temperature, time to core uncover, and actual Reactor Vessel water level under current conditions. This is a modified bank JPM. (K/A 2.1.25 - IR 3.9)
- RA2 The applicant is presented with a list of Reactor Operators and the watches they stood for the previous quarter. Utilizing the requirements of ODA-315, Licensed Operator Maintenance Tracking, the applicant will determine which Reactor Operators are available to be currently assigned as the Unit 1 Reactor Operator. This is a bank JPM. (K/A 2.1.4 - IR 3.3)
- RA3 The applicant will be presented necessary conditions to complete OPT-116, CR AC System, on the Train B Control Room Air Conditioning System. The applicant will complete the OPT-116-1, CR AC System Data Sheet and determine the units are operating acceptably. This is a bank JPM. (K/A 2.2.12 - IR 3.7).
- RA4 The applicant will be required to determine if two different Escorted Radiation workers with different sets of initial conditions and requirements would be allowed to assess the status of a piece of equipment that has been repaired. In one scenario the assessment would occur with shielding and the other would occur without shielding. This is a modified bank JPM. (K/A 2.3.4 - IR 3.2)

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Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations (SA1)	R, N	2.1.34 Knowledge of primary and secondary plant chemistry. (3.5) JPM: Determine Chemistry Limitations and Required Actions (SO1029)
Conduct of Operations (SA2)	R, M	2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management. (4.6) JPM: Perform a Shutdown Margin Calculation (SO1017)
Equipment Control (SA3)	R, M	2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. (4.4) JPM: Determine Loss of RHR Impact on Indication and Adequate Hot Leg Vent Path (SO1101)
Radiation Control (SA4)	R, D	2.3.6 Ability to approve release permits. (3.8) JPM: Review Containment Release Permit (SO1002)
Emergency Procedures/Plan (SA5)	R, M	2.4.41 Knowledge of the emergency action level thresholds and classifications. (4.6) JPM: Classify an Emergency Plan Event (SO1136)
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ ; randomly selected)		

- SA1 The applicant will be presented with a set of RCS Chemistry parameters and utilize STA-609, Reactor Coolant Water Chemistry Control Program and CHM-120, Primary Chemistry to determine Action Levels and Actions required due to out of specification Chemistry parameters. The applicant will then refer to Technical Specifications and Technical Requirements Manual to determine any applicable LCOs, Actions and Conditions. This is a new JPM. (K/A 2.1.34 - IR 3.5)
- SA2 The applicant will perform a Shutdown Margin Calculation per OPT-301, Shutdown Margin Calculation, Attachment 1, Manual Generation of OPT-301-9, Shutdown Margin. Critical tasks include reviewing individual parameters, verifying adequate Shutdown Margin, and identifying any required action when the Acceptance Criteria is NOT met. This is a modified from bank JPM. (K/A 2.1.37 - IR 4.6)
- SA3 The applicant will be provided a set of plant conditions and will utilize ABN-104, Residual Heat Removal System Malfunction, to determine time to core saturation from initial RCS temperature, time to core uncover, and actual Reactor Vessel water level for conditions provided. The applicant will then utilize IPO-010A, Reactor Coolant System Reduced Inventory Operations to determine if an adequate Hot Leg vent path exists. This is a modified bank JPM (K/A 2.2.44 - IR 4.4)
- SA4 The applicant will utilize Technical Specifications, the Offsite Dose Calculation Manual, STA-603, Control of Station Radioactive Effluents, a completed STA-603-15, Containment Radioactive Effluent Release Data Sheet, and a completed CLI-744-3, Containment Gaseous Release DRMS Setpoint Data Sheet to determine the requirements that must be performed to conduct a release with 1-RE-5503 (CAG-197), Unit 1 Containment Air Gas Radiation Detector INOPERABLE. The applicant must also determine at what date/time the current Containment Air Sample expires as well as any applicable Technical Specification LCOs and Actions. This is a bank JPM. (K/A 2.3.6 - IR 3.8)
- SA5 The applicant will determine the appropriate Emergency Plan Classification in accordance with EPP-201, Assessment of Emergency Action Levels, Emergency Classification, and Plan Activation. The critical steps will be to determine the correct classification within the notification time. This is a modified bank JPM. (K/A 2.4.41 - IR 4.6)

Facility: <b>CPNPP 1 &amp; 2</b>		Date of Examination: <b>September 2021</b>	
Exam Level: RO <b>SRO(U)</b>		Operating Test Number: <b>NRC</b>	
Control Room Systems (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)			
	System / JPM Title	Type Code*	Safety Function
S-1	003 – Dropped Control Rod (RO1024) Respond to Control Rod Misalignment (RO ONLY)	D, S	1
S-2	006 – Emergency Core Cooling System (RO1406) Place the RHR System in Standby Readiness	A, D, L, S	2
<b>S-3</b>	<b>011 – Large Break Loss of Coolant Accident (RO1507)</b> <b>Transfer RHR Pumps and SI Pumps to Hot Leg Recirculation</b>	<b>A, D, EN, L, S</b>	<b>4P</b>
S-4	045 – Main Turbine Generator System (RO3113) Perform Pre-Startup Turbine Trip Checks	A, D, L, S	4S
<b>S-5</b>	<b>062 – AC Electrical Distribution System (RO4204)</b> <b>Transfer from Preferred to Alternate Power (6.9 KV) – Swap from XST2 to XST1</b>	<b>A, D, S</b>	<b>6</b>
<b>S-6</b>	<b>059 – Main Feedwater System (RO1833)</b> <b>Respond to Feedwater Flow Instrument Failure</b>	<b>D, S</b>	<b>7</b>
S-7	067 – Plant Fire On Site (RO4405) Respond to a Fire in the Safeguards Building	A, L, M, S	8
S-8	060 – Accidental Gaseous Radwaste Release (RO4103) Respond to Control Room Ventilation Radiation Alarms	EN, M, S	9
In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
P-1	001 – Control Rod Drive System (AO6216) Startup One Rod Drive MG Set	D, L, R	1
<b>P-2</b>	<b>062 – Loss of Nuclear Service Water (AO6503)</b> <b>Align Alternate Cooling to Emergency Diesel Generators</b>	<b>A, E, EN, L, M, R</b>	<b>4S</b>
<b>P-3</b>	<b>033 – Spent Fuel Pool Cooling System (AO5301)</b> <b>Respond to SFP Cooling Water Pump Trip (Level Instrument)</b>	<b>E, N, R</b>	<b>8</b>

<p>* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>	
*Type Codes	Criteria for RO / SRO-U
(A)lternate path	4-6 <b>(6)</b> / 2-3 <b>(3)</b>
(C)ontrol room	
(D)irect from bank	≤ 9 <b>(7)</b> / ≤ 4 <b>(3)</b>
(E)mergency or abnormal in-plant	≥ 1 <b>(2)</b> / ≥ 1 <b>(2)</b>
(EN)gineered safety feature	≥ 1 <b>(3)</b> / ≥ 1 <b>(2)</b> <small>(control room system)</small>
(L)ow-Power / Shutdown	≥ 1 <b>(6)</b> / ≥ 1 <b>(2)</b>
(N)ew or (M)odified from bank including 1(A)	≥ 2 <b>(4)</b> / ≥ 1 <b>(2)</b>
(P)revious 2 exams	≤ 3 <b>(0)</b> / ≤ 2 <b>(0)</b> <small>(randomly selected)</small>
(R)CA	≥ 1 <b>(3)</b> / ≥ 1 <b>(3)</b>
(S)imulator	<b>(8)</b> <b>(3)</b>

NRC JPM Examination  
Summary Description

- S-1 The applicant will perform actions to recover a dropped Control Rod in accordance with ABN-712, Rod Control System Malfunction. Actions include, transferring the Control Rod Bank Select switch to the affected bank position, moving the bank outward to the next DRPI position, placing the lift coil disconnect switches in disconnect for all unaffected rods in the bank, withdrawing the affected rod until aligned with DRPI indication, reconnecting all lift coils, moving the bank back to the original position, and placing rod control back in manual. This is a direct from bank JPM. This JPM is under the Reactivity Control Safety Function. This will be an RO only JPM. (K/A APE 003 AA1.02 – IR 3.6 / 3.4)
- S-2 The applicant will place RHR Train B in Standby Readiness from Shutdown Cooling Mode in accordance with SOP-102A, Residual Heat Removal System. The actions will require the applicant to vent RHR Pump 1-02 suction pressure when it is determined be greater than 60 psig locally. This is a direct from bank JPM. This JPM is under the Reactor Coolant System Inventory Control Safety Function. (K/A 006 A4.07 – IR 4.4 / 4.4)
- S-3 The applicant will transfer RHR Pumps and SI Pumps from Cold Leg Recirculation to Hot Leg Recirculation in accordance with EOS-1.4A, Transfer to Hot Leg Recirculation. The applicant will identify SI Pump 1-01 cannot be transferred from Cold Leg to Hot Leg Recirculation due to the failure of 1/1-8802A, SI Pumps to RCS Hot Leg Valve to open. The applicant will then restore SI Pump 1-01 to Cold Leg Recirculation. This is a direct from bank JPM. This JPM is under the Heat Removal from Reactor Core – Primary Systems Safety Function. (K/A 011 EA1.11 – IR 4.2 / 4.2)
- S-4 The applicant will use OPT-410A, Pre-Startup Turbine Trip Checks to perform the task. This is an Alternate Path JPM as the Turbine speed will increase above the allowable procedural guidance while the HP Stop Valves are opening. This speed increase requires that the turbine be tripped in accordance with OPT-410A. The critical steps will include resetting the turbine trip, latching the turbine, opening the HP Stop Valves and tripping the turbine when speed increases. This is a direct from bank JPM under the Main Turbine Generator System – Heat Removal from Reactor Core Secondary Systems Safety Function. (K/A 045 A4.01 - IR 3.1 / 2.9)
- S-5 The applicant will transfer 6.9 KV Safeguards Bus 1EA2 from the normal Unit 1 source of power, XST2 Transformer, to the alternate Unit 1 source of power XST1 Transformer. Actions are taken in accordance with SOP-603A, 6900 V Switchgear. During the swap when the 1EA2-2 breaker is closed, the 1EA2-1 breaker will fail to automatically open as designed. The applicant will manually open the 1EA2-1 breaker and continue the procedure. This is a direct from bank JPM. This JPM is under the Electrical Safety Function. (K/A 062 A4.01 – IR 3.3 / 3.1)

- S-6 The applicant will respond to a failure of Main Feedwater Flow Transmitter, FT-520 on SG 1-02. Actions will be taken in accordance the Alarm Response Manual and ABN-708, Feedwater Flow Instrument Malfunction. Actions include establishing manual control of SG 1-02 water level, aligning the alternate Feedwater Flow Transmitter, and restoring SG 1-02 level control to automatic. This is a direct from bank JPM. This JPM is under the Instrumentation Safety Function. (K/A 059 A2.11 – IR 3.0 / 3.3)
- S-7 The applicant will take control room actions for a fire in the Safeguards Building in accordance with ABN-804A, Response to a Fire in the Safeguards Building. Actions include isolating the RCP Seal Water Return path and realigning the running CCP suction source to the RWST due to cavitation of the CCP. This is a modified bank JPM. This JPM is under the Plant Service Systems Safety Function. (K/A 067 AA2.16 – IR 3.3 / 4.0)
- S-8 The applicant will respond to Control Room Ventilation Radiation alarms in accordance with ABN-902, Release of Radioactive/Toxic Gas. ABN-902 will refer to SOP-802, Control Room Ventilation System to verify Control Room Ventilation has properly shifted to Emergency Recirculation. After verification complete, the applicant will then shift to single train operation with Train B in service. This is a modified bank JPM. This JPM is under the Radioactivity Release Safety Function. (K/A 060 AA1.02 – IR 2.9 / 3.1)
- P-1 The applicant will place Rod Drive MG Set 2-01 in service in accordance with SOP-702B, Rod Control System. Actions include setting the MG Voltage Adjust potentiometer to 5.0, placing the Ammeter to position 'A', placing the Voltmeter to position 'A-B', closing the Motor Circuit Breaker Control Switch, depressing and holding the Field Flash pushbutton until generator voltage stabilized at 255 Volts then releasing the button, adjusting generator Line Volts from 255 to 260 Volts, closing the generator Circuit Breaker. This is a direct from bank JPM. This JPM is under the Reactivity Control Safety Function. (K/A 001 A4.08 – IR 3.7 / 3.4)
- P-2 During a Blackout condition on Unit 2, the applicant will establish Fire Protection Water to Diesel Generator 2-01 utilizing ABN-501, Service Water System Malfunction, Attachment 1, Fire Protection Water Alignment to Diesel Generators. During alignment, the first selected Fire Protection Water supply the applicant selects will be unsuccessful due to a stuck drain valve cap. The applicant will proceed to the alternate Fire Protection supply and complete the alignment. This is a modified bank JPM. This JPM is under the Heat Removal from Reactor Core Secondary Systems Safety Function. (K/A 062 AA1.06 – IR 2.9 / 2.9)
- P-3 The applicant will locally RESTART SFP Cooling Water Pump 01 in accordance with ABN-909, Spent Fuel Pool/Refueling Cavity Malfunction, after a failure of the Level Instruments have caused the pump to trip. Actions include opening the discharge path isolation valve, closing the pump discharge valve, locally starting SFP Cooling Water Pump 01, re-opening the pump discharge valve, and throttling discharge path isolation valve to obtain 3600 gpm flow. This is a new JPM. This JPM is under the Plant Service Systems Safety Function. (K/A 033 A2.02 – IR 2.7 / 3.0)



Facility:	CPNPP 1 & 2	Scenario No.:	1	Op Test No.:	Make-Up CPNPP 2021 NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions: 100% power MOL - RCS Boron is 771 ppm					
Turnover: Maintain steady-state power conditions.					
<b>Critical Tasks:</b>					
<b>CT-1 – Manually Trip Reactor due to Failure to Automatically Trip prior to exiting EOP-0.0A, Reactor Trip or Safety Injection.</b>					
<b>CT 2 – Trip reactor coolant pumps within 5 minutes upon a loss of Subcooling per EOP-0.0A, Reactor Trip or Safety Injection.</b>					
<b>CT-3 – Initiate Cooldown of the Reactor Coolant System in accordance with ECA-3.1A, SGTR with Loss of Reactor Coolant – Subcooled Recovery Desired, prior to commencing ECCS flow reduction.</b>					
Event No.	Malf. No.	Event Type*	Event Description		
1	RP05D	I (RO, SRO) TS (SRO)	Cold Leg Loop 4 NR Temperature Transmitter Failure (TE-441B) Fails High		
2	RX04A	I (BOP, SRO) TS (SRO)	Steam Generator (1-01) Level Transmitter Failure (LI-551)		
3	Override	C (RO, SRO)	Letdown HX Outlet Flow Controller Failure (TK-130) Fails Low		
4	FW22	C (BOP, SRO) TS (SRO)	Station Service Water Pump 1-01 Trip		
5	TC08C	C (BOP, SRO)	High Pressure Turbine Stop Valve #3 (UV-2430A) Fails Closed		
6	SG02C	M (RO, BOP, SRO)	Steam Generator 1-03 Tube Rupture		
7	RP15E	C (BOP, SRO)	Automatic Reactor Trip Failure, Manual Trip from 1B3 and 1B4		
8	MS01C	M (RO, BOP, SRO)	S/G Main Steam Line Fault inside Containment		
*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Technical Specifications					

<b>Actual</b>	<b>Target Quantitative Attributes</b>
<b>8</b>	Total malfunctions (5-8)
<b>2</b>	Malfunctions after EOP entry (1-2)
<b>5</b>	Abnormal events (2-4)
<b>2</b>	Major transients (1-2)
<b>2</b>	EOPs entered/requiring substantive actions (1-2)
<b>1</b>	EOP contingencies requiring substantive actions (0-2)
<b>3</b>	Critical tasks (2-3)

### **SCENARIO SUMMARY Make-Up NRC Scenario 1**

#### **\*Event 1 (Key 1)**

The crew will assume the watch at 100% power with no scheduled activities per IPO-003A, Power Operations. The first event is a failure high of a Reactor Coolant System Loop 4 Narrow Range Temperature (TE=441B) element. Crew actions are per ABN-704, T<sub>c</sub>/N-16 Instrumentation Malfunction, Section 2.0. Section 2.0 is designated for T<sub>c</sub>/N-16 Instrumentation Malfunction. Actions include placing the Control Rods in MANUAL and defeating the failed channel. Control Rods will be restored in Manual to their pre-failure position and remain in Manual until restored to Operable per ABN-704. The SRO will refer to Technical Specification LCO 3.3.1, Reactor Trip System Instrumentation (Functions 6 & 7); Condition E, One channel inoperable.

#### **\*Event 2 (Key 2)**

The next event is a failure low of S/G 1-01 LI-551 (controlling channel) causing 1-FK-510, SG 1 FW FLO CTRL, valve to open rising level in 1-01 S/G. This will cause level deviation alarms for 1-01 S/G. The crew will enter ABN-710, Steam Generator Level Instrumentation Malfunction. They will take manual control of 1-FK-510 and restore level to program in 1-01 S/G. The SRO will refer to Technical Specification LCO 3.3.1, Reactor Trip System Instrumentation (Function 14), LCO 3.3.2, ESF System Instrumentation (Function 6C), and LCO 3.3.3, Accident Monitoring Instrumentation (Function 13).

#### **\*Event 3 (Key 3)**

The next event is a failure of the Letdown Heat Exchanger Outlet Flow Controller, TK-130. The controller output will fail to zero demand and cause TCV-4646, LTDN HX OUT TEMP CTRL valve to close. This will result in Letdown Heat Exchanger High temperature alarms and Letdown flow to divert to the VCT on high temperature. The crew will respond per the ALM, take manual control of TK-130 and raise demand to establish Letdown Heat Exchanger Outlet temperature to approximately 95°F.

#### **\*Event 4 (Key 4)**

The next event is a trip of Station Service Water Pump 1-01. Crew actions are per ABN-501, Station Service Water System Malfunction, Section 2.0. Section 2.0 is designated for Station Service Water Pump Trip. Various equipment controls, as directed by ABN-501, are placed in PULL-OUT to prevent starting with no cooling water available. The SRO will refer to Technical Specification LCO 3.7.8, Station Service Water System; Condition B, One SSWS Train inoperable. The SRO will also refer to Technical Specification LCO 3.8.1, AC Sources – Operating; Condition B, One DG inoperable as DG 1-01 must be placed in PULL-OUT upon the loss of Train A Station Service Water.

#### **\*Event 5 (Key 5)**

The next event is High Pressure Turbine Stop Valve #3 fails closed. The crew will enter ABN-401, Main Turbine Malfunction, Section 9.0. Section 9.0 is designated for Inadvertent Closure of an HP or LP Stop or Control Valve. Actions include placing rod control in Auto to allow the rod control system to respond to the plant transient and reducing turbine load to allow all operable HP Control Valves to come off their full open seat.

#### **\*Event 6 – (Key 6)**

The major event is a Tube Rupture on SG 1-03. The Crew will diagnose the Tube Rupture due to multiple Radiation alarms and lowering Pressurizer Pressure and Level. The crew will enter EOP-0.0A, Reactor Trip or Safety Injection and transition to EOP-3.0A, Steam Generator Tube Rupture.



Facility:	CPNPP 1 & 2	Scenario No.:	3	Op Test No.:	Make-Up CPNPP 2021 NRC
Examiners:	_____	Operators:	_____		
	_____		_____		
	_____		_____		
Initial Conditions:	1 x 10 <sup>-8</sup> amps following a refueling outage. MDAFWPs are maintaining Steam Generator Water Levels 60-75%. Steam dumps are in Steam Pressure mode. Boron is 1669 ppm (by sample).				
Turnover:	Raise power to 3% per IPO-002A, Plant Startup from Hot Standby, Section 5.4				
<b>Critical Tasks:</b>					
<p><b>CT 1 – Initiate a MSLI or Manually close MSLI valves, due to failure to automatically isolate, prior to exiting EOP-0.0A, Reactor Trip or Safety Injection, or EOP-2.0, Faulted Steam Generator Isolation.</b></p> <p><b>CT 2 – Trip reactor coolant pumps within 5 minutes upon a loss of Subcooling per EOP-0.0A, Reactor Trip or Safety Injection OR EOP-1.0A, Loss of Reactor or Secondary Coolant.</b></p>					
Event No.	Malf. No.	Event Type*	Event Description		
1	-	R (RO, SRO) N (BOP)	Raise power to 2% to 3%		
2	TP06A TP07B	C (BOP, SRO)	Turbine Plant Cooling Water Pump 1 Trip Turbine Plant Cooling Water Pump 2 Failure to Auto-Start		
3	RP06B	C (RO, SRO) TS (SRO)	N-16 Channel 2 fails high		
4	RX08B RX16B	I (RO, SRO) TS (SRO))	PT-456 PZR Pressure Transmitter fails high, PORV PCV-456 fails 25% open		
5	FW24B	C (BOP, SRO) TS (SRO)	MDAFW Pump 1-02 trips, manual start of TDAFW Pump required		
6	RD09B6 RD04B6 RD04F6 RC19C	M (ALL)	Seismic event, Ejected rod, SBLOCA @ 1500 gpm, Stuck rod		
7	MS02	M (ALL)	Main Steam line leak downstream of the MSIVs (MSLI does not occur automatically)		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Technical Specifications					

<b>Actual</b>	<b>Target Quantitative Attributes</b>
<b>7</b>	Total malfunctions (5-8)
<b>2</b>	Malfunctions after EOP entry (1-2)
<b>4</b>	Abnormal events (2-4)
<b>2</b>	Major transients (1-2)
<b>2</b>	EOPs entered/requiring substantive actions (1-2)
<b>0</b>	EOP contingencies requiring substantive actions (0-2)
<b>2</b>	Critical tasks (2-3)

### **SCENARIO SUMMARY Make-Up NRC Scenario 3**

#### **\*Event 1**

In accordance with turnover instructions, the crew begins raising power to 2% to 3%, per IPO-002A, Plant Startup from Hot Standby, Section 5.4, Increasing Reactor Power to Approximately 2% Following Reactor Startup and Establishing Main Feedwater Flow to the SGs.

#### **\*Event 2**

When the lead examiner is satisfied with the power increase (stable between 2-3%) a trip of the running TPCW Pump will occur. The standby pump will fail to automatically start and manual operator action will be required to start the standby pump. Crew response will be per ABN-306, Turbine Plant Cooling Water System Malfunction, Section 3.0. The crew will start the standby pump and verify other parameters for the system.

#### **\*Event 3**

The next event is a failure of the loop 2 N-16 detector high. Tave will rise and pressurizer level will rise. The crew will take manual control of pressurizer level The crew will enter ABN-704, Tc/N-16 Instrument Malfunction, Section 2.0. The SRO will refer to Technical Specifications.

#### **\*Event 4**

Pressurizer Pressure channel PT-456 will fail high. PORV PCV-456 will open and when closed will stick at 25% open. The crew will enter ABN-705, Section 2.0, Pressurizer Pressure Instrument Malfunction. The primary action is to close the PORV block valve. The SRO will refer to Technical Specifications.

#### **\*Event 5**

After the crew has control of RCS pressure, the Motor Driven Auxiliary Feedwater Pump (MDAFWP) 1-02 will trip. The crew will enter ABN-305, Auxiliary Feedwater System Malfunction. The crew will manually start the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) and feed Steam Generators 1-03 and 1-04 with the TDAFWP. The SRO will refer to Technical Specifications.

#### **\*Event 6**

A seismic event occurs; this is a precursor for upcoming events. The crew will enter ABN-907, Acts of Nature, Section 2.0, Earthquake. 120 seconds after the seismic annunciators have come in, Control Rod B6 will partially eject from the core (SBLOCA) and Control Rod F6 will stick at 168 steps on the reactor trip. The reactor will trip and the crew will enter EOP-0.0A, Reactor Trip or Safety Injection. Emergency Boration verification via Safety Injection flow will be required due to the 2 Stuck Control Rods. The crew must secure RCPs within 5 minutes of loss of subcooling.

#### **Event 7**

A Main steam line break in the turbine building will occur (downstream of the MSIVs,) as a result of the seismic event, requiring the MSIVs to be manually closed as they will fail to close automatically.

#### **Terminating Criteria**

Scenario will be terminated when the crew has RESET RHR Auto Switchover in EOP-1.0A, or at the lead Examiners discretion, Terminate the scenario.

\* - *On Lead Examiner's Cue*

Scenario Event Description  
Make-up NRC Scenario 3

Risk Significance:

- Failure of risk significant systems prior to trip: PORV stuck open  
MDAFW Pump trips
  
- Risk significant core damage sequence: Rod Ejection then Small Break LOCA  
Main Steam Line Break
  
- Risk significant operator actions: Manual start of TDAFWP  
Manual Main Steam line Isolation