2002 NRC RO Exam

1		ID: Q #1 RO/SRO	Points: 1.00
	Reactor power The CRD Flow	is increased from 20 to 100%. Control Valve AO 1(2)-0302-06A is in manual.	
	In order to mair the CRD Flow (Differential Pres	tain CRD cooling water flow constant, the NSO will ha Control Valve (AO 1(2)-0301-06A) which will ssure.	ave to manually CRD Drive Water
	А.	CLOSE; INCREASE	
	В.	OPEN; INCREASE	

- C. CLOSE; DECREASE
- D. OPEN; DECREASE

ID: Q #2 RO/SRO

Points: 1.00

Rod step 20 has control rods H-10, F-8, H-6 and K-8 with a rod limit from position 08 to 12.

Control rod H-10 is withdrawn to position 12. Control rod F-8 is withdrawn to position 10.

The NSO then selects control rod H-6, which is currently at position 08.

On the RWM display, control rod H-6 will indicate:

- A. green.
- B. white.
- C. red.
- D. cyan.

2

3 ID: Q #3 RO/SRO Points: 1.00 All RWM blocks are enabled. The NSO is performing QCGP 1-1, NORMAL UNIT STARTUP. Rod step one contains control rods H-1, F-1, D-2, B-4, A-6, A-8, A-10, B-12, D-14, F-15, H-15, K-15, M-14, P-12, R-10, R-8, R-6, P-4, M-2, K-1. Control rods H-1, F-1 and D-2 are fully withdrawn. How would the RWM respond if B-5 pushbutton was depressed and attempted to be withdrawn? RWM would prevent the rod from being selected. Α. Β. RWM select block would prevent rod motion. RWM withdrawal block would prevent rod motion when the control rod reached C. position 02. D. RWM would allow the rod to be moved until low power setpoint was reached. 4 ID: Q #4 RO/SRO Points: 1.00 Unit 2 is operating at 100% power in a normal electrical line-up when the reactor scrams and the auxiliary power transfer fails. Which of the following components are de-energized? Α. 2A Recirculation Motor Generator Set Β. 2A Condensate/Condensate Booster Pump C. 2B Recirculation Motor Generator Set D. 2B Condensate/Condensate Booster Pump

Unit 1 was operating at full power when a plant casualty occurred.
The Unit NSO noted that U1 HPCI started automatically while U1 RCIC remained in a stand lineup as expected. Both Unit 1 and the 1/2 Emergency Diesel Generators (EDGs) started automatically but the U EDG TRIPPED on an overspeed condition. Bus 13-1 has tripped on overcurrent.

Assuming all equipment was in a normal operating configuration prior to the transient, and that the remaining auto actions occurred, what is the expected status of Unit 1 RHR pumps?

	<u>A & B</u>	<u>C & D</u>
A.	OFF	OFF
В.	OFF	RUNNING
C.	RUNNING	OFF
D.	RUNNING	RUNNING

6

ID: Q #6 RO/SRO

Points: 1.00

The HPCI Flow Controller is powered from:

- A. 125 VDC.
- B. Instrument Bus.
- C. 250 VDC.
- D. Essential Service.

2002 NRC RO Exam

ID: Q #7 RO/SRO

Annunciator 902-3 D-5, CORE SPRAY SYS 2 BUS/LOGIC PWR FAILURE is up on Unit 2.

(NOTE: During the Exam, clarification was given that the alarm referred to loss of LOGIC power.)

A casualty occurs on Unit 2 resulting in the following conditions:

RPV water	-150 inches and lowering.
Reactor pressure	300 psig and lowering.
Drywell pressure	8 psig and rising.

7

At this point in this event, predict how the Unit 2 Core Spray system has responded and describe any actions required to restore it.

A. "B" loop will auto-initiate and inject, while "A" loop will NOT auto-initiate, but may be manually started locally.

Manually initiate Core Spray Subsystem 2A and restore Core Spray Subsystem 2B 125 VDC control power.

B. "A" loop will auto-initiate and inject, while "B" loop will NOT auto-initiate, but may be manually started locally.

Manually initiate Core Spray Subsystem 2B and restore Core Spray Subsystem 2B 125 VDC control power.

C. "A" loop will auto-initiate and inject, while "B" loop will NOT auto-initiate, and can not be manually started from the Control Room or locally.

Manually start the Unit 2 Diesel Generator, verify it energizes Bus 24-1, manually initiate Core Spray Subsystem 2B and restore Core Spray Subsystem 2B 125 VDC control power.

D. "B" loop will auto-initiate and inject, while "A" loop will NOT auto-initiate, but may be manually started locally.

Manually start the Unit 2 Diesel Generator, verify it energizes Bus 24-1, manually initiate Core Spray Subsystem 2B and restore Core Spray Subsystem 2B 125 VDC control power.

8	ID: Q #8 RO/SRO	Points: 1.00
If the reactor mo scram or a full s	ode switch is in RUN, which ONE of the following condition cram?	ns will cause either a half
А.	Reactor power is 10%, Main Steam Isolation Valves 1C	& 2D are both closed.
В.	Reactor power is 10%, Turbine Stop Valves 3 & 4 are bo	th closed.
С.	Reactor power is 45% , Main Steam Isolation Valves 1A	& 1D are both closed.
D.	Reactor power is 45% , Turbine Stop Valves 2 & 3 are bo	th closed.

ID: Q #9 RO/SRO

A reactor scram occured on Unit 2 approximately 1 minute ago.
The scram has NOT been reset.

The NSO can verify all rods in by noting that individual rod position is indicating:

- Α. an orange 00.
- Β. a green 00.
- C. a green double dash.
- D. an orange double dash.

9

Points: 1.00

10		ID: Q #10 RO/SRO	Points: 1.00		
	The operator is withdrawing a control rod which is part of the current latched step. The limits of the step and the bounds of the control rod being withdrawn is 00 - 48. The operator withdraws the rod one notch and notices that the selected rod indicates ?? on the RWM display.				
Which of the following statements best describes the RWM system condition as it stands now?			ion as it stands right		
	Α.	The RWM system will immediately block all movement of ?? until a substitute position is entered. No other rods are	the rod that indicates effected by this event.		
	В.	The RWM will immediately initiate a full core scan and if p information is not obtained on the next scan, the RWM wil and block all rod movements.	roper position I consider itself failed		
	C.	The rod is treated just like a withdraw error. Insert and wit applied to all other rods and a withdrawal block is applied once it reaches a known position.	thdrawal blocks are to the selected rod		
	D.	The RWM immediately declares the rod OOS and allows continue with rod movement on the next rod in the sequer	the operator to nce.		

11	ID: Q #11 RO/SRO	Points: 1.00

The plant is operating at 100% power and a Traversing In-Core Probe (TIP) trace is in progress. A spurious reactor scram occurs and reactor water level decreases to -10 inches and then recovers.

IDENTIFY the response of the TIP system.

- A. The TIP system will continue the trace without interruption.
- B. The shear valve automatically fires.
- C. The TIP system automatically withdraws and the shear valve fires if the ball valve fails to shut.
- D. The TIP system automatically withdraws and the ball valve shuts.

2002 NRC RO EX

12 ID: Q #12 RO/SRO Points: 1.00 With Unit One at 50% power, the NSO selects rod D-9 for withdrawal. The following indications are observed on the 4 Rod Display: Two bypass lights are lit for "A" level selected LPRMs. Two bypass lights are lit for "B" level selected LPRMs One bypass light is lit for "C" level selected LPRMs. Three bypass lights are lit for "D" level selected LPRMs. Will the operator be able to withdraw control rod D-9 with the present plant conditions? Α. No, RBM 7 is INOP due to less than 50% of it's assigned inputs. Β. Yes, RBM 7 is automatically bypassed due to too few inputs. C. No, RBM 8 is INOP due to less than 50% of it's assigned inputs. Yes, RBM 8 is automatically bypassed due to too few inputs. D.

13 ID: Q #13 RO/SRO Points: 1.00

A plant startup is in progress with all IRMs on Range 1 and the Mode Switch is in the Startup/Hot STBY position.

Which ONE of the following describes the operation of the SRM instruments with all of the shorting links **removed**?

A FULL Reactor Scram will occur if SRM...

- A. 21 and 23 BOTH reach 1 X 10E5 CPS.
- B. 22 goes less than 100 CPS.
- C. 23 is WITHDRAWN from the core.
- D. 24 reaches 5 X 10E5 CPS.

14 ID: Q #14 RO/SRO Points: 1.00 A Unit 1 startup is in progress. SRM's are fully inserted and reading approximately 10,000 cps when annunciator 901-5 A-4, "SRM HIGH OR INOP", alarms and the associated rod block occurs. The NSO observes that SRM 21 is now reading approximately 5,000 cps, while SRM's 22, 23 and 24 are still indicating 10,000 cps. Which of the following operations / malfunctions could explain the observed indications? SRM 21 "INOP INHIBIT" pushbutton on the 901-36 panel is depressed. Α. 24/48 VDC Bus A voltage is low. Β. C. SRM 21 is automatically withdrawing from the core. D. SRM 21 high voltage power supply is low.

15	ID: Q #15 RO/SRO	Points: 1.00

Which of the following would constitute the MAXIMUM disagreement between APRM flow converter channels that would still allow control rod withdrawal?

- A. 17%
- B. 11%
- C. 9%
- D. 5%

ID: Q #16 RO/SRO

Given:
RVLIS backfill has been secured for 18 days.
The RPV has rapidly depressurized from 1003 psig due to a steam leak in the drywell.
Drywell temperature is 235 degrees F.
RPV pressure is 275 psig and slowly lowering.
Pressure corrected lower wide range instruments indicate -10 inches and lowering.
Narrow range instruments indicate +10 inches and steady.

What is the status of Rx level instrumentation and which of the following conditions can be used to determine RPV water level is > -68 inches if the recirc pumps are off?

Reactor water level instrumentation...

- A. will become inaccurate when pressure drops below 250 psig; determine level > -68 inches by indicated level lowering on the narrow range instruments.
- B. will become inaccurate when pressure drops below 250 psig; determine level > -68 inches by indicated level rising on the upper wide range instrument.
- C. became inaccurate when pressure dropped below 450 psig; determine level > -68 inches by indicated level lowering on the narrow range instruments.
- D. became inaccurate when pressure dropped below 450 psig; determine level > -68 inches by indicated level rising on the lower wide range instruments.

16

Points: 1.00

47			Deinter 4.00
17		ID: Q #17 R0/SR0	Points: 1.00
	Unit One is operative Shortly afterward	ating at full power when a loss of Bus 18 occurs. ds, a loss of the 250 VDC system occurs.	
	Predict the effect	t on the 901-5 panel reactor water level instrumentation.	
	A. ,	All level instruments will still be available.	
	В.	Only Wide range level instrumentation will be available.	
	C. ,	All Narrow range level instrumentation will be downscale.	
	D	All Medium range level insturmentation will be downscale.	

18			ID: Q #18 RC)/SRO	Points: 1.00
RC An Th res	IC automatic nunciator 901 e Unit One Ni tore pressure	ally started and is -4 F-15 "RCIC T -0 reports that R	s maintaining re URBINE BEAR CIC lube oil pre	actor water level at -40 NG OIL PRESSURE Lessure is 3 psig decreas	inches. DW" is alarming. ing despite efforts to

Oil levels are all normal.

Continued operation of RCIC in this condition will result in reactor water level:

- Α. decreasing due to RCIC trip on overspeed from the governor valve failing open.
- Β. maintaining due to ALL RCIC trips, except overspeed, being bypassed on an autostart.
- C. decreasing due to RCIC low oil pressure trip.
- D. maintaining due to the RCIC emergency oil pump auto starting.

19		ID: Q #19 RO/SRO	Points: 1.00
	A Group II isolat bypassed to allo	ion will occur if the Unit One Drywell reaches w opening the 2" vent valve to SBGTS by a keylock switch 	_, and this may be n on the
	Α.	1.55 psig; 901-5 panel	
	В.	1.55 psig; 912-1 panel	
	C.	2.5 psig; 901-5 panel	
	D.	2.5 psig; 912-1 panel	

20	ID: Q #20 RO/SRO	Points: 1.00
Torus sprays are	e being tested on Unit One when a recirc system leak re	sults in a Rx Scram and

entry into the QGAs. The ANSO has started Torus Sprays, Torus Cooling and RHR Service Water. The MO-1-1001-16A, RHR Hx Bypass Valve is fully closed. The NSO also notes that the maximum RHR service water flow with the MO-1-1001-5A, RHR Hx SW Disch Valve, full open is 2500 gpm at a discharge pressure of 275 psig.

What action(s) should be taken per QCOP 1000-04, RHRSW System Operation?

- A. Cross connect the "A" and "B" RHR Service Water loops.
- B. Secure Torus sprays.
- C. Start a 2nd RHR Service Water Pump.
- D. Stop the RHR Service Water pump and reverse heat exchanger flow.

21		ID: Q #21 RO/SRO	Points: 1.00
	A transient occ The Inboard M Drywell pneum The ANSO pla (NOTE: During pneumatics.)	cured on Unit 1 resulting in a reactor scram and a Group 2 is SIVs are closed. atic receiver pressure is 75 psig. ces the Target Rock Relief Valve Control Switch to "MANU/ the exam, clarification was given that Nitrogen makeup wa	solation. AL" is for drywell Relief Valve operation?
	 Drywell pneu Drywell pneu Relief Valve Nitrogen Ma 	umatic compressors umatic receiver accumulator keup System	
	Α.	1, 2, and 3 ONLY	
	В.	2 and 4 ONLY	

- C. 2, 3, and 4 ONLY
- D. 3 and 4 ONLY

1	
	22
	22

ID: Q #22 RO/SRO

Points: 1.00

Unit 2 has experienced a Group 1 isolation and reactor scram.

The ANSO reports that ALL relief valve indicating lights on the 902-3 panel are EXTINGUISHED.

Without operator action, Reactor pressure will increase until a...

- A. relief valve opens at 1115 psig.
- B. relief valve opens at 1135 psig.
- C. safety valve opens at 1240 psig.
- D. safety valve opens at 1250 psig.

23		ID: Q #23 RO/SRO	Points: 1.00
	Unit 2 is operatin An operating RF	ng at rated conditions. P trips.	
	Which of the foll	owing describes the plant response with no operator actio	n?
	A.	The recirc pumps will runback to 70% immediately.	
	В.	The recirc pumps will runback to minimum immediately.	
	C.	When reactor water level reaches 26 inches within 45 sec will runback to 70%.	conds, the recirc pumps
	D.	When reactor water level reaches 26 inches within 45 sec will runback to minimum.	conds, the recirc pumps

24	ID: Q #24 RO/SRO	Points: 1.00

Given the following conditions:

- 1/2B SBGT SELECT switch is in PRIM

- 1/2A SBGT SELECT switch is in STBY
- SBGT has received an initiation signal.

Which of the following conditions would result in 1/2A SBGT train flow increasing?

- The SBGT failed to maintain Reactor Building to Outside DP more negative than A. -0.25 inches.
- Β. The inlet to B SBGT Train (1/2-7505B) fails to open.
- C. A loss of Instrument Air to the flow control damper has occurred.
- A failure of the heater for the 1/2B SBGT to start. D.

2002 NRC RO Exam

25		ID: Q #25 RO/SRO	Points: 1.00
	If the Unit Two I	ESS UPS fails an operator would verify that the ESS ASCO	O ABT has switched to
	Α.	MCC 25-2	
	В.	Bus 27	
	C.	Bus 28	
	D.	MCC 28-2	
26		ID: Q #26 RO/SRO	Points: 1.00
	Following a loss 24 TO BUS 24- Diesel and Bus	of offsite power, Bus 24-1 is being carried by the EDG. P 1 breaker while synchronizing Bus 24 to Bus 24-1, the ope meet the requirements for synchronization.	Prior to closing the Bus erator is to verify that the
	(NOTE: During	the exam, clarification was given that Bus 24 had been ree	energized.)
		and the second	

This is done by verifying the synchroscope is:

- rotating slowly in the fast direction with the synchroscope approaching the 11 Α. o'clock position.
- Β. rotating slowly in the slow direction with the synchroscope approaching the 12 o'clock position.
- rotating slowly in the fast direction with the synchroscope approaching the 12 C. o'clock position.
- rotating slowly in the slow direction with the synchroscope approaching the 1 D. o'clock position.

27		ID: Q #27 RO/SRO Points: 1.00
	How is the amo	unt of fuel regulated to the cylinders for the diesel when it is at speed?
	Α.	The fuel injectors are set at a predetermined value which will maintain the amount of fuel constant therefore maintaining speed constant.
	В.	As speed changes on the diesel the governor changes the speed of the fuel pump to send the proper amount of fuel.
	C.	The governor positions the fuel racks which controls the amount of fuel injected into the cylinders which controls the speed of the diesel as load is added or removed.
	D.	The load limit control automatically controls the fuel rack position which controls the amount of fuel injected into the cylinders which controls the speed of the engine.
28		ID: Q #28 RO/SRO Points: 1.00
	An automatic ac occurred.	ctuation of the Halon Fire Protection System for the New Computer Room has
	Which of the fol	lowing describes the operational implications?
	Both air condition	oning units trip closing the intake damper, the room exhaust damper:
	А.	closes and the process computer is susceptible to errors in data processing and calculations at 80 degrees F.

- B. closes and the process computer will automatically trip.
- C. remains open and the process computer is susceptible to errors in data processing and calculations at 80 degrees F.
- D. remains open and the process computer will automatically trip.

29 **ID: Q #29 RO/SRO** Points: 1.00 Both units are operating at full power with the plant in a normal configuration. On a complete loss of instrument air, the emergency isolation dampers will fail ______ and the fan dampers will fail (NOTE: During the exam, clarification was given that the question referred to Reactor Building Ventilation.) Α. **OPEN; CLOSED** Β. OPEN; OPEN C. CLOSED; CLOSED D. CLOSED; OPEN

 30
 ID: Q #30 RO/SRO
 Points: 1.00

 A storm front is approaching causing atmospheric pressure to drop. How will this be indicated in the Control Room and what is the expected system response?
 Reactor Building Delta-P will _____ and Rx Building Exhaust Fan Vortex dampers will _____ further.

- A. become more negative; close
- B. become less negative; close
- C. become less negative; open
- D. become more negative; open

31 ID: Q #31 RO/SRO Points: 1.00 Both units are operating at full power. The Unit one HPCI exhaust line develops a leak at the Torus penetration. (Outside the Torus, in the Torus Room) (NOTE: During the exam, clarification was given that HPCI was NOT running.) If no operator action is taken Rx building basement Torus area water levels: will NOT be affected and local Oxygen Concentration will NOT be affected. Α. Β. will increase, but local Oxygen Concentration will NOT be affected. C. will increase and local Oxygen Concentration will be affected. D. will NOT be affected, but local Oxygen Concentration will be affected. 32 ID: Q #32 RO/SRO Points: 1.00

During a loss of Service Water, which ONE of the following systems can supply cooling water to the CR HVAC "B" AHU air conditioning unit?

- A. Reactor Building Closed Cooling Water (RBCCW)
- B. Residual Heat Removal Service Water (RHRSW)
- C. Turbine Building Closed Cooling Water (TBCCW)
- D. Circulating Water (CW)

2002 NRC RO Exam

33		ID: Q #33 RO/SRO	Points: 1.00
	Which of the foll	owing would require immediate suspension of core alteration	ons?
	Α.	The "B" control room ventilation air handling unit trips.	
	В.	An inadvertent reactor building ventilation isolation.	
	C.	Shutdown cooling is declared inoperative.	
	D.	The "B" fuel pool cooling pump trips.	
24			Dointo: 1.00
34	Dort of the over		Points. 1.00
	Part of the overa	all ECCS design bases is to:	

- A. prevent fuel cladding melting for any mechanical failure of the primary system up to and including a break area equivalent to the largest primary system pipe.
- B. provide a barrier which in the event of a loss of coolant accident will control the release of fission products to the secondary containment and limit the release of radioactive materials to the environment.
- C. prevent fuel cladding melting for any mechanical failure of the primary system with at least one source of offsite power.
- D. provide a means of alternate core cooling following a shutdown from 100% rated thermal power when the reactor is isolated from the condenser and shutdown mode of RHR is unavailable.

ID:	Q	#35	RO/S	RO

Points: 1.00

Plant conditions are as follows:

35

- Unit Two is recovering from a scram.
- Preparations are underway to start-up the 2B recirc. pump.
- 2A recirculation pump is running at 32% speed.
- Reactor vessel dome pressure = 980 psig.
- A recirc loop temperature = 540 degrees F.
- B recirc loop temperature = 500 degrees F.
- Bottom head coolant temperature = 390 degrees F.

Which of the following describes the limitations, if any, imposed on starting the 2B recirc pump?

- A. The pump should NOT be started because bottom head coolant temperature is too low.
- B. The pump should NOT be started because the loop differential temperature is too high.
- C. The pump should NOT be started because the 2A recirc pump is running too fast.
- D. The pump can be started immediately.

36		ID: Q #36 RO/SRO	Points: 1	.00
	The illuminated in activated on United in the second secon	red light above the Relief Valve Control Switches indicates the t One and the(2) is activated on Unit Two.	_(1)	is
	Α.	(1) valve position reed switch;(2) valve position reed switch		
	В.	(1) valve solenoid open limit switch; (2) valve solenoid open limit switch		
	C.	(1) valve solenoid open limit switch;(2) valve position reed switch		
	D.	(1) valve position reed switch;(2) valve solenoid open limit switch		

37		ID: Q #37 RO/SRO	Points: 1.00
	Which one of the through SBGT?	e following is a prerequisite to Purging/Deinerting the Prim	ary Containment
	A.	Both the drywell and torus must be sampled within eight d	ays.
	В.	Torus must be vented for four hours.	
	C.	The drywell and torus pressure must be equalized within o	one hour.
	D.	Both divisions of Rx Bldg Vent rad monitoring must be ver four hours.	ified operable within

Why is it NOT permissible to run the Mechanical Vacuum Pump when the reactor mode switch is
in the RUN position?

ID: Q #38 RO/SRO

- A. Because this would bypass the Low Condenser Vacuum scram with the mode switch in RUN.
- B. Because this would provide an unfiltered release pathway to the Main Chimney.
- C. Because the Mechanical Vacuum Pump would trip on high temperature once steam was being dumped to the condenser through the bypass valves.
- D. Because the SJAE's are required to be on when the mode switch is in RUN and they both use the same suction path.

38

Points: 1.00

39		ID: Q #39 RO/SRO	Points: 1.00
	The purpose of	the Pre-Fire Plans is to provide	
	Α.	the fire brigade leader with guidance for fighting a fire in a plant.	specific area of the
	В.	the Shift Manager guidance concerning personnel accour (assembly).	tability during a fire
	C.	direction to the crew for initiating fire actions from the con	trol room.
	D.	identify actions to the Off-Site Fire Department to egress i	nto the protected area.

Which readily available hand held fire extinguisher should be your first choice to extinguish a small electrical fire on the 902-5 panel in the control room?

ID: Q #40 RO/SRO

A. Dry Chemical

40

- B. Pressurized water
- C. Carbon Dioxide
- D. AFFF Foam

Points: 1.00

41		ID: Q #41 RO/SRO	Points: 1.00
	A yellow bordere confirmed torus	ed alarm, 901-3 A-14; Torus Hi/Lo Level, has just annunciated. level is -0.5 inches. The crew should immediately enter:	The NSO has
	1. QGA 200, Pr	imary Containment Control	
	2. The suppress	sion pool water level Technical Specification	
	3. Annunciator	procedure 901-3 A-14	
	A.	# 1 and # 3 only	
	В.	#1, # 2, and # 3	
	C.	# 2 and # 3 only	
	D.	# 3 only	

42	ID: Q #42 RO/SRO	Points: 1.00

Unit 2 has experienced a total loss of annunciators due to a loss of the normal power supply.

The operators should align reserve power supply from:

- A. 250 VDC B bus.
- B. 125 VDC B bus.
- C. the instrument bus.
- D. the essential service bus.

ID: Q #43 RO/SRO

Unit 2 is operating at 100% power on the 95% Flow Control Line when a trip of the 2B Recirc Pump occurs. **RPV** water level will: Α. decrease first and return to normal. Β. decrease to the low level scram setpoint. C. increase first and return to normal. D. increase to the RFP high level trip setpoint. 44 ID: Q #44 RO/SRO Points: 1.00 Unit 2 is operating at 100% power. Condenser backpressure is 3". Main Condenser Flow Reversal is in progress from the Control Room. The NSO notes that Condenser Backpressure is 4.5" and rising .25 inches every five seconds.. All valves are stroking normally. The NSO should: stop the reversing operation and return the valves to their original position. Α.

- B. have the operator stationed at the Local Panel (2252-71) take Local Control and complete the flow reversal.
- C. have the operator stationed at MCC 27-2 attempt to reset the breaker and thermals for any valve that tripped to complete the flow reversal.
- D. dispatch an operator to complete the flow reversal manually.

43

Points: 1.00

 45
 ID: Q #45 RO/SRO
 Points: 1.00

 Unit One was operating at full power with all systems in their normal lineup when both feed breakers to 480 vac MCC's 18-2 and 19-2 simultaneously trip.
 What is the operational impact of failsafe design associated with this loss of AC power?

 A.
 The alternate feed breakers automatically close to restore power to essential loads.

 B.
 A half scram and half Groups II and III Isolations occur due to lost loads.

 C.
 A full reactor scram and full Groups II and III Isolations occur due to lost loads.

 D.
 The alternate feed breakers automatically close maintaining all power and loads.

40		ID. Q #40 KU/3KU	POINTS. 1.00
	Why is the Eme blackout?	rgency Seal Oil Pump required to be tripped within 2 hours	of a Unit One
	А.	To extend the battery capability beyond the analyzed four-	hour design period.
	В.	To ensure that Unit One RCIC remains available for the fo	ur-hour design period.
	C.	There would be no need for the Hydrogen Seal Oil pump s would be no longer rotating after 2 hours.	since the generator

D. The battery sizing calculations assumed that specific loads are shed from the bus during the analyzed four-hour period.

4.0

47		ID: Q #47 RO/SRO P	Points: 1.00
	Unit 2 is operati	ing at 100% power when a reactor scram occurs.	
	Instrument Air is	is the extraction steam non-return check valves in order to	prevent
	Α.	vented off; turbine overspeeding	
	В.	applied to; turbine overspeeding	
	C.	vented off; condenser overpressurization	
	D.	applied to; condenser overpressurization	
40			ainta: 1.00
48		ID: Q #48 RO/SRO P	oints: 1.00
48	Unit 2 is in RUN The scram disc Both scram disc	ID: Q #48 RO/SRO P N. charge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS. charge volumes have increased to 50 gallons.	Points: 1.00
48	Unit 2 is in RUN The scram disc Both scram disc The blue SCRA lights will be	ID: Q #48 RO/SRO P N. charge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS. charge volumes have increased to 50 gallons. AM lights on the full core display will be and the Scram Sole	Points: 1.00
48	Unit 2 is in RUN The scram disc Both scram disc The blue SCRA lights will be A.	ID: Q #48 RO/SRO P N. Charge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS. Charge volumes have increased to 50 gallons. AM lights on the full core display will be and the Scram Sole de-energized; de-energized	Points: 1.00
48	Unit 2 is in RUN The scram disc Both scram disc The blue SCRA lights will be A. B.	ID: Q #48 RO/SRO P N. Charge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS. Charge volumes have increased to 50 gallons. AM lights on the full core display will be and the Scram Sole de-energized; de-energized energized; de-energized	Points: 1.00
48	Unit 2 is in RUN The scram disc Both scram disc The blue SCRA lights will be A. B. C.	ID: Q #48 RO/SRO P N. charge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS. charge volumes have increased to 50 gallons. AM lights on the full core display will be and the Scram Sole de-energized; de-energized energized; de-energized energized; energized	Points: 1.00

49	ID: Q #49 RO/SRO	Points: 1.00
Unit 2 was op Relief valves a Reactor press The "B" relief	erating at 100% power when an inadvertent Group 1 occured. are cycling on their auto setpoints. sure is 1116 psig and rising at a rate of one pound per second. valve closed five seconds ago.	
The "B" relief	valve is expected to automatically open	
Α.	immediately	
В.	in approximately five seconds	
C.	in approximately nine seconds	
D.	in nineteen seconds	

50	ID: Q #50 RO/SRO	Points: 1.00

Which of the following statements correctly describes the operation of the Reactor Recirculation MG sets with RPV level at -59" and RPV pressure 800 PSIG?

- A. LPCI loop select logic causes the drive motor breakers to trip and the ARI system causes the field breakers to trip after a 9-second time delay.
- B. The ARI system causes the field breakers to trip and the drive motor breakers do NOT trip.
- C. PCIS logic causes both drive motor breakers to trip and the ARI system trips the field breakers immediately.
- D. The ARI system causes the drive motor breakers to trip and the field breakers to trip after a 9-second time delay.

51		ID: Q #51 RO/SRO	Points: 1.00
	A reactor startup still inerted. While placing the ALARMS. The NSO takes a from 100 GPM to	is in progress in accordance with QCGP 1-1, Normal Unit e first FRV in service, the REACTOR VESSEL HIGH LEVE action to reduce vessel level to normal by increasing RWCU o 200 GPM.	Startup, the DW is L annunciator J system blowdown
	What consequer	nce could result from the increased RWCU blowdown?	
	А.	Drywell temperature would increase, causing the QGAs to I High Drywell Pressure.	be initially entered on

- Β. RWCU system demins will isolate on high post strainer temperature.
- C. RWCU system demins will isolate on high post strainer DP.
- D. Reactor level will decrease and a Group II isolation will be received.

52 ID: Q #52 RO/SRO Points: 1.00

A LOCA on Unit 2 has caused high Drywell pressure.

Drywell temperature is required to be monitored prior to spraying the Drywell in order to verify Drywell parameters are within the:

- DSIL curve. Α.
- Β. RPV Saturation Temperature curve.
- C. PCPL curve.
- D. PSP curve.

53		ID: Q #53 RO/SRO	Points: 1.00
	Increasing Dryw integ	ell temperature requires starting additional Drywell Coolers rity.	s to prevent jeopardizing
	A.	Reactor Vessel Head	
	В.	Recirc Pump Seal	
	C.	RPV Level Instrument	
	D.	Primary Containment	

ID: Q #54 RO/SRO

Given the following plant conditions:

- RPV level 10 inches

54

- Drywell pressure 3 psig
- RPV pressure 1050 psig
- Drywell temperature 170 °F
- Reactor power 2%

WHICH ONE of the following correctly states the QGA procedures that initially should be entered based on the above information ONLY?

- A. QGA 100 and QGA 200.
- B. QGA 100 and QGA 200-5.
- C. QGA 101 and QGA 200.
- D. QGA 101 and QGA 200-5.

Points: 1.00

55 ID: Q #55 RO/SRO Points: 1.00 Unit 2 had an ADS valve leaking for several days that is still operable. A plant cooldown is in progress on Unit 2, Reactor pressure is currently 700 psig. The RHR system was JUST started in the Torus Cooling Mode and the ANSO reports Torus temperature rapidly rising. The rapid rise in Torus temperature is due to ______. If indicated Torus temperature exceeds _____ degrees F, a Reactor scram is required. initial stratification of water in the Torus; 105 Α. Β. initial stratification of water in the Torus; 110 C. ADS valve leakage impinging directly on the temperature sensors; 105 D. ADS valve leakage impinging directly on the temperature sensors; 110

 56
 ID: Q #56 RO/SRO
 Points: 1.00

An ATWS has occured. Reactor power is 3% and steady. Reactor pressure is 920 psig and being controlled by turbine bypass valves. Reactor water level has been lowered to -145 inches IAW QGA 101, RPV Control (ATWS).

Which one of the following describes the status of core cooling and safety limits?

Adequate core cooling _(1)_ assured and _(2)_ safety limit has been violated.

- A. (1) IS (2) NO
- B. (1) IS NOT (2) A
- C. (1) IS (2) A
- D. (1) IS NOT (2) NO

57		ID: Q #57 RO/SRO	Points: 1.00
	Both Units are o conditions on Ur	perating at full power when Unit 1 experiences a scram from full po nit 1 are as follows:	ower. Plant
	-Half of the contr -Reactor power -Reactor water lo -RPV pressure is -The rods DO No -The running CR -The other CRD	rol rods are still at positions greater than 04. indicates approximately 8%. evel is between +8" and +48" and stable. s less than 1040# and is being controlled with bypass valves. OT move inward when scrammed with reactor pressure. RD pump TRIPS and CANNOT be restarted. pump also TRIPS when it is started and WILL NOT restart.	
	What is the next	action taken to insert control rods?	
	Α.	Open SDV vents to relieve the hydraulic lock.	
	В.	Open CRD crosstie and use opposite unit pump to insert control rc	ods.
	C.	Shut the 1 301-25 CRD Charging Header Isolation and drive Contr	ol Rods.

D. Locally vent the overpiston area of each control rod that IS NOT inserted.

58	ID: Q #58 RO/SRO	Points: 1.00

An uncontrolled fire in the Control Room necessitates evacuation of the Control Room before the safe shutdown equipment can be obtained.

Where can the operators go to acquire the necessary equipment?

To the QCARP locker in the:

- A. Work Execution/Communications Center.
- B. Unit 2 Turbine Building Trackway.
- C. OSC.
- D. Unit 1 Turbine Building Trackway.

59		ID: Q #59 RO/SRO	Points: 1.00
	The reactor has been scrammed from full power and the Mode Switch taken to S/D in respo an instrument air header rupture that has resulted in a loss of Instrument Air on Unit 2.		ten to S/D in response to Air on Unit 2.
	Which one of the following describes how the operation of the MSIVs will be affected by this condition?		be affected by this
	Α.	The inboard MSIVs would remain open; the outboard MS	IVs would close.
	В.	All MSIVs would remain open since the MSIV Instrument automatically open.	Air Crosstie will
	C.	The inboard MSIVs would close when their accumulators outboard MSIVs would remain open.	discharged; the
	D.	All MSIVs would remain open since the drywell pneumation automatically align to supply the MSIVs.	c system will

60	ID: Q #60 RO/SRO	Points: 1.00

Initial conditions are as follows:

-	Uni	t O	ne i	in r	noo	de	4.

- Reactor Water level is 30 inches.
- Shutdown Cooling is in operation.

A spurious High Drywell Pressure signal is received and will NOT reset. Reactor pressure is slowly increasing. Reactor Shell and Flange temperatures are also slowly increasing.

The correct operator action is to:

- Α. open safety relief valves.
- Β. raise reactor water level to between 90 and 100 inches.
- C. monitor running recirc pump parameters.
- secure Reactor Water Clean Up reject flow. D.

ID: 0 #61 RO/SRO

•			
	During a plant st	artup RPV pressure is 900 psig.	
	A sustained loss motion and scra	of CRD flow will have which one of the following immedia m times?	te effects on control rod
	Normal rod moti	on is:	
	A.	lost and scram times will NOT meet acceptable limits.	
	В.	unaffected and scram times will be within acceptable limits	5.
	C.	lost but scram times will be within acceptable limits.	
	D.	unaffected but scram times will NOT meet acceptable limi	ts.

Which of the following indications will positively identify a cri	iticality event in progress while a fuel
the following indications will positively dentity a off	
bundle is being lowered into the core during refueling operation	tions?

ID: Q #62 RO/SRO

- A refuel floor radiation monitor increasing and high alarm sounds. Α.
- Β. Source range monitor nearest the fuel bundle doubles and stabilizes.
- C. Source range monitor nearest the fuel bundle spiking repeatedly.
- D. A sustained increase on the source range monitor nearest the fuel bundle.

61

62

Points: 1 00

Points: 1.00

2002 NRC RO Exam

63		ID: Q #63 RO/SRO	Points: 1.00
	Why is Torus Sp	pray initiated prior to torus pressure reaching 5 psig?	
	Α.	Prevent catastrophic containment failure of the suppresion	ו pool.
	В.	Reduce containment pressure by steam condensation and	d convective cooling.
	C.	Prevent steam from bypassing the suppression pool.	
	D.	Allow the nitrogen flow back into the Drywell.	
64		ID: Q #64 RO/SRO	Points: 1.00
•	The following pla	ant conditions exist;	
	Reactor pressur DW Pressure is CCST level is at	e is 1090 psig. 3.7 psig. 1,200 gallons.	
	Torus level is 14	feet 3 inches.	
	You are required Determine the c these conditions	d to run HPCI in the Pressure Control Mode. orrect suction and discharge path of the pump to establish ?	pressure control under

	Suction	Discharge
A.	CCST;	Test return line

- Β. Torus; Test return line
- C. CCST; Minimum flow line
- D. Minimum flow line Torus;

65		ID: Q #65 RO/SRO	Points: 1.00
A T	LOCA occured orus water tem	d on Unit 2. perature was 87 degrees F and has now increased to the	QGA entry condition.
F	or these condit hanged from	ions, the SPDS indications for the Torus Water Temperati	ure colored bar graph
	A.	green; yellow	
	В.	white; yellow	
	C.	green; red	
	D.	yellow; red	

66	ID: Q #66 RO/SRO	Points: 1.00

QGA 200, PRIMARY CONTAINMENT CONTROL, directs the operator to maintain torus temperature below the Heat Capacity Limit and if you cannot, then reduce reactor pressure to stay inside the Heat Capacity Limit.

Reducing reactor pressure to stay inside the Heat Capacity Limit is to:

- allow the operator to depressurize the reactor to a point where Core Spray and Α. RHR can inject prior to the torus temperature exceeding the low pressure ECCS pump NPSH limit.
- Β. ensure there is adequate margin to the ECCS suction piping design temperature in the event of a full reactor depressurization.
- C. prevent inadequate steam condensation in the event of a full reactor depressurization, resulting in the torus to drywell vacuum breakers opening.
- D. ensure the torus has enough capacity to accept a full reactor depressurization without exceeding the design temperature of the torus.

67 ID: Q #67 RO/SRO Points: 1.00 Unit 1 scrammed due to a large LOCA. A Group One isolation has successfully completed. Drywell Temperature has risen to 350 degrees Fahrenheit. What are the immediate concerns? Α. The ADS valves are no longer reliable. Core flow instrumentation is no longer reliable. Β. C. The Inboard MSIV's are no longer reliable. D. Drywell temperature instrumentation is no longer reliable. 68 ID: Q #68 RO/SRO Points: 1.00 QGA 500-2, "Steam Cooling" specifies actions that use the steam cooling method of heat transfer

QGA 500-2, "Steam Cooling" specifies actions that use the steam cooling method of heat transfer to ______ that the reactor core remains adequately cooled under conditions when _____ source of injection into the RPV is available.

- A. maximize the time; a single
- B. indefinitely ensure; a single
- C. maximize the time; no
- D. indefinitely ensure; no

69		ID: Q #69 RO/SRO	Points: 1.00
	Unit 2 is operatir All systems resp Which of the follo	ng at 100% power and just experienced an invalid FULL G onded as expected. owing is most likely to cause entry into QGA 300?	Group 2 isolation.
	Α.	HPCI Room Area Radiation.	
	B.	Reactor Building Low Differential Pressure.	
	C.	Reactor Building Ventilation Radiation.	
	D.	MSIV Room High Temperature.	
70		ID: Q #70 RO/SRO	Points: 1.00

Both Units Reactor Building Ventilation supply and exhaust fans have tripped and the isolation dampers have automatically closed. NO ECCS systems have initiated on either unit.

This was caused by a 25 GPM leak from the:

- A. Fuel Pool filter demineralizer.
- B. RBCCW pump discharge header.
- C. RWCU filter demineralizer.
- D. Reactor Feed pump casing.

ID: Q #71 RO/SRO

Points: 1.00

An ATWS is in progress on Unit 2 with the following parameters.

- Reactor water level	-30 inches
- Drywell pressure	8 psig

Plans are to inject boron using the RWCU system. Simultaneously, reactor water level is being lowered to control reactor power.

Jumpers must be installed to allow opening RWCU :

- Α. isolation valves when Drywell pressure is 8 psig.
- isolation valves when reactor water level is -30 inches. Β.
- C. filter demineralizer isolation valve when reactor water level is -30 inches.
- filter demineralizer isolation valve when filter demineralizer differential pressure is D. 35 psid.

72

71

ID: Q #72 RO/SRO

Points: 1.00

Alarms 912-1 E-9 and F-9, RAD MON SYS A & B HIGH SCALE are alarming. The Radwaste Effluent CAN be monitored in the 1 The Service Water Effluent CAN be monitored in the

- Α. 1. Radwaste Control Room AND Main Control Room 2. Main Control Room
- 1. Radwaste Control Room AND Main Control Room Β. 2. "B" CR HVAC Room
- C. 1. Radwaste Control Room ONLY 2. "B" CR HVAC Room
- 1. Radwaste Control Room ONLY D.
 - 2. Main Control Room

73		ID: Q #73 RO/SRO	Points: 1.00
	The 1A instrume	ent air compressor is running when the unloader valve fails	s in the OPEN position.
	What effect wou	Id this have on compressor / plant operation and what ope	erator action is required?
	A.	The compressor would NOT develop any discharge press in low system pressure. Start a standby Instrument Air Compressor.	ure possibly resulting
	В.	High system air flow could result in compressor damage. Start a standby Instrument Air Compressor.	
	C.	The compressor would NOT develop any discharge press in low system pressure. Open the manual dryer bypass valve.	ure possibly resulting
	D.	High system air flow could result in compressor damage. Open the manual dryer bypass valve.	

74	ID: Q #74 RO/SRO	Points: 1.00
/4	ID: Q #/4 RO/SRO	Points: 1.0

Unit 1 has experienced a total loss of TBCCW.

The Instrument Air compressors are protected against this failure by a trip on:

- cooling water LOW pressure. Α.
- cooling water HIGH temperature. Β.
- C. high pressure outlet HIGH air temperature.
- cooling water LOW flow. D.

75		ID: Q #75 RO/SRO	Points: 1.00
	QGA 200-5, "H) primary containr	DROGEN CONTROL," primary containment pressure con ment to be vented.	ntrol path, directs the
	The procedure of drywell.	directs the operator to vent via the torus as the preferred m	nethod vice via the
	Venting the prim	nary containment via the torus will:	
	Α.	Allow a more rapid reduction in primary containment press the drywell	sure than venting from
	В.	Reduce the levels of radioactivity released as it passes the torus.	rough the water in the
	C.	Allow better control of the release rate due to the sizing of valves.	the path's piping and
	D.	Minimize chugging due to loss of non-condensibles from t	he drywell atmosphere.
76		ID: Q #76 RO	Points: 1.00

Given the following plant conditions:

- The reactor has just scrammed from 100% power caused by a loss of off-site power and a Loss

of Coolant Accident.

- Both Emergency Diesel Generators started but did NOT close on to their respective busses.
- Reactor pressure is being controlled automatically by relief valves.
- Reactor power is 0%.
- Reactor water level is -49 inches and decreasing at 10 inches per minute.
- RCIC is injecting at 400 gpm.
- HPCI started and then tripped and is unavailable.
- Drywell pressure is 2.0 psig and slowly increasing at 0.5 psi per minute.

Which one of the following actions describes the Automatic Depressurization System (ADS) response, assuming NO operator action is taken?

- A. Will NOT automatically initiate.
- B. Automatically initiates in 60 seconds.
- C. Automatically initiates in 110 seconds.
- D. Automatically initiates in 570 seconds.

2002 NRC RO Exam

77		ID: Q #77 RO	Points: 1.00
	Operation of HP	CI below 2200 rpm should be minimized because:	
	Α.	the introduction of water into the turbine is very likely at lo	w speed.
	В.	the min. flow valve will NOT receive an open signal with th rpm.	ne turbine below 2200
	C.	the pump will be in Run Out flow conditions.	
	D.	it may result in unstable system operation.	
78		ID: Q #78 RO	Points: 1.00
	A LOCA on unit	2 resulted in the following:	

Drywell pressure	8.0 psig and steady
Reactor water level	-120 inches and lowering
Reactor pressure	400 psig and lowering

The "A" Loop of Core Spray is NOT running.

Concerning the "A" Loop of Core Spray, the ANSO should:

- A. place the 1A Core Spray pump in pull to lock.
- B. wait for reactor pressure to drop below 325 psig and verify Core Spray auto initiates and manually open the MO 1-1401-25A valve.
- C. manually start the "A" Core Spray pump immediately and open the MO 1-1401-25A valve when reactor pressure reaches 325 psig.
- D. wait for reactor pressure to drop below 325 psig and verify Core Spray auto initiates and injects.

79 ID: Q #79 RO Points: 1.00 Unit 2 has experienced an ATWS. Reactor power is ~ 20%. The Unit Supervisor has directed SBLC injection into the RPV. 2A SBLC pump is electrically OOS. The NSO has positioned the SBLC initiation switch to the SYS 1 & 2 position. What is the expected response and what should be done per the Hard Card if the expected response does NOT occur? Both squib valves should fire; Α. Place the initiation switch to the SYS 2 position. Β. One squib valve should fire; Place the initiation switch to the SYS 2 & 1 position. C. Both squib valves should fire; Place the initiation switch to the SYS 2 & 1 position. D. One squib valve should fire; Place the initiation switch to the SYS 1 position.

80 ID: Q #80 RO Point

A fire has occurred on Bus 23. The NSO de-energized the bus and dispatched the fire brigade.

The 1/2 EDG did NOT autostart and has NOT been given a manual start signal.

The NSO manually scrammed the reactor but no rod movement resulted. No other operator action has been taken. The US has ordered SBLC injection.

After the NSO positions the keylock switch A AND B SELECT to SYS 1 & 2, the Pump A light will be (1) and the Pump B light will be (2).

- A. (1) ON (2) ON
- B. (1) OFF (2) OFF
- C. (1) ON (2) OFF
- D. (1) OFF (2) ON

2002 NRC RO Exam

81		ID: Q #81 RO	Points: 1.00
	Which statemen locked in place p	t below best describes the reason the drywell grating is re prior to withdrawing the SRM's and IRM's?	moved and the carousel
	A. To keep the drive mechanisms from impinging on the grating/carousel.		ting/carousel.
	В.	An interlock prevents SRM/IRM withdrawal with the gratin	g in place.
	C.	To allow access for maintenance to work on the drives if r	iecessary.
	D.	To prevent access in case the detectors overtravel out.	

82	ID: Q #82 RO	Points: 1.00

Unit 2 is starting up with IRM's on range 4 and IRM 17 bypassed. You receive a half scram on RPS A and the IRM High alarm (902-5 A5) comes in. On the apron section for 902-5 the IRM 13 High and HIGH HIGH lights are lit. The indication on the Recorder and on the drawer around back are pegged high for IRM 13.

Based on this information, you should:

- Α. bypass IRM 13, reset the 1/2 scram and continue the startup.
- Β. discontinue the startup because there are NOT enough IRM inputs.
- C. reset the 1/2 scram and continue the startup.
- D. bypass IRM 13, but leave "A" RPS 1/2 scram inserted.

2002 NRC RO Exam

83		ID: Q #83 RO	Points: 1.00
	Which of the foll flowrates of less	owing is the reason to minimize the time the RCIC system than 400 gpm?	is operating with pump
	Flows less than	400 gpm may:	
	Α.	result in inadequate pump seal cooling water flow causing	pump seal damage.
	В.	cause cycling of the turbine exhaust check valve, possibly exhaust piping.	causing damage to the
	C.	cause high turbine temperatures due to lack of flow for ste components.	eam cooling of turbine
	D.	cause cycling of the minimum flow valve, routing water int	o the torus.
84		ID: Q #84 RO	Points: 1.00
	The plant is ope following alarms	rating at 100% power, steady state conditions, with all sys are received at the 901-3 panel:	tems operable when the
	E-14 ACOUS E-16 VALVE	STIC MON SAFETY-RELIEF VALVES OPEN. LEAK DET SYS TEMP.	

Based on the information available, what should be the operators next response per QCOA 0203-01, FAILURE OF A RELIEF VALVE TO CLOSE OR RESEAT PROPERLY?

- Scram the reactor per QCGP 2-3. Α.
- Cycle the affected valve key switch between MANUAL and AUTO. Β.
- C. Place the affected valve key switch to the OFF position.
- D. Initiate suppression pool cooling.

ID: Q #85 RO Points: 1.00 Given the following plant conditions: Reactor vessel water level has just decreased to -59 inches. -Reactor water level is continuing to decrease. Drywell pressure is 2.2 psig and steady. All systems are assumed to operate as expected. Assuming no operator actions taken, how soon would the Automatic Depressurization System begin to depressurize the reactor? Α. Immediately Β. In 110 seconds C. In 510 seconds D. In 720 seconds

86

85

ID: Q #86 RO

Points: 1.00

Given:

- Rx Power: 100%
- Rx water level: +32" and rising slowly
- Rx Pressure: 815 psig and decreasing
- No operator actions have been taken.

MSIVs should indicate ______ and the Primary Containment O2 Analyzer valves should indicate ______.

- A. closed; open
- B. closed; closed
- C. open; open
- D. open; closed

0	-
ŏ	1
U	

ID: Q #87 RO

Points: 1.00

You have the following plant conditions:

- Drywell pressure	2.0 psia
- Drywell temperature	170 degrees F
- Torus pressure	1.8 psig

- Torus temperature 96 degrees F
- Reactor water level
 - level +30 inches
- Reactor presure 300 psig

The plant has scrammed and QCGP 2-3 is being carried out. The RHR system was in a normal lineup at the beginning of the transient.

The Unit Supervisor orders Torus Cooling started on the "A" RHR Loop.

The RHR Loop "A" RHR SW START PERMISSIVE SWITCH 19 cannot physically be moved to the MANUAL OVERRIDE position.

Containment temperatures will:

- A. increase unless the "B" loop of Torus Cooling is started.
- B. increase unless the "B" RHR SW Pump is started.
- C. decrease unless RPV Water Level reaches -191 inches.
- D. decrease unless RPV Water Level reaches -59 inches.

88	ID: Q #88 RO	Points: 1.00
----	--------------	--------------

The Unit One refueling platform is traveling in the reverse direction over the reactor core with the main hoist loaded.

What will happen if the REFUELING INTERLOCK CHECK pushbutton on the 901-28 panel fails in the depressed position?

- A. Bridge will continue to travel towards the core.
- B. Bridge trolley motion will be prohibited.
- C. Bridge reverse motion will stop.
- D. Bridge will NOT be able to move either forward or reverse.

2002 NRC RO Exam



2002 NRC RO Exam

Q1			Points: 1 00
31			F0111(5. 1.00
	Unit One is oper The "A" SJAE R	ating at 100% power. adiation Monitor fails DOWNSCALE.	
	In addition to the holdup valve?	above, what redundant protection signal is required to at	uto close the offgas
	Α.	None, the offgas holdup valve will close immediately.	
	В.	None, the offgas holdup valve will close in 15 minutes.	
	C.	EITHER a downscale OR upscale signal from "B" SJAE F	Radiation Monitor.
	D	An upscale signal from "B" SJAE Radiation Monitor.	
92		ID: Q #92 RO	Points: 1.00

One of the Unit 2 Refuel Floor Radiation Monitors indicates 150 mr/hr.

What is the expected plant response due to this and what action would be required? (Assume all automatic actions happen.)

A Reactor Building Vent isolation would occur on:

- Α. Unit 2 ONLY. Manually start the 1/2A SBGT Train.
- Β. Both Units. Manually start the 1/2A SBGT Train.
- C. Both Units. Verify Rx Bldg Vents isolated and investigate the cause of the High Radiation.
- D. Unit 2 ONLY. Verify Rx Bldg Vents isolated and investigate the cause of the High Radiation.

2002 NRC RO Exam

93 ID: Q #93 RO Points: 1.00 The ANSO takes 1B Core Spray to pull-to lock as directed by a surveillance procedure. The 1B Core Spray Pump is Operable: Α. ONLY after a satisfatory operational test on 1B Core Spray. since it was placed in pull-to-lock as directed by a procedure. Β. C. as soon as it is taken out of pull-to-lock. D. as long as an operator is IMMEDIATELY available to return the switch to normal if needed.

Who has the specific responsibilities for approving the performance of each step during core alterations in accordance with the Nuclear Component Transfer List?

ID: Q #94 RO

- Α. Nuclear Station Operator
- Β. Nuclear Engineer
- C. Shift Manager
- D. Unit Supervisor

94

Points: 1.00

95		ID: Q #95 RO	Points: 1.00
	The plant has ex Emergency expo Estimated dose Can an individua perform this wor	xperienced a transient. osure limits have been authorized. will be 7 Rem TEDE. al perform work to protect the main turbine from damage? k, what will be their emergency exposure TEDE limit?	If the individual can
	Α.	No, limit is 5 Rem for repair work.	
	В.	Yes, 10 Rem	
	C.	Yes, 25 Rem	
	D.	Yes, 50 Rem	
96		ID: Q #96 RO	Points: 1.00
	Unit 2 was opera power. Reactor power is Further observa RHR pumps as	ating at 100% core thermal power when the NSO reports a s lowering. tion reveals that the indicating lights have been lost for the well as Buses 21, 23, 23-1, 25, and 28.	a loss of annunciator 9 1C & 1D and 2A & 2B

Why is Unit 2 Reactor Power lowering?

- A. The 2A recirc pump breaker is tripped due to loss of control power.
- B. The 2A Recirc Pump is coasting to a stop due to loss of MG Set oil pumps.
- C. The 2B recirc pump breaker is tripped due to loss of control power.
- D. The 2B recirc pump is coasting to a stop due to loss of MG Set oil pumps.

97 ID: Q #97 RO Points: 1.00 Unit 1 has experienced a small line break LOCA. The HPCI system is OUT-OF-SERVICE. A LOSS of normal feedwater occurs. The RCIC system auto initiates and INJECTS into the vessel. RCIC operates for several minutes and then TRIPS. Several minutes later RCIC restarts and injects into the vessel. ASSUMING no operator action, what was the cause of the RCIC turbine trip? Α. High Reactor Water level. Β. Turbine overspeed. C. Low pump suction pressure. D. High turbine exhaust pressure.

98	ID: Q #98 RO	Points: 1.00

The Control Room has been evacuated due to a fire per QCOA 0010-05, CONTROL ROOM EVACUATION.

Operators will be dispatched to monitor Reactor Water level from the:

- A. ATWS level indicators in the Aux Electric Room.
- B. 2201(2) 5 and 2201(2) 6 Instrument Racks AND the ATWS level indicators in the Aux Electric Room.
- C. Analog trip level indicators in the Cable Spreading Room.
- D. 2201(2) 5 and 2201(2) 6 Instrument Racks.

99		ID: Q #99 RO	Points: 1.00
	Reactor Building 1/2 A SBGTS is Reactor Building Differential Pres	Differential Pressure is 0.25" H_2O . operating at 4000 scfm for a monthly surveillance. Ventilation failed such that all supply fans trip causing Resure to increase to 0.75" H_2O .	eactor Building
	Predict the chan	ge in flow through the SBGTS.	
	^	Elevente would deprese and remain at 2600 asfm due to inc	record Depater

- A. Flow would decrease and remain at 3600 scfm due to increased Reactor Building Differential Pressure.
- B. Flow would increase intially then return to 4000 scfm due to action of the Flow Control Valve.
- C. Flow would decrease initially then return to 4000 scfm due to action of the Flow Control Valve.
- D. Flow would increase and remain at 4400 scfm due to the flow restricting orifice.

100		ID: Q #100 RO	Points: 1.00			
	Unit One is The 1B Serv Unit Two ha A fire is in p Low service The Unit Su	operating at full power. vice Water Pump is OOS. s just scrammed. rogress in Bus 24. water pressure alarm has annunciated. pervisor has directed that the 1/2 service water pump be starte	ed.			
	Which of the following describes the correct action to take and the potential consequences fro					
	that action?					
	А.	Start the pump from U-1 power supply, potential for a blackout on U-1				
	В.	Start the pump from U-1 power supply, loss of U-2 emergency diesel generator cooling water sup	ply			
	C.	Start the pump from U-2 power supply, loss of U-1 emergency diesel generator cooling water sup	pply			
	D.	Start the pump from U-2 power supply, potential blackout on U-2				
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14 #15 #16 #17 #18 #19 #20	B A B A D B A C C D C D C D C C C A A A C	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
#21	D	#43 C				

EXAMINATION ANSWER KEY

(Answers associated with the actual exam ONLY) Note: Key is different from Exam with References due to random distribution of question distractors by licensee's exam development program. 2002 NRC RO Exam

В В Α D С А

#44	А	#95
#45	С	#96
#46	D	#97
#47	A	#98
#48	B	#99 #99
#40 #40	C C	#100
#49 #50		#100
#30 #51	A	
#51	A	
#52 #52	A	
#53	D	
#54	A	
#55	В	
#56	С	
#57	В	
#58	Α	
#59	А	
#60	В	
#61	С	
#62	D	
#63	В	
#64	D	
#65	А	
#66	D	
#67	А	
#68	С	
#69	D	
#70	С	
#71	В	
#72	А	
#73	А	
#74	С	
#75	В	
#76	Ā	
#77	D	
#78	Ē	
#79	$\frac{1}{B}$ C answer choice changed	
#80	D	
#81	A	
#82	A	
#83	B	
#84	C C	
#85	C	
#86	Δ	
#80 #87	D	
#87 #88	D C	
#80 #80	B	
#09 #00	D	
π90 #01	D	
#71 #02		
#72 #02	C	
#73 #01	Δ	
#74	<i>n</i>	