

**ARKANSAS NUCLEAR ONE,  
UNIT 1**

**INITIAL EXAMINATIONS  
DECEMBER 13-19, 1999**

**AS-GIVEN OPERATING**

Facility: ANO-1	Scenario No: 1	Op-Test No: 1	
Examiners: MURPHY LANTZ SIBTKA	Operators: REGO ROYAL KREMER	CRS CBOR CBOT	
<b>Objectives:</b> <ul style="list-style-type: none"> <li>Evaluate Reactor Trip immediate and follow-up actions.</li> <li>Evaluate the use of EOP for Steam Generator Tube Rupture.</li> <li>Evaluate the usage of the AOP for Steam Generator Tube Leakage.</li> <li>Evaluate the performance in response to pressurizer systems failures.</li> <li>Evaluate the performance of shifting service water pump configuration.</li> </ul>			
<b>Initial Conditions:</b> <ul style="list-style-type: none"> <li>100% MOL, equilibrium Xenon</li> <li>P4A and P4C in service</li> <li>P4B MOD aligned to A-4</li> <li>Sluice gates SG-1, SG-2, SG-4 open</li> <li>PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure</li> <li>Breaker A-113 handswitch RTN failure</li> </ul>			
<b>Turnover:</b> <ul style="list-style-type: none"> <li>100% Power, equilibrium Xenon,</li> <li>PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure</li> <li>"A" service water strainer approaching 8 psid as reported by Auxiliary Operator</li> <li>Severe thunderstorm warning for Pope, Johnson, and Logan counties (All notifications/verifications have been made)</li> </ul>			
Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	N (BOT)	Shift service water pumps to "B" and "C" running to allow for maintenance to clean the discharge strainer.
2	TR458 2300 R120 D0 2155	I (BOR)	RCS controlling pressure transmitter, PT1021, slowly fails to 2300 psig.
3	IOR -DO HS1008_R False ICM CV1008 a .15	C (BOR)	PZR spray valve leaks by with closed indication.
4	FW087	C (BOT) R (BOR)	Heater Drain Pump, P8B, motor bearing heatup/trip
5	RX150	I (BOT)	Turbine EHC stops responding in ICS Auto mode
6	RC001 .008	R (BOT) C (All)	"A" OTSG small tube leak resulting in rapid plant shutdown with the turbine in the leading mode (manual).
7	RC001 .25	M (All) C (All)	"A" OTSG tube rupture
8	IOR -DI 152- 113/CS_G01 False	C (BOT)	Failure of Breaker A-112 to open when Breaker A-113 is closed. (SU1 to A1 handswitch R-T-N failure)

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

Facility: ANO-1	Scenario No. 1	Op-Test No. 1	
Examiners: LANTZ MURPHY STETKA	Operators: KINNEY - CRS REEFF - CROR SEITER - CBOT		
<b>Objectives:</b>			
<ul style="list-style-type: none"> <li>• Evaluate Reactor Trip immediate and follow-up actions.</li> <li>• Evaluate the use of EOP for Steam Generator Tube Rupture.</li> <li>• Evaluate the usage of the AOP for Steam Generator Tube Leakage.</li> <li>• Evaluate the performance in response to pressurizer systems failures.</li> <li>• Evaluate the performance of shifting service water pump configuration.</li> </ul>			
<b>Initial Conditions:</b>			
<ul style="list-style-type: none"> <li>• 100% MOL, equilibrium Xenon</li> <li>• P4A and P4C in service</li> <li>• P4B MOD aligned to A-4</li> <li>• Sluice gates SG-1, SG-2, SG-4 open</li> <li>• PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure</li> <li>• Breaker A-113 handswitch RTN failure</li> </ul>			
<b>Turnover:</b>			
<ul style="list-style-type: none"> <li>• 100% Power, equilibrium Xenon,</li> <li>• PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure</li> <li>• "A" service water strainer approaching 8 psid as reported by Auxiliary Operator</li> <li>• Severe thunderstorm warning for Pope, Johnson, and Logan counties (All notifications/verifications have been made)</li> </ul>			
Event No.	Malfunction No.	Event Type*	Event Description
✓ 1 T=1	N/A	N (BOT)	Shift service water pumps to "B" and "C" running to allow for maintenance to clean the discharge strainer.
✓ 2 T=12	TR458 2300 R120 D0 2155	I (BOR)	RCS controlling pressure transmitter, PT1021, slowly fails to 2300 psig.
✓ 3 T= SPRAY VALVE CLOSED	IOR -DO HS1008_R False ICM CV1008_a .15	C (BOR)	PZR spray valve leaks by with closed indication.
4 T=25	FW087	C (BOT) R (BOR)	Heater Drain Pump, P8B, motor bearing heatup/trip
5 T= PWR RED.	RX150	I (BOT)	Turbine EHC stops responding in ICS Auto mode
6 T=35	RC001 .008	R (BOT) C (All)	"A" OTSG small tube leak resulting in rapid plant shutdown with the turbine in the leading mode (manual).
7 T=50	RC001 .25	M (All) C (All)	"A" OTSG tube rupture
8 T=0	IOR -DI 152- 113/CS_G01 False	C (BOT)	Failure of Breaker A-112 to open when Breaker A-113 is closed. (SU1 to A1 handswitch R-T-N failure)

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

Simulator Instructions for Scenario #1				Page 2 of 10
Event No.	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
8	T=0	IOR -DI 152- 113/CS_G01	False	Failure of Breaker A-112 to open when Breaker A-113 is closed. (SU1 to A1 handswitch R-T-N failure)
1	T=1	None	None	Shift service water pumps to "B" and "C" running to allow for maintenance to clean the discharge strainer.
2	T=12	IMF TR458	2300 R120 D0 (2155)	RCS controlling pressure transmitter, PT1021, slowly fails to 2300 psig
3	T= Spray valve closed	IOR -DO HS1008_R  ICM CV1008_a	False  .15 R0 D0	PZR spray valve leaks by with closed indication
4	T=25	IMF FW087	N/A	Heater Drain Pump, P8B, motor bearing heatup/trip
5	T=Pwr Reduc	IMF RX150	N/A	Turbine EHC stops responding in ICS Auto mode
6	T=35	IMF RC001	.008 R60 D0	"A" OTSG small tube leak resulting In rapid plant shutdown with the turbine in the leading mode (manual).
7	T=50	MMF RC001	.25 R120 D0	"A" OTSG tube rupture

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>  1  </u> Scenario No: <u>  1  </u> Event No: <u>  1  </u> Page 3 of 10		
Event Description: <u>Shift service water pumps.</u>		
T=1	CRS	Direct the performance of shifting service water pumps per 1104.029
<b>NOTE</b>		
Occasionally bring in the annunciator for P4A Strainer DP, K10C3, and clear to indicate DP at alarm setpoint until P4A is stopped.		
IOR -DO K10C3 True DOR -DO K10C3		
	CRS	Notify Nuclear Chemistry of SW pump rotation
	CBOT	Check both breakers A-303 and A-403 open on C18 and C16 respectively
	CBOT	Align P-4B MOD to A-3 using the handswitch on C18
	CBOT	Close sluice gate SG-4
	CBOT	Open sluice gate SG-3
	CBOT	Start service water pump P-4B  NOTE: P4B may be started prior to the alignment of SG3 and SG4
	CBOT	Stop P-4A
	CBOR	Verify normal loop pressures
	CBOT	Monitor SW Bay level, CW Bay level, and Bay differentials for proper operation of SW Bay strainers
<b>EVENT TERMINATION CRITERIA</b>		
1104.029, SECTION 9.0, completed with "B" and "C" service water pumps operating		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>1</u> Event No: <u>2 &amp; 3</u> Page 4 of 10		
Event Description: Controlling RCS pressure fails and PZR Spray Valve leaks through		
T=12	CBOR	Identify and report a difference between RCS pressure indications.
NOTE		
Crew may or may not identify the PZR Spray valve simultaneous with pressure indication failure.		
	CREW	Diagnose failed RCS pressure indication using panel indications, plant computer and SPDS. Tech. Spec. Table 3.5.1-1 (pg. 44)
	CRS	Direct operation per 1203.015, PZR systems failure Section 4
	CBOR	Determine and report that the failed indication is controlling RCS pressure.
	CBOR	Manually close the pressurizer spray valve
	CRS	Direct the CBOR to select the alternate RCS pressure indication for control.
	CBOR	Recognize continued lowering of RCS pressure
	CRS	Reference Pressurizer Systems Failures (1203.015), Pressurizer Spray Valve (CV-1008) Failure section.
	CBOR	Place PZR Spray valve in HAND and attempt to torque closed.
	CBOR	When directed, close PZR Spray Isolation valve (CV-1009). Tech. Spec. 3.1.2.5, pg. 18
	CBOR	Recognize and report that RCS pressure is recovering.
<b>EVENT TERMINATION CRITERIA</b>		
Pressurizer Spray Isolation valve closed with control of RCS pressure		

Time	Position	Applicants Actions or Behavior
Op-Test No: 1 Scenario No: 1 Event No: 4&5 Page 5 of 10		
Event Description: Heater Drain Pump (P8B) motor bearing heatup/trip. Turbine EHC fails to respond.		
T=25	CREW	Identify and report P8A/P8B BRG TEMP HI annunciator in alarm.
	CRS	Direct crew operations in accordance with ACA 1203.012E for K06-D8
	CREW	Recognize P8B trip
	CRS	Direct operations per 1203.012E ACA for P8A/B Flow Lo & 1203.045 Rapid Plant Shutdown and order a plant power reduction to 85%
	CBOR	Commence power reduction using the ULD or SG/RX master
	CREW	Verify plant is reducing power and T40B level controls on its high level dump.
	CBOT	Recognize failure of turbine to respond
NOTE		
Turbine may revert to Operator Auto mode before operator takes action.		
	CBOT	Take the turbine to manual or operator auto
	CBOT	Continue power reduction in turbine leading mode
	CBOR CBOT	Verify FW pump suction pressure recovers as plant power is reduced
<b>ROLE PLAY</b>		
As Auxiliary Operator (AO), when asked to investigate P8B trip wait ~5 minutes and then report that an overcurrent trip flag on P8B is present on the breaker cubicle.		
When sent, the AO can report T40B HLD isolation is open.		
If asked about PPAS information, report ICS signal to EHC good.		
continued		

Op-Test No: 1 Scenario No: 1 Event No: 4&5 Page 6 of 10Event Description: Heater Drain Pump (P8B) motor bearing heatup/trip. Turbine EHC fails to respond

Time	Position	Applicants Actions or Behavior
	CBOR	Stabilize power at ~85%

## EVENT TERMINATION CRITERIA

Plant power stable at ~85%.

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>1</u> Event No: <u>6</u> Page 7 of 10		
Event Description: <u>"A" OTSG tube leak.</u>		
T=35	CBOR/T	Identify and report A OTSG N16 TROUBLE annunciator (K07-A5).
	CBOR	Begin leak rate determination. Tech. Spec. 3.1.6.3.b Leakage (pg. 27) EAL 2.1 NUE RCS Leakage > T.S. Limits requiring a plant S/D or C/D
	CRS	Reference Small Generator Tube Leaks Abnormal Operating procedure (1203.023).
<b>ROLE PLAY</b>		
If notified as Chemistry to determine leak rate:		
<ul style="list-style-type: none"> <li>• using condenser off gas wait ~5 minutes (Time Compressed)</li> <li>• using steam generator sample wait ~8 minutes (Time Compressed) then report approximate leak rate displayed on PS1 display.</li> </ul>		
	CRS	Reference Rapid Plant Shutdown Abnormal Operating procedure (1203.045). Direct CBOT/CBOR to commence a plant shutdown at ~5% per minute.
	CBOT	Begin plant shutdown with the turbine controls in Operator Auto or Manual mode
	CRS	Direct Auxiliary Operators to implement Control of Secondary Contamination Abnormal Operating procedure (1203.014).
	CBOT	Select ANALYZER position for "A" OTSG N <sub>16</sub> detector.
	CBOR	Place SG EFW Pump Turbine (K3) Steam Supply valve (CV-2667) in MANUAL and close.
	CRS	Notify Health Physics to commence monitoring of secondary system for rising radiation levels.
<b>EVENT TERMINATION CRITERIA</b>		
This malfunction will remain in effect for the remainder of this scenario.		

Time	Position	Applicants Actions or Behavior
Op-Test No: 1 Scenario No: 1 Event No: 7&8 Page 8 of 10		
Event Description: "A" OTSG tube rupture (~100gpm). Failure of Breaker A-112 to open when Breaker A-113 is closed.		
T=50	CBOR	Determine and report OTSG tube leak rate has increased. <b>EAL 2.2 ALERT RCS Leakage &gt; Normal Makeup Capacity</b>
	CRS	Transition to OTSG Tube Rupture Emergency Operating procedure (1202.006).
	CBOT	Open BWST Outlet to OP HPI pump (CV-1407 or CV1408).
	CBOR CBOT	Reduce or isolate letdown flow  NOTE Letdown is isolated at this point by closing Letdown Coolers Outlet valve (CV-1221).
CT	CBOT	Initiate HPI per RT2 as required.
	CBOT	When unit is $\leq 55\%$ stop Heater Drain Pumps (P8A, B).
<b>IA NOTE</b>		
When station auxiliaries are being shifted, if the operator fails to open one of the two closed feeder breakers to the A1 bus within 30 seconds, TRIP the A1 bus by inserting IMF ED185.		
	CBOT	When unit is $\leq 50\%$ transfer station auxiliaries to Start Up #1 transformer.
	CBOT	Recognize failure of Breaker A-112 to auto open after Breaker A-113 is closed and the handswitch is released.
CT	CBOT	Manually open Breaker A-112
	CBOT	Report to the CRS that the breaker had failed to open automatically and that you had to manually open the breaker.
	CBOR/T	At ~350 Mwe, open the feedwater cross-tie valve and trip the "B" MFP
<b>CONTINUED</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: 1 Scenario No: 1 Event No: 7&8 Continued Page 9 of 10 Event Description: "A" OTSG tube rupture (~100ppm). Failure of Breaker A-112 to open when Breaker A-113 is closed.		
	CBOT	When unit is $\leq 180$ Mwe open HP Turbine Drain valves on C02.
	CBOT	When unit is $\leq 100$ Mwe secure reheaters.
	CBOR	When both SG's are on low level limits; 1. Place both Feedwater Demand H/A Stations in HAND 2. Adjust demands to zero 3. Place Diamond Panel in MANUAL 4. Adjust rods to control reactor power at 10-12%.
	CBOT	When reactor power is $< 12\%$ 1. Reduce turbine load to 20-30 Mwe 2. Check Turbine Bypass valves controlling header pressure 880-920 psig 3. Verify plant auxiliaries on SU1
	CBOT	Trip the turbine and perform the following; <ul style="list-style-type: none"> <li>• Check throttle and governor valves shut.</li> <li>• Verify Main Generator and Exciter field breakers open.</li> <li>• Check Turbine Bypass valves operate to control header pressure 880-920 psig.</li> </ul>
	CBOR	Select "A" OTSG to indicate on header pressure recorder.
	CBOR CBOT	Check PZR Level 200-220". If $< 200$ " increase HPI as required to have PZR Level rising.
	CBOR	Place both Turbine Bypass valve H/A stations in HAND.
	CBOR	Adjust header pressure setpoint to 45.
	CBOR	Trip the reactor and immediately place both Turbine Bypass valve H/A stations in AUTO.
<b>CONTINUED</b>		

Time	Position	Applicants Actions or Behavior
	CBOR	Verify all rods inserted and reactor power dropping.
	CBOR	Check Turbine Bypass valves controlling OTSG pressure 950-990psig.
	CBOR	Operate PZR heater and spray in hand as required to maintain RCS pressure low within the limits of figure 3.
	CBOR/T	Stabilize PZR level $\geq 55"$ .
	CBOT	Select "A" OTSG N <sub>16</sub> to GROSS position.
CT	CBOR	Place Turbine Bypass valves for the "B" OTSG in hand and adjust to initiate and maintain a cooldown rate of $\leq 100^\circ\text{F}$ per hour.
<b>EVENT AND SCENARIO TERMINATION CRITERIA</b>  RCS Cooldown in progress and controlled at $\leq 100^\circ\text{F}$ per hour using the "B" OTSG  <b>OR</b>  As directed by the lead examiner		

Op-Test No: 1 Scenario No: 1 Event No: 7&amp;8 Continued Page 10 of 10

Event Description: "A" OTSG tube rupture (~100gpm). Failure of Breaker A-112 to open when Breaker A-113 is closed.

Facility: ANO-1	Scenario No: 2	Op-Test No: 1	
Examiners: MURPHY STETICA LANTZ	Operators: EGLEMEYER KREMER ROYAL	CRS CBDR CBDT	
<b>Objectives:</b>			
<ul style="list-style-type: none"> <li>Evaluate Reactor trip immediate and follow-up actions</li> <li>Evaluate usage of EOP actions for ESAS</li> <li>Evaluate usage of EOP actions for Overcooling</li> <li>Evaluate usage of AOP actions for Loss of Steam Generator feed</li> <li>Evaluate usage of AOP actions for Rapid Plant Shutdown</li> <li>Evaluate usage of AOP actions for Loss of Neutron Flux</li> </ul>			
<b>Initial Conditions:</b>			
<ul style="list-style-type: none"> <li>100% power</li> <li>RPS is failed and will not cause an automatic trip</li> <li>Reactor trip pushbutton is failed</li> <li>ESAS channels 5 and 6 will fail to auto actuate (Manual actuation using pushbuttons on C04 will function correctly)</li> <li>*A* MFP STBY oil pump failed and will not start automatically or manually</li> <li>Service water discharge to ECP open; return to lake closed</li> </ul>			
<b>Turnover:</b>			
<ul style="list-style-type: none"> <li>100% power</li> <li>Service water being returned to the ECP to makeup for low level</li> <li>Bulk diesel fuel oil is being unloaded at the fuel vault.</li> <li>OP 1106.009 Supplement 3, GV testing scheduled.</li> </ul>			
Event No.	Malfunction No.	Event Type*	Event Description
1 T=0	N/A	R (BOR)	Power reduction to approximately 90% to perform Main Turbine GV testing
2 T=20	N/A	N (BOR)	Chemistry reports backup boron samples indicate pressurizer boron 55 ppm greater than RCS boron. Crew must equalize boron per normal operations procedures.
3 T=25	NI240	I (BOR)	Nuclear Instrumentation drifts high, resulting in power reduction
4 T=35	EG172	C (BOT)	Main Generator automatic voltage regulator fails high
5 T=40	P26A_a 0 CV2827_a .95	C (BOT)	*A* MFP trips due to a loss of lube oil pump. Main feedwater cross-tie valve fails to open completely.
6 T=43	TR051 320 R2:00	I (BOR)	Selected Pressurizer level transmitter fails high
7 T=50	MS131 .4 R4:00	M (All) R (BOR)	*A* Main steam line rupture inside containment. Requires Rapid Plant Shutdown/Rx. Trip
8 T=0	RP246 RP247 RP249 ICC0020	C (BOR)	Reactor Protection System will fail to trip when any trip setpoint is reached. Reactor Trip pushbutton on C04 fails to trip the reactor
9 T=0	ES263 ES264	C (BOR)	ES channels 5 and 6 fail to auto actuate when trip setpoint is reached

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

Facility: ANO-1	Scenario No: 2	Op-Test No: 1	
Examiners: LANTZ SEETKA MURPHY	Operators: MILLER - CRS SEITER - CBOR RFECE - CBOT		
<b>Objectives:</b>			
<ul style="list-style-type: none"> <li>• Evaluate Reactor trip immediate and follow-up actions</li> <li>• Evaluate usage of EOP actions for ESAS</li> <li>• Evaluate usage of EOP actions for Overcooling</li> <li>• Evaluate usage of AOP actions for Loss of Steam Generator feed</li> <li>• Evaluate usage of AOP actions for Rapid Plant Shutdown</li> <li>• Evaluate usage of AOP actions for Loss of Neutron Flux</li> </ul>			
<b>Initial Conditions:</b>			
<ul style="list-style-type: none"> <li>• 100% power</li> <li>• RPS is failed and will not cause an automatic trip</li> <li>• Reactor trip pushbutton is failed</li> <li>• ESAS channels 5 and 6 will fail to auto actuate (Manual actuation using pushbuttons on C04 will function correctly)</li> <li>• "A" MFP STBY oil pump failed and will not start automatically or manually</li> <li>• Service water discharge to ECP open; return to lake closed</li> </ul>			
<b>Turnover:</b>			
<ul style="list-style-type: none"> <li>• 100% power</li> <li>• Service water being returned to the ECP to makeup for low level</li> <li>• Bulk diesel fuel oil is being unloaded at the fuel vault.</li> <li>• OP 1106.009 Supplement 3, GV testing scheduled.</li> </ul>			
Event No.	Malfunction No.	Event Type*	Event Description
1 T=0	N/A	R (BOR)	Power reduction to approximately 90% to perform Main Turbine GV testing
2 T=20	N/A	N (BOR)	Chemistry reports backup boron samples indicate pressurizer boron 55 ppm greater than RCS boron. Crew must equalize boron per normal operations procedures.
3 T=25	NI240	I (BOR)	Nuclear Instrumentation drifts high, resulting in power reduction
4 T=35	EG172	C (BOT)	Main Generator automatic voltage regulator fails high
5 T=40	P26A_a 0 CV2827_a .95	C (BOT)	"A" MFP trips due to a loss of lube oil pump. Main feedwater cross-tie valve fails to open completely.
6 T=43	TR051 320 R2:00	I (BOR)	Selected Pressurizer level transmitter fails high
7 T=50	MS131 .4 R4:00	M (All) R (BOR)	"A" Main steam line rupture inside containment. Requires Rapid Plant Shutdown/Rx. Trip
8 T=0	RP246 RP247 RP249 ICC0020	C (BOR)	Reactor Protection System will fail to trip when any trip setpoint is reached. Reactor Trip pushbutton on C04 fails to trip the reactor
9 T=0	ES263 ES264	C (BOR)	ES channels 5 and 6 fail to auto actuate when trip setpoint is reached

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

Simulator Instructions for Scenario #2				Page 2 of 11
Event No.	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
INIT 8&9	T=0	ICM P26A_a IMF RP247 IMF RP248 IMF RP249 IOR -DI ICC0020_T IMF ES263 IMF ES264	0 R0 D0 N/A N/A N/A FALSE N/A N/A	"A" MFP Stby Oil Pump failure RPS Channel "B" failure RPS Channel "C" failure RPS Channel "D" failure Reactor Trip Pushbutton failure ESAS Channel 5 failure to auto actuate ESAS Channel 6 failure to auto actuate
1	T=0	None	None	Power reduction to approximately 90% to perform Main Turbine GV testing.
2	T=20	None	None	Chemistry reports backup samples indicate pressurizer boron 55 PPM greater than RCS boron. Crew must equalize boron per normal operating procedures.
3	T=25	IMF NI240	None	Nuclear Instrumentation drifts high, resulting in power reduction.
4	T=35	IMF EG172	100 R180 D0	Main Generator automatic voltage regulator fails high
<b>NOTE</b> Input the failure of the cross-tie valve after the MFP trips				
5	T=40	ICM P27A_a ICM CV2827_a	0 R0 D0 .95 R0 D0	"A" MFP trips due to a loss of lube oil pump. Main feedwater cross-tie valve fails to open completely.
6	T=43	IMF TR051	320 R120 D0	Selected Pressurizer level transmitter fails high
7	T=50	IMF MS131	.4 R240 D0	"A" Main steam line rupture inside containment. Requires Rapid Plant Shutdown/Rx. Trip.

Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>1</u> Page 3 of 11		
Event Description: <u>Power reduction to approximately 90% to perform Main Turbine GV testing.</u>		
Time	Position	Applicants Actions or Behavior
T=0	CRS	Direct the CBOR to reduce power to <800MWe (approximately 90% power) at 30%/Hr.
	CBOR	Set the rate limiter on ICS to .5%/min.
	CBOR	Place the ULD in "MANUAL" mode and reduce load demand to ≤800 MWe.
	CBOT/ CBOR	Acknowledge annunciator K02D8 (Plant computer Critical) as being caused by the ULD in the "MANUAL" mode.
	CBOR	Monitor the NI's and feedwater flow to ensure power is reducing. Monitor control rod motion.
	CBOT	Monitor Turbine EHC controls to ensure the turbine is following and maintaining turbine header pressure at setpoint.
	CBOR	When power has reached the desired value, ensure the plant stabilizes or adjust demand to the desired value.
		NOTE This evolution should continue until another events occurs
<b>EVENT TERMINATION CRITERIA</b>		
<b>Power is reduced to approximately 90% or the next event has begun.</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>2</u> Page 4 of 11		
Event Description: <u>Equilibrate boron between the Pressurizer and the RCS.</u>		
<b>IA NOTE</b>		
Call as Chemistry and report most recent backup sample reveals boron in Pressurizer is >50 ppm more than the RCS boron		
T=20	CRS	Determine the need to equilibrate boron between the Pressurizer and RCS based on the report from Nuclear Chemistry that the Pressurizer is >50 ppm higher than the RCS.
	CRS	Using normal operations procedure 1103.005, direct the equilibration of boron by either method 1 or 2.
	CBOR	IF using method 1: <ul style="list-style-type: none"> <li>Place Pressurizer spray valve in manual and open slightly</li> <li>Place some Pzr heaters in manual and throttle spray flow to hold pressure steady</li> <li>Monitor RCS pressure closely.</li> </ul>
	CBOR	IF using method 2: <ul style="list-style-type: none"> <li>Place desired Pzr heaters in manual and monitor RCS pressure closely.</li> <li>Verify Pzr spray valve cycles automatically to control RCS pressure between 2205 and 2155 psig</li> </ul>
	CRS	Announce if any upset occurs while equalizing boron, immediately return Pzr heaters to automatic
	CRS	Request chemistry sample Pzr boron.
<b>NOTE</b>		
This evolution should continue until another events occurs		
<b>EVENT TERMINATION CRITERIA</b>		
<b>Pressurizer heaters and/or spray valve are returned to automatic</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>3</u> Page 5 of 11		
Event Description: <u>NI Channel drifts high resulting in power decrease and restoration by the crew.</u>		
T=25	CREW	Recognize plant transient in progress
	CBOR	Place ICS in manual to stabilize the transient
	CREW	Diagnose NI failure <b>Tech. Spec. 3.5.1.3 (pg. 42)</b>
	CRS	Direct operation per 1203.021 Loss of Neutron Flux Indication Section 1
	CREW	Recognize RPS channel "A" trip
	CBOT	Check for normal voltage on the power range detector
<b>ROLE PLAY</b>		
When the CBOT checks NI detector power inform him that "normal voltage is indicated"		
To Reset the RPS channel after being bypassed do the following IOR-AO NI0509L_A 1.2e2 DMF NI240		
	CBOR	Hard select the good NI signals for ICS control
	CBOT	Bypass RPS channel "A"
	CBOT	(If Directed) Place the Power range test module in test operate position and reset the tripped channel
	CBOR	Return ICS to automatic
<b>EVENT TERMINATION CRITERIA</b>		
<b>Plant stable</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>4</u> Page 6 of 11		
Event Description: <u>Main Generator automatic voltage regulator fails high</u>		
T=35	CBOT	Identify and report annunciator K04-A6, Voltage Regulator Trip
	CRS	Direct placing the voltage regulator in the "OFF" position and control of machine voltage by use of the Base Adjuster. Refer to ACA 1203.012C.
	CBOT	Place the AVR control switch in the "OFF" position.
	CBOT	Monitor and adjust main generator voltage, using the Base adjuster, to maintain ~22,000 volts.
	CRS	Notify the Pine Bluff Dispatcher of the condition.
<b>EVENT TERMINATION CRITERIA</b>		
Automatic voltage regulator in "OFF" position and voltage maintained at ~22,000 volts		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>5</u> Page 7 of 11		
Event Description: <u>"A" Main Feedwater Pump trips and the feedwater cross-tie valve fails to open completely.</u>		
T=40	CBOR/T	Identify and report the "A" MFP Turbine Oil Pump Trip annunciator, K06-B2, is in alarm.
	CBOT	Verify the standby oil pump, P26A, has autostarted. Determine the pump has failed to start and will not start manually.
	CBOR/T	Identify and report the "A" MFP has tripped.
	CRS	Direct operations per 1203.027
	CBOR	Verify ICS runback to <40%
	CBOT	Verify Main Generator voltage maintained at ~22,000 volts, or adjust as necessary.
	CBOR	Identify FW cross-tie valve, CV2827, has not opened fully.
<b>ROLE PLAY</b>		
When called as the Outside AO to check the position of the cross-tie valve, report the valve appears to be 100% open.		
	CBOR	Verify proper feedwater flow to both OTSGs.
	CBOR	Stabilize the plant
<b>EVENT TERMINATION CRITERIA</b>		
Plant stabilized at ~40% power		

Time	Position	Applicants Actions or Behavior
T=43	CBOR	Recognize and report that PZR level indications are mismatched
	CREW	Diagnose LT1001 failure Tech. Spec. Table 3.5.1-1 (pg. 45d)
	CRS	Direct operations per 1203.015 Pressurizer Systems Failure
	CRS	Direct CBOR to select valid PZR level indicator for PZR level control.
	CBOR	Select LT1002 to control PZR level control valve (CV-1235) using hand switch on upright section of C04.
	CBOR	Verify CV-1235 opens to control PZR level at setpoint.
<b>EVENT TERMINATION CRITERIA</b>		
Pressurizer level control is selected to LT1002 and PZR level control valve is controlling level in auto.		

Op-Test No: 1 Scenario No: 2 Event No: 6 Page 8 of 11  
 Event Description: PZR level transmitter (LT1001) fails to upscale

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>7.8&amp;9</u> Page 9 of 11		
Event Description: <u>Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.</u>		
T=50	CBOR	Recognize "A" OTSG pressure dropping.
	CBOR	Monitor RB pressure and temperature.
NOTE:		
Due to rise in reactor building pressure and temperature, ESAS may actuate prior to the direction to trip the Reactor. Due to the failure of the Reactor Protection System to perform an automatic Reactor trip, the reactor will require manual tripping.		
Annunciator K12A1 will alarm due to the environmental conditions inside the Reactor Building. If panel 463 is checked for location of the alarm, instruct that module A2-5 lower, RB UNEP ZONE 32-K, in alarm.		
	CRS	Direct Rx Trip
	CBOR	Depress the Reactor Trip push-button on C03.
	CBOR	Diagnose Rx trip pushbutton failure <b>Tech. Spec. Table 3.5.1-1 (pg. 44)</b>
CT	CBOR	Depress both shunt trip pushbuttons on C04 <b>EAL ALERT 6.2 RPS Failure to complete an automatic trip</b>
	CBOT	Depress the Turbine Trip pushbutton on C01. Verify Turbine throttle and governor valves closed.
	CBOR	Reduce letdown by closing Letdown Bypass Orifice control valve, CV-1223 on C04.
	CBOR	Check RCS Subcooling Margin is adequate at >30°F.
	CRS	Direct operations per Reactor Trip Emergency Operating procedure (1202.001)
	CRS	Direct reporting of Immediate and Followup Actions.
<b>Continued</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>7.8&amp;9</u> Page 10 of 11		
Event Description: <u>Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.</u>		
	CBOR	Report the reactor is tripped.
	CBOT	Report the turbine is tripped.
	CBOR	Report letdown flow is reduced.
	CBOR	Report current RCS Subcooling Margin and adequacy. (RCS SCM is expected to be adequate at this time.)
	CBOR/T	Identify and announce ESAS has actuated on high RB Pressure.
	CBOR/T	Determine and report ES Channels 5 and 6 have met valid trip setpoints and have failed to initiate. Tech. Spec. Table 3.5.1-1 (pg. 45)
CT	CBOR	Depress the trip push-buttons on C04 to manually actuate ES Channels 5 and 6.
	CRS	Transition to ESAS Procedure and direct crew actions
	CRS	Direct the verification of ESAS per RT10.
	CBOT	Verify actuation of ESAS per RT 10.
	CREW	Recognize SG pressure < 900#
	CRS	Transition to Overcooling Emergency Operating procedure (1202.003).
	CBOR	Actuate MSLI using the remote trip switch matrix "A" MSLI pushbuttons on C09. (4 push-buttons) or verify automatic actuation of MSLI
<b>Continued</b>		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>1</u> Scenario No: <u>2</u> Event No: <u>7.8&amp;9</u> Page 11 of 11		
Event Description: <u>Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.</u>		
	CBOR	Report "A" MSLI actuated. <b>EAL NUE 3.1 Uncontrolled OTSG Depressurization Resulting in MSLI Actuation</b>
	CRS	Provide RT6 to CBOR to verify proper MSLI and EFW actuation and control.
	CBOR	Verify proper MSLI and EFW actuation and control per RT6.
	CBOT	When directed by CRS open BWST Outlet valve to operating HPI pump.
	CBOR	Control RCS pressure within the limits of Figure 3 per RT14 using PZR heaters
<b>EVENT AND SCENARIO TERMINATION CRITERIA</b>		
RCS pressure and temperature stable with the "A" OTSG isolated, channels 5 and 6 of ESAS manually actuated		
<b>OR</b>		
As determined by the lead examiner.		

Facility: ANO-1	Scenario No: 3	Op-Test No: 2
Examiners: LANTZ MURPHY	Operators: MILLER CRS EGGEMEYER GOR SURROGATE CGOT	

**Objectives:**

- Evaluate usage of the EOP for Rx. Trip immediate and follow-up actions
- Evaluate usage of the EOP for actions required for ESAS actuation
- Evaluate usage of the EOP for actions required for Loss of Subcooling Margin
- Evaluate usage of the AOP for actions required for a Loss of reactor coolant makeup
- Evaluate usage of the AOP for actions required for RCP pump and motor emergencies.

**Initial Conditions:**

- 100% Power, equilibrium xenon
- RPS is failed and will not cause an automatic trip
- ESAS channels 1 and 2 are failed and will not auto actuate at setpoint
- P36A the operating pump

**Turnover:**

- 100% power, steady state, equilibrium xenon
- AO washing travelling screens due to mild shad run. No apparent urgency for emergency measures.
- AAC generator OOS for planned maintenance
- Both EDGs operable as checked by the latest surveillances

Event No.	Malfunction No.	Event Type*	Event Description
1 T=2	TR589 520 R5:00	I (BOR)	"A" loop Tc instrument, TT1015, fails low slowly.
2 T=12	CV095	C (BOT) N (BOR)	"A" HPI pump (normal makeup pump) bearing heats up
3 T=22	CV018	C (BOT) R (BOR)	"D" RCP first stage seal fails
4 T=P32D secured	IOR -DI 152- 24/CS_T True	C (BOT)	Loss of bus "H-2" caused by Unit Aux. Feeder Breaker trip when P32D is stopped
5 T=0	RP246 RP247 RP249	C (BOR)	Reactor Protection System fails to automatically trip when Power/Pumps trip setpoint is reached
6 T=Rx. Trip	RC005 .01 R0 D0	M (All)	LOCA in the "A" RCS loop (Tc).
7 T=0	ES259 ES260	C (BOR)	ESAS channels 1 and 2 fail to automatically actuate at RCS pressure setpoint

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

Simulator Instructions for Scenario #3				Page 2 of 8
Event No.	Time	Malfunction No. Input Command	Value/Ramp /Delay	Event Description
5&7	T=0	IMF RP246 IMF RP247 IMF RP249 IMF ES259 IMF ES260	N/A N/A N/A N/A N/A	RPS Channel "A" failure to automatically trip RPS Channel "B" failure to automatically trip RPS Channel "D" failure to automatically trip ESAS Channel 1 failure to automatically actuate ESAS Channel 2 failure to automatically actuate
1	T=2	IMF TR589	520 R5:00 D0	"A" loop Tc Instrument fails low, slowly
2	T=12	IMF CV095	N/A	"A" HPI pump (normal operating pump) bearing heatup
3	T=22	IMF CV018	N/A	"D" RCP first stage seal fails
<b>NOTE:</b>				
The next event should occur when the operators secure the "D" RCP as part of the previous event.				
4	T= P32D secured	IOR -DI 152-24/CS_T	True R0 D0	Loss of bus "H-2 caused by Unit Aux. Feeder Breaker trip when P32D is stopped.
6	T=Rx trip + 2 minutes	IMF RC005	.01 R0 D0	LOCA in the "A" RCS loop (Tc)

Op-Test No: <u>2</u> Scenario No: <u>3</u> Event No: <u>1</u> Page 3 of 8		
Event Description: <u>Loop 'A' TCold instrument fails low.</u>		
Time	Position	Applicants Actions or Behavior
T=2	CBOR/ CBOT	Recognize plant transient in progress
	CBOT	Diagnose TC instrument failure on PMS
	CBOR	Take manual control of feedwater and RX
	CBOR	Stabilize and balance feedwater and Rx power
	CRS	Direct operations per 1105.004, 1203.012F, and 1105.006
	CBOR	Select TT1018 for Loop 'A' TC
	CBOR	Place ICS in full automatic
<b>EVENT TERMINATION CRITERIA</b>		
Redundant operable instrument selected and ICS returned to automatic		

Op-Test No: <u>2</u> Scenario No: <u>3</u> Event No: <u>2</u> Page 4 of 8		
Event Description: <u>"A" HPI pump (normal operating pump) bearing heats up.</u>		
Time	Position	Applicants Actions or Behavior
T=12	CBOR/ CBOT	Acknowledge and report HPI Pump/MTR Bearing Temp Hi annunciator
	CRS	Direct operations per ACA 1203.0121
	CBOR/ CBOT	Acknowledge and report operating HPI pump trip annunciator
	CRS	Direct operations per 1203.026
	CBOT	Isolate Letdown
	CBOT	Verify RCP seal cooling
	CBOT	Start the stand-by HPI pump
	CBOR	Re-establish normal MU & Seal injection.
	CRS	Refer to technical specifications 3.3.2.A, pg.37
<b>EVENT TERMINATION CRITERIA</b>		
The standby HPI pump is in service and normal makeup and seal injection have been re-established.		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>3</u> Event No: <u>3</u> Page 5 of 8		
Event Description: <u>"D" RCP Seal 1<sup>st</sup> Stage failure.</u>		
T=22	CBOR	Recognize and report RCP BLEEDOFF FLOW HI annunciator (K08-B7).
	CBOT	Diagnose and report cause of alarm to be "D" RCP 1 <sup>st</sup> stage seal.
	CRS	Direct operations per Reactor Coolant Pump and Motor Emergency Abnormal Operating procedure (1203.031) Section 1, Seal Degradation.
	CBOR	Verify the following valves; <ul style="list-style-type: none"> <li>• RCP Seal Injection Block valve (CV-1206) open</li> <li>• Seal bleed-off flow (CV-1270 through CV-1274) open</li> <li>• RCP Total Seal Injection Flow (CV-1207) open and flow at 32-40 gpm.</li> </ul>
	CBOR	Verify individual RCP Seal flows at 8-10 gpm.
	CBOT	Verify the following; <ul style="list-style-type: none"> <li>• Peak to peak seal pressure oscillations are &lt;800 psi.</li> <li>• DP across any stage &lt;2/3 system pressure.</li> <li>• RCP seal temp &lt;180°F.</li> <li>• RCP seal bleed off temp &lt;40°F above 1<sup>st</sup> stage temp.</li> </ul> <p style="text-align: center;">NOTE</p> Seal bleed-off temperature will rise to >40°F above 1 <sup>st</sup> stage temp.
	CRS	Diagnose to need to stop the "D" RCP
	CRS	Direct power reduction using Rapid Plant Shutdown Procedure, 1203.045
	CBOR	Reduce power to <75%
	CRS	Direct the stopping of "D" RCP
	CBOT	Stop the "D" RCP
<b>EVENT TERMINATION CRITERIA</b>		
Power reduced to allowable level and "D" RCP stopped		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>3</u> Event No: <u>4 &amp; 5</u> Page 6 of 8		
Event Description: <u>Loss of electrical bus H-2. Trip of second RCP at power. Reactor Protection System fails to perform an automatic trip.</u>		
T= P32D secured	CREW	Recognize Loss of H-2 and the 2 <sup>nd</sup> RCP >55% without an automatic Rx trip
CT	CBOR	Manually trip the reactor
	CRS	Direct operations per 1202.001
	CBOR	Verify control rods inserted and power is dropping
	CBOT	Verify the turbine is tripped by depressing the turbine trip pushbutton and observing the throttle and governor valves close.
	CBOR	Reduce letdown
	CBOR/ CRS	Recognize Alert criteria is met based upon EAL 6.2, RPS failure to complete an Automatic Trip.
<b>EVENT TERMINATION CRITERIA</b>		
Immediate actions of the reactor trip and expected followup actions complete		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>3</u> Event No: <u>6 &amp; 7</u> Page 7 of 8		
Event Description: <u>LOCA in the "A" RCS loop Tcold. ESAS channels 1 and 2 fail to automatically actuate upon reaching setpoint.</u>		
T= Rx. Trip + 2 minutes	CBOR	Identify pressurizer and RCS pressure continuing to drop below post trip values.
	CBOT	Recognize and report RCS leakage into the Reactor Building. Tech Spec. 3.1.6 EAL 2.4, SAE (RCS leakage >HPI capacity)
	CRS	Direct initiation of HPI per RT 2.
<b>NOTE</b>		
The crew may manually initiate ESAS due to the imminent automatic actuation prior to reaching the setpoint and therefore may not identify the failure of channel 1 and 2 to auto actuate.		
	CREW	Recognize the actuation of ESAS on low RCS pressure.
	CBOR	Identify the failure of channels 1 and 2 of ESAS to actuate.
CT	CBOR	Manually initiate channel 1 and 2 from the pushbuttons on C04
	CRS	Transition to ESAS procedure, 1202.010, and direct crew operations
	CBOR	Check for adequate subcooling margin.
	CBOT	Verify proper ESAS actuation per RT 10.
	CBOR	Close the following valves; CV-1008, CV-1009, and CV-1000
<b>Continued</b>		

Op-Test No: <u>2</u>		Scenario No: <u>3</u>	Event No: <u>6 &amp; 7</u>	Page 8 of 8
Event Description: <u>LOCA in the "A" RCS loop Tcold. ESAS channels 1 and 2 fail to automatically actuate upon reaching setpoint.</u>				
Time	Position	Applicants Actions or Behavior		
	CRS	Transition to Loss of subcooling margin procedure, 1202.002, and direct crew actions.		
	CBOR	Control RCS pressure within limits of Figure 3 of EOP (RT 14)		
<b>EVENT and SCENARIO TERMINATION CRITERIA</b>				
All appropriate channels of ESAS actuated and HPI injecting water into RCS and RCS pressure stable. OR As directed by the lead examiner				

Facility: ANO-1	Scenario No: 4	Op-Test No: 2	
Examiners: LAMTZ MURPHY	Operators: SURROGATE CRS MILLER C BOR EGGEMEYER CROT		
<b>Objectives:</b> <ul style="list-style-type: none"> <li>Evaluate usage of EOP for the actions required for Degraded Power condition</li> <li>Evaluate usage of EOP for Reactor Trip Immediate and follow-up actions</li> <li>Evaluate usage of the AOP for actions required for Control Rod Malfunction</li> <li>Evaluate usage of the AOP for actions required for Rapid Plant Shutdown</li> <li>Evaluate the performance for ICS input failures</li> </ul>			
<b>Initial Conditions:</b> <ul style="list-style-type: none"> <li>#1 EDG fails to autostart</li> <li>#1 EDG pushbutton on C10 is failed</li> <li>Group 7 Rod 3 rod motion is degraded</li> </ul>			
<b>Turnover:</b> <ul style="list-style-type: none"> <li>100% power</li> <li>AAC generator reported OOS by Unit 2. Maintenance performing required planned maintenance.</li> <li>Both Unit 1 EDGs operable as checked by reviewing latest surveillance tests.</li> </ul>			
Event No.	Malfunction No.	Event Type*	Event Description
1 T=3	TR565 620 R5:00	I (BOR)	"T <sub>h</sub> " Instrument fails high over five minute period
2 T=10	EDB5106 Out EDB5110 Out	R (BOR) N (BOT)	EOC dispatcher requests unit to reduce power to 600MWe in the next 15 minutes due to a loss of a 500 Kv distribution line to Mablevale.
3 T=0	RD405 50	C (BOR)	Group 7 Rod 3 lags behind remainder of group rods during power reduction
4 T=20	RD293 0	C (BOR)	Group 7 Rod 3 drops into the core due to stator failure. Plant runback occurs
5 T=25	RD303 0	C (BOR)	Group 7 Rod 6 drops into the core. (Second dropped rod; requires manual reactor trip)
6 T=30	ED180	C (BOT) M (All)	Startup transformer #1 fails causing a degraded power condition.
7 T=0	IOR -DI CSI- DG1_S FALSE DG175	C (BOT)	#1 EDG fails to autostart. Manual start at C10 fails. #1 EDG can be started locally.
8 T=35	FW076	C (BOR)	P7A trips after auto-actuation

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

Simulator Instructions for Scenario #4				Page 2 of 9
Event No.	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
3&7	T=0	IOR -DI CSI-DG1_S IMF DG175 IMF RD405	FALSE R0 D0 N/A 50 R0 D0	Manual start at C10 fails. #1 EDG can be started locally. #1 EDG fails to autostart Group 7 Rod 3 lags behind remainder of group rods during power reduction
1	T=3	IMF TR565	620 R5:00	"T <sub>h</sub> " Instrument fails high over five minute period
2	T=10	RMF EDB5106 RMF EDB5110	Out Out	EOC dispatcher requests unit to reduce power to 600MWe in the next 15 minutes due to a loss of a 500 Kv distribution line to Mablevale.
4	T=20	IMF RD293	0 R0 D0	Group 7 Rod 3 drops into the core due to stator failure. Plant runback occurs
5	T=25	IMF RD303	0 R0 D0	Group 7 Rod 6 drops into the core. (Second dropped rod; requires manual reactor trip)
6	T=30	IMF ED180	N/A	Startup transformer #1 fails causing a degraded power condition.
8	T=35	IMF FW076	N/A	P7A trips after auto-actuation

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>1</u> Page 3 of 9		
Event Description: <u>Thot instrument fails high over 5 minutes</u>		
T=3	CBOR	Recognize plant transient in progress ✓
	CREW	Determine a failure has occurred ✓
	CBOR	Take manual control of RX Demand, Diamond, and Feedwater.
	CBOR	Stabilize the plant ✓
	CREW	Diagnose T <sub>hot</sub> failure
	CBOT	Verify turbine responds to ICS demand.
	CBOT	Using PMS verify alternate T <sub>hot</sub> is valid
	CBOR	Select the alternate T <sub>hot</sub> transmitter
	CBOR	Return ICS to automatic
	CBOR	Verify RCS pressure is being controlled by PZR heaters and spray valve.
<b>EVENT TERMINATION CRITERIA</b>		
Plant is stable, Alternate T <sub>hot</sub> Channel selected.		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>2&amp;3</u> Page 4 of 9 Event Description: EOC Dispatcher directs power reduction due to severe weather damaging transformers at Mablevale substation. Group 7 Rod 3 experiences degraded motion during power reduction.		
<b>ROLE PLAY</b>		
Call control room as EOC Dispatcher and direct unit to reduce power to 650 Mwe as soon as possible due to transformer damage at the Mablevale substation.  If asked by control room personnel inform them that there is serious concern over grid stability due to the severe weather and substation damage.		
T=10	CRS	Direct CBOR to reduce unit load to 650 Mwe.
	CRS	Direct operations per 1203.045, Rapid Plant Shutdown.
	CBOR	Commence reduction in unit load to 650 Mwe using the ULD or SG/RX Master.
	CBOT	Verify Turbine EHC responds to ICS.
	CREW	Recognize degraded rod motion on rod 7-3
	CRS	Direct operations per 1203.003, CRD Malfunction Action
	CBOR	Continue power reduction
<b>EVENT TERMINATION CRITERIA</b>		
Power reduction in progress and the next event occurs		

Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>4</u> Page 5 of 9		
Event Description: <u>Group 7 Rod 3 drops due to stator failure.</u>		
Time	Position	Applicants Actions or Behavior
T=20	CREW	Recognize Group 7 rod 3 drops
	CRS	Direct operations per 1203.003
	CBOR	Verify plant runback to <40%
	CBOR	Stabilize plant at ~40%
<b>EVENT TERMINATION CRITERIA</b>		
Plant is stabilized at approximately 38-40%		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>5</u> Page 6 of 9		
Event Description: <u>Group 7 Rod 6 (second rod) drops into the core. Manual reactor trip.</u>		
T=25	CREW	Recognize 2nd dropped rod
CT	CBOR	Manually trip the reactor
	CRS	Direct operations per 1202.001
	CBOR	Depress the Reactor Trip push-button. Verify all rods inserted and Reactor power dropping.
	CBOT	Depress the Turbine trip push-button. Verify Turbine throttle and governor valves closed.
	CBOR/ CBOT	Verify Adequate SCM.
	CBOR	Reduce letdown flow by closing Orifice Bypass valve (CV-1223).
<b>EVENT TERMINATION CRITERIA</b>		
Reactor tripped and the first 6 steps of 1202.001, Reactor Trip, completed.		

Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>6 &amp; 7</u> Page 7 of 9		
Event Description: <u>Degraded Power due to loss of Startup Transformer #1. #1 EDG fails to autostart.</u>		
Time	Position	Applicants Actions or Behavior
T=30	CREW	Recognize loss of SU1 and offsite power
	CRS	Transition to the Degraded Power Emergency Operating Procedure (1202.007). Direct operations per 1202.007. <b>Tech Spec 3.7.1 (pg. 56)</b>
	CBOT	Recognize the failure of #1 EDG to autostart
	CBOT	Attempt to manually start #1 EDG using push-button on C10.
	CBOT	Verify MCC B55 and B56 power selected to the operating DG.
	CRS	Dispatch AO to #1 EDG
	CRS	Communicate with Unit 2 about the availability of the AAC generator
	CBOR CBOT	Verify service water to both EDG's.
	CBOT	Close CV-3643 & CV-3644
	CBOR	Verify EFW actuated and perform RT5
	CBOR	Actuate MSLI for both OTSG's using push-buttons on C09. Verify proper actuation using RT6.
	CBOT	Isolate letdown by closing either CV1221 or Letdown Coolers Outlet valves (CV-1214 & 1216).
<b>CONTINUED</b>		

Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>6 &amp; 7</u> Page 8 of 9		
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Event Description: Degraded Power due to loss of Startup Transformer #1. #1 EDG fails to autostart.		
Time	Position	Applicants Actions or Behavior
	CBOT	Place RCP Seal Bleedoff (Alternate path to Quench Tank) controls in CLOSE (SV-1270, 1271, 1272, and 1273).
	CBOT	Isolate RCP Seal Bleedoff (Normal) by closing either; CV-1274 OR CV-1271, 1272, 1273, and 1274.
<b>EVENT TERMINATION CRITERIA</b>		
This event will remain in progress for the remainder of the scenario		

Time	Position	Applicants Actions or Behavior
Op-Test No: <u>2</u> Scenario No: <u>4</u> Event No: <u>8</u> Page 9 of 9		
Event Description: <u>P7A trip after auto actuation.</u>		
T=35	CBOR	Recognize loss of P7A
	CRS	Transition to step 53 of Degraded Power
	CRS	Direct operations per 1202.007
	CRS	Dispatch operators to P7A
	CBOR	Place EFW control valves in HAND and close.
	CBOR	Close P7A steam admission valves
<b>Role Play</b>		
Start #1 EDG by deleting the autostart failure malfunction, DLM EG175, and report as the AO that local start of the EDG was successful.		
	CBOR	Restart or verify autostart of P7B when power is restored to A3.
CT	CBOR	Establish EFW feed to both SG's
	CBOR	Stabilize RCS temperature and pressure
<b>EVENT AND SCENARIO TERMINATION CRITERIA</b>		
EFW is restored to both OTSGs and RCS temperature and pressure are stabilized, steps 1-20 completed		
<b>-OR-</b>		
As directed by the lead examiner.		

Facility: <u>ANO Unit 1</u>		Date of Examination: <u>12-13-99</u>
Examination Level (circle one): RO / <u>(SRO)</u>		Operating Test Number: <u>1</u>
	Administrative Topic/Subject Description	Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations 2.1.25	Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.  NEW ADMIN JPM (ANO-1-JPM-SRO-TREND)
	Conduct of Operations 2.1.16	Ability to operate plant phone, paging system, and two-way radio.  NEW ADMIN JPM (ANO-1-JPM-SRO-RADIO)
A.2	Equipment Control 2.2.11	Knowledge of the process for controlling temporary changes.  NEW ADMIN JPM (ANO-1-JPM-SRO-TALT1)
A.3	Radiation Control	2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.  NEW OPEN REFERENCE QUESTION
		2.3.3 Knowledge of SRO responsibilities for auxiliary systems that are outside of the control room (e.g., waste disposal and handling systems).  NEW OPEN REFERENCE QUESTION
A.4	Emergency Procedures/Plan 2.4.41	Knowledge of the emergency action level thresholds and classifications.  NEW ADMIN JPM (ANO-1-JPM-SRO-EAL2) (Used with Operating Test 1, Scenario 1)
A.4	Emergency Procedures/Plan 2.4.41	Knowledge of the emergency action level thresholds and classifications.  NEW ADMIN JPM (ANO-1-JPM-SRO-EAL3) (Used with Operating Test 1, Scenario 2)

Facility: <u>ANO Unit 1</u>		Date of Examination: <u>12-13-99</u>
Examination Level (circle one): <u>RO</u> SRO		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of Operations 2.1.25	Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.  NEW ADMIN JPM (ANO-1-JPM-RO-SURV2)
	Conduct of Operations 2.1.19	Ability to use plant computer to obtain and evaluate parametric information on system or component status.  NEW ADMIN JPM (ANO-1-JPM-RO-PMS1) (Used with Operating Test 1 Scenario 2)
		Ability to use plant computer to obtain and evaluate parametric information on system or component status.  NEW ADMIN JPM (ANO-1-JPM-RO-PMS2) (Used with Operating Test 1 Scenario 1)
A.2	Equipment Control 2.2.13	Knowledge of tagging and clearance procedures.  NEW ADMIN JPM (ANO-1-JPM-RO-CLER1)
A.3	Radiation Control	2.3.11 Ability to control radiation releases.  NEW OPEN REFERENCE QUESTION
		2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.  NEW OPEN REFERENCE QUESTION
A.4	Emergency Procedures/Plan 2.4.31	Knowledge of annunciators alarms and indications, and use of the response instructions.  NEW ADMIN JPM (ANO-1-JPM-RO-FPS1)

Facility: <u>ANO UNIT 1</u>		Date of Examination: <u>12-13-99</u>	
Exam Level (circle one): RO / SRO(I) / <b>SRO(U)</b>		Operating Test No.: <u>1</u>	
<b>B.1 Control Room Systems</b>			
	System / JPM Title	Type Code*	Safety Function
a.	ANO-1-JPM-R0-DHR03 Residual Heat Removal System/Establish DHR using P-34A	D/S/A/L	4  (Primary)
b.	ANO-1-JPM-R0-EOP09 Energize Bus A2 From Bus A4 in a Degraded Power Condition	D/S/A	6
c.	ANO-1-JPM-R0-QT002 Pressurizer Relief Tank/Quench Tank System/Reduce Quench Tank Pressure	N/S	5
<b>B.2 Facility Walk-Through</b>			
a.	ANO-1-JPM-R0-AOP23 Take manual control of ADV following an Alternate Shutdown	D	4  (Secondary)
b.	ANO-1-JPM-R0-FP003 Reset and place Reserve Halon Bank for Auxiliary Control Room Ceiling in Service	D/R	8
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA			

Facility: <u>ANO UNIT 1</u>		Date of Examination: <u>12-13-99</u>
Exam Level (circle one): RO <u>SRO(I)</u> SRO(U)		Operating Test No.: <u>1</u>
<b>B.1 Control Room Systems</b>		
System / JPM Title	Type Code*	Safety Function
a. ANO-1-JPM-R0-CRD03 Control Rod Drive/Transfer Group 4 to Aux Power Supply	D/S/A	1
b. ANO-1-JPM-R0-EOP16 Perform Actions to Correct Overcooling (TBVs)	D/S/A	4 (Secondary)
c. ANO-1-JPM-R0-CF004 Perform CFT Outlet Check Valve Operability Test	D/S/L	2
d. ANO-1-JPM-R0-RCP05 Reactor Coolant Pump System/Shutdown P-32C & D after DH in service	N/S/L	4 (Primary)
e. ANO-1-JPM-R0-RBC02 Containment System/Depressurize the Reactor Building	N/S	5
f. ANO-1-JPM-R0-EDG04 Emergency Diesel Generators/Load EDG1	D/S/A	6
g. ANO-1-JPM-R0-LTOP1 Establish LTOP Protection during Cooldown of RCS	D/S/L	3
<b>B.2 Facility Walk-Through</b>		
a. ANO-1-JPM-R0-AOP14 Control Room Evacuation/RO #1 Alt S/D follow-up actions immediate evacuation, Section 1C	D/R/A	8
b. ANO-1-JPM-R0-ED026 AC Electrical Distribution System/Shutdown Inverter Y22 with RS2 supplied from Y25	D	6
c. ANO-1-JPM-R0-EFW01 Emergency Feedwater/Manual Reset of P-7A Overspeed Trip Mechanism	D/R	4 (Secondary)
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

Facility: <u>ANO UNIT 1</u>		Date of Examination: <u>12-13-99</u>	
Exam Level (circle one): <u>RO</u> / SRO(I) / SRO(U)		Operating Test No.: <u>1</u>	
<b>B.1 Control Room Systems</b>			
	<b>System / JPM Title</b>	<b>Type Code*</b>	<b>Safety Function</b>
a.	ANO-1-JPM-R0-CRD03 Control Rod Drive/Transfer Group 4 to Aux Power Supply	D/S/A	1
b.	ANO-1-JPM-R0-EOP16 Perform Actions to Correct Overcooling (TBVs)	D/S/A	4 (Secondary)
c.	ANO-1-JPM-R0-CF004 Perform CFT Outlet Check Valve Operability Test	D/S/L	2
d.	ANO-1-JPM-R0-RCP05 Reactor Coolant Pump System/Shutdown P-32C & D after DH in service	N/S/L	4 (Primary)
e.	ANO-1-JPM-R0-RBC02 Containment System/Depressurize the Reactor Building	N/S	5
f.	ANO-1-JPM-R0-EDG04 Emergency Diesel Generators/Load EDG1	D/S/A	6
g.	ANO-1-JPM-R0-LTOP1 Establish LTOP Protection during Cooldown of RCS	D/S/L	3
<b>B.2 Facility Walk-Through</b>			
a.	ANO-1-JPM-R0-AOP14 Control Room Evacuation/RO #1 Alt S/D follow-up actions immediate evacuation, Section 1C	D/R/A	8
b.	ANO-1-JPM-R0-ED026 AC Electrical Distribution System/Shutdown Inverter Y22 with RS2 supplied from Y25	D	6
c.	ANO-1-JPM-R0-EFW01 Emergency Feedwater/Manual Reset of P-7A Overspeed Trip Mechanism	D/R	4 (Secondary)
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA			

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 4 DATE: \_\_\_\_\_

JOI NUMBER: ANO-1-JPM-RO-EOP09

SYSTEM/DUTY AREA: EMERGENCY AND ABNORMAL OPERATION

TASK: ENERGIZE BUS A2 FROM BUS A4 IN A DEGRADED POWER CONDITION.

JTA#: 13035030601

KA VALUE RO: 3.7 SRO: 3.8 KA REFERENCE: 056 AA2.37

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1202.007 REV. 005-01-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN     -    -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

Page 2 of 4

TUOI NUMBER: ANO-1-JPM-RO-EOP09

### JPM INITIAL TASK CONDITIONS:

Off-site power is NOT available. 1202.007, Attachment 1 has been completed. The AAC Generator is off. Degraded power procedure complete to step 98. Both Emergency Diesel Generators are operating properly.

### INITIATING CUE:

The SS/CRS directs you to energize A2 from A4.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP09

E EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Off-site power is NOT available. 1202.007, Attachment 1 has been completed. The AAC Generator is off. Degraded power procedure complete to step 98. Both Emergency Diesel Generators are operating properly.

TASK STANDARD: Trip breaker A-409 after determining excessive loading on EDG2.

*This is an Alternate Success Path JPM.*

TASK PERFORMANCE AIDS: 1202.007 Step 98

SIMULATOR SETUP: Degraded power condition with both EDGs in operation, the crew would have completed steps 1-20, 74, 97, 98, 99 → open B-112 and close B-142, place Bank 4 PZR heaters in OFF, then go to step 101 where this JPM is to start at.

NOTE TO EXAMINER: To perform this JPM and expect the correct results, it must be assumed that Attachment 1 has been completed; however, do NOT perform any of the actions of Attachment 1 in order for an overload condition to occur when breaker A-409 is closed.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP09

INITIATING CUE:

The SS/CRS directs you to energize A2 from A4.

**NOTE: THIS IS AN ALTERNATE SUCCESS PATH JPM THAT INCLUDES A FAULT WHICH WILL CAUSE DG2 TO BE LOADED >2750 KW.**

CRITICAL ELEMENTS (C): 1, 2, 4

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	1. Turn SYNC switch ON for breaker A-409 on panel C10.  <u>POSITIVE CUE:</u> SYNC switch for A-409 is ON.	On panel C10, A-409 breaker SYNC switch placed in the ON position.	---	---	---
(C)	2. On panel C10, close breaker A-409.  <u>POSITIVE CUE:</u> red status light above breaker handswitch is ON.  <u>NEGATIVE CUE:</u> Green status light above breaker handswitch is ON.	Closed breaker A-409.	---	---	---
	3. Check loading on DG2 ≤2750 KW on panel C10.  <u>FAULTED CUE:</u> DG2 load is at 3100 KW.	On panel C10, overload (any load >2750 KW) identified on DG2 KW meter.	---	---	---
(C)	4. Trip breaker A-409.  <u>POSITIVE CUE:</u> A-409 is tripped.	Tripped breaker A-409 on panel C10.	---	---	---

**INSTRUCTOR NOTE:**

The procedure now instructs the operator to investigate cause of excessive load and correct the problem. The evaluator should question examinee on the actions taken to determine the cause of the excessive loading. Acceptable responses would include reperformance of Attachment 1 and/or using electrical system procedures to determine the cause.

END

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

UI NUMBER: ANO-1-JPM-RO-QT002

SYSTEM/DUTY AREA: QUENCH TANK

TASK: VENT QUENCH TANK TO RB VENT HEADER

JTA#: 10075100101

KA VALUE RO: 2.6 SRO: 3.2 KA REFERENCE: 007 A2.02

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1103.005 REV. 027-04-0, SECTION 10.1

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-OT002

### JPM INITIAL TASK CONDITIONS:

The plant is at steady state operations. Quench Tank pressure is 35 psig and needs to be reduced. The waste gas system is aligned to receive high activity gas from RBVH per 1104.022.

### INITIATING CUE:

The SS/CRS directs you to vent the Quench Tank to the waste gas system to lower the pressure to ~5 psig per 1103.005.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-QT002

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at steady state operations. Quench Tank pressure is 35 psig and needs to be reduced. The waste gas system is aligned to receive high activity gas from RBVH per 1104.022.

TASK STANDARD: Quench tank pressure lowered to ~5 psig.

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TASK PERFORMANCE AIDS: 1103.005 Section 10.1.1.

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*NOTE TO IA OPERATOR: Override annunciator - IOR - DO K09.D5 FALSE*

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-QT002

**INITIATING CUE:**

The SS/CRS directs you to vent the Quench Tank to the waste gas system to lower the pressure to ~5 psig per 1103.005.

CRITICAL ELEMENTS (C): 2, 3, 5, and 6

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	<p>1. Ensure RB Vent Header Throttle Valve (GZ-36A) is open no more than one quarter of one turn.</p> <p><u>POSITIVE CUE:</u> WCO reports that GZ-36A is one quarter of one turn open.</p>	<p>Contacted WCO and directed the WCO to verify GZ-36A no more than one quarter of one turn open.</p> <p>Instructions for monitoring and controlling T-17 pressure may be given at this step vs. step 4.</p>	—	—	—
(C)	<p>2. Open Reactor Building Vent Header (RBVH) Inside Isolation Valve CV-4803.</p> <p><u>POSITIVE CUE:</u> Red light ON, green light OFF.</p>	<p>On C18, opened CV-4803.</p>	—	—	—
(C)	<p>3. Open Reactor Building Vent Header (RBVH) Outside Isolation Valves CV-4804.</p> <p><u>POSITIVE CUE:</u> Red light ON, green light OFF.</p>	<p>On C16, opened CV-4804.</p>	—	—	—
	<p>4. Direct the WCO to monitor and control Waste Gas Surge Tank pressure (T-17) during vent.</p> <p><u>POSITIVE CUE:</u> WCO acknowledges monitor Waste Gas Surge Tank pressure and throttle GZ-36A to limit the Waste Gas Surge Tank pressure &lt;18.5 psia.</p>	<p>Contacted WCO and directed the WCO to monitor Waste Gas Surge Tank pressure and throttle GZ-36A to limit the Waste Gas Surge Tank pressure &lt;18.5 psia.</p>	—	—	—
(C)	<p>5. Open Quench Tank Vent to RBVH CV-1055.</p> <p><u>POSITIVE CUE:</u> Red light ON, green light OFF.</p>	<p>On C14, opened CV-1055.</p>	—	—	—

# JOB PERFORMANCE MEASURE

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
Note: Examiner may inform trainee that Quench Tank pressure is ~5 psig for time compression.					
(C)	6. When Quench Tank pressure ~5 psig, close CV-1055, CV-4803, and CV-4804.  POSITIVE CUE: Green lights ON and red light OFF for ALL three valves.	When Quench Tank pressure ~5 psig, closed CV-1055 on C14, CV-4803 on C18, and CV-4804 on C16.	_____	_____	_____
	7. Return waste gas system to normal operation.  POSITIVE CUE: WCO reports that the Waste Gas System returned to a normal lineup.	Contacted WCO and directed him to return WGS to normal.	_____	_____	_____

END

JOB PERFORMANCE MEASURE

UNIT 1:  X  REV #:  1  DATE: \_\_\_\_\_

JOI NUMBER:  ANO-1-JPM-RO-FP003

SYSTEM:  Fire Protection System

TASK:  Align the reserve bank of Halon System for automatic actuation after an actuation.

JTA  10865100101

KA VALUE RO:  3.2  SRO:  3.2  KA REFERENCE:  086 A4.06

APPROVED FOR ADMINISTRATION TO: RO:  X  SRO:  X

TASK LOCATION: INSIDE CR: \_\_\_\_\_ OUTSIDE CR: \_\_\_\_\_ BOTH:  X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE:  Simulate  SIMULATOR: \_\_\_\_\_ LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES:  7 minutes

REFERENCE(S):  1104.032, Rev. 53-01-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN:  - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

Page 2 of 5

### JPM INITIAL TASK CONDITIONS:

Plant is in outage. The Auxiliary Control Room Ceiling Halon System (System 2) was inadvertently actuated. An MAI has been submitted to fill the main bank, and a fire system impairment has been reported.

### INITIATING CUE:

The SS/CRS directs that the Auxiliary Control Room Ceiling Halon System #2 be reset and shifted to the reserve bank in accordance with 1104.032.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-FP003

**THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:**

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** Plant is in outage. The Auxiliary Control Room Ceiling Halon System (System 2) was inadvertently actuated. An MAI has been submitted to fill the main bank, and a fire system impairment has been reported.

**TASK STANDARD:** Reserve bank aligned for automatic operation for the Auxiliary control room ceiling Halon System (System 2).

This is an alternate path JPM.

**TASK PERFORMANCE AIDS:** Copy of 1104.032, Section 9.0

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-FP003

**INITIATING CUE:**

The SS/CRS directs that the Auxiliary Control Room Ceiling Halon System #2 be reset and shifted to the reserve bank in accordance with 1104.032.

CRITICAL ELEMENTS (C): 2, 3, 4, 7

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
<b>INSTRUCTOR NOTE:</b> In the following step inform the examinee that the N <sub>2</sub> pilot bottle pressure is less than 300 psig. This will require replacing the bottle.					
	1. Verify N <sub>2</sub> pilot bottle pressure > 300#.  Faulted Cue: N <sub>2</sub> pilot bottle pressure < 300#	Located Halon System #2. Verified pressure of N <sub>2</sub> pilot bottle > 300#.	—	—	—
(C)	2. Close N <sub>2</sub> bottle outlet valve.  POSITIVE CUE: N <sub>2</sub> bottle outlet valve is closed.	Closed N <sub>2</sub> bottle outlet valve.	—	—	—
<b>EXAMINER'S NOTE:</b> Spare N <sub>2</sub> bottles are obtained from the gas cylinder storage room on the northeast side of the protected area. Storeroom personnel have to be notified to unlock and issue bottle. Inform candidate that a spare bottle is in hand.					
(C)	3. Remove N <sub>2</sub> bottle and replace the bottle.  POSITIVE CUE: New N <sub>2</sub> bottle installed.	N <sub>2</sub> bottle removed and replaced with a new bottle.	—	—	—
(C)	4. Open bottle outlet valve.  POSITIVE CUE: N <sub>2</sub> bottle outlet valve is open.	Opened N <sub>2</sub> bottle outlet valve.	—	—	—
<b>EXAMINER'S NOTE:</b> To expedite the completion of this JPM, inform examinee that calling the control room to verify the alarms in step 5 and 6 are cleared is acceptable.					
	5. Verify N <sub>2</sub> pressure > 300 psig, and verify alarm on C-463 is clear.  POSITIVE CUE: N <sub>2</sub> bottle pressure is ~1000 psig.	Verified N <sub>2</sub> bottle pressure > 300 psig, and called the Control Room and verified the low N <sub>2</sub> bottle pressure alarm cleared.	—	—	—

# JOB PERFORMANCE MEASURE

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	<p>6. Verify Halon system reset.</p> <p><u>POSITIVE CUE:</u> Red Alarm LED, Yellow Manual Trip LED, and the Yellow Trouble LED alarms are cleared.</p>	<p>Verified Halon system reset by verifying the following at C-463:</p> <ul style="list-style-type: none"> <li>• Red Alarm LED on zone module (B-35 in C-463-2) cleared.</li> <li>• Yellow Manual Trip LED on switch module (B-37 U in C-463-2) cleared.</li> <li>• Yellow Trouble LED on alarm extender module (B-38 in C-463-2) cleared.</li> </ul>	—	—	—
(C)	<p>7. Shift 3 way valve to reserve.</p> <p><u>POSITIVE CUE:</u> The 3 way valve is in reserve position.</p> <p><u>NEGATIVE CUE:</u> 3 way valve is not in reserve position.</p>	<p>3 way valve (FS-5661A) shifted to reserve by removing pin and rotating to reserve position.</p>	—	—	—

END

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 2 DATE: \_\_\_\_\_

JOI NUMBER: ANO-1-JPM-RO-EOP16

SYSTEM/DUTY AREA: EMERGENCY AND ABNORMAL OPERATIONS

TASK: PERFORM ACTIONS REQUIRED TO CORRECT OVERCOOLING OF THE RCS (DUE TO TBVs)

JTA#: 13035070601

KA VALUE RO: 3.4 SRO: 3.7 KA REFERENCE: 039 A2.04

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1202.003 REV. 3

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

Page 2 of 5

TUOI NUMBER: ANO-1-JPM-RO-EOP16

### JPM INITIAL TASK CONDITIONS:

The reactor is tripped and the plant is in an overcooling event at this time.

### INITIATING CUE:

The SS/CRS directs you to check turbine bypass valves closed per step 19 of the Overcooling EOP. You are also directed to attempt to terminate the overcooling and stabilize the plant.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

**THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:**

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** The reactor is tripped and the plant is in an over-  
cooling event at this time.

**TASK STANDARD:** Stop overcooling and stabilize the plant.

This is an alternate success path JPM.

**TASK PERFORMANCE AIDS:** Step 19 from 1202.003.

**SIMULATOR SETUP:** 100% power, fail turbine bypass valves CV-6687 and CV-6688 100% open then trip the reactor and reduce letdown.

**IA Instructor Note:**

When dispatched to close CV-6687 and CV-6688 report that CV-6687 will not close locally.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

INITIATING CUE:

The SS/CRS directs you to check turbine bypass valves closed per step 19 of the Overcooling EOP. You are also directed to attempt to terminate the overcooling and stabilize the plant.

CRITICAL ELEMENTS (C): 4, 5, 7

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Check turbine bypass valves closed.  <u>FAULTED CUE:</u> CV-6687 and CV-6688 are 100% open.	Identified that CV-6687 and CV-6688 are full open (by valve position indication on panel C03).	_____	_____	_____
	2. Place turbine bypass valve hand/auto station for "B" OTSG in HAND and close.  <u>POSITIVE CUE:</u> "B" turbine bypass valve controller in HAND but valves NOT responding.	On panel C03, placed turbine bypass valve hand/auto station for "B" OTSG in HAND and attempted to close CV-6687 and CV-6688.	_____	_____	_____
	3. Dispatch an operator to close failed CV-6687 and CV-6688.  <u>POSITIVE CUE:</u> CV-6687 will not close locally.	Called the auxiliary operator and directed the auxiliary operator to close CV-6687 and CV-6688.	_____	_____	_____
(C)	4. Close "B" OTSG MSIV CV-2692.  <u>POSITIVE CUE:</u> Green light ON, red light OFF for CV-2692.  <u>NEGATIVE CUE:</u> RCS temperature is lowering.	On panel C09, closed "B" OTSG MSIV CV-2692.	_____	_____	_____
(C)	5. Open Feedwater Pumps Discharge Crosstie CV-2827.  <u>POSITIVE CUE:</u> Red light ON, green light OFF for CV-2827.	On panel C03, opened CV-2827.	_____	_____	_____
	6. Trip the "A" main feedwater pump.  <u>POSITIVE CUE:</u> "A" MFP is tripped.	On panel C02, tripped the "A" main feedwater pump.	_____	_____	_____

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	7. Operate ATM Dump Control System for "B" OTSG to stabilize RCS temperature.  <u>POSITIVE CUE:</u> RCS temperature is stable.	On panel C09, opened Atmospheric Dump Isolation Valve, CV-2619, and adjusted the Atmospheric Dump Valve, CV-2618, to stabilize RCS temperature (as necessary).	_____	_____	_____
<i>EOP will now send examinee to step 25 since the overcooling is terminated.</i>					

END

JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CF004

UNIT: 1 REV # 2 DATE:

TUOI NUMBER: ANO-1-JPM-RO-CF004

SYSTEM/DUTY AREA: CORE FLOOD SYSTEM

TASK: PERFORM CFT OUTLET CHECK VALVE OPERABILITY TEST

JTA#: 10065150201

KA VALUE RO: 4.0 SRO: 3.8 KA REFERENCE: 006 A4.02

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: BOTH:

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATOR: PERFORM LAB:

POSITION EVALUATED: RO: SRO:

ACTUAL TESTING ENVIRONMENT: SIMULATOR: PLANT SITE: LAB:

TESTING METHOD: SIMULATE: PERFORM:

APPROXIMATE COMPLETION TIME IN MINUTES: 20 MINUTES

REFERENCE(S): 1104.001 REV. 030-00-0, SUPPLEMENT 1

EXAMINEE'S NAME: SSN - -

EVALUATOR'S NAME:

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: UNSATISFACTORY:

PERFORMANCE CHECKLIST COMMENTS:

Start Time Stop Time Total Time

SIGNATURE DATE:

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CF004

Page 2 of 4

### INITIAL CONDITIONS:

- The plant is in a cooldown in preparation for a refueling outage.
- RCS pressure is between 650 psig and 700 psig.
- RCS temperature is between 300°F and 350°F as per 1102.010.
- Section 1.0 of 1104.001 Supplement 1 is complete.
- The WCO and AO are standing by to place hold cards on the breakers and valve handwheels.

### INITIATING CUE:

The CRS/SS directs you to complete 1104.001 Supplement 1.

JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CF004

Page 3 of 4

**EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:**

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** The plant is in a cooldown in preparation for a refueling outage. RCS pressure is between 650 psig and 700 psig. RCS temperature is between 300°F and 350°F as per 1102.010. Section 1.0 of 1104.001 Supplement 1 is complete. The WCO and AO are standing by to place hold cards on the breakers and CFT Outlet Valve handwheels.

**TASK STANDARD:** Test complete and Core Flood Tank outlet valves closed.

**TASK PERFORMANCE AIDS:** 1104.001 Supplement 1

**JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-RO-CF004

**TIATING CUE:** The CRS/SS directs you to complete 1104.001 Supplement 1.

**CRITICAL ELEMENTS (c):** 1, 3, 4, 7

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
C	1. Record the initial CFT levels in section 3.0.	Recorded data from CFT level indicators LIS-2415, LIS-2416, LIS-2418, and LIS-2419 located on C-16/C-18 in the "Initial CFT Level" column of section 3.0.	_____	_____	_____
	2. Record CFT pressures, pressurizer level, RCS pressure, and RCS temperature.  <u>POSITIVE CUE:</u> CFT pressures, pressurizer level, RCS pressure and RCS temperature recorded.	Recorded CFT pressures, pressurizer level, RCS pressure, and RCS temperature from C16/C18, SPDS, or other reliable indicators.	_____	_____	_____
	3. Depressurize the RCS to Core Flood Tank pressure.  <u>POSITIVE CUE:</u> RCS pressure lowering to CFT pressure.	Used pressurizer spray valve CV-1008 on C04, commenced a cooldown and depressurization of the PZR at $\leq 100^{\circ}\text{F}/\text{Hr}$ .	_____	_____	_____
Instructor Note: Annunciator alarms K10 A5 and K10 B5 are expected alarms.					
C	4. When Core Flood Tank T-2A and T-2B levels begin to drop close CV-2415 and CV-2419.  <u>POSITIVE CUE:</u> green light on, red light off, CFT level stable.	On C16 and C18, closed CV-2415 and CV-2419 using handswitches when CFT levels were observed to drop.	_____	_____	_____
	5. Verify closed indication on C16 and C18 for CV-2415 and CV-2419, and record results in section 3.0.  <u>POSITIVE CUE:</u> CV-2415 and CV-2419 green lights on and red lights off.	Verified CV-2415 and CV-2419 indicates closed on both C16 and C18, recorded results in section 3.0.	_____	_____	_____

JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CF004

	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
<p>Instructor Note: The examinee is not responsible for initiating the clearance as part of this JPM. In steps 6 and 9, he should contact the responsible individuals to hang the prepared hold cards.</p>					
	<p>6. Contact the WCO and instruct the WCO to hang hold cards on CFT Outlet Valves.</p> <p><u>POSITIVE CUE:</u> Hold cards are hung on the CFT Outlet Valves</p>	<p>Called the WCO via radio or telephone and instructed the WCO to hang hold cards on the CFT Outlet Valves</p>	_____	_____	_____
C	<p>7. Record the final CFT levels in section 3.0.</p> <p><u>POSITIVE CUE:</u> CFT levels recorded in section 3.0.</p>	<p>Used LIS-2415, LIS-2416, LIS-2418, and LIS-2419, and recorded the final CFT levels in section 3.0.</p>	_____	_____	_____
	<p>8. Record CFT pressures, pressurizer level, RCS pressure, and RCS temperature.</p>	<p>Recorded the required data from C16/C18, SPDS, or other reliable indicators.</p>	_____	_____	_____
	<p>9. OPEN, LOCK, and hold card breaker B5661 for CV-2415 and B5545 for CV-2419.</p> <p><u>POSITIVE CUE:</u> Breakers are open, locked and hold carded.</p>	<p>Directed AO to OPEN, LOCK, and hold card B5661 and B5545.</p>	_____	_____	_____
<p>Instructor Note: Inform examinee that other operators are continuing the plant cooldown and depressurization per step 2.8 of 1104.001 Supplement 1. Continue with Supplement 1.</p>					
	<p>10. Verify that all data is within the Limiting Range or Acceptable Normal Range of section 3.0 as applicable.</p> <p><u>POSITIVE CUE:</u> All data is within the acceptable normal range.</p>	<p>Verified data within Limiting Range and Normal Range per section 3.0 as applicable.</p>	_____	_____	_____

END

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 0 DATE: \_\_\_\_\_

JOI NUMBER: ANO-1-JPM-R0-RBC02

SYSTEM/DUTY AREA: Containment System

TASK: Depressurize the Reactor Building.

JTA#: 107150401W4

KA VALUE RO: 3.7 SRO: 4.1 KA REFERENCE: 103 A1.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1104.033, Rev 057-00-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RBC02

### UPM INITIAL TASK CONDITIONS:

Plant is operating at ~100% power. RB pressure is 16 psia. SPING 2 is in service. Reactor building atmosphere has been sampled and activity is not high. VEF 8A is in service. Gas Collection header is lined up per Gaseous Radwaste System (1104.022), Attachment A. Radiation monitor and PASS system lined up in accordance with Attachment C of this procedure.

### INITIATING CUE:

The SS/CRS directs you to depressurize the reactor building to ~15 psia per 1104.033.

# JOB PERFORMANCE MEASURE

JOI NUMBER: ANO-1-JPM-RO-RBC02

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** Plant is operating at ~100% power. RB pressure is 16 psia. SPING 2 is in service. Reactor building atmosphere has been sampled and activity is not high. VEF 8A is in service. Gas Collection header is lined up per Gaseous Radwaste System (1104.022), Attachment A. Radiation monitor and PASS system lined up in accordance with Attachment C of this procedure.

**TASK STANDARD:** RB pressure reduced to ~15 psia.

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**TASK PERFORMANCE AIDS:** 1104.033 section 9.0

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# JOB PERFORMANCE MEASURE

WJOI NUMBER: ANO-1-JPM-RO-RBC02

INITIATING CUE:

The SS/CRS directs you to depressurize the reactor building to ~15 psia per 1104.033.

CRITICAL ELEMENTS (C): 3, 4, 5, and 6

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	<p>1. Ensure Radwaste Area Exhaust Fan (VEF-8A or VEF-8B) in operation.</p> <p><u>POSITIVE CUE:</u> Radwaste Area Exhaust Fan VEF-8A and VEF-8B are operating.</p>	<p>Verified either VEF-8A or VEF-8B running by observing red light indication on C-19.</p>	_____	_____	_____
	<p>2. Verify radiation monitor equipment in service.</p> <ul style="list-style-type: none"> <li>• SPING 2</li> <li>• RB ATMOS Particulate Detector</li> <li>• RB ATMOS Gaseous Detector</li> </ul> <p><u>POSITIVE CUE:</u> RB ATMOS Particulate Detector and RB ATMOS Gaseous Detector in service.</p>	<p>Verified radiation monitor equipment in service.</p>	_____	_____	_____
(C)	<p>3. Open RB Leak Detector to Gas Collection Header (CV-7455).</p> <p><u>POSITIVE CUE:</u> CV-7455 red light indicator is on.</p>	<p>Opened CV-7455 using handswitch located on C-25.</p>	_____	_____	_____
(C)	<p>4. Open RB Leak Detector Exhaust to Gas Collection Header (GCH-48).</p> <p><u>POSITIVE CUE:</u> WCO reports that GCH-48 is open.</p>	<p>Directed the WCO to open RB Leak Detector Exhaust to Gas Collection Header (GCH-48).</p>	_____	_____	_____

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RBC02

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
NOTE: If HS-7454 is taken to the "CLOSE BOTH" (SV-7456 and SV-7454) position vs "OPEN 7454" position K15-C2 RB ATMOS DETECTOR TROUBLE ALARMS.					
(C)	5. Close RB Leak Detector Isolation Return to RB (SV-7456) or RB Leak Detector Isolation Return to RB (SV-7479).  <u>POSITIVE CUE:</u> SV7456 or SV7479 green light on (whichever is closed).	Closed either RB Leak Detector Isolation Return to RB (SV-7456) or RB Leak Detector Isolation Return to RB (SV-7479) using handswitch located on C-25.	_____	_____	_____
Instructor Note: Give positive cues for the following: <ul style="list-style-type: none"> <li>• No Radwaste Area SPING 2 alarms.</li> <li>• When valves are aligned provide cue that reactor building pressure is 14.7 psia.</li> </ul>					
(C)	6. When reactor building reaches ~15 psia secure depressurization: <ul style="list-style-type: none"> <li>• Open SV-7456 and SV-7479</li> <li>• Close CV-7455</li> <li>• Close GCH-48</li> </ul> <u>POSITIVE CUE:</u> SV-7455, SV-7479 and CV-7455 are closed. WCO reports GCH-48 closed.	Closed SV-7456, SV-7479, and CV-7455 using handswitches located on C-25. Directed the WCO to close GCH-48.	_____	_____	_____
	<u>NEGATIVE CUE:</u> Reactor building pressure is 16.7 psia.				

END

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 2 DATE: \_\_\_\_\_

COI NUMBER: ANO-1-JPM-RO-EDG04

SYSTEM/DUTY AREA: EMERGENCY DIESEL GENERATOR (EDG) SYSTEM

TASK: LOAD EDG1

JTA#: 10645060101

KA VALUE RO: 3.4 SRO: 3.4 KA REFERENCE: 064 A4.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1104.036 REV. 038-04-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

## JOB PERFORMANCE MEASURE

Page 2 of 5

TUOI NUMBER: ANO-1-JPM-RO-EDG04

### JPM INITIAL TASK CONDITIONS:

Engineering evaluation of EDG requires running the EDG at full load. EDG1 is running with its output breaker open and its service water inlet valve (CV-3806) open.

### INITIATING CUE:

The SS/CRS directs you to parallel EDG1 to the grid and load EDG1 to ~2750 KW per 1104.036 Step 7.10.

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Engineering evaluation of EDG requires running the EDG at full load. EDG1 is running with its output breaker open and its service water inlet valve (CV-3806) open.

TASK STANDARD: EDG1 shutdown.

*This is an Alternate Success Path JPM.*

TASK PERFORMANCE AIDS: Synch switch handle, 1104.036 Section 7.0

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

**INITIATING CUE:**

The SS/CRS directs you to parallel EDG1 to the grid and load EDG1 to ~2750 KW per 1104.036 Step 7.10.

CRITICAL ELEMENTS (C): 2, 6, 7, and 9

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	<p>1. Inform dispatcher that EDG1 will be loaded and inquire about weather.</p> <p><u>POSITIVE CUE:</u> Inform examinee there are no grid disturbances or thunderstorms in the area.</p>	Called the dispatcher, informed him/her that EDG1 is ready for loading and asked about proper weather conditions.	—	—	—
(C)	<p>2. Turn on synchronize switch for EDG1 output breaker A-308.</p> <p><u>POSITIVE CUE:</u> Incoming and running voltmeters indicating; synch scope rotating.</p> <p><u>NEGATIVE CUE:</u> Synch scope off.</p>	On C10, placed synchronize switch for A-308 to ON position.	—	—	—
	<p>3. Verify voltage control.</p> <p><u>POSITIVE CUE:</u> Voltage raises/lowers with voltage regulator.</p>	Verified voltage control by raising and/or lowering voltage using the EDG1 voltage regulator control switch on C10.	—	—	—
	<p>4. Verify frequency control.</p> <p><u>POSITIVE CUE:</u> Frequency raises/lowers with the governor control.</p>	Verified frequency control by raising and/or lowering frequency by using the EDG1 governor control switch on C10.	—	—	—
	<p>5. Match running and incoming voltages.</p> <p><u>POSITIVE CUE:</u> Running and incoming voltages are matched.</p> <p><u>NEGATIVE CUE:</u> Voltages are NOT matched.</p> <p>NOTE: Voltages may be verified matched on C10 or SPDS or on plant computer.</p>	On C10, matched running and incoming voltages by adjusting EDG1 voltage regulator.	—	—	—

# JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	6. Adjust EDG1 frequency.  <u>POSITIVE CUE:</u> Frequency is at ~60 Hz and synchroscope is rotating slowly in the FAST direction.  <u>NEGATIVE CUE:</u> Synchroscope rotating in the SLOW direction.	On C10, adjusted EDG1 governor control to achieve ~60 Hz with synchroscope rotating slowly in the FAST direction.	—	—	—
(C)	7. As synchroscope approaches 12 o'clock position (~5 min. 'til) close EDG1 output breaker A-308.  <u>POSITIVE CUE:</u> A-308 red light ON, green light OFF.	Closed EDG1 output breaker A-308.	—	—	—
<p><b>NOTE: IA Operator</b> → when EDG1 is loaded to 2750 KW override K01-D2 "EDG 1 NON-CRITICAL TROUBLE" and K01-C2 "EDG 1 CRITICAL TROUBLE" to bring in the annunciator alarms.</p>					
	8. Dispatch an operator to check the cause of alarm.  <u>POSITIVE CUE:</u> Auxiliary Operator acknowledges check EDG1 alarms.	Called an Auxiliary Operator by radio or telephone and dispatched to EDG-1 to check the cause of the alarm.			
<p><b>FAULTED CUE:</b> IA instructor call as Auxiliary Operator and report the cause of the alarms are "JACKET COOLING WATER EXPANSION TANK LOW LEVEL", and JACKET COOLING WATER PRESSURE LOW". Report that there is no level on the expansion tank sightglass, and there is a leak on the discharge of the north engine cooling water pump.</p>					
(C)	9. Shutdown EDG1.  <u>POSITIVE CUE:</u> EDG1 green light ON.  <u>NEGATIVE CUE:</u> EDG1 load at 2800 KW and rising.	EDG 1 was shutdown by Lowering load to ~100KW, opening EDG1 output breaker (A-308), and depressing EDG 1 stop pushbutton  OR Tripping EDG-1 by depressing the stop pushbutton or placing the Normal/Lockout switch in the LOCKOUT position.	—	—	—

END

# JOB PERFORMANCE MEASURE

UNIT: 1 REV # 4 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-RO-LTOP1

SYSTEM/DUTY AREA: REACTOR COOLANT SYSTEM

TASK: ESTABLISH LTOP PROTECTION DURING COOLDOWN OF THE RCS

JTA#: 10105160101

KA VALUE RO: 4.2 SRO: 4.4 KA REFERENCE: 002 K4.10

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1102.010 REV. 050-02-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_  
SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

# JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-LTOP1

## INITIAL TASK CONDITIONS:

- The plant is in a cooldown with RCS temperature  $<300^{\circ}\text{F}$  but  $>275^{\circ}\text{F}$ .
- RCS pressure as indicated on PT-1020 "A" Loop WR Pressure (ESAS-1) is less than 380 psig.

## INITIATING CUE:

The SS/CRS directs you to establish LTOP protection as per step 14.2 of 1102.010.

# JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-LTOP1

**THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:**

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** The plant is in a cooldown with RCS temperature <300°F but >275°F. RCS pressure as indicated on PT-1020 "A" Loop WR Pressure (ESAS-1) is less than 380 psig.

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**TASK STANDARD:** LTOP established with all HPI MOVs in the LTOP position and ERV block open and ERV setpoint switch in the 400 psig position.

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**TASK PERFORMANCE AIDS:** 1102.010 Step 14.2

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# JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-LTOP1

INITIATING CUE:

The SS/CRS directs you to establish LTOP protection as per step 14.2 of 1102.010.

CRITICAL ELEMENTS (C): 1, 5

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	<p>1. Place ERV Setpoint hand switch in 400 PSIG position.</p> <p><u>POSITIVE CUE:</u> 400 PSIG amber light lit.</p>	<p>On C04, positioned the ERV Setpoint hand switch to the 400 PSIG position.</p>	_____	_____	_____
	<p>2. Verify the ERV Isolation (CV-1000) open.</p> <p><u>POSITIVE CUE:</u> red light ON, green light OFF.</p>	<p>On C04, verified CV-1000 in the open position by observing red light ON, green light OFF above HS-1000.</p>	_____	_____	_____
<p><b>Instructor Note:</b> Normal indication for each of the computer points is provided in the task standard.</p>					
	<p>3. If the plant computer is operating, verify the following LTOP alarm plant computer points do not have a quality of DEL:</p> <ul style="list-style-type: none"> <li>• RCS Loop "A" Inlet Temperature Wide Range T1016 and T1017</li> <li>• LTOP Trouble Alarm T3071</li> <li>• RCS Overpressurization Enable PS3086</li> <li>• LTOP Constant (272°F) CON272</li> </ul> <p><u>POSITIVE CUE:</u> T1016, T1017, T3071, PS3086, CON272 are not deleted.</p>	<p>On the plant computer, used SVD function and selected T1016, T1017, T3071, PS3086 and CON272 and verified that each point does not have a quality of DEL.</p> <ul style="list-style-type: none"> <li>• Indicated "LALM"</li> <li>• Indicated "Good"</li> <li>• Indicated "Enable"</li> <li>• Indicated "Good"</li> </ul>	_____	_____	_____

# JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-LTOP1

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
Instructor Note: The following step is a continuous action step and should be monitored while in this condition.					
	3. Verify pressurizer level 4. ≤105".  <u>POSITIVE CUE:</u> Pressurizer level is 100".	On C04, verified pressurizer level ≤105" on level indicators located on C04.	_____	_____	_____
Instructor Note: Provide the examinee with eight (8) keys (one for each of the HPI LTOP keyswitches).					
(C)	4. Close the following HPI valves and place in the LTOP position (may be done in any order):  CV-1278    CV-1227 CV-1279    CV-1228 CV-1219    CV-1284 CV-1220    CV-1285  <u>POSITIVE CUE:</u> green lights ON for all valves, white LTOP in "NORMAL" lights OFF for all valves.	On C16 each HF placed valve with w  <i>Steps 5 &amp; 6 should be placed with w</i> <i>Steps 4 &amp; 5</i> <i>Will find</i>	_____	_____	_____

END

PROC./WORK PLAN NO. <b>1102.010</b>	PROCEDURE/WORK PLAN TITLE: <b>PLANT SHUTDOWN AND COOLDOWN</b>	PAGE: <b>24 of 54</b> CHANGE: <b>050-02-0</b>
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14.0 Establishment of Decay Heat Removal System Operation

14.1 Implement Containment Closure Control per Decay Heat Removal and LTOP System Control (1015.002), Attachment G prior to placing plant in a condition where containment integrity is not required. \_\_\_\_\_

(4.3.2)

14.2 When RC temperature is <300°F but >275°F, verify RC pressure is <380 psig as indicated on PT-1020 and establish LTOP protection as follows: \_\_\_\_\_

14.2.1 Place ERV Setpoint hand switch in 400 PSIG position. \_\_\_\_\_

14.2.2 Verify ERV Isolation (CV-1000) open . \_\_\_\_\_

14.2.3 If the plant computer is operating, verify by using computer function SVD that the following LTOP alarm plant computer points do not have a quality of DEL. Otherwise N/A. \_\_\_\_\_

- RCS Loop "A" Inlet Temperature Wide Range (T1016 and T1017) \_\_\_\_\_
- LTOP TROUBLE Alarm (T3071) \_\_\_\_\_
- RCS Overpressurization Enable (PS3086) \_\_\_\_\_
- LTOP Constant (272°F) (CON272) \_\_\_\_\_

14.2.4 If the plant computer is not operating, contact Computer Support to enable LTOP alarm. Otherwise N/A. \_\_\_\_\_

**NOTE**

For LTOP concerns, maximum allowable pressurizer level with RCS temperature <272°F and loops filled and vented is:

- 105" at RCS pressures >100 psig
- 150" at RCS pressures ≤100 psig

14.2.5 Verify pressurizer level ≤105". \_\_\_\_\_

14.2.6 For each of the following HPI to P-32 (A,B,C, or D) Discharge valves, close valve and place key switch in LTOP position. \_\_\_\_\_

CV-1278	CV-1227
CV-1279	CV-1228
CV-1219	CV-1284
CV-1220	CV-1285

**NOTE**

RCS maximum cooldown rate from 280°F to 150°F is 50°F/hr, which equates to 0.83°F/min.

14.3 Prior to cooling below 280°F, establish a cooldown rate of ≤50°F/hr. \_\_\_\_\_

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One): **RO** / SRO

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A1-JPM-1</b>	Expected Response and Reference source
A.1 A.2 A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-RO-SURV2	

Candidate Response:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-SURV2

Page 1 of 4

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-RO-SURV2

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - CONDUCT OF OPERATIONS

TASK: CONDUCT SHIFT SURVEILLANCE TESTS

JTA#: 10765030201

KA VALUE RO: 2.8 SRO: 3.1 KA REFERENCE: 2.1.25

APPROVED FOR ADMINISTRATION TO: RO: X SRO: \_\_\_\_\_

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1104.029, Rev. 052-02-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-SURV2

Page 3 of 4

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The quarterly surveillance test of Service Water Pump P-4C is in progress. Data gathering of Supplement 3 of 1104.029 step 2.8 is completed.

TASK STANDARD: The examinee records data correctly on Supplement 3 of 1104.029 and determines the data is outside of the band given in the acceptance criteria.

TASK PERFORMANCE AIDS: 1104.029, Supplement 3, completed to step 2.8.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-SURV2

Page 2 of 4

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

- The quarterly surveillance test of Service Water Pump P-4C is in progress.
- The SPDS calculated suction pressure point for Bay C is inoperable.
- Data gathering of Supplement 3 of 1104.029 step 2.8 is completed.

**INITIATING CUE:**

The CRS directs you to complete steps 2.8 and 2.9 of the quarterly surveillance test of P-4C in accordance with 1104.029, Supplement 3.

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-RO-SURV2

**INITIATING CUE:**

The CRS directs you to complete steps 2.8 and 2.9 of the quarterly surveillance test of P-4C in accordance with 1104.029, Supplement 3.

**CRITICAL ELEMENTS (C)** 2.A, 2.B, 2.C

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review 1104.029, Supplement 3.	Examinee reviewed 1104.029, Supplement 3.			
<i>NOTE: Inform examinee that the SPDS calculated suction pressure point is inoperable.</i>					
(C)	2. Plot test value on P-4C pump curve in Section 3.0 using values recorded in Section 3.0.  2.A Calculate pump suction pressure in order to obtain pump differential pressure.  (Instructions identified by *** at bottom of Section 3.0)	Examinee correctly calculated pump suction pressure in accordance with instructions (***) at bottom of page 11 of Supplement 3.  $(356.5 - 337.9) \times 0.433 = 8.05 \text{ psig}$			
(C)	2.B Plot data point on pump curve in Section 3.0.	Examinee correctly plotted pump data on pump curve.  Plotted point should intersect at 93 psid and 4050 gpm.			
(C)	2.C Evaluate data point, compare to "ACCEPTABLE NORMAL RANGE" and "LIMITING RANGE FOR OPERABILITY" curves.  (Steps 3.1 and 3.2 of Section 3.0)	Examinee circled "NO" in column titled "IS DATA WITHIN LIMITING RANGE" and row for Loop II Flow and Actual Pump DP.  Examinee discussed declaring pump inoperable, notifying S/S, writing Condition Report, and initiating corrective action.			
<i>NOTE: Inform examinee that completion of remainder of surveillance is unnecessary.</i>					

**END**

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One) **RO** / SRO

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A1-JPM-3</b>	Expected Response and Reference source
A.1 A.2 A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-RO-PMS2	

Candidate Response:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-PMS2

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-RO-PMS2

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - CONDUCT OF OPERATIONS

TASK: OPERATE THE PLANT COMPUTER

JTA#: 14105090101

KA VALUE RO: 3.0 SRO: 3.0 KA REFERENCE: 2.1.19

APPROVED FOR ADMINISTRATION TO: RO: X SRO: \_\_\_\_\_

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1105.010 REV. 9 PC-1

EXAMINEE'S NAME: \_\_\_\_\_ SSN - - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Start Time Stop Time Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-PMS2

Page 2 of 4

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

The plant is at 100% power operations.

**INITIATING CUE:**

The CRS directs you to change the alarm setpoint from plant computer point Y2851 for the K05-B2 CONDENSER VACUUM LO to 26.5 inches.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-PMS2

Page 3 of 4

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations.

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TASK STANDARD: The examinee has changed the low vacuum alarm setpoint for computer point Y2851 to 26.5 inches mercury.

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TASK PERFORMANCE AIDS: 1105.010, Plant Monitoring System

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NOTE: 1105.010 covers the operation of the Plant Monitoring System, but the exact manipulations are within the skill of the craft. Therefore, use of procedure in hand is not required.

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-RO-PMS2

**INITIATING CUE:**

The CRS directs you to change the alarm setpoint from plant computer point Y2851 for the K05-B2 CONDENSER VACUUM LO to 26.5 inches.

**CRITICAL ELEMENTS (C)**                     All                    

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	1. Select the MAINTENANCE category from the MENU SELECTION.	Selected the MAINTENANCE category by typing MAI on the computer keyboard or by selecting the MAINTENANCE touchpad on the MENU SELECTION display console touch screen areas.	_____	_____	_____
(C)	2. Select DATABASE MAINTENANCE.	Selected DATABASE MAINTENANCE using the display console touch screen or entering DBM on the keyboard and depressing the enter key.	_____	_____	_____
(C)	3. Select Y2851.	Typed Y2851 on the keyboard and depressed the enter key.	_____	_____	_____
(C)	4. Enter the desired alarm value.	Used the right arrow key on the keyboard to move the cursor to the ALARM LOW entry area, entered 26.5 on the keyboard and depressed the enter key.	_____	_____	_____
(C)	5. Save the changes to the alarm setpoint.	Depressed the white F-3 button on the keyboard to save the new alarm value.	_____	_____	_____

**END**

**Arkansas Nuclear One - Unit One**  
**License Examination Administrative Topics**  
**OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO (SRO)

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A1-JPM-1</b>	Expected Response and Reference source
A.1 A.2 A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-SRO-TREND	

Candidate Response:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TREND

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-SRO-TREND

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - CONDUCT OF OPERATIONS

TASK: QUARTERLY CHECK OF TREND DATA

JTA#: 13415280303

KA VALUE RO: 2.8 SRO: 3.1 KA REFERENCE: 2.1.25

APPROVED FOR ADMINISTRATION TO: RO: \_\_\_\_\_ SRO: X

TASK LOCATION: INSIDE CR: \_\_\_\_\_ OUTSIDE CR: \_\_\_\_\_ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: PERFORM SIMULATOR: \_\_\_\_\_ LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1015.006 Rev. 5

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TREND

Page 2 of 4

**EXAMINEE' S COPY**

JPM INITIAL TASK CONDITIONS:

- The plant is at 100% power

INITIATING CUE:

The Shift Superintendent directs you to conduct a Quarterly Review of Reactor Building Spray Pump P-35A data per 1015.006 Supplement 1.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TREND

Page 3 of 4

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power.

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TASK STANDARD: The examinee has reviewed the attached Reactor Building Spray Pump Data, identified the abnormal differential pressure trend, and discussed corrective actions.

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TASK PERFORMANCE AIDS: Reactor Building Spray Pump P-35A trend data

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**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-SRO-TREND

**INITIATING CUE:**

The Shift Superintendent directs you to conduct a Quarterly Review of Reactor Building Spray Pump P-35A data per 1015.006 Supplement 1.

**CRITICAL ELEMENTS** (C) 2, 3

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review Reactor Building Spray Pump P-35A data.	Examinee reviewed Reactor Building Spray Pump P-35A data.			
(C)	2. Identify abnormal trend in pump differential pressure.	Examinee identified the drop of Reactor Building Spray Pump P-35A differential pressure over the last 3 surveillance tests.			
<p><i>Instructor Note: A discussion of corrective actions is all that is required. Candidate only needs to identify technical issues, not editorial issues.</i></p>					
(C)	3. Take appropriate corrective action.	<p>Examinee discussed appropriate corrective action such as (but not limited to):</p> <ul style="list-style-type: none"> <li>• Initiate a MAI</li> <li>• Engineering Request</li> <li>• Expansion of trending program to other parameters</li> <li>• Change in operating practice</li> <li>• Upgrading test frequency</li> <li>• Contact System Engineer</li> </ul>			

**END**

**Arkansas Nuclear One - Unit One**  
**License Examination Administrative Topics**  
**OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO (SRO)

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A1-JPM-2</b>	Expected Response and Reference source
A.1 A.2 A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-SRO-RADIO	

Candidate Response:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-RADIO

UNIT: 1 REV # 0 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-SRO-RADIO

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC -CONDUCT OF OPERATIONS

TASK: PAGE EMERGENCY MEDICAL TEAM

JTA#: 13445090402

KA VALUE RO: 2.9 SRO: 2.8 KA REFERENCE: 2.1.16

APPROVED FOR ADMINISTRATION TO: RO: \_\_\_\_\_ SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: \_\_\_\_\_ BOTH: \_\_\_\_\_

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: N/A SRO: X

ACTUAL TESTING ENVIRONMENT: SIMULATOR: X PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1903.062 REV. 15

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-RADIO

Page 2 of 5

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

The auxiliary operator reports that John Tipton has fallen from the northeast corner of the 354' elevation to the 335 elevation. He has been knocked unconscious from the fall.

**INITIATING CUE:**

As SS/CRS activate the Emergency Medical Team and alert plant personnel.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-RADIO

Page 3 of 5

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The auxiliary operator reports that John Tipton has fallen from the northeast corner of the 354' elevation to the 335 elevation.

He has been knocked unconscious from the fall.

TASK STANDARD: Examinee pages the Emergency Medical Team, and alerts plant personnel via announcement over plant paging system.

TASK PERFORMANCE AIDS: 1903.062

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-SRO-RADIO

**INITIATING CUE:**

As SS/CRS activate the Emergency Medical Team and alert plant personnel.

**CRITICAL ELEMENTS (C)** 1, 3, 5, 6, 7

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	1. Select channel 1 on the radio console.	Selected channel 1 on the radio console.	_____	_____	_____
	2. Verify "Scrambler Off" is selected on radio console.	Verified "Scrambler Off" selected on radio console.	_____	_____	_____
(C)	3. Select the response group needed from the Instant Call Keys on the encoder.	Selected the "MEDICAL" button from the Instant Call Keys on the encoder.	_____	_____	_____
	4. VERIFY that the appropriate Instant Call Key is selected, and press the "IC SEND" key. Wait for tones to be transmitted.	Verified the "MEDICAL" instant call key selected and pressed the "IC SEND" key. Observed the red indicator flash indicating tones transmitted.	_____	_____	_____
(C)	5. Momentarily depress and hold the SIREN ALERT KEY.	When the tone was transmitted, depressed the "SIREN ALERT" key and held down for two or three seconds	_____	_____	_____
(C)	6. Transmit the appropriate message.	Depressed the microphone switch on the base radio console and gave the following message.  ATTENTION EMERGENCY MEDICAL TEAM MEMBERS. A Personnel Emergency has occurred at the northeast corner of the 335' elevation of Unit 1. Emergency Medical Team Members please respond.	_____	_____	_____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-RADIO

Page 5 of 5

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(7)	7. Follow the radio/pager message with the appropriate message using the Plant Paging System.	<p>Used plant-paging system to make the following announcement.</p> <p>ATTENTION ALL PERSONNEL,                      ATTENTION ALL PERSONNEL.                      There is a PERSONNEL EMERGENCY the northeast corner of the 335' elevation of Unit 1. The EMERGENCY MEDICAL TEAM is responding. All personnel should stay clear of the northeast corner of the 335' elevation of Unit 1.</p>	<p align="center">_____</p>	<p align="center">_____</p>	<p align="center">_____</p>

END

**Arkansas Nuclear One - Unit One**  
**License Examination Administrative Topics**  
**OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO (SRO)

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A2-JPM-1</b>	Expected Response and Reference source
A.1 (A.2) A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-SRO-TALT1	

Candidate Response:

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TALT1

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-SRO-TALT1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EQUIPMENT CONTROL

TASK: QUARTERLY CHECK OF TEMPORARY ALTERATIONS

JTA#: 13435100302

KA VALUE RO: 2.8 SRO: 3.4 KA REFERENCE: 2.2.11

APPROVED FOR ADMINISTRATION TO: RO: \_\_\_\_\_ SRO: X

TASK LOCATION: INSIDE CR: \_\_\_\_\_ OUTSIDE CR: \_\_\_\_\_ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: PERFORM SIMULATOR: \_\_\_\_\_ LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1000.028 Rev. 022-02-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TALT1

Page 2 of 4

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

The plant is at 100% power. All Temporary Alterations tags are in place.

**INITIATING CUE:**

The Shift Superintendent directs you to conduct a Quarterly Review of Temporary Alteration 98-1-012 per 1000.028. You have in hand the complete package as found in the Control Room file. Identify at least 2 administrative errors.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TALT1

Page 3 of 4

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power. All Temporary Alterations tags are in place.

TASK STANDARD: The examinee has reviewed the attached temporary alteration and identified at least 2 administrative errors.

TASK PERFORMANCE AIDS: Temporary Alteration with 3 errors.

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-SRO-TALT1

Page 4 of 4

**INITIATING CUE:**

The Shift Superintendent directs you to conduct a Quarterly Review of Temporary Alteration 98-1-012 per 1000.028. You have in hand the complete package as found in the Control Room file. Identify at least 2 administrative errors.

**CRITICAL ELEMENTS (C)** 2

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review Temporary Alteration Package 98-1-012.	Examinee reviewed Temporary Alteration Package 98-1-012.			
<p><b>EVALUATOR NOTE:</b>                      The items that are missing in Temporary Alteration Package 98-1-012 are:</p> <ul style="list-style-type: none"> <li>• Sections 3 through 14.</li> <li>• 10CFR50.59 Review</li> <li>• Engineering Screening</li> <li>• Drawing E-541 sh.1</li> </ul>					
(C)	2. Identify administrative errors in Temporary Alteration Package 98-1-012.	Examinee identified at least 2 of 3 errors on Temporary Alteration Package 98-1-012: <ul style="list-style-type: none"> <li>• Improper mode</li> <li>• Not approved by Plant Manager</li> <li>• Temporary alteration package incomplete</li> </ul>			

**END**

**Arkansas Nuclear One - Unit One**  
**License Examination Administrative Topics**  
**OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO (SRO)

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q1</b>	Expected Response and Reference source
<p>A.1   A.2  <input checked="" type="radio"/> A.3   A.4</p>	<p>Given:</p> <ul style="list-style-type: none"> <li>• A valve alignment in the Lower North Piping Room (LNPR) will require 2 operators for 3 hours.</li> <li>• Three operators are available to perform the valve alignment and the second check.</li> <li>• The operators' yearly accumulated dose are:               <ul style="list-style-type: none"> <li>• Operator A---1900 mrem</li> <li>• Operator B---1870 mrem</li> <li>• Operator C---1850 mrem</li> </ul> </li> </ul> <p>The given survey map reflects the current dose rates in the room.</p> <p>Based on the HIGHEST general area dose rate in the Lower North Piping Room, which two (2) operators can perform the task?</p>	

**Candidate Response:**

**Arkansas Nuclear One - Unit One**  
**License Examination Administrative Topics**  
**OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO / **SRO**

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q1</b>	Expected Response and Reference source
<p>A.1 A.2  <b>A.3</b> A.4</p>	<p>Given:</p> <ul style="list-style-type: none"> <li>• A valve alignment in the Lower North Piping Room (LNPR) will require 2 operators for 3 hours.</li> <li>• Three operators are available to perform the valve alignment and the second check.</li> <li>• The operators' yearly accumulated dose are:               <ul style="list-style-type: none"> <li>• Operator A---1900 mrem</li> <li>• Operator B---1870 mrem</li> <li>• Operator C---1850 mrem</li> </ul> </li> </ul> <p>The given survey map reflects the current dose rates in the room.</p> <p>Based on the HIGHEST general area dose rate in the Lower North Piping Room, which two (2) operators can perform the task?</p>	<p><b>Answer:</b></p> <p>Operators B and C can perform the task.</p> <p>Highest general area dose rate is 40 mR/hr.</p> <p>40 mR/hr x 3 hrs = 120 mR</p> <p>Operator A will exceed the ADCL of 2 Rem.</p> <p><b>Reference:</b></p> <ul style="list-style-type: none"> <li>• HP Survey Map</li> <li>• 1012.021, Rev. 4</li> </ul> <p><b>KA:</b></p> <p>2.3.4            RO 2.5 / SRO 3.1</p>

Candidate Response:

PROC./WORK PLAN NO. 1012.021	PROCEDURE/WORK PLAN TITLE: EXPOSURE LIMITS AND CONTROLS	PAGE: 7 of 18 REV: 4 CHANGE:
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6.2.2 Radiation Workers

- A. With complete or incomplete occupational exposure records for current year:
1. Whole body (TEDE) - 2.0 rems/calendar year (the TEDE ADCL may be extended per step 6.3)
  2. Single organ (TODE) - 40.0 rems/calendar year
  3. Lens of the eye (LDE) - 12.0 rems/calendar year
  4. Skin of whole body (SDE) - 40.0 rems/calendar year
  5. Extremities (SDE) - 40.0 rems/calendar year

6.2.3 Planned Special Exposures (PSEs)

- A. An individual's lifetime dose history must be on file and verified prior to the individual being eligible to participate in a PSE.
- B. Exposure restrictions/guidelines are specified in the documentation associated with the PSE.

6.2.4 Female Employees in a Declared Status

- A. Female Non-Radiation Workers
1. Female personnel employed within the controlled area of the plant site that are not trained and qualified as Radiation Workers are not normally issued individual TLDs. The Area TLDs located in controlled areas of the plant are used to verify that their exposure is less than federal limits. In the event that female workers desire to receive individual TLD monitoring, they will be assigned the dose limits, as appropriate, contained in Nuclear Management Policy RP-101, "Prenatal Exposure".
- B. Female Radiation Workers
1. Unless otherwise requested by the employee, a female radiation worker will have the normal occupational dose limits as described in 6.2.2 of this procedure.
- C. Declared Pregnant Female Workers
1. If a female radiation worker wishes to declare herself pregnant, this declaration of pregnancy will be accomplished as described in Nuclear Management Policy RP-101 and by the completion of a new Attachment I to RP-101 and Attachment II to RP-101, "Notification of Pregnancy" as appropriate.

**Arkansas Nuclear One - Unit One  
License Examination Administrative Topics  
OPERATING TEST 1**

Candidate: \_\_\_\_\_

Examination Level (Circle One): RO (SRO)

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q2</b>	Expected Response and Reference source
<p>A.1 A.2 <b>A.3</b> A.4</p>	<p><b>Given:</b></p> <ul style="list-style-type: none"> <li>The plant is being shutdown for a refueling outage.</li> <li>Venting of the Makeup Tank has been in progress for about 20 minutes.</li> <li>H2/O2 Analyzer C-119 is inoperable.</li> <li>H2/O2 Analyzer C-119A is aligned to Waste Gas Surge Tank T-17.</li> </ul> <p>The "RADWASTE GAS PANEL TROUBLE" annunciator, K09-D5, alarms. The WCO reports the O2 concentration is reading 10% and the H2 concentration is reading 22%.</p> <p>What actions should be taken?</p>	<p><b>Answer:</b> These concentrations are in Region C of Attachment A of 1203.010. The Makeup Tank venting to the Waste Gas System should be suspended. Actions to lower concentrations to Region B should be taken without delay.</p> <p><b>Reference:</b> 1203.010 Rev. 007-00-0</p> <p><b>KA:</b> 2.3.3 RO 1.8 / SRO 2.9</p>

Candidate Response:

PROC./WORK PLAN NO. 1203.010	PROCEDURE/WORK PLAN TITLE: ABOVE NORMAL H <sub>2</sub> /O <sub>2</sub> CONCENTRATION	PAGE: 1 of 11 CHANGE: 007-00-0
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1.0 SYMPTOMS

- 1.1 RADWASTE GAS PANEL TROUBLE (K09-D5) alarm.
- 1.2 Either H<sub>2</sub>/O<sub>2</sub> Analyzer (C119 or C119A) indicates above normal H<sub>2</sub>/O<sub>2</sub> concentration.
- 1.3 Nuclear Chemistry sample indicates above normal H<sub>2</sub>/O<sub>2</sub> concentrations in auxiliary system tanks.

2.0 IMMEDIATE ACTION

None.

3.0 FOLLOW-UP ACTIONS

- 3.1 Compare above normal H<sub>2</sub>/O<sub>2</sub> concentration(s) with Attachment A.
  - 3.1.1 If any H<sub>2</sub>/O<sub>2</sub> concentration enters Region C (detonable) of Attachment A, suspend all additions of waste gas to the system and return concentration values to Region B (flammable) of Attachment A without delay.
  - 3.1.2 If any H<sub>2</sub>/O<sub>2</sub> concentration reaches Region B, corrective action shall be taken within 24 hours to return concentration to Region A. Reference Technical Specification 3.24.2.
  - 3.1.3 GO TO appropriate section to correct high H<sub>2</sub>/O<sub>2</sub> concentration:
    - Waste Gas Surge Tank (T-17) Section 3.2
    - Waste Gas Decay Tanks (T-18A, B, C, D) Section 3.3
    - Quench Tank (T-42) Section 3.4
    - Clean Waste Receiver Tanks (T-12A, B, C, D) Section 3.5
    - Aux Building Equipment Drain Tank (T-11) Section 3.6
    - Dirty Waste Drain Tank (T-20) Section 3.7
- 3.2 Waste Gas Surge Tank (T-17)
  - 3.2.1 Verify N<sub>2</sub> System to Waste Gas Surge Tank T-17 (PCV-4812) aligned to T-17 to purge gases.
  - 3.2.2 Monitor T-17 H<sub>2</sub>/O<sub>2</sub> concentration using H<sub>2</sub>/O<sub>2</sub> analyzer C119 or C119A and verify concentration returns to Region A of Attachment A.
  - 3.2.3 Attempt to isolate source of H<sub>2</sub>/O<sub>2</sub> leakage into waste gas system.

PROC./WORK PLAN NO. 1203.010	PROCEDURE/WORK PLAN TITLE: ABOVE NORMAL H <sub>2</sub> /O <sub>2</sub> CONCENTRATION	PAGE: 2 of 11 CHANGE: 007-00-0
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**CAUTION**

When waste gas system is in operation, H<sub>2</sub>/O<sub>2</sub> concentration in Waste Gas system shall be monitored continuously with at least one H<sub>2</sub>/O<sub>2</sub> analyzer. Normally, both H<sub>2</sub>/O<sub>2</sub> analyzers monitor T-17. If only one analyzer is operable, it shall monitor T-17 except when H<sub>2</sub>/O<sub>2</sub> concentration in T-17 reaches region B of Attachment A during compressor operation, then it shall monitor waste gas decay tank being filled. Reference Tech Spec 4.28.

- 3.2.4 Monitor Waste Gas Decay Tank (T-18A, B, C, or D) aligned to receive compressed gases using C119 or C119A.
- A. If using C119 Hays Auto Scanner, switch ON sample select toggle for applicable tank.
- B. If using C119A Sample Point Selector switch, manually switch to applicable tank.
- 3.2.5 If Waste Gas Decay Tank indicates high H<sub>2</sub>/O<sub>2</sub> concentration, GO TO Waste Gas Decay Tanks (T-18A, B, C, D) section.
- 3.2.6 If all above normal H<sub>2</sub>/O<sub>2</sub> concentrations have been corrected, exit this procedure. Otherwise perform applicable section(s).

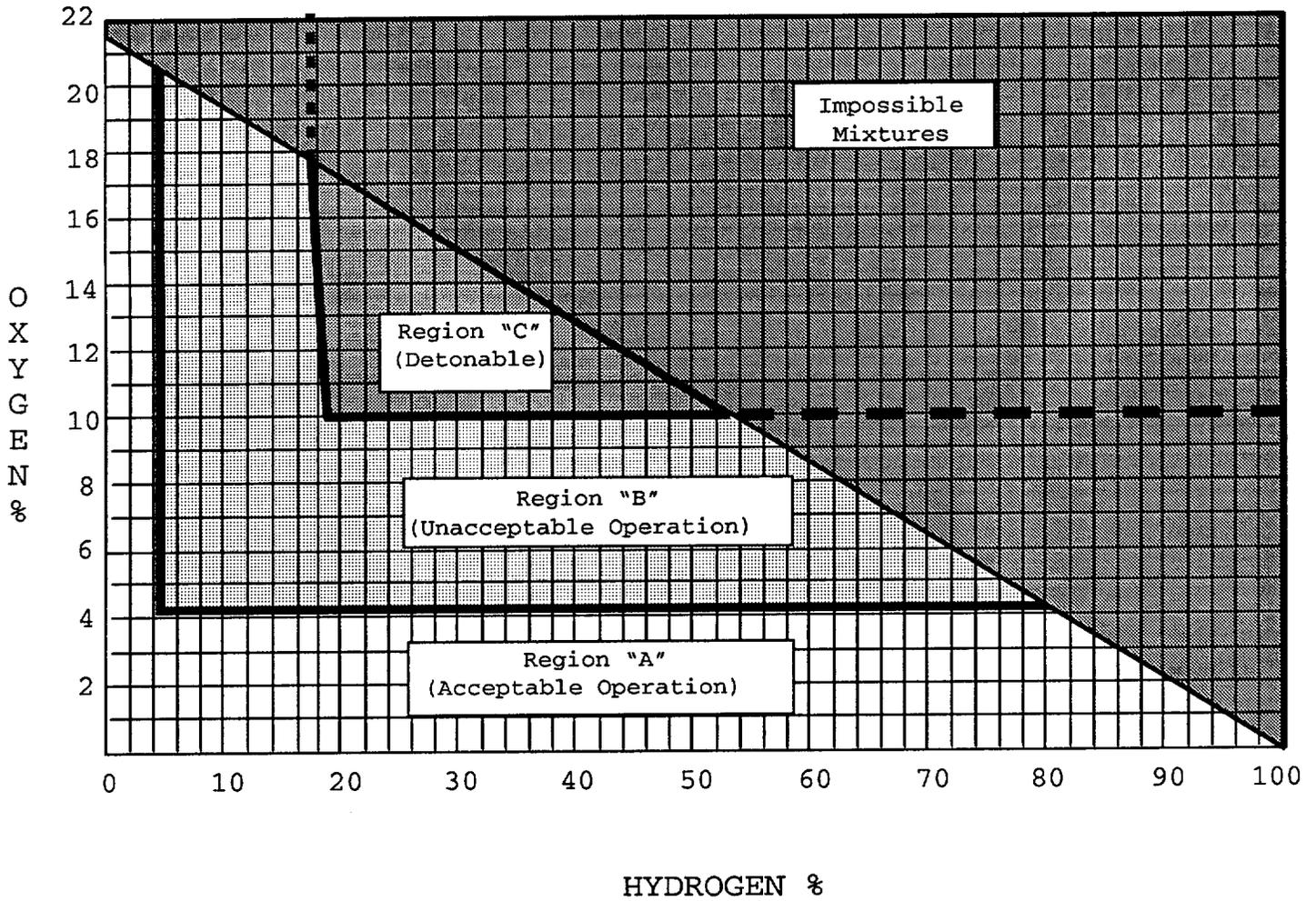
3.3 Waste Gas Decay Tanks (T-18A, B, C, D)

**CAUTION**

Waste Gas Decay Tank maximum allowable pressure is 85 psig.

- 3.3.1 If H<sub>2</sub>/O<sub>2</sub> concentration in Waste Gas Decay Tank has entered Region C of Attachment A, without delay add N<sub>2</sub> to tank to dilute H<sub>2</sub>/O<sub>2</sub> concentration. Monitor H<sub>2</sub>/O<sub>2</sub> concentration using C119 or C119A.
- A. Open applicable N<sub>2</sub> purge valve to Waste Gas Decay Tank:
- T-18A N<sub>2</sub> Inlet Isol (N<sub>2</sub>-15)
  - T-18B N<sub>2</sub> Inlet Isol (N<sub>2</sub>-16)
  - T-18C N<sub>2</sub> Inlet Isol (N<sub>2</sub>-17)
  - T-18D N<sub>2</sub> Inlet Isol (N<sub>2</sub>-18)
- 3.3.2 If H<sub>2</sub>/O<sub>2</sub> concentration has returned to an acceptable level per Attachment A, secure N<sub>2</sub> addition and initiate a Gaseous Release Permit, Attachment C of Gaseous Radwaste System (1104.022).

ATTACHMENT A



**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One): **RO** / SRO

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A2-JPM-1</b>	Expected Response and Reference source
A.1 <b>A.2</b> A.3 A.4	SEE ATTACHED JPM ANO-1-JPM-RO-CLER1	

**Candidate Response:**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CLER1

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-RO-CLER1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EQUIPMENT CONTROL

TASK: CONDUCT EQUIPMENT TAGOUTS (EQUIPMENT CLEARANCE AND SWITCHES)

JTA#: 144951101A4

KA VALUE RO: 3.6 SRO: 3.8 KA REFERENCE: 2.2.13

APPROVED FOR ADMINISTRATION TO: RO: X SRO: \_\_\_\_\_

TASK LOCATION: INSIDE CR: \_\_\_\_\_ OUTSIDE CR: \_\_\_\_\_ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1000.027 Rev. 025-01-0; 1107.001 Rev. 056-00-0; M-207 Sh.1 Rev. 55

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CLER1

Page 2 of 4

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

- A clearance has been prepared by another operator for Condensate Demineralizer Regeneration Pump P-77 seal maintenance.
- The work order has been reviewed and it has been determined the pump must be disassembled and drained.

**INITIATING CUE:**

The CRS tells you to review the clearance of P-77 (clearance no. A1-98-1470) so the clearance can be authorized for hanging. Identify at least 3 errors on the clearance in accordance with 1000.027, Protective Tagging Control.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CLER1

Page 3 of 4

**THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:**

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

**JPM INITIAL TASK CONDITIONS:** A clearance has been prepared by another operator for Condensate Demineralizer Regeneration Pump P-77 seal maintenance. The work order has been reviewed and it has been determined the pump must be disassembled and drained.

**TASK STANDARD:** The examinee has correctly identified 3 errors on the clearance per 1000.027.

**TASK PERFORMANCE AIDS:** 1000.027, M-207 Sh. 1, 1107.001, Att. D.

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-RO-CLER1

**INITIATING CUE:**

The CRS tells you to review the clearance of P-77 (clearance no. A1-98-1470) so the clearance can be authorized for hanging. Identify at least 3 errors on the clearance in accordance with 1000.027, Protective Tagging Control.

**CRITICAL ELEMENTS (C)** 2

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
<p><i>NOTE: Provide examinee with a PC with the ANO Operations menu ready. Inform examinee he is to use the ANO TEST TAGGING SYSTEM instead of the normal tagging system.</i></p>					
	1. Verify either the preparer or reviewer is a licensed operator.	Examinee reviewed the clearance and noted the preparer is a CRS.			
(C)	2. Identify errors.	<p>Examinee identified 3 of the following:</p> <ol style="list-style-type: none"> <li>1. Clearance boundary NOT adequate - P-77 recirc valve CD-29 should be tagged closed since it routes flow upstream of the suction valve CD-28.</li> <li>2. Clearance does not have a drain valve with a position of OPEN for CD-3206.</li> <li>3. Clearance does not specify in the SPECIAL INSTRUCTIONS section that no vent path for draining is present and therefore the pump may not be completely drained after tagging.</li> <li>4. Tagged position designator for breaker improper.</li> <li>5. Sequence of tagging isolation valves improper, suction tagged prior to discharge.</li> </ol>			

**END**

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One) **RO / SRO**

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q1</b>	Expected Response and Reference source
<p>A.1 A.2</p> <p><b>A.3</b> A.4</p>	<p>A release of Waste Gas Decay tank T-18A is planned.</p> <p>Given procedure 1104.022 and using the Preliminary Release Report provided, determine the appropriate setpoint for RI-4830.</p>	<p><b>Answer:</b>            Since the Preliminary Release Report uses a setpoint for RI-4830 that is less than 50,000 cpm, in accordance with Attachment C of 1104.022 the setpoint for RI-4830 should be set at 50,000 cpm.</p> <p><b>Reference:</b>            1104.022 Rev. 031-02-0</p> <p><b>K/A:</b>            2.3.11            RO 2.7 / SRO 3.2</p>

**Candidate Response:**

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One) **RO / SRO**

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q1</b>	Expected Response and Reference source
A.1 A.2 <b>A.3</b> A.4	A release of Waste Gas Decay tank T-18A is planned.  Given procedure 1104.022 and using the Preliminary Release Report provided, determine the appropriate setpoint for RI-4830.	

Candidate Response:

PROC./WORK PLAN NO. 1104.022	PROCEDURE/WORK PLAN TITLE: GASEOUS RADWASTE SYSTEM	PAGE: 36 of 39 CHANGE: 031-02-0
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ATTACHMENT C

3.7 Shift Superintendent/CRS approval to proceed with release:

**NOTE**  
Simultaneous radioactive gaseous releases are not permitted.

\_\_\_\_\_ SS/CRS Unit 1  
\_\_\_\_\_ SS/CRS Unit 2

4.0 RELEASE (Operations)

4.1 If Gaseous Radwaste (RI-4830) is operable and available, perform the following. Otherwise N/A:

4.1.1 Record RI-4830 pre-release, \_\_\_\_\_  
as-found setpoint: \_\_\_\_\_ cpm.

4.1.2 Record Setpoint from preliminary report:  
Setpoint: \_\_\_\_\_ cpm

4.1.3 If setpoint from preliminary report is  
<50,000 cpm, then 50,000 cpm should be used as  
this release setpoint. \_\_\_\_\_

4.1.4 Adjust setpoint to \_\_\_\_\_ cpm  
(from preliminary report, or 50,000 cpm,  
whichever is greater). \_\_\_\_\_

A. Licensed Operator, other than individual  
who initially set RI-4830 setpoint  
independently verify correct RI-4830  
setpoint from preliminary report.

Independent verification by \_\_\_\_\_

4.2 Verify T-18s Discharge to Gaseous Radwaste Discharge Header  
Flow Control Valve (CV-4820) closed. \_\_\_\_\_

4.3 Perform partial clearance of danger tag on outlet valve and  
open waste gas decay tank outlet valve from tank to be  
released as follows. Check (✓) valve opened. Verify  
other outlet isolations closed. \_\_\_\_\_

- ( ) T-18A Outlet Isolation (GZ-13A)
- ( ) T-18B Outlet Isolation (GZ-13B)
- ( ) T-18C Outlet Isolation (GZ-13C)
- ( ) T-18D Outlet Isolation (GZ-13D)

4.3.1 If Gaseous Radwaste (RI-4830) is inoperable or  
unavailable, perform independent verification of  
4.3. Otherwise N/A. (ODCM App.1, Table 2.2-1)

Independent verification \_\_\_\_\_

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Entergy Operations Inc. Unit 1  
Arkansas Nuclear One  
Gaseous Radioactive Waste Release Permit 1GR99- 0128  
Pre-Release Supplementary Data  
-----

page 1 of 2

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PART I: PRE-RELEASE DATA  
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7

Release Point ( 31): T18A WASTE GAS DECAY TANK-  
Discharge Point ( 10): DISC. PT-10 - 1 RAD WASTE AREA  
Permit Issued: 12-dec-1999-03:25:55 Release Type: Batch  
Rad Monitor: (4830) RE-4830  
Rad Monitor Bckgrnd: 1.1110E+03 CPM  
  
Estim. Waste Flow: 1.1500E+01 CFM  
Estim. Waste Volume: 1.4367E+03 CF  
Estim. Release Start: 12-dec-1999 03:23:25  
Estim. Release End: 12-dec-1999 05:28:21 Initial Pressure : 6.6000E+01  
Estim. Duration: 124.9335 MIN Final Pressure : 0.0000E+00  
-----

PART II: PRE-RELEASE CALCULATIONS  
-----

Sample Entry # : 128  
Gas sample time: 11-dec-1999 17:16:00 Sampled by:  
  
Gas Monitor Response: 3.41E+03 CPM  
Total Body Dose Rate: 2.74E-04 mrem/yr % Limit = 0.0%  
Skin Dose Rate: 1.23E-02 mrem/yr % Limit = 0.0%  
Max Organ Dose Rate: 2.97E-01 mrem/yr % Limit = 0.0%

Max Monitor Setpoints: RE-4830 RX-9825  
CPM uCi/cc  
  
Noble Gas : 4.75E+03 3.93E-05  
Particulate : 0.00E+00 0.00E+00  
Radioiodine : 0.00E+00 0.00E+00

Flag :  
Flags: A-Release Curies > Local Limit N-Noble Gas Dose Rate > Limit  
S-Release:Curies > Site Limit O-Organ Dose Rate > Limit

-----  
Analysis Date Measured Concen. Est. Curies  
-----  
Noble Gases 11-dec-1999 18:04:51 8.96E-04 uCi/cc 3.65E-02  
Particulates 11-dec-1999 18:42:27 2.58E-10 uCi/cc 1.05E-08  
Radioiodines 11-dec-1999 18:07:47 3.69E-09 uCi/cc 1.50E-07  
-----

Arkansas Nuclear One

Unit 1

Gaseous Radioactive Waste Release Permit  
 Pre-Release Supplementary Data

1GR99 0128

ISOTOPIC IDENTIFICATION - Unit 1

Isotope		: Pre-Disp. : Measured : uCi/cc	: Pre-Disp. : Measured : Conc/MPC	: Pre-Disp. : Measured : Conc/Total	: Conc/Total : by : Type	: Release : Rate : uCi/sec	: Estimated : Curies : Released
H-3	O:	4.38E-08	2.19E-01	4.89E-05	1.00E+00	2.38E-04	1.78E-06
CO-58	P:	2.58E-10	1.29E-01	2.87E-07	1.00E+00	1.40E-06	1.05E-08
I-131	R:	3.69E-09	3.69E+01	4.12E-06	1.00E+00	2.01E-05	1.50E-07
KR-85	N:	8.04E-04	2.68E+03	8.97E-01	8.97E-01	4.36E+00	3.27E-02
XE-131	MN:	7.12E-05	1.78E+02	7.94E-02	7.94E-02	3.86E-01	2.90E-03
XE-133	N:	2.13E-05	7.10E+01	2.37E-02	2.38E-02	1.16E-01	8.66E-04
Totals		8.96E-04	2.97E+03			4.87E+00	3.65E-02

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One) **RO / SRO**

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q2</b>	Expected Response and Reference source
<p>A.1 A.2  <input checked="" type="radio"/> <b>A.3</b> A.4</p>	<p>A new AO is working with the WCO during the refueling outage. His relevant exposure data is:</p> <ul style="list-style-type: none"> <li>- 33 years old.</li> <li>- Incomplete form NRC-4 (exposure history)</li> <li>- 875 mR dose (TEDE) this year not including this quarter.</li> <li>- 75 mR dose (TEDE) this quarter.</li> </ul> <p>What is the maximum time that this person can work in a 6.25 R/hr field <b>WITHOUT</b> exceeding an administrative limit?</p>	<p><b>Answer:</b>  Approximately 10 minutes</p> <p>Per 6.2.2.A, regardless of whether or not an individual's exposure history is complete, a rad worker may receive 2.0 Rem (TEDE) calendar year.</p> $875 + 75 = 950 \text{ mR}$ $1050 \text{ mR margin to } 2.0 \text{ R limit}$ $1.05\text{R} / 6.25 \text{ R/hr} * 60 \text{ min} = 10.08 \text{ min}$ <p><b>Reference:</b>  1012.021 Rev. 4</p> <p><b>KA:</b>  2.3.4  RO 2.5/ SRO 3.1</p>

**Candidate Response:**

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One): **RO** / SRO

Examiner: \_\_\_\_\_

Topic Area (Circle One)	Question <b>A3-Q2</b>	Expected Response and Reference source
A.1 A.2 <b>A.3</b> A.4	<p>A new AO is working with the WCO during the refueling outage. His relevant exposure data is:</p> <ul style="list-style-type: none"><li>- 33 years old.</li><li>- Incomplete form NRC-4 (exposure history)</li><li>- 875 mR dose (TEDE) this year not including this quarter.</li><li>- 75 mR dose (TEDE) this quarter.</li></ul> <p>What is the maximum time that this person can work in a 6.25 R/hr field WITHOUT exceeding an administrative limit?</p>	

**Candidate Response:**

<b>PROC./WORK PLAN NO.</b>  <b>1012.021</b>	<b>PROCEDURE/WORK PLAN TITLE:</b>  <b>EXPOSURE LIMITS AND CONTROLS</b>	<b>PAGE:</b> 7 of 18 <b>REV:</b> 4 <b>CHANGE:</b>
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6.2.2 Radiation Workers

- A. With complete or incomplete occupational exposure records for current year:
1. Whole body (TEDE) - 2.0 rems/calendar year (the TEDE ADCL may be extended per step 6.3)
  2. Single organ (TODE) - 40.0 rems/calendar year
  3. Lens of the eye (LDE) - 12.0 rems/calendar year
  4. Skin of whole body (SDE) - 40.0 rems/calendar year
  5. Extremities (SDE) - 40.0 rems/calendar year

6.2.3 Planned Special Exposures (PSEs)

- A. An individual's lifetime dose history must be on file and verified prior to the individual being eligible to participate in a PSE.
- B. Exposure restrictions/guidelines are specified in the documentation associated with the PSE.

6.2.4 Female Employees in a Declared Status

- A. Female Non-Radiation Workers
1. Female personnel employed within the controlled area of the plant site that are not trained and qualified as Radiation Workers are not normally issued individual TLDs. The Area TLDs located in controlled areas of the plant are used to verify that their exposure is less than federal limits. In the event that female workers desire to receive individual TLD monitoring, they will be assigned the dose limits, as appropriate, contained in Nuclear Management Policy RP-101, "Prenatal Exposure".
- B. Female Radiation Workers
1. Unless otherwise requested by the employee, a female radiation worker will have the normal occupational dose limits as described in 6.2.2 of this procedure.
- C. Declared Pregnant Female Workers
1. If a female radiation worker wishes to declare herself pregnant, this declaration of pregnancy will be accomplished as described in Nuclear Management Policy RP-101 and by the completion of a new Attachment I to RP-101 and Attachment II to RP-101, "Notification of Pregnancy" as appropriate.

**Arkansas Nuclear One - Unit One**  
**1999 License Examination Administrative Topics**  
**OPERATING TEST ONE**

Candidate: \_\_\_\_\_

Examination Level (Circle One): **RO** / SRO

Examiner: \_\_\_\_\_

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Topic Area (Circle One)	Question <b>A4-JPM-1</b>	Expected Response and Reference source
A.1   A.2 A.3 <b>A.4</b>	SEE ATTACHED JPM ANO-1-JPM-RO-FPS1	

**Candidate Response:**

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-FPS1

UNIT: 1 REV # 1 DATE: \_\_\_\_\_

TUOI NUMBER: ANO-1-JPM-RO-FPS1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EMERGENCY PROCEDURES/PLAN

TASK: MONITOR THE FIRE PROTECTION SYSTEMS

JTA#: 10865010101

KA VALUE RO: 3.3 SRO: 3.4 KA REFERENCE: 2.4.31

APPROVED FOR ADMINISTRATION TO: RO: X SRO: \_\_\_\_\_

TASK LOCATION: INSIDE CR: \_\_\_\_\_ OUTSIDE CR: \_\_\_\_\_ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: \_\_\_\_\_ SIMULATOR: PERFORM LAB: \_\_\_\_\_

POSITION EVALUATED: RO: \_\_\_\_\_ SRO: \_\_\_\_\_

ACTUAL TESTING ENVIRONMENT: SIMULATOR: \_\_\_\_\_ PLANT SITE: \_\_\_\_\_ LAB: \_\_\_\_\_

TESTING METHOD: SIMULATE: \_\_\_\_\_ PERFORM: \_\_\_\_\_

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1203.009 REV. 020-00-0

EXAMINEE'S NAME: \_\_\_\_\_ SSN - -

EVALUATOR'S NAME: \_\_\_\_\_

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: \_\_\_\_\_ UNSATISFACTORY: \_\_\_\_\_

PERFORMANCE CHECKLIST COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Start Time \_\_\_\_\_ Stop Time \_\_\_\_\_ Total Time

SIGNED \_\_\_\_\_ DATE: \_\_\_\_\_

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-FPS1

Page 2 of 4

**EXAMINEE' S COPY**

**JPM INITIAL TASK CONDITIONS:**

The plant is at 100% power operations. The Fire Protection System Trouble annunciator is in alarm (K12-D1).

**INITIATING CUE:**

The CRS directs you to determine the cause of annunciator K12-D1 in accordance with 1203.009, Fire Protection System Corrective Action, and determine the actions to be completed.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-FPS1

Page 3 of 4

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations. The Fire Protection System Trouble annunciator is in alarm (K12-D1).

TASK STANDARD The examinee has located the correct portion of 1203.009 (B2-8U) and has determined that the deluge valve actuation string is inoperable.

TASK PERFORMANCE AIDS: 1203.009

**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

TUOI: ANO-1-JPM-RO-FPS1

**INITIATING CUE:**

The CRS directs you to determine the cause of annunciator K12-D1 in accordance with 1203.009, Fire Protection System Corrective Action, and determine the actions to be completed.

**CRITICAL ELEMENTS (C)** 3, 5

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Check K125 on C19 for source of trouble alarm.	Used 1203.009, turned to K12-D1 for operator Actions and checked K125 on C19 for amber trouble LED's.			
<i>NOTE: If simulating this JPM, inform examinee that "C463 PANEL TROUBLE" yellow light is ON.</i>					
	2. Determine C463 to be source of trouble.	Determined C463 to be source of yellow trouble LED from K125.			
<i>NOTE: If simulating this JPM, inform examinee that the following yellow trouble LED is ON - B2-8U "TROUBLE ZONE 97-R Cable Spread Room".</i>					
(C)	3. Determine proper corrective actions for trouble LED per Attachment A.	Referred to Attachment A and went to the corrective actions for B2-8U, Cable Spread Room.			
	4. Check condition of FS-97, Cable Spread Room Deluge UAV-5638 isolation valve.	Contacted Inside AO to check the position of FS-97.			
<i>NOTE: Inform examinee that Inside AO reports FS-97 fully open.</i>					
<i>NOTE: The following step does not require the examinee to reference actions in 1000.152.</i>					
(C)	5. Identify the fire system impairment.	Examinee identified the fire system impairment was due to open circuit in deluge valve actuation string, and discussed referring to Attachment 1 of 1000.152 for compensatory measures.			

**END**