

Facility: _____		Date of Examination: _____
Examination Level: RO <input type="checkbox"/> SRO <input type="checkbox"/>		Operating Test Number: _____
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations		
Conduct of Operations		
Equipment Control		
Radiation Control		
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 all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)		

Facility: _____ Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Date of Examination: _____ Operating Test No.: _____	
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
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)			
i.			
j.			
k.			
@ 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.			
* Type Codes		Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator		4-6 / 4-6 / 2-3 $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	

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Facility: <u>PVNGS</u>	Scenario No.: <u>1</u>	Op-Test No: <u>2009</u>	
Examiners: _____ _____	Operators: _____ _____		
Initial Conditions: IC #100, (100% power, MOC).			
Turnover: Unit 1 has been at 100% power for the past 150 days. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is protected equipment. Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.			
Event No.	Malf. No.	Event Type*	Event Description
1	imf cmCNCV04CHNFIC243_2	I RO/SRO	After the crew performs the beginning of shift reactivity brief, a seal injection controller will fail in automatic requiring the crew to take manual control of the controller.
2	imf cmCPCH03HCNA02A_6 imf cmCPCH03HCNA02C_6	C CO/SRO	The A and C CEDM fans will trip requiring the CRS to enter 40AO-9ZZ25, Loss of HVAC to start the B and D fans (which will fail to auto start).
3	imf mFRD02B	R RO/CO/SRO (TS)	CEA 15 drops completely into the core. Crew enters 40AO-9ZZ11. Crew begins a 20% downpower. SRO enters LCO 3.1.5 Condition A and LCO 3.2.4 Condition A. Critical Task – Begin downpower within 15 minutes
4	imf mfTH06A	(TS)	A Steam Generator Tube leak occurs requiring the crew to enter 40AO-9ZZ02, Excessive RCS leakrate.
5	imf mFRD02L	C CO/RO/SRO	Another CEA slips into the core. This will cause a reactor trip signal
6	mfRD12A mfRP04A mfRP04C	C CO/RO/SRO	ATWS – Crew must manually de-energize MG sets. After the trip Tave will fail low requiring the CO to manually feed the SGs. Critical Task – address reactivity before completion of SPTAs.
6	mmf mfTH06A	M-ALL	The SGTL will degrade on the trip. The CRS will diagnose a SGTR at the completion of the SPTAs. The crew performs a cooldown and isolates the affected Steam Generator. Critical Task – isolate the affected steam generator
End point			The scenario is terminated when the affected steam generator has been isolated.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

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

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. MOC 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

No other activities are planned.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Facility: PVNGS Scenario No.: 2 Op-Test No.: 2009

Examiners: _____ Operators: _____

Initial Conditions: IC #102, (100% power, MOC).

Turnover: Unit 1 has been at 100% power for the past 150 days. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is protected equipment. The 'A' DG is running and has run at full load for 3.5 hours. After turnover, the crew needs to complete the surveillance test and shutdown DG 'A'. Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1	mfEG06A	N RO/SRO (TS)	The 'A' DG will trip before the crew can perform the shutdown. The CRS addresses Tech Specs.
2	cmTRRX09RCBPDT125B_4	I CO/SRO (TS)	SG DP transmitter failure Channel B fails low. The crew will address the alarm response procedure and bypass the parameter within 1 hour. The CRS will address Tech Specs.
3	mfMC01A	C - ALL	Condenser vacuum will begin to degrade. The CRS will enter 40AO-9ZZ07 and commence a downpower to stabilize vacuum. Once a downpower is started, vacuum will recover.
4	mfNI02B k:4 mfNI02A k:4	I RO/CO/SRO	A failure of control channel 2 will occur. The CRS enters 40AO-9ZZ16, RRS Malfunctions to select the unaffected channel at the RRS test panel
5	cmCPRC02RCEP01A_1 mfED08A mfED08B	C RO/CO/SRO	RCP 1A will experience a sheared shaft causing a reactor trip. On the trip, the fast bus transfer for the 13.8 kV non-class buses will fail.
6	mfMS01D	M- ALL	After the CRS enters the LOOP/LOFC procedure, an ESD will occur. Critical Task – stabilize RCS temperature to prevent lifting primary safeties
7	cmCPSI01SIAP02_6 cmCPSI01SIBP02_5	C RO/SRO	HPSI A trips on an 86 lockout and HPSI B fails to auto start Critical Task – initiate safety injection flow
8	cmBSRP01BSSG1DPHIAT_1 cmBSRP01BSSG1DPHIBT_1 cmBSRP01BSSG1DPHICT_1 cmBSRP01BSSG1DPHIDT_1	C CO/SRO	Failure of the SG 1 > SG 2 DP lockout Critical Task – secure feeding the faulted SG
End point			The scenario is terminated when the crew stabilizes RCS temperature, the 'B' HPSI pump is started, and AF to the faulted SG is isolated.

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

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

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. MOC 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew is to shutdown DG 'A' after turnover.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Facility: <u>PVNGS</u>	Scenario No.: <u>3</u>	Op-Test No.: <u>2009</u>	
Examiners: _____ _____	Operators: _____ _____		
Initial Conditions: IC # 101 (50% power, MOC)			
Turnover: Unit 1 has been at 50% power for the past 4 days. The unit had been in a SNOW outage and stopped the power increase due to a possible issue with the B MFP. During the startup of the B MFP it had high vibration and high temperature on the outboard pump bearing. Maintenance is investigating at this time. The B MFP is tagged out. Unit 3 is in a refueling outage. Expected to start the reactor in 3 days. Window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is the protected train. Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days.			
Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.			
Event No.	Malf. No.	Event Type*	Event Description
1	imf cmTRRX06RCPDT102D_4	I CO/SRO (TS)	A Channel D pressurizer instrument will fail low requiring the crew to address the alarm response procedure. The crew should bypass the parameter within an hour. The CRS should address Tech Specs.
2	irf rfED01	C CO/SRO (T/S)	Last Unit on Line. Unit 2, requiring the crew to perform the actions from the alarm response to maintain offsite capability.
3	imf mfCPTP04TCNP01A_6	C CO/SRO	The 'A' Turbine Cooling water pump will trip with a failure of the standby pump to auto start. This will require the crew to address 40AO-9ZZ03, Loss of Cooling Water or the alarm response procedure to start the standby TC pump.
4	imf mfTH01B	(TS) RO/SRO	A RCS leak will develop requiring the CRS to enter 40AO-9ZZ02, Excessive RCS leakrate.
5	imf mfTC13	M ALL	Main Turbine Trip
6	imf cmTRMS02SGNPT1024_4	I CO/SRO	A failure of Main Steam pressure transmitter SGN-PT-1024 will require the CO to take manual actions to control heat removal with either the SBCS or ADVs.
7	mmf mfTH01B k:4 f:10 imf cmMVRH03SIAUV672_6 imf cmCPRH05SIBP03_5 mmf mfTH01B f: 10	M ALL	RCS Leak degrades to a LOCA and one Containment Spray Pump will fail to auto start while the other Containment Spray Header isolation will fail to open. Critical Task – initiate CS flow.
		C RO/SRO	
8	imf mfED10A	C RO/SRO	After the SPTAs are complete, a loss of PBA-S03 will occur due to a fault on a SU transformer. This will cause a loss of the only running HPSI pump (other pump tripped when started). The CRS will transition to the FRP to restore power to PBA-S03. Critical Task – X-tie PB busses to restore HPSI.
End point			The scenario is terminated when the PB bus is energized and HPSI is started.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

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

Supplemental Turnover

Plant conditions:

Unit 1 has been at 50% power for the past 4 days. MOC 250 EFPD.

Equipment out of service:

Alarm Window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days.

Risk Management Action Level is Green.

Train B is protected equipment.

Planned shift activities:

Normal Shiftly surveillances are complete.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Facility: PVNGS Scenario No.: 4 Op-Test No.: 2009

Examiners: _____ Operators: _____

Initial Conditions: IC #100, (100% power, MOC).

Turnover: Unit 1 has been at 100% power for the past 150 days. Aux Feed Pump 'A' is out of service for work to repair a leak on the discharge check valve (AFA-V016). Expected back in 24 hours. LCO 3.7.5 condition 'A' and 'B' have been entered. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is protected equipment. Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days. Normal Shiftly Surveillances are complete. Risk Management Action Level is Yellow.

Event No.	Malf. No.	Event Type*	Event Description
1	imf cmTRCV19RCALT110X_4	I RO/SRO (TS)	The Train A Pressurizer Level Transmitter will fail. The crew should address the Alarm response procedure and select the Train B level transmitter. The CRS should address Tech Specs.
2	imf cmTRRX12SGCLT1123C_4	I CO/SRO (TS)	A SG level transmitter fails low. The crew addresses the alarm response procedure and places the correct parameter in bypass. The CRS addresses Tech Specs.
3	imf mfFW17B	C RO/CO/SRO	The 'B' MFP will trip requiring the CRS to enter 40AO-9ZZ09, RPCB (Loss of Feedpump).
4	imf mfFW15A imf mfFW17A	M- ALL	After the crew stabilizes power, the 'A' MFP will experience high vibrations. The crew should address the alarm response procedure and determine they have to trip the reactor and trip the MFP.
5	imf mfRD03I imf mfRD03M	C RO/SRO	On the trip, two CEAs will stick out. This will require the crew to borate. Critical Task – initiate boration.
6	imf mf FW21B	C CO/SRO	After the SPTAs are complete, the 'B' AFW pump will trip. The CO should shift to the 'N' AFW pump.
7	imf cmCPF07AFNP01_3	M ALL	When the CO starts AFN, it will have degraded discharge pressure. The CRS should realize that a LOAF has occurred and transition to the FRP to feed the Steam Generators with the condensate pumps. Critical Task – Align condensate to feed the steam generators.
End point			The scenario is terminated when the crew has established feed to one SG with a condensate pump.

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

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. MOC 250 EFPD.

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

AF pump 'A' is out of service for check valve repair.

Unit 3 is in a refueling outage. Unit 3 is expected to start up the reactor in 3 days.

Risk Management Action Level is YELLOW.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillances are complete.

No other activities are planned.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.