PVNGS License Examination
Control Room Systems and Facility Walk-Through Test Outline
PVNGS Form ES301-2

Facility: PVNGS	Date of Examination: _7/23/01___
Exam Level: RO/SROI	Operating Test No.: __RO/SROI__

JPM #	System/JPM Title	Type Code*	Safety Function
B.1 Control Room Systems			
JS1	LPSI/Align A LPSI pump to restore SDC following a loss of B LPSI pump in Mode 5 (Repeat from 99 Exam)	S L D 4.4-E09-EA2.2 3.5/4.0	4 (Primary)
JS2	SF/Respond to TLI Failure	S D 3.7-016-A2.01 3.0/3.1	7
JS3	CVCS/Lineup Emergency Boration Path following Rx Trip w/loss of power	S N A 3.1-004-A2.14.01 3.8/3.9 4.2-024-AK3.01 4.1/4.4	1
JS4	RC/Operate PZR Press Control System	S M A 4.2-027-AA1.01 4.0/3.9 3.3-010-A4.01 3.7/3.5	3
JS5	PB/Crosstie DG B to PBA-SO3 in Mode 5	S D L 3.6-064-A4.01 4.0/4.3	6
JS6	RCGVS/Vent RDT	S N L 3.2 002 K4.05 3.8/4.2	2
JS7	CS/Restore Containment Spray “A” to Normal from SDC lineup	S L D 3.5-103-A4.01 3.2/3.3	5
B.2 Facility Walk-Through			
JP1	AF/Local operation of AFN (PRA Significant)	P D A 3.4-061-A2.03 3.1/3.4	4 (Secondary)
JP2	FP/Supply backup air to Fuel Pool Bladder (Plant Event, New Mod)	P N R A 3.8-078-K4.02 3.2/3.5 3.8-078-A3.01 3.1/3.2	8
JP3	DG/Perform event control action for CR Fire (Time Critical)	P D 4.2-068-AA1.10 3.7/3.9 4.2-068-AA1.31 3.9/4.0	6

Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate Path, (C)ontrol Room, (P)lant, (S)imulator, (L)ow Power, (R)CA

Approved: _____
Facility Representative

Approved: _____
Chief Examiner

PVNGS License Examination
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Facility: PVNGS	Date of Examination: __7/23/01
Exam Level: SROU	Operating Test No.: __SROU__

B.1 Control Room Systems

JPM #	System/JPM Title	Type Code*	Safety Function
JS3	CVCS/Lineup Emergency Boration Path following Rx Trip w/loss of power	S N A	1
JS7	CS/Restore Containment Spray "A" to Normal from SDC lineup	S L D	5

B.2 Facility Walk-Through

JP1	AF/Local operation of AFN (PRA Significant)	P D A	4 (Secondary)
JP2	FP/Supply backup air to Fuel Pool Bladder (Plant Event)	P N R A	8
JP3	DG/Perform event control action for CR Fire (Time Critical)	P D	6

Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate Path, (C)ontrol Room, (P)lant, (S)imulator, (L)ow Power, (R)CA

Approved: _____
Facility Representative

Approved: _____
Chief Examiner

Facility: PVNGS Unit-1 **Scenario No.:** 1 **Op-Test No:** 1

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Scenario Overview:

1. The crew will repressurize 1B SIT due to a small nitrogen leak.
2. Then the crew will experience a failure of a SG #1 Differential pressure (RCS flow) indicator. This will require the crew to bypass appropriate Reactor Protection System (RPS) bistables and refer to Technical Specifications.
3. Then the crew will respond to a degradation of condenser vacuum. This will require the crew to reduce power and stabilize the plant when source of air in-leakage is terminated.
4. Then the crew will respond to a failed Volume Control Tank (VCT) level transmitter. This will require the crew to return charging pump suction back to the VCT.
5. Then the crew will respond to a Loss of Coolant Accident (LOCA). This will require the crew to recognize a loss of HPSI injection and manually start the available HPSI pump.
6. Then the crew will respond to a loss of Containment Spray (CS). This will require the crew to implement the Functional Recovery Procedure (FRP) due to a failed Train 'B' valve and a loss of the running CS pump.

Initial Conditions: IC-18, 75% power, MOC

High Pressure Safety Injection pump 'B' is Out of Service

Plant Cooling Water pump 'B' is Out of Service

Turnover:

See Attached

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

Event No.	Malf. No.	Event Type*	Event Description
		N	Re-pressurize Safety Injection Tank (SIT) 1B (CRS to direct and PO to perform)
1 T=10	TR04:RCDP DT115	I	Channel D SG #1 Differential Pressure (RCS Flow) transmitter fails low. (CRS to refer to Technical Specifications and direct bypassing RPS bistable for RCS low flow trip)
2 T=18	MC01A	R	Slow loss of condenser vacuum. Crew to reduce power by boration and Control Element Assembly (CEA) insertion. (PO/SO coordinate power reduction, CRS direct power reduction and dispatch AO to investigate)
3 T=29	TR04:CHNL T227	I	Failure of Volume Control Tank (VCT) level instrument (PO to identify and implement corrective actions to stop boration, CRS to direct plant stabilization following boration addition)
4 T=39	THO1A	M	Loss of Coolant Accident (LOCA) (Crew recognizes, CRS directs trip) (Critical Task to start A HPSI pump) (Critical Task to close RCP seal bleedoff valves)
5 T=49	CP06: SIAP03	C	A Train Containment Spray (CS) pump trips (PO diagnose) CRS to transition to Functional Recovery Procedure (FRP) and direct actions to restore Containment Spray flow. (Critical Task to restore Train A Containment Spray flow using the A LPSI pump)
T~60			End point = Crew establishes Train B Containment Spray flow

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

LOIT NRC EXAM SCENARIO SUPPLEMENTAL TURNOVER INFORMATION

Scenario # 1

Turnover

Plant conditions:

The unit is at 75% power and has been for the last five days at 225 EFPD.

Equipment Out of Service:

The unit is on a power limitation due to three SG # 1 Safety Valves being declared inoperable due to engineering input. Technical Specification 3.7.1 Condition A required reduction in power and lowering of trip setpoints, these actions have been completed. SGE-PSV-575, 576, and 578 are the affected MSSVs.

The normal, shiftly surveillances are complete.

High Pressure Safety Injection (HPSI) pump 'B' is out of service for emergent work to replace a pump bearing that failed during its scheduled Surveillance Test 6 hours ago. Maintenance workers expect to finish pump repairs in 14 hours. T.S. 3.5.3.B has been entered.

'B' Plant Cooling Water pump was removed from service 20 hours ago for scheduled maintenance on the pump motor. Maintenance workers expect to finish pump repairs in 24 hours.

Safety Injection Tank (SIT) 1B pressure is low due to a small nitrogen leak. T.S. 3.5.1.B was entered one hour ago.

Planned Shift Activities:

Operations management has directed re-pressurizing SIT 1B prior to allowing further maintenance activities. Following shift turnover you are directed to re-pressurize SIT 1B to allow continued maintenance activities.

Facility: PVNGS Unit-1 **Scenario No.:** 2 **Op-Test No:** 2

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Scenario Overview:

1. The crew will return SG #1 blowdown to normal from abnormal.
2. Then the crew will experience a failure of RCS-LT-110X (Pressurizer level). This will require the crew to select RCS-LT-110Y as controlling channel and refer to Technical Specifications.
3. Then the crew will experience a small SG Tube Leak. This will require the crew to quantify leakage, start a unit shutdown, and refer to Technical Specifications.
4. Then the crew will experience a Main Generator trip resulting in a Reactor Power Cutback (Plant Event). The will require the crew to stabilize the unit, continue the downpower, and refer to Technical Specifications.
5. Then the crew will experience a SG Tube Rupture. This will require the crew to initiate a unit trip and enter the EOP network.
6. Then the crew will experience a loss of HPSI injection. This will require the crew to implement the Functional Recovery Procedure (FRP) to restore HPSI flow.

Initial Conditions: IC-20, 100% power, MOC

High Pressure Safety Injection pump B is Out of Service

Plant Cooling Water pump B is Out of Service

Turnover:

See Attached

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

Event No.	Malf. No.	Event Type*	Event Description
		N	Return SG #1 Blowdown to normal from abnormal.
1 T=	IMF TR04:RCALT 110X	I	RCA-LT-110X fails low. (PO to diagnose and select RCA-LT-110Y as controlling channel and CRS to refer to Technical Specifications)
2 T=	IMF TH06A	R	Small #1 SG Tube leak. Crew to quantify leakage and reduce power by boration and Control Element Assembly (CEA) insertion. (PO/SO diagnose leakage and quantify then coordinate power reduction, CRS direct power reduction and refer to Technical Specifications)
3 T=	IMF EG02	C	Main Generator trip causing a Reactor Power Cutback. (SO to identify, PO to stop boration, CRS to direct plant stabilization and refer to Technical Specifications)
4 T=	MMF THO6A	M	Steam Generator Tube Rupture (SGTR) (Crew recognizes, CRS directs trip)
5 T=	IMF ED10A IMF CP06:SPAP01	C	Loss of 'A' train HPSI due to electrical malfunctions (PO diagnose) (CRS to transition to Functional Recovery Procedure (FRP) and direct actions to restore HPSI flow) (Critical Task to restore power to PBA-S03) (Critical Task to restore Train A HPSI flow using MVAC-1) (Critical Task to cooldown and isolate #1 SG)
T~60			End point = Crew isolates #1 SG.

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

LOIT NRC EXAM SCENARIO SUPPLEMENTAL TURNOVER INFORMATION

Scenario # 2

Turnover

Plant conditions:

The unit is at 100% power, steady state conditions at 225 EFPD.

Equipment Out of Service:

High Pressure Safety Injection (HPSI) pump 'B' is out of service to replace a pump bearing that failed during its scheduled Surveillance Test 6 hours ago. Maintenance workers expect to finish pump repairs in 14 hours. T.S. 3.5.3.B has been entered.

'B' Plant Cooling Water pump was removed from service 20 hours ago for scheduled maintenance on the pump motor. Maintenance workers expect to finish pump repairs in 24 hours.

Planned Shift Activities:

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

Facility: PVNGS Unit-1 **Scenario No.:** 3 **Op-Test No:** 3

Examiners: _____ **Operators:** _____

_____ _____

_____ _____

Scenario Overview:

1. The crew will complete the startup of 'B' MFP and then commence a power increase.
2. Then the crew will experience a failure of the cooling water flow indicator for the letdown heat exchanger causing a loss of letdown. This will require the crew to stabilize CVCS system and refer to Technical Specifications.
3. Then the crew will experience a failure of a SG #1 Wide Range level transmitter. This will require the crew to refer to Technical Specifications and bypass appropriate Reactor Protection System (RPS) bistables.
4. Then the crew will experience an unrecoverable loss of feedwater to #2 SG when the Economizer valve fails closed. The crew is expected to attempt to manually trip the unit.
5. Then the crew will experience an ATWS condition and a Main Steam Safety Valve failing open on the unit trip. The crew is expected to open supply breakers for L03 and L10 in response to the ATWS. In response to the Safety valve failure, the crew is expected to isolate feed to #2 SG and stabilize the plant following SG dryout.

Initial Conditions: IC-16, 50% power, MOC

High Pressure Safety Injection pump 'B' is Out of Service

Plant Cooling Water pump 'B' is Out of Service

Turnover:

See Attached

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

Event No.	Malf. No.	Event Type*	Event Description
		N	Place 'B' MFP in service (CRS to direct and SO to perform)
		R	Power Increase (CRS to direct and SO/PO to coordinate and perform)
1 T=20	BS02:NCNFS L613	I	Flow instrument failure causes a loss of Letdown (PO to diagnose and perform actions and CRS to direct recovery)
2 T=30	TR04:SGDL T1113D	I	SG Wide Range level instrument fails low (SO to diagnose and perform actions and CRS direct and refer to Technical Specifications)
3 T=40	AV02:SGNF V1122	C	#2 SG Feedwater Economizer valve fails closed (SO/CRS to diagnose and CRS to direct unit trip)
4 T=41	ATWS	M	Reactor Protection system failure to open Reactor Trip Switchgear breakers (Crew to diagnose and take action) (Critical Task to trip reactor by opening L03 and L10)
5 T=41	RV02:SGEPS V554	C	Main Steam Safety Valve on #2 SG fails open (Crew recognizes and CRS diagnose Excess Steam Demand and direct stabilization activities) (Critical Task to stop feeding and steaming #2 SG) (Critical Task to control RCS parameters using #1 SG to prevent lifting Pressurizer Safeties)
T~60			End point = Crew stabilizes heat removal on #1 SG

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

LOIT NRC EXAM SCENARIO SUPPLEMENTAL TURNOVER INFORMATION

Scenario # 3

Turnover

Plant conditions:

The unit is at 50% power, steady state conditions at 225 EFPD.

Equipment Out of Service:

High Pressure Safety Injection (HPSI) pump 'B' is out of service to replace a pump bearing that failed during its scheduled Surveillance Test 6 hours ago. Maintenance workers expect to finish pump repairs in 14 hours. T.S. 3.5.3.B has been entered.

'B' Plant Cooling Water pump was removed from service 20 hours ago for scheduled maintenance on the pump motor. Maintenance workers expect to finish pump repairs in 24 hours.

Planned Shift Activities:

The plant has been started up after an electrical grid disturbance caused a reactor/plant trip 4 days ago. At startup, power was held at 50% for feed control testing and adjustment of nuclear instrumentation. All tests were satisfactory.

Extended warm weather and the loss of several non-nuclear stations has caused a power shortage emergency. Station management wants the crew to immediately begin a power escalation following turnover. ECC has been notified.

Procedure 40OP-9ZZ05 has been performed through Step 5.3.38.1 (start at 5.3.38.2).

Appendix H of 40OP-9ZZ05, NI Deviation checks, has been satisfactory completed for 50% power (Step 5.3.38.4).

Main Feed Pump 'B' is currently at 1000 rpm and 41OP-1FT02, Feedwater Pump Turbine, has been completed up to step 6.3.27. Following completion of the B Main Feed Pump startup, the crew is to recommence the power ascension to 100% power over the next 6 hours.

The required dilution has been calculated and verified by a STA to be 5804 gallons of Reactor Makeup Water. A dilution rate of 16 gpm will support the 8% per hour power ascension rate allowed by 40OP-9ZZ05 fuel preconditioning guidelines. A copy of Appendix O of 40OP-9ZZ05 has been obtained.

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

PVNGS License Examination
Administrative Topics Outline

PVNGS Form ES-301-1

Facility: ***Palo Verde***	Date: 3/21/01
Examination Level: **RO**	Operating Test Number: **PVNGS RO**

Administrative Topic/ Subject Description		**Describe method of evaluation:** **1. ONE Administrative JPM, OR** **2. TWO Administrative questions**	**K/A # IMP**
A.1	JPM A1* "Conduct of Operations"	Ability to perform specific system and integrated plant procedures during all modes of plant operation. (Candidate will be required to use Power Ascension Ramprate OAP "Operator Assistance Program" to determine if a continued power increase is authorized.) *Scheduled as Admin JPM for **RO & SRO.*** (Existing JPM AD001) *To be performed in simulator.*	2.1.23 4.0
	JPM A2 "Conduct of Operations"	Knowledge of conditions and limitations in the facility license. (Candidate will be required to calculate a RCS leakrate, have the SRO implement Tech Spec LCO.) *Scheduled as Admin JPM for **RO & SRO.** (New)*	2.1.33 3.4
A.2	JPM A3 "Equipment Control"	Knowledge of tagging and clearance procedures. (The 'A' Turbine Cooling Water Pump must be tagged out to replace the outboard pump bearing.) *Schedule as Admin JPM for **RO only.** (New)*	2.2.13 3.6
A.3	JPM A4* "Radiation Control"	Knowledge of radiation exposure limits and contamination control, including access of those authorized. (Candidate will be required to demonstrate the proper method of entering a high radiation area including checking personal qualification.) *Scheduled as Admin JPM for **RO & SRO.*** (New) *Plant specific event, individual assigned activities when not qualified as independent worker.* *To be performed in plant prior to In-Plant JPM JP2.*	2.3.10 2.9
A.4	JPM A5 "Emergency Procedures"	Knowledge of the parameters and logic used to assess the status of safety functions. (Candidate will be required to perform the Safety Function Status Checks and determine if the appropriate "Optimal Recovery Procedure" has been entered.) *Scheduled as Admin JPM for **RO only.*** (New) *To be performed in Simulator as JPM.*	2.4.21 3.7

PVNGS License Examination
Administrative Topics Outline

PVNGS Form ES-301-1

Facility: ***Palo Verde***	Date: 3/21/01
Examination Level: **SRO**	Operating Test Number: **PVNGS SRO**

Administrative Topic/ Subject Description		**Describe method of evaluation:** **1. ONE Administrative JPM, OR** **2. TWO Administrative questions**	**K/A # IMP**
A.1	JPM A1 "Conduct of Operations"	Ability to perform specific system and integrated plant procedures during all modes of plant operation. (Candidate will be required to use Power Ascension Ramprate OAP "Operator Assistance Program" to determine if a continued power increase is authorized.) *Scheduled as Admin JPM for **RO & SRO.*** (Existing JPM AD001) *To be performed in simulator.*	2.1.23 4.0
	JPM A2 "Conduct of Operations"	Knowledge of conditions and limitations in the facility license. (Candidate will be required to calculate a leakrate using ERFDADS and implement Tech Spec LCO.) *Scheduled as Admin JPM for **RO & SRO.** (New) (Modify JPM AD002)*	2.1.33 4.0
A.2	JPM A3 "Equipment Control"	Knowledge of the process for managing maintenance activities during power operations. (Candidate will be required to Review PCRIM "Plant Configuration Risk Indicator Matrix" for risk assessment and perform follow-up up work control actions and notifications *Schedule as Admin JPM for **SRO only.*** (Existing JPM AD007)	2.2.17 3.5
A.3	JPM A4 "Radiation Control"	Knowledge of radiation exposure limits and contamination control, including excess of those authorized. (Candidate will be required to determine the radiological requirements to enter a high radiation area including checking qualifications.) *Scheduled as Admin JPM. for **RO & SRO.*** (New) *Plant specific event, individual assigned activities when not qualified as independent worker.* *To be performed in plant prior to In-Plant JPM JP2.*	2.3.10 3.3
A.4	JPM A5 "Emergency Plan"	Ability to take action called for in the Emergency Plan, including acting as Emergency Coordinator. (Candidate will classify event and perform initial Emergency Coordinator duties.) *Scheduled as Admin JPM 5A and 5B* for **SRO only.*** (New) *To be performed in Simulator as JPM.*	2.4.38 4.0

*Admin 5A is a classification for dynamic scenario #1. Admin 5B is a classification for dynamic scenario #2.