

EXAMINATION

2002 NRC SRO Exam

1

ID: Q #1 RO/SRO

Points: 1.00

Reactor power is increased from 20 to 100%.
The CRD Flow Control Valve AO 1(2)-0302-06A is in manual.

In order to maintain CRD cooling water flow constant, the NSO will have to manually _____
the CRD Flow Control Valve (AO 1(2)-0301-06A) which will _____ CRD Drive Water
Differential Pressure.

- A. OPEN; INCREASE
- B. OPEN; DECREASE
- C. CLOSE; INCREASE
- D. CLOSE; DECREASE

2

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Control rod H-10 is withdrawn to position 12.
Control rod F-8 is withdrawn to position 10.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. cyan.
- B. white.
- C. green.
- D. red.

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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Control rods H-1, F-1 and D-2 are fully withdrawn.

How would the RWM respond if B-5 pushbutton was depressed and attempted to be withdrawn?

- A. RWM withdrawal block would prevent rod motion when the control rod reached position 02.
- B. RWM would prevent the rod from being selected.
- C. RWM would allow the rod to be moved until low power setpoint was reached.
- D. RWM select block would prevent rod motion.

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?

- A. 2A Recirculation Motor Generator Set
- B. 2A Condensate/Condensate Booster Pump
- C. 2B Recirculation Motor Generator Set
- D. 2B Condensate/Condensate Booster Pump

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5

ID: Q #5 RO/SRO

Points: 1.00

Unit 1 was operating at full power when a plant casualty occurred.

Unit 1 scrambled as a result of the transient.

The Unit NSO noted that U1 HPCI started automatically while U1 RCIC remained in a standby lineup as expected.

Both Unit 1 and the 1/2 Emergency Diesel Generators (EDGs) started automatically but the Unit 1 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 |
| B. | 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. Essential Service.
- B. Instrument Bus.
- C. 250 VDC.
- D. 125 VDC.

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7

ID: Q #7 RO/SRO

Points: 1.00

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.

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. "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.
- B. "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.
- 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.

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ID: Q #8 RO/SRO

Points: 1.00

If the reactor mode switch is in RUN, which ONE of the following conditions will cause either a half scram or a full scram?

- A. Reactor power is 10% , Main Steam Isolation Valves 1C & 2D are both closed.
- B. Reactor power is 10% , Turbine Stop Valves 3 & 4 are both closed.
- C. Reactor power is 45% , Main Steam Isolation Valves 1A & 1D are both closed.
- D. Reactor power is 45% , Turbine Stop Valves 2 & 3 are both closed.

9

ID: Q #9 RO/SRO

Points: 1.00

A reactor scram occurred 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:

- A. an orange double dash.
- B. an orange 00.
- C. a green double dash.
- D. a green 00.

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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 right now?

- A. The rod is treated just like a withdraw error. Insert and withdrawal blocks are applied to all other rods and a withdrawal block is applied to the selected rod once it reaches a known position.
- B. The RWM system will immediately block all movement of the rod that indicates ?? until a substitute position is entered. No other rods are effected by this event.
- C. The RWM immediately declares the rod OOS and allows the operator to continue with rod movement on the next rod in the sequence.
- D. The RWM will immediately initiate a full core scan and if proper position information is not obtained on the next scan, the RWM will consider itself failed and block all rod movements.

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

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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?

- A. No, RBM 7 is INOP due to less than 50% of it's assigned inputs.
- B. 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.
- D. Yes, RBM 8 is automatically bypassed due to too few inputs.

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 1×10^5 CPS.
- B. 22 goes less than 100 CPS.
- C. 23 is WITHDRAWN from the core.
- D. 24 reaches 5×10^5 CPS.

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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?

- A. SRM 21 "INOP INHIBIT" pushbutton on the 901-36 panel is depressed.
- B. SRM 21 high voltage power supply is low.
- C. SRM 21 is automatically withdrawing from the core.
- D. 24/48 VDC Bus A voltage 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%

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16

ID: Q #16 RO/SRO

Points: 1.00

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.

17

ID: Q #17 RO/SRO

Points: 1.00

Unit One is operating at full power when a loss of Bus 18 occurs. Shortly afterwards, a loss of the 250 VDC system occurs.

Predict the effect on the 901-5 panel reactor water level instrumentation.

- A. Only Wide range level instrumentation will be available.
- B. All level instruments will still be available.
- C. All Medium range level instrumentation will be downscale.
- D. All Narrow range level instrumentation will be downscale.

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18

ID: Q #18 RO/SRO

Points: 1.00

RCIC automatically started and is maintaining reactor water level at -40 inches. Annunciator 901-4 F-15 "RCIC TURBINE BEARING OIL PRESSURE LOW" is alarming. The Unit One NLO reports that RCIC lube oil pressure is 3 psig decreasing despite efforts to restore pressure. Oil levels are all normal.

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

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

19

ID: Q #19 RO/SRO

Points: 1.00

A Group II isolation will occur if the Unit One Drywell reaches _____, and this may be bypassed to allow opening the 2" vent valve to SBGTS by a keylock switch on the _____.

- A. 1.55 psig; 901-5 panel
- B. 1.55 psig; 912-1 panel
- C. 2.5 psig; 901-5 panel
- D. 2.5 psig; 912-1 panel

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20

ID: Q #20 RO/SRO

Points: 1.00

Torus sprays are being tested on Unit One when a recirc system leak results 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 occurred on Unit 1 resulting in a reactor scram and a Group 2 isolation.

The Inboard MSIVs are closed.

Drywell pneumatic receiver pressure is 75 psig.

The ANSO places the Target Rock Relief Valve Control Switch to "MANUAL"

(NOTE: During the exam, clarification was given that Nitrogen makeup was for drywell pneumatics.)

Which of the following supplies will provide motive force for Target Rock Relief Valve operation?

- 1. Drywell pneumatic compressors
 - 2. Drywell pneumatic receiver
 - 3. Relief Valve accumulator
 - 4. Nitrogen Makeup System
- A. 1, 2, and 3 ONLY
 - B. 2 and 4 ONLY
 - C. 2, 3, and 4 ONLY
 - D. 3 and 4 ONLY

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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 operating at rated conditions.
An operating RFP trips.

Which of the following describes the plant response with no operator action?

- A. When reactor water level reaches 26 inches within 45 seconds, the recirc pumps will runback to minimum.
- B. The recirc pumps will runback to 70% immediately.
- C. The recirc pumps will runback to minimum immediately.
- D. When reactor water level reaches 26 inches within 45 seconds, the recirc pumps will runback to 70%.

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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?

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

25

ID: Q #25 RO/SRO

Points: 1.00

If the Unit Two ESS UPS fails an operator would verify that the ESS ASCO ABT has switched to _____.

- A. MCC 25-2
- B. Bus 27
- C. Bus 28
- D. MCC 28-2

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26

ID: Q #26 RO/SRO

Points: 1.00

Following a loss of offsite power, Bus 24-1 is being carried by the EDG. Prior to closing the Bus 24 TO BUS 24-1 breaker while synchronizing Bus 24 to Bus 24-1, the operator is to verify that the Diesel and Bus meet the requirements for synchronization.

(NOTE: During the exam, clarification was given that Bus 24 had been reenergized.)

This is done by verifying the synchroscope is:

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

27

ID: Q #27 RO/SRO

Points: 1.00

How is the amount of fuel regulated to the cylinders for the diesel when it is at speed?

- A. 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.
- B. 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.
- C. As speed changes on the diesel the governor changes the speed of the fuel pump to send the proper amount of fuel.
- D. The fuel injectors are set at a predetermined value which will maintain the amount of fuel constant therefore maintaining speed constant.

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28

ID: Q #28 RO/SRO

Points: 1.00

An automatic actuation of the Halon Fire Protection System for the New Computer Room has occurred.

Which of the following describes the operational implications?

Both air conditioning units trip closing the intake damper, the room exhaust damper:

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

- A. OPEN; CLOSED
- B. OPEN; OPEN
- C. CLOSED; CLOSED
- D. CLOSED; OPEN

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

- A. will increase and local Oxygen Concentration will be affected.
- B. will increase, but local Oxygen Concentration will NOT be affected.
- C. will NOT be affected, but local Oxygen Concentration will be affected.
- D. will NOT be affected and local Oxygen Concentration will NOT be affected.

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

33

ID: Q #33 RO/SRO

Points: 1.00

Which of the following would require immediate suspension of core alterations?

- A. The "B" fuel pool cooling pump trips.
- B. The "B" control room ventilation air handling unit trips.
- C. An inadvertent reactor building ventilation isolation.
- D. Shutdown cooling is declared inoperative.

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34

ID: Q #34 RO/SRO

Points: 1.00

Part of the overall ECCS design bases is to:

- A. prevent fuel cladding melting for any mechanical failure of the primary system with at least one source of offsite power.
- B. 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.
- C. 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.
- D. 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.

35

ID: Q #35 RO/SRO

Points: 1.00

Plant conditions are as follows:

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

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36

ID: Q #36 RO/SRO

Points: 1.00

The illuminated red light above the Relief Valve Control Switches indicates the ____ (1) ____ is activated on Unit One and the ____ (2) ____ is activated on Unit Two.

- A. (1) valve position reed switch;
(2) valve solenoid open limit switch
- B. (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 position reed switch

37

ID: Q #37 RO/SRO

Points: 1.00

Which one of the following is a prerequisite to Purging/Deinerting the Primary Containment through SBT?

- A. Both the drywell and torus must be sampled within eight days.
- B. Both divisions of Rx Bldg Vent rad monitoring must be verified operable within four hours.
- C. Torus must be vented for four hours.
- D. The drywell and torus pressure must be equalized within one hour.

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ID: Q #38 RO/SRO

Points: 1.00

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

- A. Because this would bypass the Low Condenser Vacuum scram with the mode switch in RUN.
- B. Because the SJAE's are required to be on when the mode switch is in RUN and they both use the same suction path.
- 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 this would provide an unfiltered release pathway to the Main Chimney.

39

ID: Q #39 RO/SRO

Points: 1.00

The purpose of the Pre-Fire Plans is to provide _____

- A. the fire brigade leader with guidance for fighting a fire in a specific area of the plant.
- B. the Shift Manager guidance concerning personnel accountability during a fire (assembly).
- C. identify actions to the Off-Site Fire Department to egress into the protected area.
- D. direction to the crew for initiating fire actions from the control room.

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40

ID: Q #40 RO/SRO

Points: 1.00

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?

- A. AFFF Foam
- B. Carbon Dioxide
- C. Pressurized water
- D. Dry Chemical

41

ID: Q #41 RO/SRO

Points: 1.00

A yellow bordered alarm, 901-3 A-14; Torus Hi/Lo Level, has just annunciated. The NSO has confirmed torus level is -0.5 inches. The crew should immediately enter:

1. QGA 200, Primary Containment Control
2. The suppression pool water level Technical Specification
3. Annunciator procedure 901-3 A-14

- A. # 1 and # 3 only
- B. #1, # 2, and # 3
- C. # 2 and # 3 only
- D. # 3 only

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

43

ID: Q #43 RO/SRO

Points: 1.00

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:

- A. increase to the RFP high level trip setpoint.
- B. decrease to the low level scram setpoint.
- C. increase first and return to normal.
- D. decrease first and return to normal.

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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:

- A. stop the reversing operation and return the valves to their original position.
- B. dispatch an operator to complete the flow reversal manually.
- 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. have the operator stationed at the Local Panel (2252-71) take Local Control and complete the flow reversal.

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. A half scram and half Groups II and III Isolations occur due to lost loads.
- B. The alternate feed breakers automatically close to restore power to essential 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.

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46

ID: Q #46 RO/SRO

Points: 1.00

Why is the Emergency Seal Oil Pump required to be tripped within 2 hours of a Unit One blackout?

- A. There would be no need for the Hydrogen Seal Oil pump since the generator would be no longer rotating after 2 hours.
- B. To extend the battery capability beyond the analyzed four-hour design period.
- C. The battery sizing calculations assumed that specific loads are shed from the bus during the analyzed four-hour period.
- D. To ensure that Unit One RCIC remains available for the four-hour design period.

47

ID: Q #47 RO/SRO

Points: 1.00

Unit 2 is operating at 100% power when a reactor scram occurs.

Instrument Air is _____ the extraction steam non-return check valves in order to prevent _____.

- A. vented off; condenser overpressurization
- B. applied to; condenser overpressurization
- C. applied to; turbine overspeeding
- D. vented off; turbine overspeeding

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48

ID: Q #48 RO/SRO

Points: 1.00

Unit 2 is in RUN.

The scram discharge volume DISCH VOL HI WTR BYP keylock switch is in BYPASS.

Both scram discharge volumes have increased to 50 gallons.

The blue SCRAM lights on the full core display will be _____ and the Scram Solenoid Group lights will be _____.

- A. de-energized; energized
- B. energized; energized
- C. de-energized; de-energized
- D. energized; de-energized

49

ID: Q #49 RO/SRO

Points: 1.00

Unit 2 was operating at 100% power when an inadvertent Group 1 occurred.

Relief valves are cycling on their auto setpoints.

Reactor pressure is 1116 psig and rising at a rate of one pound per second.

The "B" relief valve closed five seconds ago.

The "B" relief valve is expected to automatically open _____.

- A. immediately
- B. in approximately five seconds
- C. in approximately nine seconds
- D. in nineteen seconds

EXAMINATION

2002 NRC SRO Exam

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

51

ID: Q #51 RO/SRO

Points: 1.00

A reactor startup is in progress in accordance with QCGP 1-1, Normal Unit Startup, the DW is still inerted.
While placing the first FRV in service, the REACTOR VESSEL HIGH LEVEL annunciator ALARMS.
The NSO takes action to reduce vessel level to normal by increasing RWCU system blowdown from 100 GPM to 200 GPM.

What consequence could result from the increased RWCU blowdown?

- A. RWCU system demins will isolate on high post strainer temperature.
- B. Drywell temperature would increase, causing the QGAs to be initially entered on High Drywell Pressure.
- C. Reactor level will decrease and a Group II isolation will be received.
- D. RWCU system demins will isolate on high post strainer DP.

EXAMINATION

2002 NRC SRO Exam

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:

- A. RPV Saturation Temperature curve.
- B. DSIL curve.
- C. PSP curve.
- D. PCPL curve.

53

ID: Q #53 RO/SRO

Points: 1.00

Increasing Drywell temperature requires starting additional Drywell Coolers to prevent jeopardizing _____ integrity.

- A. Reactor Vessel Head
- B. Recirc Pump Seal
- C. Primary Containment
- D. RPV Level Instrument

EXAMINATION

2002 NRC SRO Exam

54

ID: Q #54 RO/SRO

Points: 1.00

Given the following plant conditions:

- RPV level 10 inches
- 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.

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.

- A. initial stratification of water in the Torus; 105
- B. 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

EXAMINATION

2002 NRC SRO Exam

56

ID: Q #56 RO/SRO

Points: 1.00

An ATWS has occurred. 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 NOT
(2) NO
- B. (1) IS
(2) NO
- C. (1) IS NOT
(2) A
- D. (1) IS
(2) A

57

ID: Q #57 RO/SRO

Points: 1.00

Both Units are operating at full power when Unit 1 experiences a scram from full power. Plant conditions on Unit 1 are as follows:

- Half of the control rods are still at positions greater than 04.
- Reactor power indicates approximately 8%.
- Reactor water level is between +8" and +48" and stable.
- RPV pressure is less than 1040# and is being controlled with bypass valves.
- The rods DO NOT move inward when scrammed with reactor pressure.
- The running CRD pump TRIPS and CANNOT be restarted.
- The other CRD pump also TRIPS when it is started and WILL NOT restart.

What is the next action taken to insert control rods?

- A. Open SDV vents to relieve the hydraulic lock.
- B. Shut the 1 301-25 CRD Charging Header Isolation and drive Control Rods.
- C. Locally vent the overpiston area of each control rod that IS NOT inserted.
- D. Open CRD crosstie and use opposite unit pump to insert control rods.

EXAMINATION

2002 NRC SRO Exam

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

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 response to an instrument air header rupture that has resulted in a loss of Instrument Air on Unit 2.

Which one of the following describes how the operation of the MSIVs will be affected by this condition?

- A. All MSIVs would remain open since the MSIV Instrument Air Crosstie will automatically open.
- B. All MSIVs would remain open since the drywell pneumatic system will automatically align to supply the MSIVs.
- C. The inboard MSIVs would close when their accumulators discharged; the outboard MSIVs would remain open.
- D. The inboard MSIVs would remain open; the outboard MSIVs would close.

EXAMINATION

2002 NRC SRO Exam

60

ID: Q #60 RO/SRO

Points: 1.00

Initial conditions are as follows:

- Unit One in mode 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:

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

61

ID: Q #61 RO/SRO

Points: 1.00

During a plant startup RPV pressure is 900 psig.

A sustained loss of CRD flow will have which one of the following immediate effects on control rod motion and scram times?

Normal rod motion is:

- A. unaffected and scram times will be within acceptable limits.
- B. unaffected but scram times will NOT meet acceptable limits.
- C. lost but scram times will be within acceptable limits.
- D. lost and scram times will NOT meet acceptable limits.

EXAMINATION

2002 NRC SRO Exam

62

ID: Q #62 RO/SRO

Points: 1.00

Which of the following indications will positively identify a criticality event in progress while a fuel bundle is being lowered into the core during refueling operations?

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

63

ID: Q #63 RO/SRO

Points: 1.00

Why is Torus Spray initiated prior to torus pressure reaching 5 psig?

- A. Reduce containment pressure by steam condensation and convective cooling.
- B. Prevent steam from bypassing the suppression pool.
- C. Prevent catastrophic containment failure of the suppression pool.
- D. Allow the nitrogen flow back into the Drywell.

EXAMINATION

2002 NRC SRO Exam

64

ID: Q #64 RO/SRO

Points: 1.00

The following plant conditions exist;

Reactor pressure is 1090 psig.

DW Pressure is 3.7 psig.

CCST level is at 1,200 gallons.

Torus level is 14 feet 3 inches.

You are required to run HPCI in the Pressure Control Mode.

Determine the correct suction and discharge path of the pump to establish pressure control under these conditions?

- | | Suction | Discharge |
|----|---------|-------------------|
| A. | Torus; | Minimum flow line |
| B. | Torus; | Test return line |
| C. | CCST; | Test return line |
| D. | CCST; | Minimum flow line |

65

ID: Q #65 RO/SRO

Points: 1.00

A LOCA occurred on Unit 2.

Torus water temperature was 87 degrees F and has now increased to the QGA entry condition.

For these conditions, the SPDS indications for the Torus Water Temperature colored bar graph changed from _____ to _____.

- A. white; yellow
- B. green; yellow
- C. green; red
- D. yellow; red

EXAMINATION

2002 NRC SRO Exam

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:

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

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?

- A. Drywell temperature instrumentation is no longer reliable.
- B. The Inboard MSIV's are no longer reliable.
- C. Core flow instrumentation is no longer reliable.
- D. The ADS valves are no longer reliable.

EXAMINATION

2002 NRC SRO Exam

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 to _____ that the reactor core remains adequately cooled under conditions when _____ source of injection into the RPV is available.

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

69

ID: Q #69 RO/SRO

Points: 1.00

Unit 2 is operating at 100% power and just experienced an invalid FULL Group 2 isolation. All systems responded as expected.

Which of the following is most likely to cause entry into QGA 300?

- A. Reactor Building Ventilation Radiation.
- B. HPCI Room Area Radiation.
- C. MSIV Room High Temperature.
- D. Reactor Building Low Differential Pressure.

EXAMINATION

2002 NRC SRO Exam

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. RWCU filter demineralizer.
- C. Reactor Feed pump casing.
- D. RBCCW pump discharge header.

71

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 :

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

EXAMINATION

2002 NRC SRO Exam

72

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 ___2___:

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

73

ID: Q #73 RO/SRO

Points: 1.00

The 1A instrument air compressor is running when the unloader valve fails in the OPEN position.

What effect would this have on compressor / plant operation and what operator action is required?

- A.
 - High system air flow could result in compressor damage.
 - Open the manual dryer bypass valve.
- B.
 - The compressor would NOT develop any discharge pressure possibly resulting in low system pressure.
 - Open the manual dryer bypass valve.
- C.
 - High system air flow could result in compressor damage.
 - Start a standby Instrument Air Compressor.
- D.
 - The compressor would NOT develop any discharge pressure possibly resulting in low system pressure.
 - Start a standby Instrument Air Compressor.

EXAMINATION

2002 NRC SRO Exam

74

ID: Q #74 RO/SRO

Points: 1.00

Unit 1 has experienced a total loss of TBCCW.

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

- A. cooling water LOW flow.
- B. cooling water HIGH temperature.
- C. cooling water LOW pressure.
- D. high pressure outlet HIGH air temperature.

75

ID: Q #75 RO/SRO

Points: 1.00

QGA 200-5, "HYDROGEN CONTROL," primary containment pressure control path, directs the primary containment to be vented.

The procedure directs the operator to vent via the torus as the preferred method vice via the drywell.

Venting the primary containment via the torus will:

- A. Allow a more rapid reduction in primary containment pressure than venting from the drywell
- B. Minimize chugging due to loss of non-condensibles from the drywell atmosphere.
- C. Allow better control of the release rate due to the sizing of the path's piping and valves.
- D. Reduce the levels of radioactivity released as it passes through the water in the torus.

EXAMINATION

2002 NRC SRO Exam

76

ID: Q #76 SRO

Points: 1.00

While performing a manual TIP trace on Unit 2, an area radiation alarm of 500 mr/hr on ARM # 8 first floor reactor building and a report of steam near the TIP room are received.

The operator performing the TIP trace states that the detector was placed into REVERSE. After some time, the operator reports the IN-SHIELD light EXTINGUISHED, the VALVE OPEN light LIT, and the detector position as shown on the display window NOT changing.

The Unit Supervisor shall:

- A. issue the Ball Valve Override key and direct the ball valve closed.
- B. issue the Shear Valve key and direct the shear valve fired.
- C. directs the TIP console Speed Control Switch taken to the FAST position.
- D. direct the TIP console Ball Valve Control Switch taken to the CLOSED position.

77

ID: Q #77 SRO

Points: 1.00

Which of the following conditions MEETS the requirement for primary containment integrity IAW Tech Specs and what is the bases?

(Assume the plant is operating at 50% power)

- A. Drywell average air temperature is 148 degrees F.
This prevents exceeding Drywell design temperature during an accident.
- B. Drywell average air temperature is 148 degrees F.
This prevents exceeding heat capacity limit during an accident.
- C. Drywell pressure is 1.53 psig.
This prevents exceeding Drywell design pressure during an accident.
- D. Drywell pressure is 1.53 psig.
This prevents exceeding pressure suppression pressure during an accident.

EXAMINATION

2002 NRC SRO Exam

78

ID: Q #78 SRO

Points: 1.00

Unit 2 is operating at 100% power.

Instrument Maintenance reports one of the pressure switches for the MSIV low pressure isolation setpoint has drifted to 828 psig.

What is the required action and why?

Restore to within tolerance within __ (1) __ hours or place the affected channel in trip to prevent: __ (2) __.

- A. (1) 12
(2) exceeding the fuel cladding integrity safety limit.
- B. (1) 12
(2) offsite doses from exceeding 10 CFR 100 limits.
- C. (1) 24
(2) exceeding the fuel cladding integrity safety limit.
- D. (1) 24
(2) offsite doses from exceeding 10 CFR 100 limits.

79

ID: Q #79 SRO

Points: 1.00

Unit 2 is operating at 30% power.

Which of the following conditions on Unit 2 require entry into the Tech Spec for RFP/Main Turbine high level trip and why is this required?

RFP/Main Turbine High level trip setpoint is:

- A. 47 inches to prevent exceeding 1% plastic strain on the cladding.
- B. 47 inches to prevent exceeding peak cladding temperature on a LOCA.
- C. 52 inches to prevent exceeding 1% plastic strain on the cladding.
- D. 52 inches to prevent exceeding peak cladding temperature on a LOCA.

EXAMINATION

2002 NRC SRO Exam

80

ID: Q #80 SRO

Points: 1.00

While operating in Mode One with the Bus 13-1 to Bus 23-1 cross-tie out of service, which of the following explains why Tech Specs requirements are met?

- A. T-21 can supply Bus 13-1.
- B. T-21 can supply Bus 14-1.
- C. T-22 can supply Bus 13-1.
- D. T-22 can supply Bus 14-1.

81

ID: Q #81 SRO

Points: 1.00

Both units are refueling with no testing in progress.
The Rx Building Vents and Control Room HVAC systems isolate due to an actual signal.

This event:

- A. is NOT reportable because isolations are NOT required to be operable.
- B. MUST be reported within 8 hours.
- C. is NOT reportable because all isolations are completed.
- D. MUST be reported within 4 hours.

EXAMINATION

2002 NRC SRO Exam

82

ID: Q #82 SRO

Points: 1.00

Unit 2 has the following conditions:

- Rx Water temperature is 190 degrees F.
- RPV Water level is 90 inches.
- The Mode switch is in SHUTDOWN.

An inadvertent Group 2 isolation occurs that cannot be reset. Rx Water temperature rises to 220 degrees F before being turned.

How did plant conditions change and what procedure should be entered?

- A. The plant went from Mode 3 to Mode 4;
QCOA 1000-02, LOSS OF SHUTDOWN COOLING should be entered.
- B. The plant went from Mode 3 to Mode 4;
QCOA 1600-02, LOSS OF PRIMARY AND/OR SECONDARY CONTAINMENT should be entered.
- C. The plant went from Mode 4 to Mode 3;
QCOA 1000-02, LOSS OF SHUTDOWN COOLING should be entered.
- D. The plant went from Mode 4 to Mode 3;
QCOA 1600-02, LOSS OF PRIMARY AND/OR SECONDARY CONTAINMENT should be entered.

EXAMINATION

2002 NRC SRO Exam

83

ID: Q #83 SRO

Points: 1.00

Given the following post LOCA conditions:

- Drywell temperature 260°F
- Reactor Building temperature 198°F
- Reactor pressure 100 psig

The following reactor water levels are noted at the same time:

- Lower Wide Range -60 inches
- Fuel Zone -70 inches
- Medium Range -50 inches
- Upper Wide Range -30 inches

Which of the above level indicators CANNOT be used in these plant conditions?

- A. Medium Range and Upper Wide Range
- B. Lower Wide Range and Fuel Zone
- C. Lower Wide Range ONLY
- D. Medium Range ONLY

84

ID: Q #84 SRO

Points: 1.00

Which one of the following would qualify as a "Temporary Configuration Change" as defined in CC-AA-112, "Temporary Configuration Changes"?

- A. An electrical lead is lifted in accordance with a surveillance procedure.
- B. A hose is installed to drain a heat exchanger under a clearance order.
- C. A Service Air hose drop is being used for maintenance on a RFP.
- D. A circuit card is pulled to disable an annunciator.

EXAMINATION

2002 NRC SRO Exam

85

ID: Q #85 SRO

Points: 1.00

The Fuel Handler Grapple Operator is about to remove the last fuel bundle in a core quadrant. The NSO informs you that the count rate for the adjacent SRM is zero.

Which of the following statements is correct for this condition?

- A. Proceed with removing the last bundle, operability requirements for SRMs do NOT apply in this case.
- B. Fuel movements MUST cease until Instrument Maintenance troubleshoots the SRM in question.
- C. Fuel movements MUST cease until the SRM reads greater than 3 cpm.
- D. Proceed with removing the last bundle, it is too far from the SRM to be detected.

86

ID: Q #86 SRO

Points: 1.00

During a refueling outage, with LPRM detector replacement in progress; an LPRM detector is discovered in a trash barrel in the Reactor Building by a contractor.

RP determined that the contractor received:

- 4 Rem Whole Body
- 16 Rem to the eyes
- 25 Rem shallow dose to his right hand

What is (are) the required notification(s)?

1. A report specifying the exposure issued to the contractor.
 2. Notify the NRC Operations Center via the ENS immediately, but no later than 1 hour.
 3. Notify the NRC Operations Center within 24 hours.
 4. Submit a written report to the NRC within 30 days.
- A. 1 ONLY
 - B. 1 and 3 ONLY
 - C. 1, 2 and 4 ONLY
 - D. 1, 3 and 4 ONLY

EXAMINATION

2002 NRC SRO Exam

87

ID: Q #87 SRO

Points: 1.00

A transfer of Unit 2 clean-up phase separator sludge to radwaste is scheduled for your shift

In order to guard against personnel exposure during the transfer:

- A. Unit 2 RWCU system must be secured and isolated.
- B. access to Unit 2 reactor building first floor must be restricted.
- C. access to Unit 2 reactor building second floor must be restricted.
- D. both Unit 2 RWCU pumps must be in operation with both filter demins at maximum flow.

88

ID: Q #88 SRO

Points: 1.00

You are the Unit 2 Supervisor during an ATWS.

ALL RPS scram signals have been bypassed by jumper installation, the scram reset, and the eight scram solenoid group indicating lights are lit.

You have indication on the full core display that the scram valves are still open.

In order to completely close the scram valves and drain the scram discharge volume, you would direct an NSO to:

- A. the Auxiliary Electric Room to de-energize ARI in accordance with QCOP 0300-28, ALTERNATE CONTROL ROD INSERTION.
- B. inside the Control Room panels to de-energize the scram solenoids in accordance with QCGP 2-3, REACTOR SCRAM.
- C. the Auxiliary Electric Room to de-energize the scram solenoids in accordance with QCGP 2-3, REACTOR SCRAM.
- D. inside the Control Room panels to de-energize ARI in accordance with QCOP 0300-28, ALTERNATE CONTROL ROD INSERTION.

EXAMINATION

2002 NRC SRO Exam

89

ID: Q #89 SRO

Points: 1.00

IAW OP-AA-106-101, SIGNIFICANT EVENT REPORTING, which of the following situations would require notification of the Work Week Manager and the Duty Engineering Manager?

- A. Failure of SPDS.
- B. T-12 trips with the Unit - 1 Emergency Diesel Generator OOS.
- C. S.R. 3.8.1.1 NOT completed within one hour.
- D. An inadvertant 1/2 scram is received.

90

ID: Q #90 SRO

Points: 1.00

Both units are operating at Full power.

On 12-13-02 at 1200, the Unit 1 125 VDC Battery average specific gravity of all connected cells is determined to be 1.1.

Which of the following describes the required action to be taken?

- A. Declare the Unit One 125 VDC Battery INOP and place the alternate 125 VDC Battery in service within 72 hours.
- B. Declare the Unit One 125 VDC Battery INOP and place the alternate 125 VDC Battery in service within 7 days.
- C. Place the Unit One 125 VDC Battery charger on equalize and restore the Unit One 125 VDC Battery to operation within 72 hours.
- D. Place the Unit One 125 VDC Battery charger on equalize and restore the Unit One 125 VDC Battery to operation within 7 days.

EXAMINATION

2002 NRC SRO Exam

91

ID: Q #91 SRO

Points: 1.00

Drywell pressure is 3.0 psig.

Reactor pressure is 950 psig.

Reactor water level is 24 inches lowering at 1 inch per minute with all available systems operating.

RWCU recirculation and blowdown modes are being used to control reactor pressure.

RWCU blowdown rate is 100 gpm.

What direction should the Unit Supervisor provide to the panel operators?

- A. Secure RWCU recirculation mode and install jumpers to maintain RWCU blowdown mode.
- B. Install jumpers to maintain RWCU recirculation AND blowdown modes.
- C. Secure RWCU blowdown mode and install jumpers to maintain RWCU recirculation mode.
- D. Secure RWCU blowdown and recirculation modes.

92

ID: Q #92 SRO

Points: 1.00

Which of the following set of conditions would result in the Reactor Building torus Vacuum Breakers opening when Drywell Sprays were initiated?

	Drywell Pressure	Drywell Temperature
--	------------------	---------------------

- | | | |
|----|--------|---------------|
| A. | 6 psig | 200 degrees F |
| B. | 6 psig | 300 degrees F |
| C. | 8 psig | 200 degrees F |
| D. | 8 psig | 300 degrees F |

EXAMINATION

2002 NRC SRO Exam

93

ID: Q #93 SRO

Points: 1.00

Which of the following combinations of equipment will satisfy Tech Spec definition of two operable RHR Shutdown Cooling subsystems WITHOUT reliance on either RHR or RHRSW Cross-tie Valve. (Assume closed and inoperable).

	RHR Pumps	RHR/RHRSW Heat Exchanger	RHRSW Pumps
A.	A & B	A	A & B
B.	A & C	A	A & C
C.	B & C	B	B & C
D.	B & D	B	B & D

94

ID: Q #94 SRO

Points: 1.00

The reactor was operating at 100% power when a leak occurred in the Drywell.
The reactor was manually scrammed at 2.0 psig.
All rods fully inserted.

Current plant conditions include the following:

- RPV pressure is 920 psig and lowering slowly.
- RPV level is 0" and rising slowly.
- Drywell pressure is 5 psig and rising.
- Drywell temperature is 225 degrees F and rising.
- Torus pressure is 16 psig and rising.
- Torus level is 13 feet.
- Torus sprays are operating.
- Drywell sprays have NOT been attempted.

WHICH of the following actions is required to be performed next per the QGAs?

- A. Spray the Drywell.
- B. Perform an RPV Blowdown.
- C. Vent the Primary Containment.
- D. Continue spraying the Torus.

EXAMINATION

2002 NRC SRO Exam

95

ID: Q #95 SRO

Points: 1.00

The following post LOCA conditions are present:

- All Rods in.
- The only operable ECCS pump is 1B Core Spray.
- Reactor pressure is 275 psig and slowly lowering.
- Reactor level is being maintained at -150 inches by:
 - 2 Condensate/Condensate Booster pumps with a combined flow of 0.5 MLBM/hr.
 - 1B Core Spray pump with a flow of 4600 GPM.
- Hotwell level is being maintained by Standby Coolant injection.
- All Torus water level indication has failed, however LI1-1640-21 "Primary Containment Water Level indicates 16.75 feet and rising.

What is the next required action and why?

- A. Secure all operating injection pumps because adequate core cooling is assured.
- B. Initiate SBLC to raise reactor water level above the top of active fuel.
- C. Secure the condensate pumps because adequate core cooling is assured.
- D. Start both remaining condensate pumps to raise reactor water level above the top of active fuel.

96

ID: Q #96 SRO

Points: 1.00

Torus level is lowering as indicated on the narrow range torus level indication.

Which of the following list the HIGHEST Torus level during operation in Mode 1 which would require entering a Tech Spec LCO and why?

- A. -1" due to excessive suppression pool TEMPERATURE during a DBA LOCA.
- B. -1" due to excessive suppression pool SWELL LOADS during a DBA LOCA.
- C. -3" due to excessive suppression pool TEMPERATURE during a DBA LOCA.
- D. -3" due to excessive suppression pool SWELL LOADS during a DBA LOCA.

EXAMINATION

2002 NRC SRO Exam

97

ID: Q #97 SRO

Points: 1.00

Torus level was normal when a large unisolable leak developed on the bottom of the Torus

Which of the following describes the expected change in Drywell to Torus delta-P and the validity of the safety analysis?

Drywell to Torus Delta-P will increase until Torus level reaches (1) and then equalize.

Safety analysis assumptions are valid until Torus level reaches (2).

- | | (1) | (2) |
|----|-----|-------|
| A. | 5' | 11' |
| B. | 5' | 14'1" |
| C. | 11' | 11' |
| D. | 11' | 14'1" |

98

ID: Q #98 SRO

Points: 1.00

Field teams have been dispatched due to a Radioactivity Release.

The field teams are located as follows:

Field Team #1 is at the Cribhouse.

Field Team #2 is 15 feet East of Highway 84 and Site Access Road intersection.

Field Team #3 is at the Meteorological Tower.

Field Team #4 is at the Hydrogen Farm.

Which of the following describes which Field Team(s) is (are) OFF-SITE for the purposes of Emergency Classification?

- A. Field Team #2 ONLY.
- B. Field Teams #2 & #3.
- C. Field Teams #2 & #4.
- D. Field Teams #3 & #4.

EXAMINATION

2002 NRC SRO Exam

99

ID: Q #99 SRO

Points: 1.00

According to Tech Specs Bases, fuel handling is restricted with low fuel pool levels because during a refueling accident _____ could not be assumed.

- A. net positive suction head for fuel pool cooling pumps
- B. adequate cooling of irradiated fuel bundles seated in the spent fuel pool
- C. adequate cooling of irradiated fuel bundles seated in the reactor vessel
- D. absorbtion of water soluable fission product gasses

100

ID: Q #100 SRO

Points: 1.00

In order for the Fire Diesels to be considered operable, (1) Diesel Engine must be capable of auto starting and driving its associated fire pump.

(2) Diesel Driven Fire Pump(s) must be operable in order to consider the Fire Protection Water Supply System operable.

(1) (2)

- A. One; One
- B. One; Each
- C. Each; One
- D. Each; Each

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](#)

#1	A	#52	B
#2	C	#53	C
#3	D	#54	A
#4	A	#55	B
#5	B	#56	D
#6	A	#57	D
#7	A	#58	C
#8	A	#59	D
#9	C	#60	B
#10	A	#61	C
#11	C	#62	B
#12	C	#63	A
#13	D	#64	A
#14	B	#65	B
#15	C	#66	C
#16	C	#67	D
#17	B	#68	A
#18	B	#69	C
#19	C	#70	B
#20	D	#71	B
#21	D	#72	A
#22	B	#73	D
#23	D	#74	D
#24	D	#75	D
#25	D	#76	B
#26	B	#77	A
#27	B	#78	C
#28	B	#79	C
#29	D	#80	D
#30	D	#81	B
#31	D	#82	C
#32	D	#83	A
#33	B	#84	D
#34	D	#85	A
#35	C	#86	D
#36	C	#87	C
#37	A	#88	A
#38	D	#89	B
#39	A	#90	A
#40	B	#91	C
#41	D	#92	B
#42	A	#93	A
#43	C	#94	B
#44	A	#95	C
#45	C	#96	C
#46	C	#97	D
#47	D	#98	B
#48	D	#99	D
#49	C	#100	C
#50	B		
#51	B		