

MNGP 2003 RO NRC Exam

Question No. 1

The plant was operating at 100% power when a transient occurred. The following CRD Hydraulic System parameters now exist:

- Charging water pressure is 1200 psig.
- Drive water pressure is ~ 0 psid.
- Cooling water pressure is ~ 0 psid.
- Flow controller demand is 0 gpm.

Which of the following is the cause of the indications above?

- a. A reactor scram has occurred.
- b. The in-service CRD flow control valve has failed open.
- c. The operating CRD pump discharge valve has been throttled closed too far.
- d. A rupture has occurred between the CRD pump and FE-3-203 (CRD Hydraulic Flow Element).

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Question No. 2

Which of the following states the correct sequence of rod movement indicating lights when the ROD MOVEMENT CONTROL switch on the C-05 Panel is placed in the ROD OUT NOTCH position?

- a. Rod Out - Rod In - Rod Settle
- b. Rod Settle - Rod Out - Rod In
- c. Rod In - Rod Settle - Rod Out
- d. Rod In - Rod Out - Rod Settle

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Question No. 3

Given the following:

- The plant experienced a transient.
- C.4-F, RAPID POWER REDUCTION, was entered.
- Recirc flow was reduced to minimum.
- Control rods were being inserted using the Rapid Power Reduction mode of the RWM.
- An expected rod block then occurred.
- The plant has since stabilized.

Which of the following actions should be taken to allow insertion of control rods for continued shutdown?

- a. A manual reactor scram will need to be inserted because a control rod block is being enforced and will not be able to be cleared.
- b. Press the CONFIRM SHUTDOWN softkey and then the LIST RODS softkey to change the latched group indication to show only those rods that have not been fully inserted.
- c. Press the SEQUENCE ALIGNMENT softkey and then the ACCEPT softkey to switch the latched group indication from rapid power reduction to sequence alignment mode.
- d. Place the Keylock Mode Switch to the BYPASS position to remove the latched group indication from the RWM and allow control rod insertion to continue via the roller tape.

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Question No. 4

Given the following plant conditions:

- Plant startup is in progress.
- Recirc pumps are running at minimum speed.
- RPV water level is 35 inches and steady.
- No. 11 RFP is injecting 1 Mlbm/hr feedwater to the RPV.
- Feedwater Low Flow Control Valve is in AUTO.
- Turbine-Generator startup has just been completed.

Which of the following describes the expected plant response to adjusting the Recirc Flow Controller from minimum recirc pump speed to 100% demand?

- a. Recirc pump speed will increase to 30% and then stop due to a speed limit being active.
- b. RECIRC LOOP LOW FLOW annunciators will alarm on the C-04 Panel when pump speed increases to 30%.
- c. Recirc pump speed will continually increase to 100% without stopping as long as the Main FW Reg Valve is placed in service.
- d. Both recirc pump scoop tubes are locked out until feedwater flow increases above 20% therefore speed will not change.

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Question No. 5

An accident has occurred and the following sequence of events has resulted:

- Time 0 Accident begins
- Time +3 seconds PCIS Groups I, II & III isolations
- Time +15 seconds No. 12 RHR Pump auto starts
- Time +20 seconds No. 14 RHR Pump auto starts
- Time +25 seconds No. 12 Core Spray Pump auto starts
- Time +60 seconds All 4 Drywell cooling fans are manually started

NONE of the Div I ECCS pumps are running.

Which of the following sets of conditions would have caused the above sequence of events?

1. Drywell pressure is 5 psig
 2. RPV level is minus 90 (-90) inches
 3. No. 15 Bus lockout
 4. Div I 125 VDC power failure
 5. Loss of all off-site power
-
- a. 2 and 5
 - b. 1 and 4
 - c. 2, 4 and 5
 - d. 2, 3 and 5

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Question No. 6

PCV-2459, B CS LINE PCV, located across from the SBLC system has failed closed.

Which of the following indications would be expected for this failure and what action should be taken?

RHR pressure on PI-10-115A (RHR DIV I HX DISCHARGE PRESSURE) and PI-10-115B (RHR DIV II HX DISCHARGE PRESSURE) would be...

- a. ≥ 40 psig. Bypass the PCV and place the RHRSW system in service.
- b. ≥ 40 psig. Start one RHR pump and ensure a work order is written.
- c. < 40 psig. Start one RHR pump and ensure a work order is written.
- d. < 40 psig. Bypass the PCV and place the RHRSW system in service.

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Question No. 7

As a Control Room operator, you are in the process of placing shutdown cooling in service.

Which of the following is correct when the RHR pump is given a start signal?

- | | <u>Establish flow within...</u> | <u>Basis</u> |
|----|---------------------------------|--|
| a. | 10 seconds. | To prevent heat exchanger tube damage. |
| b. | 10 seconds. | To prevent pump damage. |
| c. | 15 seconds. | To prevent heat exchanger tube damage. |
| d. | 15 seconds. | To prevent pump damage. |

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Question No. 8

A normal Reactor shutdown is in progress. 'A' loop of RHR is being placed in the SHUTDOWN COOLING mode of operation. The system is lined up to the point of opening MO-2029, RHR S/D COOLING SUCTION INDB ISOL. MO-2029 is opened and you notice that Reactor water level drops 2 inches and stabilizes.

Which of the following is a possible explanation for this indication?

- a. SDC piping has not been properly filled and vented.
- b. PC-18, FPCC RETURN FROM RHR HX, has been opened.
- c. RHR-81, RHR SDC SUCTION PRESSURE EQUALIZING CHECK VALVE, is leaking.
- d. 'B' loop of RHR is in Torus cooling and MO-1987, RHR DIV 2 TORUS SUCTION, is open.

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Question No. 9

The plant was operating at 100% power when an auto initiation signal for HPCI was received. As HPCI turbine speed reached 1500 rpm the following indications were observed:

- HPCI Aux Oil Pump red light turns OFF and green light is LIT.
- A few seconds later, annunciator 3-B-9, HPCI TURBINE BRG OIL LO PRESS, alarms.

Which of the following HPCI indications is correct for the current status of operation?

- a. CV-2065, MIN FLOW VALVE, green light is ON.
- b. HO-7, TURBINE STOP VALVE, green light is ON.
- c. AO-23-18, TESTABLE CHECK VALVE, red light is ON.
- d. MO-2036, TURBINE STEAM SUPPLY VALVE, green light is ON.

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Question No. 10

Which of the following describes the minimum flow protection for the Core Spray pumps?

- a. There is no minimum flow protection other than operator action.
- b. Protection is a restricting orifice that always allows up to 300 gpm of flow.
- c. Valves automatically open after 10 seconds if a minimum of 600 gpm is not sensed.
- d. With the pump handswitch in AUTO and the breaker closed, the min flow valve opens if flow is ≤ 300 gpm.

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Question No. 11

Given the following conditions:

- Reactor power is 100%.
- RPS Bus 'B' is on the alternate power supply.
- ACB-52-908 (109/102 Load Center X-tie) is closed.

A loss of Bus 13 then occurs.

Which of the following is correct?

	<u>RPS Bus 'A' scram lights</u>	<u>RPS Bus 'B' scram lights</u>
a.	ON	ON
b.	OFF	ON
c.	ON	OFF
d.	OFF	OFF

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Question No. 12

A TIP trace was in progress when a Group II isolation occurred.

Which of the following describes the expected indications on the TIP Valve Control Monitor?

- a. BALL VALVE OPEN red lamp is lit.
- b. SQUIB MONITOR amber lamp is lit.
- c. BALL VALVE CLOSED green lamp is lit.
- d. SHEAR VALVE MONITOR amber lamp is lit.

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Question No. 13

The plant is operating at 100% power when one of the electrical protection assemblies for the No. 12 RPS MG set inadvertently trips open.

Which of the following states the expected plant response?

- a. Reactor power indication on APRMs 1,2,and 3 will be lost.
- b. Rod Block Monitor Channel 8 will automatically be bypassed.
- c. A half-scam will occur due to loss of power to IRMs 15, 16, 17 & 18.
- d. Reactor will scram due to the failure of the Scram Discharge Volume level switches.

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Question No. 14

A center control rod is being withdrawn from the core during a Reactor startup. The following indications are received immediately after control rod withdrawal begins.

- Annunciators in alarm:
 - 5-A-51, RBM HI/INOP
 - 5-A-3, ROD WITHDRAW BLOCK
 - 5-A-14, APRM HI FLUX
- ROD OUT PERMIT indicating light on C-05 goes OUT.

Which of the following is the correct action to take?

- a. Initiate a Reactor Scram.
- b. Notify the nuclear engineer.
- c. De-select and re-select the rod and verify that the alarms clear.
- d. Push the NULL INITIATION button on the RBM to reset the alarms.

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Question No. 15

A Reactor startup is in progress. The following conditions are present.

- The Reactor Mode Switch is in STARTUP-TO-HOT-STANDBY.
- All IRMs are reading 45 to 50 on range 9.

Before the Reactor mode switch is placed in the RUN position, the following indications associated with IRM Channel No. 12 occur:

- 5-A-21, IRM A HI-HI/INOP
- 5-A-3, ROD WITHDRAW BLOCK
- 5-B-4, REACTOR AUTO SCRAM CHANNEL A
- 5-A-5, IRM DOWNSCALE

Which of the following would be a proper operator response?

- a. Place the range selector switch for IRM Channel No. 12 to range 8.
- b. Bypass IRM Channel No. 12 with the joystick on panel C-05.
- c. Place the range selector switch for IRM Channel No. 12 to range 10.
- d. Bypass all of the alarms by placing the Reactor mode switch in RUN.

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Question No. 16

The following plant conditions exist:

- A refuel outage is in progress.
- RPS shorting links are removed.
- A full core offload has just been completed.
- SRM Channel No. 21 loses its 24 VDC power supply.

Which of the following predicts the response of the Reactor Protection System?

- a. A half scram will occur from a SRM INOP trip signal.
- b. No effect since there is no longer any fuel in the core.
- c. A rod block will occur due to the SRM failing downscale.
- d. A SRM Channel No. 21 INOP trip will result in a full reactor scram.

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Question No. 17

Which of the following states when the SRM detectors should be withdrawn while performing a Reactor startup?

- a. After the Reactor is declared critical.
- b. When the count rate exceeds 10^5 cps.
- c. When the count rate exceeds 10^2 cps.
- d. To maintain a count rate of 10^2 to 10^5 cps.

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Question No. 18

During power operations annunciator 5-A-37, LPRM HI, alarms momentarily and then resets.

How can the operator determine which LPRM caused the alarm after the annunciator resets?

- a. Cannot be determined due to the condition clearing.
- b. Use the LPRM alarm indications on the 4-rod display.
- c. Use the LPRM alarm indications on the full core display.
- d. Use the LPRM indications on Panel C-37, Neutron Monitoring System Cabinet.

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Question No. 19

LPRM 3D-28-37, which inputs to APRM Channel No. 5, has failed. When the LPRM was bypassed the following annunciators were received:

- 5-A-30, APRM HI-HI/INOP CH 4, 5, 6
- 5-A-3, ROD WITHDRAWAL BLOCK
- 5-B-3, REACTOR NEUTRON MONITOR SCRAM TRIP
- 5-B-5, REACTOR AUTO SCRAM CHANNEL B

Which of the following is the cause of the alarms being received?

- a. LPRM 3D-28-37 was the sixth LPRM bypassed for APRM Channel No. 5.
- b. Bypassing LPRM 3D-28-37 resulted in 50% of the LPRM inputs for APRM Channel No. 5 in bypass.
- c. LPRM 3D-28-37 was the sixth LPRM bypassed at fission detector level 'D' for APRM Channel No. 5.
- d. Bypassing LPRM 3D-28-37 resulted in 50% of the LPRM inputs for APRM Channel No. 5 being bypassed for fission detector level 'D'.

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Question No. 20

Given the following plant conditions:

- A break exists in the 'A' side reactor vessel reference leg.
- A loss of feedwater transient has occurred.
- HPCI is operating in the level control mode.
- RPV water level is steady at 25 inches.
- RPV pressure is steady at 950 psig.

Which of the following will result in a loss of HPCI injection?

- a. Break in the variable leg feeding the Safeguards level instruments.
- b. Supply breaker for the Auxiliary Oil Pump (AOP) trips open on overcurrent.
- c. Break in the 'B' side reactor vessel reference leg, which provides the ATWS Recirc pump trip.
- d. Condensate Storage Tank level drops to 3 feet 8 inches during two-tank operation without shifting to the Torus.

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Question No. 21

Reactor cool down is in progress with the following conditions:

- Reactor coolant temperature is 433°F.
- Drywell Temperature is 115°F.
- Cool down rate is 70°F/hr.
- Reactor Water Level is 32 inches.
- Reactor pressure is 400 psig.

LI-2-3-85A, Safeguards RPV Level, on C-05 suddenly rises to 44 inches. 30 minutes later, LI-2-3-85A returns to 35 inches.

Which of the following is correct for the above indications?

This is an indication of ____ (1) ____ in the reference leg. This condition can be mitigated by ____ (2) ____ the reference leg.

- | | (1) | (2) |
|----|-------------|---------|
| a. | boiling | cooling |
| b. | gas bubbles | filling |
| c. | boiling | filling |
| d. | gas bubbles | cooling |

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Question No. 22

RCIC was in operation for testing when a transient occurred.

Which of the following indications show that RCIC has tripped to prevent damage to the TURBINE?

- a. The GROUP V ISOLATION RESET light on the C-04 Panel is lit.
- b. Annunciator 3-B-56, HIGH AREA TEMP STEAM LEAK, is in alarm.
- c. MO-2078, RCIC TURBINE STEAM SUPPLY, green indicating light is lit.
- d. The MECHANICAL OVERSPEED TRIP light on the C-04 Panel is NOT lit.

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Question No. 23

Torus cooling is in service with No. 11 RHR and RHRSW Pumps and No. 12 RHR and RHRSW Pumps operating. A PCIS Group I isolation then occurs resulting in the following conditions:

- Drywell pressure is 3 psig.
- Torus water temperature is 115°F and rising.
- RPV level dropped to minus 35 (-35) inches and is now rising.
- RPV pressure is cycling due to low-low-set actuation.

Which of the following describes the status of Torus cooling operation?

- a. All of the Torus cooling isolation valves have closed from the low RPV water level signal.
- b. Torus cooling is no longer in operation because of an interlock with the LPCI automatic initiation signal.
- c. Torus cooling is still in operation because the Torus cooling isolation valves do not go closed until the LPCI injection valves open at less than or equal to 460 psig.
- d. Torus cooling is still in operation because the RHR CTMT SPRAY/COOLING LPCI INIT BYPASS switches were placed in BYPASS when Torus cooling was started.

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Question No. 24

Operators are placing Div I RHR in Torus Cooling for a scheduled RCIC surveillance.

Which of the following describes the expected system response if DPIC-10-130A, CV-1728 RHR HX SW OUTLET, is positioned to AUTO prior to pump start?

CV-1728 will go full (1) on initial RHRSW Pump start due to the high differential pressure sensed, (2).

- | (1) | (2) |
|-----------|--|
| a. open | causing pump runout flow. |
| b. closed | causing pump runout flow. |
| c. open | resulting in the pump being dead headed. |
| d. closed | resulting in the pump being dead headed. |

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Question No. 25

The primary containment is being inerted following plant startup from a refueling outage. PCV-3281, NITROGEN PURGE PRESSURE CONTROL VALVE, fails open.

Which of the following describes the response of the plant to this event?

- a. PCV-3281 will automatically isolate when 2 psig is sensed in the primary containment.
- b. A backup pressure control valve will assume pressure control if Nitrogen pressure reaches 1.75 psig.
- c. When 2 psig is sensed in the primary containment the Torus and Drywell Air Purge isolation valves will close.
- d. The backup pressure control valve will automatically isolate if TS-3276C, CNTNMNT N2 PURGE LOW TEMP ISOLATION, senses 40°F.

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Question No. 26

The plant was operating at 100% power when the following indications were received:

- Annunciator 3-A-9, AUTO BLOWDOWN RELIEF VLV LEAKING, is in alarm.
- TR-2-166, TEMP RECORDER FOR SAFETY/RELIEF VALVE LEAKGE, shows tailpipe temperature for RV-2-71E at the alarm setpoint.
- RV-2-71E amber and red indicating lights are NOT lit and green indicating light is lit.

Which of the following describes the impact of this condition on the plant and what action(s) should be taken to correct it?

- a. The leaking SRV will cause high, localized suppression pool temperatures therefore Torus cooling should be placed in service.
- b. The stuck open SRV will cause high, localized suppression pool temperatures therefore Torus cooling should be placed in service.
- c. With SRV tailpipe temperature at 190°F, a spurious SRV lift could occur therefore a reactor scram should be inserted to minimize the heat addition to the Torus.
- d. With SRV tailpipe temperature at 190°F, a spurious SRV lift could occur therefore a normal reactor shutdown should be started to minimize the heat addition to the Torus.

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Question No. 27

The plant was operating at 100% power when a transient resulted in the following:

- PCIS Groups I, II, and III isolation signals were generated 4 minutes ago.
- All containment isolation valves have reached their required positions except MO-2399, RWCU RETURN ISOL, which is in intermediate position.

Which of the following describes the indication on SPDS for the above conditions?

- a. The "GP 1 VLV CLSD" indicator has a thick red border.
- b. The "GP 1 VLV CLSD" indicator has a thin green border.
- c. The "GP 2 – 5 ISLN CMD" indicator has a thick yellow border.
- d. The "GP 2 – 5 ISLN CMD" indicator has a thick yellow blinking border.

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Question No. 28

What design feature of the Reactor Water Cleanup System is used to ensure that a single failure of the flow element sensing line will NOT prevent a Group 3 Isolation signal on high system flow?

- a. A downscale trip on two of the four RWCU flow transmitters will initiate a Group 3 Isolation signal.
- b. A high Drywell pressure signal at 2 psig provides redundancy to the RWCU high system flow Group 3 Isolation signal.
- c. A negative differential pressure signal will initiate a Group 3 Isolation signal at an indicated flow of minus 200 (-200) gpm.
- d. A single instrument trip will initiate a high system flow Group 3 Isolation signal to ensure conservative automatic action is initiated.

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Question No. 29

Which of the following states the locations that Drywell air temperature can be monitored?

1. SPOTMOS
 2. SPDS
 3. Drywell Atmosphere Cooling System Control Panel, Panel C-25
 4. TR-23-115, HPCI, RHR, FUEL POOL, TORUS, DRYWELL TEMPERATURE, on Panel C-21
-
- a. 1, 2 & 4
 - b. 2, 3 & 4
 - c. 2 & 3 only
 - d. 2 & 4 only

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Question No. 30

The following conditions exist:

- RHR is in Torus Spray mode on 'A' loop.
- Power has been lost to LC-103.

Which of the following is a concern and why?

- a. Primary Containment integrity is being challenged due to loss of power to RHR Aux Air Compressor.
- b. Secondary Containment integrity is being challenged due to loss of power to RHR Aux Air Compressor.
- c. Primary Containment integrity is being challenged because MO-2010, RHR DIV 1 TORUS SPRAY INBD, will not auto close.
- d. Secondary Containment integrity is being challenged because MO-2010, RHR DIV 1 TORUS SPRAY INBD, will not auto close.

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Question No. 31

A control rod is being installed in the core during a refueling outage. The Control Rod Grapple is being used to move the control rod from the fuel pool to the core. As the control rod is being moved over the core the refueling platform air system fails causing a rapidly lowering air pressure.

Which of the following describes the expected results of the above stated failure?

- a. A cross-tie from the Instrument Air System will automatically open to maintain system pressure.
- b. Without air pressure to the Control Rod Grapple, there is no way of releasing the control rod.
- c. Without air pressure the Control Rod Grapple will release the control rod dropping it on top of the core.
- d. The control rod will need to be seated, to remove the weight from the Control Rod Grapple, and then manually unlatched.

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Question No. 32

The following plant conditions exist:

- A reactor scram occurred as a result of a PCIS Group 1 isolation.
- Reactor pressure peaked at 1150 psig during the transient.
- C.5-2007 (FAILURE TO SCRAM) has been entered.
- All relief valves closed when reactor pressure dropped to 970 psig.

Immediately after the relief valves close Panel Y-10 loses power and within 5 seconds Reactor pressure has increased to 1075 psig.

When reactor pressure reached 1075 psig, which of the following describes the expected response of the Reactor Pressure Relief System and why?

- a. Relief valves E, G and H are open due to low-low set logic.
- b. None of the relief valves open because of low-low set logic.
- c. None of the relief valves open due to the loss of power to Panel Y10.
- d. Only relief valves G and H automatically open due to pressure rising to their actuation setpoint.

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Question No. 33

The following conditions exist:

- A reactor scram occurred from a PCIS Group I isolation and control rods failed to insert.
- Reactor power remains at 15%.
- Control rods are being manually driven in with both CRD Pumps operating.
- RPV pressure is being maintained by low-low set.
- You are controlling RPV water level manually at minus 126 (-126) inches to minus 149 (-149) inches using feed and condensate.
- Water level is currently at minus 130 (-130) inches and steady.

Which of the following correctly describes a challenge to maintaining the given RPV water level band?

- a. Low-low set relief valves cycling initially causes RPV water level to drop due to shrink and then rise as the relief valves close.
- b. Relief valves cycling on low-low set initially cause RPV water level to rise due to swell and then drop as the relief valves close.
- c. With both CRD pumps operating more water is being injected into the RPV than is being removed via the relief valves therefore level will continue to rise.
- d. Since the Low Flow Valve cannot handle 15% power, level control would be with one of the Main FWRVs resulting in greater level fluctuations during injection.

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Question No. 34

A plant startup is in progress with the following conditions:

- Reactor pressure is 916 psig.
- MPR setpoint is 920 psig.
- EPR setpoint is 910 psig.
- PRO setpoint is 0%.
- Turbine Generator startup is about to commence.

Which of the following describes how the Turbine Bypass Valves and Control Valves will respond to adjusting the Flow Limit to 0% for testing?

- a. Bypass valves will reposition from a 12% open demand to go fully closed. Control valves will stay in the closed position.
- b. Bypass valves will reposition from a 15% open demand to go fully closed. Control valves will stay in the closed position.
- c. Bypass valves will reposition from a 15% open demand to go fully closed. Control valves will reposition from fully closed to a 15% open demand position.
- d. Bypass valves will reposition from a 12% open demand to go fully closed. Control valves will reposition from fully closed to a 12% open demand position.

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Question No. 35

The plant is operating at 100% power. During restoration of the Reactor Water Clean-Up (RWCU) system following maintenance activities, an inadvertent Group 3 isolation occurs.

The Control Room Operator is in the process of restoring RWCU to service and has OPENED MO-2398, RWCU OUTBOARD ISOLATION. Valves MO-2397, RWCU INBOARD ISOLATION, and MO-2399, RWCU RETURN ISOLATION, are CLOSED. The operator is in the process of verifying that RWCU and Reactor pressures are equalized and receives the following information.

- The Reactor Building Operator reports that RWCU pump suction pressure is 1010 psig.
- Normal Reactor pressure indication is unavailable due to I&C work that was in progress.
- The Lead Control Room Operator reports that the Main Steam Line Pressure Averaging Manifold pressure is 960 psig.

What is the next action the Control Room Operator should take to restore the RWCU system?

- a. RWCU pressure and Reactor pressure are equalized and MO-2399, RWCU RETURN ISOLATION, should be fully OPENED.
- b. RWCU pressure and Reactor pressure are equalized and MO-2397, RWCU INBOARD ISOLATION, should be fully OPENED.
- c. RWCU pressure and Reactor pressure are NOT equalized and MO-2397, RWCU INBOARD ISOLATION, should be throttled OPEN to increase RWCU pressure.
- d. RWCU pressure and Reactor pressure are NOT equalized and MO-2404, RWCU DUMP TO HOTWELL, should be OPENED and CV-2403, DUMP FLOW, throttled OPEN to lower RWCU pressure.

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Question No. 36

Given the following plant conditions:

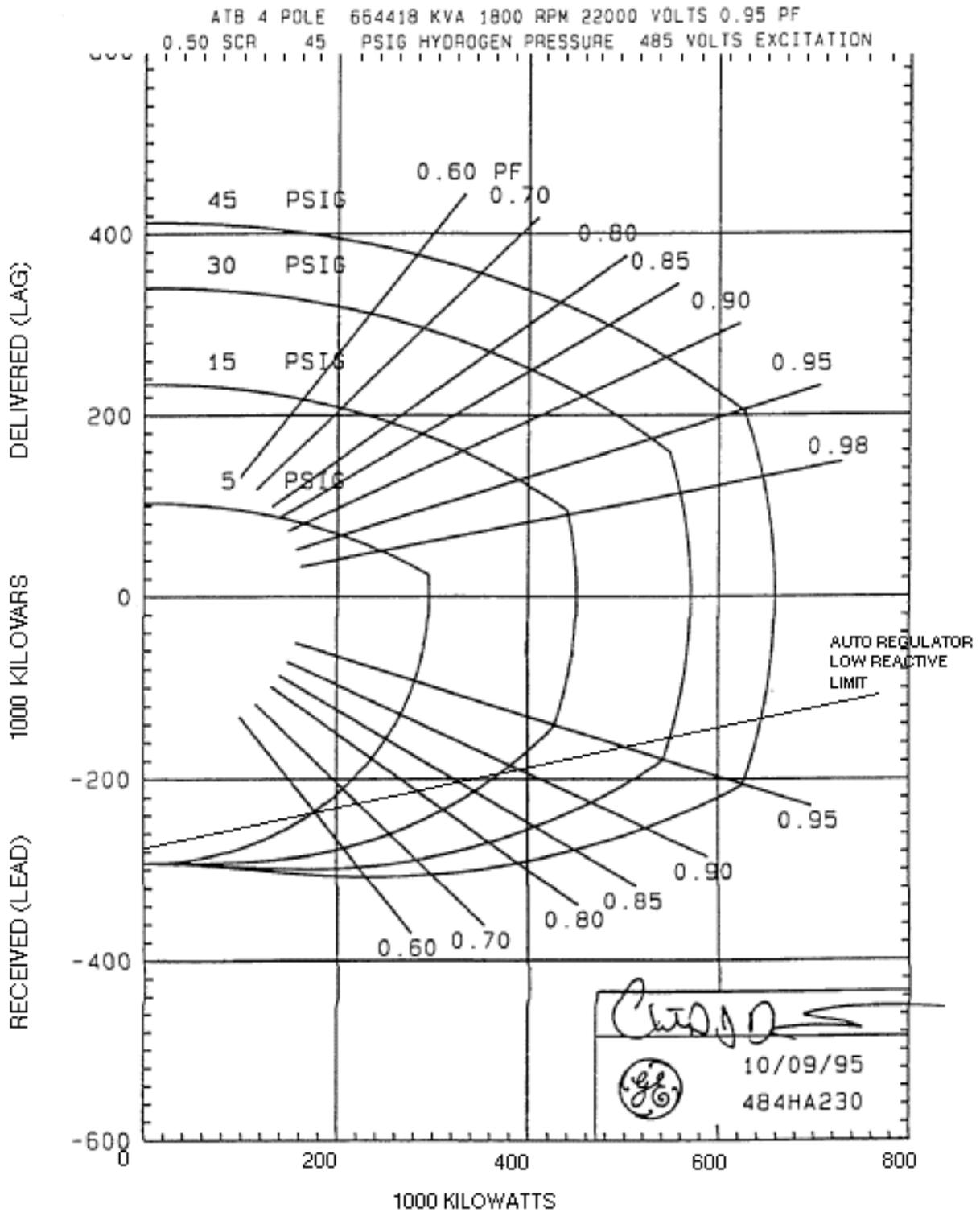
- Main Generator is on-line at 200 MWe.
- MNGP is delivering 40 MVAR to the grid.
- Machine gas pressure is 28 psig.

Which of the following states where the Control Room operator can monitor Main Generator hydrogen gas pressure and using Figure 2, Reactive Capability vs. Megawatt Load – Turbine Generator (on the next page), what is the maximum Reactor power at which the generator can be operated at?

- a. C-07 Panel; 100% power
- b. C-08 Panel; 100% power
- c. C-07 Panel; 90% power
- d. C-08 Panel; 90% power

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Figure 2 Reactive Capability vs. Megawatt Load - Turbine Generator



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Question No. 37

The following plant conditions exist:

- The Reactor is operating at 100% power.
- A break occurs in the air line for CV-3489, 11 RFP RECIRC VALVE.

Which of the following describes the effect of the stated condition on the plant and what procedural action should be taken to correct this condition?

The 11 RFP Recirc valve will fail (1), requiring entry into (2).

- | (1) | (2) |
|-----------|-------------------------------|
| a. Closed | C.4-F, RAPID POWER REDUCTION. |
| b. Closed | C.4-A, REACTOR SCRAM. |
| c. Open | C.4-F, RAPID POWER REDUCTION. |
| d. Open | C.4-A, REACTOR SCRAM. |

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Question No. 38

Given the following initial plant conditions:

- Reactor at 100% power
- Station power on the 2R Transformer

Severe weather around the plant results in a loss of 345 KV Bus 1.

With no operator action, which of the following automatic actions will be expected to restore Reactor water level?

- a. Restart of No. 11 RFP
- b. ADS and LPCI initiation
- c. HPCI and RCIC initiation
- d. Restart of No. 11 and No. 12 RFP

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Question No. 39

Following a Reactor Scram from 100% power, the following annunciators are received.

- 5-B-21, DISCH VOLUME WATER LEVEL SCRAM TRIP
- 5-B-22, SCRAM PILOT HEADER HI/LO PRESS
- 5-B-24, REACTOR WATER LEVEL HI/LOW
- 5-B-40, FW CONTROL VALVE LOCKED

Which of the annunciators listed above is NOT expected and why is it a concern?

- a. 5-B-24, because low water level is a C.5-1100 entry condition.
- b. 5-B-40, because a locked FWR valve may prevent level recovery.
- c. 5-B-22, because low header pressure would prevent rods from inserting.
- d. 5-B-21, because it shows the reactor scram occurred from high SDV water

MNGP 2003 RO NRC Exam

Question No. 40

A Loss of Coolant Accident resulting in significant core damage has occurred. The 'A' train of SBGT has been operating continuously for over 2 weeks filtering and ventilating Primary containment. A loss of off-site power then occurs and the No. 11 EDG fails to start and energize Bus 15.

Assuming no operator action, which of the following is a concern with regards to the SBGT system?

- a. 'A' train may over heat due to the decay heat of the fission products on the filters.
- b. No SBGT trains are running because there is not an auto start signal for 'B' train.
- c. Loss of power to SBGT Aux air compressor would cause the 'B' train valves to fail close.
- d. Loss of both Dilution Air fans would prevent the air from properly discharging up the stack.

MNGP 2003 RO NRC Exam

Question No. 41

A major electrical transient has occurred with the following conditions:

- Electrical system is in a SEBO.
- No. 11 EDG has failed to start.

The Transmission System Operator wishes to restore control power back to the 345 KV system for eventual switchyard restoration.

In accordance with the appropriate procedure, which of the following correctly restores control power to the 345 KV switchyard?

- a. Energize Bus 16 from No. 12 EDG and restore power via X-31/XFMR.
- b. Energize LC-107 from No. 13 EDG and restore power via X-31/XFMR.
- c. Manually restore power to the #6 transformer and restore power via X-41/XFMR.
- d. Manually restore power to the #10 transformer and restore power via X-41/XFMR.

MNGP 2003 RO NRC Exam

Question No. 42

The following conditions exist:

- Plant is operating at full power during the summer.
- LC-101 and LC-102 are cross-tied.
- Annunciator 8-A-8, LOAD CENTER 109 FEEDER TRIP, alarms.

With no operator action, which of the following is correct?

- a. RPS 'A' half scram and partial PCIS Group II isolation will occur.
- b. An entry condition for C.5-1100, RPV CONTROL, will occur due to low RPV water level.
- c. The crosstie between LC-101 and LC-102 will trip and LC-109 will auto transfer to LC-102.
- d. Reactor scram on low condenser vacuum will occur due to a trip of the operating Off Gas recombiner.

MNGP 2003 RO NRC Exam

Question No. 43

Breaker 52-804, LC-108 TO UPS Y91 FEEDER BREAKER, has tripped open on overload.

Which of the following describes the response of UPS Y91 and what action should be taken?

- a. 250 VDC Battery #17 will automatically supply power to UPS Y91; the MANUAL BYPASS BREAKER should be closed.
- b. LC-107 feeder breaker will automatically close to supply power to UPS Y91; the MANUAL BYPASS BREAKER should be closed.
- c. 250 VDC Battery #17 will automatically supply power to UPS Y91; the TRANSFER CONTROL SWITCH should be placed in the MANUAL position.
- d. LC-107 feeder breaker will automatically close to supply power to UPS Y91; the TRANSFER CONTROL SWITCH should be placed in the MANUAL position.

MNGP 2003 RO NRC Exam

Question No. 44

One of the General Precautions of B.08.07-05, Heating and Ventilation, states that V-EF-34 or V-EF-35, BATTERY ROOM EXHAUST FANS, should be operating at all times.

Which of the following describes the basis of this precaution?

- a. Exhaust fan operation ensures Battery Room temperature is maintained above 50°F even during winter months.
- b. Operation of the exhaust fans prevents the buildup of hydrogen gas, which is generated as the batteries are charged.
- c. Operation of the exhaust fans ensures sufficient oxygen is available for battery cell regeneration during charging.
- d. Exhaust fan operation ensures that the Battery Rooms are maintained at a negative 1/4 (-1/4) inch differential pressure as required for secondary containment integrity.

MNGP 2003 RO NRC Exam

Question No. 45

The Control Room operator records the following Drywell Equipment and Floor Drain Sump pumping integrator data:

- Present Reading
 - Drywell Floor Drain Sump integrator reading is 160,235 gallons.
 - Drywell Equipment Drain Sump integrator reading is 247,082 gallons.
 - Present Time is 0645 (9/19/03)
- Previous Reading
 - Drywell Floor Drain Sump integrator reading is 158,885 gallons.
 - Drywell Equipment Drain Sump integrator reading is 245,432 gallons.
 - Previous Time was 0245 (9/19/03)

Which of the following states the correct Reactor Coolant System Unidentified leakage rate?

- a. 2.70 gpm
- b. 4.17 gpm
- c. 5.63 gpm
- d. 6.88 gpm

MNGP 2003 RO NRC Exam

Question No. 46

The Off Gas Recombiner Trains are in operation. Due to a power failure AT-7731A, TRAIN 'A' OUTLET HYDROGEN ANALYZER, becomes inoperable and annunciator 252-A-28, TRAIN A OUTLET H₂ ANALYZER HIGH/INOP, alarms.

Which of the following describes the effect of this trip on the Off Gas System?

- a. Analyzer logic circuit shifts to a one-out-of-two-twice matrix.
- b. The recombiner train's outlet valve will automatically close.
- c. Analyzer logic circuit shifts to a one-out-of-two-once matrix.
- d. The associated Off Gas Compressor will automatically shutdown.

MNGP 2003 RO NRC Exam

Question No. 47

The plant is operating at 100% power. The No. 12 Off Gas Storage Tank has just been filled and was removed from service. Due to an error, the No. 12 Off Gas Storage Tank has been lined-up and is discharging offsite.

Which of the following describes the effect of this malfunction and the interlock that failed to prevent it?

- a. An increased release will occur that should have been prevented by a timed interlock on SV-7642, 12 OFF GAS STORAGE TANK OUTLET VALVE.
- b. An increased release will NOT occur because FCV-7676, OGHU OG TO STACK FLOW CNTRL, will automatically close on high stack effluent radiation.
- c. An increased release will NOT occur because FO-7674, OG DISCHARGE FLOW LIMITING NOZZLE, is sized to prevent the uncontrolled release from the Off Gas Storage System.
- d. An increased release will cause annunciator 259-A-5, STACK EFFLUENT HIGH RADIATION, to alarm which results in SV-7677, COMPRESSED GAS STORAGE TO STACK VALVE, automatically closing.

MNGP 2003 RO NRC Exam

Question No. 48

Which of the following Secondary Containment design features is used for the floor drains in the Standby Gas Treatment Rooms?

The SBTG Floor drains...

- a. contain a water loop seal which is required to be filled periodically.
- b. contain two valves which open automatically when water is sensed.
- c. discharge to the Turbine Building Floor Sump therefore no design feature is needed.
- d. contain two manual valves which have to be opened on the Reactor Side Weekly Checklist procedure.

MNGP 2003 RO NRC Exam

Question No. 49

The plant is in a normal HVAC ventilation lineup with the following fans running:

- V-AC-10A, Reactor Building Supply Fan
- V-EF-24A, Reactor Building Exhaust Fan
- V-AH-4A, Refuel Floor Air Handling Unit
- V-EF-28, Refuel Floor Exhaust Fan

The inlet damper for V-EF-24A fails full closed.

Which of the following describes the effect this condition will have on the Reactor Building pressure and what automatic action should occur?

	<u>Effect</u>	<u>Automatic Action</u>
a.	More negative	V-FU-5, RWCU Pump Room Filter Unit, trips if pressure reaches minus 0.3 (-0.3) inches water column.
b.	More negative	V-AH-4A, Refuel Floor Ventilation Unit, trips if pressure reaches minus 0.3 (-0.3) inches water column.
c.	Become positive	V-FU-5, RWCU Pump Room Filter Unit, trips if pressure reaches 0.3 inches water column.
d.	Become positive	V-AH-4A, Refuel Floor Ventilation Unit, trips if pressure reaches 0.3 inches water column.

MNGP 2003 RO NRC Exam

Question No. 50

Which of the following statements describes how the reactor vessel steam separator works?

- a. A water-steam mixture passes upward through several standpipes arranged in series creating a torturous path, which removes the moisture.
- b. A water-steam mixture passes upward through a series of horizontally mounted chevron plates, which strip the moisture as the mixture passes by.
- c. A water-steam mixture passes over vanes, which impart a rotational motion. Centrifugal forces separate the high mass liquid from the low mass steam.
- d. 16 vane-type assemblies, each resembling an accordion, are vertically mounted. Steam passes over the vanes at an angle between horizontal and vertical.

MNGP 2003 RO NRC Exam

Question No. 51

The plant was operating at 100% power when the following annunciators were received:

- 4-C-31, RECIRC DRIVE MOTOR A TRIP
- 4-C-32, RECIRC DRIVE MOTOR B TRIP

Immediately after the above annunciators were received an operator notices Main Turbine Control Valve oscillations between 25% and 35% valve position.

Which of the following actions should be taken?

- a. Restart one of the tripped Recirc pumps.
- b. Immediately insert a manual reactor scram.
- c. Perform B.05.09-05.H.1, CONTROL VALVE OSCILLATIONS.
- d. Enter C.4-F, RAPID POWER REDUCTION, and insert control rods.

MNGP 2003 RO NRC Exam

Question No. 52

The plant was operating at full power when a transient occurred. The following conditions now exist:

- Main condenser pressure is indicating 8 inches of Mercury absolute.
- Numerous annunciators are in alarm.

Which of the following is correct for the above stated conditions?

- a. Reduce reactor power in an attempt to maintain condenser vacuum.
- b. Insert a manual reactor scram because the Main Turbine has tripped.
- c. Start the Mechanical Vacuum Pump to help restore condenser vacuum.
- d. Perform scram actions because the reactor has scrambled on low vacuum.

MNGP 2003 RO NRC Exam

Question No. 53

A plant transient occurred resulting in the following timeline (with no operator action):

- 0700:00 Reactor scram.
- 0700:05 RPV water level goes below 9 inches.
- 0700:12 RPV water level reaches minus 41 (-41) inches and immediately starts to rise.
- 0701:10 RPV water level is above 9 inches.
- 0701:35 Both main FWRVs are closed.
- 0702:20 RPV water level reaches 48 inches.

Which of the following states the time that a Reactor Recirc Pump runback is initiated?

- a. 0702:35
- b. 0700:20
- c. 0700:15
- d. 0701:50

MNGP 2003 RO NRC Exam

Question No. 54

A plant startup was in progress. Reactor level control had just been transferred from the Low Flow Control Valve to the 'A' Main FW Reg Valve. A transient then occurred resulting in a reactor scram.

Which of the following is the cause of the reactor scram?

- a. No. 11 RFP suction pressure of 50 psig
- b. Moisture Separator Tank level of 928 feet
- c. Generator load reject causing TCV fast closure
- d. RPV pressure rises to 1036 psig during the transient

MNGP 2003 RO NRC Exam

Question No. 55

The plant is operating at 100% power.

Which of the following correctly describes the effect on reactor power for the stated action?

- a. Initiation of Head Spray will result in a significant power rise due to the addition of large amounts of cold water.
- b. Fully opening one Safety Relief Valve will result in a corresponding power rise due to pulling off additional steam flow from the RPV.
- c. Performance of procedure 0255-07-IA-1, MAIN STEAM VALVE EXERCISE TESTS, fully closing the MSIV may result in a full reactor scram.
- d. Performance of procedure 0009, TURBINE STOP VALVE CLOSURE SCRAM TEST, requiring TSVs be closed 10% may result in a full reactor scram.

MNGP 2003 RO NRC Exam

Question No. 56

A small break LOCA has occurred in the drywell and the following conditions exist:

- Drywell pressure is 7.5 psig and slowly rising.
- Reactor water level lowered to minus 24 (-24) inches and is now steady on the Low Flow FW Reg. Valve at 15 inches.
- Reactor pressure is at 550 psig and slowly lowering.

Which of the following is the status of the RHR system and why?

- a. A LPCI injection signal is present but no RHR pumps are running due to reactor pressure being above the interlock setpoint.
- b. A LPCI injection signal is NOT present therefore no RHR pumps are running due to reactor pressure being above the interlock setpoint.
- c. A LPCI injection signal is present and all RHR pumps are running, but no water is being injected into the vessel because the LPCI outboard injection valves are still closed.
- d. A LPCI injection signal is present and all RHR pumps are running, but no water is being injected into the vessel because the LPCI inboard injection valves are still closed.

MNGP 2003 RO NRC Exam

Question No. 57

Following a reactor scram, the following conditions exist:

- C.5-1100, RPV CONTROL, has been entered.
- Recirc temperature is 530°F and lowering.
- Reactor pressure is 1010 psig and rising slowly.
- LI-2-3-86, REACTOR FLOODING LEVEL, is 82 inches.
- All other Reactor water level indications are pegged high.

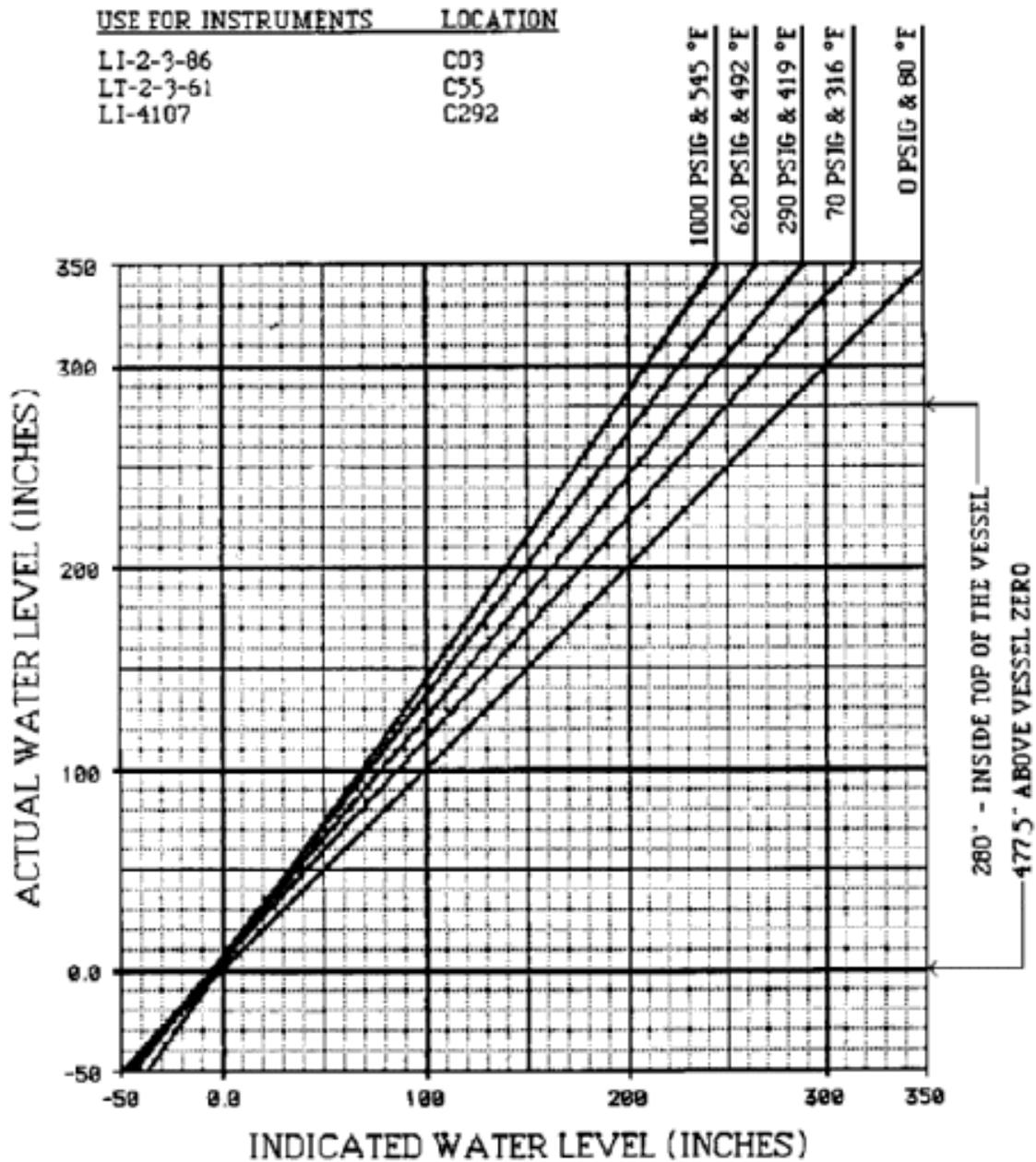
Using Figure 31, VESSEL FLOODING INSTRUMENTS, on the next page, which of the following states the concern that exists?

- a. The Main Steam lines have become flooded which could complicate pressure control.
- b. A complete loss of all level indication exists requiring entry into C.5-2006, RPV FLOODING.
- c. The Steam Separator returns have become covered resulting in a loss of downcomer return flow.
- d. The high pressure/temperature condition coincident with high RPV level may exceed vessel design pressure limits.

MNGP 2003 RO NRC Exam

Figure 31 Vessel Flooding Instruments

VESSEL FLOODING INSTRUMENTS ACTUAL VERSUS INDICATED LEVEL FOR SELECTED REACTOR VESSEL PRESSURES



MNGP 2003 SRO NRC Exam

Question No. 58

The plant was operating at 100% power when a feedwater transient occurred. During the transient the following alarms came in and then cleared after 5 seconds.

- 5-A-9, REACTOR VESSEL L/L WTR LEVEL CH A.
- 5-A-10, REACTOR VESSEL L/L WTR LEVEL CH B.

What is the status of the Reactor Recirculation MG Sets two minutes after the above transient, and what is the configuration of their breakers?

- | | |
|------------|--|
| a. Running | Generator Drive Motor Breaker CLOSED, and Field Breaker CLOSED |
| b. Running | Generator Drive Motor Breaker CLOSED, and Field Breaker OPEN |
| c. Stopped | Generator Drive Motor Breaker OPEN, and Field Breaker CLOSED |
| d. Stopped | Generator Drive Motor Breaker OPEN, and Field Breaker OPEN |

MNGP 2003 SRO NRC Exam

Question No. 59

Drywell Spray has been initiated per C.5-1200 PRIMARY CONTAINMENT CONTROL.

Which of the following is correct associated with the vacuum relief valves?

It is expected that the ____ (1) ____ Vacuum Relief Valves will open. The Differential Pressure at which these valves should be full open is ____ (2) ____ psid.

- | | (1) | (2) |
|----|---|-----|
| a. | Reactor Building to Suppression Chamber | 0.5 |
| b. | Suppression Chamber to Drywell | 0.2 |
| c. | Suppression Chamber to Drywell | 0.5 |
| d. | Reactor Building to Suppression Chamber | 0.2 |

MNGP 2003 SRO NRC Exam

Question No. 60

The plant is operating at 100% power when the following occurs:

- Drywell Pressure is 1.1 psig and slowly rising at 0.1 psig per minute.
- The Primary Containment is being vented to Standby Gas Treatment with valves:
 - CV-2385, DW VENT TO STBY GAS
 - AO-2387, DW OTBD VENT

Which of the following statements is correct for the above stated conditions?

Drywell Pressure rises to 2.0 psig, the vent valves will _____ (1) _____, Standby Gas Treatment will _____ (2) _____.

- | | (1) | (2) |
|----|-------------|---------------------|
| a. | Isolate | continue to operate |
| b. | remain open | continue to operate |
| c. | isolate | trip |
| d. | remain open | trip |

MNGP 2003 SRO NRC Exam

Question No. 61

The plant is operating at 100% power. The Drywell Atmosphere Cooling System has malfunctioned. Due to a loss of cooling, average Drywell air temperature has risen from 115°F to 127°F and is rising 1°F every 5 minutes.

Which of the following describes the concern, if this trend is continued for another 30 minutes without change?

- a. A reactor scram may occur from 2 psig Drywell pressure.
- b. RPV water level instruments will start to become unreliable.
- c. The EOPs will need to be entered from high Drywell temperature.
- d. Environmental qualification of equipment in the Drywell will no longer be maintained.

MNGP 2003 SRO NRC Exam

Question No. 62

Plant startup is in progress with the following conditions:

- Reactor Pressure is 150 psig.
- HPCI testing is in progress.
- Torus temperature is 91°F.
- Torus level is 2 inches.

Which of the following is correct for the above stated conditions?

The RHR system is required to be in _____ (1) _____ because _____ (2) _____.

- | (1) | (2) |
|----------------------|---|
| a. Torus Cooling | heat is being added to the Torus |
| b. Torus Cooling | HPCI exhaust is raising Torus Level |
| c. LPCI Standby Mode | it is required prior to exceeding 150 psig reactor pressure |
| d. LPCI Standby Mode | the reactor is above 212°F |

MNGP 2003 SRO NRC Exam

Question No. 63

Given the following plant conditions:

- The plant is in a startup following a 25 day refuel outage.
- SRV testing is about to commence.
- Both loops of RHR are in Torus Cooling mode.
- Torus temperature is at the minimum recommended temperature.

If 1 open SRV will increase Torus temperature by 1°F/minute, which of the following states the maximum amount of time available for testing before the Torus temperature reaches the limit for testing allowed by Tech Specs?

- a. 28 minutes
- b. 32 minutes
- c. 36 minutes
- d. 40 minutes

MNGP 2003 SRO NRC Exam

Question No. 64

A fire has been burning in the Cable Spreading Room for 10 minutes. The decision has been made to evacuate the Control Room in accordance with C.4-C, SHUTDOWN OUTSIDE CONTROL ROOM.

Which of the following describes why the operators should "proceed expeditiously" to the ASDS Panel and transfer control of associated systems from the Control Room?

- a. This will minimize the potential for spurious operation of the associated equipment prior to transfer.
- b. Transfer of the 12 EDG should occur as early as possible to ensure an emergency source of power is available.
- c. This will minimize the amount of time that a critical reactor is unmonitored prior to scramming from the ASDS Panel.
- d. EFT Building 3rd floor has its own HVAC System, therefore transition should be quick to minimize exposure to toxic gases from the fire.

MNGP 2003 SRO NRC Exam

Question No. 65

Due to a fire in the plant, Control Room operations have been transferred to ASDS Panel C-292. All TRANSFER switches have been placed in the TRANSFER position. The NO. 12 DIESEL GEN TRANSFER SWITCH red indicating light is NOT lit. Grid voltage has dropped to 3750 volts on all buses.

Which of the following is correct with regards to restoring power to Bus 16?

- a. An automatic transfer of power from the 1AR Transformer to Bus 16 should occur after a five second time delay.
- b. No. 12 EDG automatically starts and loads onto the bus when undervoltage is sensed on Bus 16 for nine seconds.
- c. Hold the NO. 12 DIESEL GEN CONTROL switch in the START position at the ASDS Panel until adequate voltage and frequency is verified.
- d. A local manual start of the No. 12 EDG will be required at the No. 12 EDG Control Panel since the ASDS transfer of the No. 12 EDG failed.

MNGP 2003 SRO NRC Exam

Question No. 66

A transient has occurred from 100% power resulting in the following conditions:

- All control rods have inserted.
- A reactor coolant leak exists in the Reactor Building and cannot be isolated.
- Reactor Building Ventilation (RBV) Exh Plenum Rad Monitor A indicates 28 mr/hr.
- Reactor Building Ventilation (RBV) Exh Plenum Rad Monitor B is bypassed for testing.

Which of the following is correct for the above stated conditions?

- a. Secondary Containment should isolate and SBGT should start to filter the radioactivity prior to discharge out the Reactor Building Vent.
- b. A Secondary Containment isolation should occur and SBGT should start to reduce the radioactivity discharged from the Off Gas Stack.
- c. A manual secondary containment isolation and start of SBGT will be necessary since one RBV Exh Plenum Rad Monitor is bypassed for testing.
- d. A manual secondary containment isolation and start of SBGT should be initiated since RBV Exh Plenum Rad Monitor A has not reached its trip setpoint.

MNGP 2003 SRO NRC Exam

Question No. 67

The plant is operating at full power with the No. 12 Service Water Pump out of service for bearing replacement. A transient then occurs resulting in the following indications:

- Annunciator 6-B-22, SERVICE WATER HDR LOW PRESSURE, is in alarm.
- Red and Green indicating lights for the No. 13 Service Water Pump are NOT lit.
- Annunciator 8-B-27, NO. 103 TRANS 480V BKR TRIP, is in alarm.

Which of the following describes the action that should be taken?

- a. Manually start the No. 11 Service Water Pump.
- b. Break Main Condenser vacuum and secure feed pumps.
- c. Verify both Emergency Service Water Pumps auto started.
- d. Reduce Recirc pumps to minimum and scram the reactor.

MNGP 2003 SRO NRC Exam

Question No. 68

The plant is operating at 100% power. Service Water flow has been reduced through one RBCCW Heat Exchanger due to fouling. RBCCW Temperature is 110°F and rising.

Which of the following describes the reason that a standby RBCCW Heat Exchanger must be placed in service?

- a. RBCCW temperature will rise and eventually the RWCU system will isolate and trip the RWCU pumps.
- b. RWCU Pump Room Temperatures will rise and eventually cause RWCU to isolate and trip the RWCU pumps.
- c. RWCU will operate normally due to the minimal heat load from the RWCU Non-Regenerative Heat Exchangers.
- d. RWCU F/Ds will automatically go into hold and bypass the filter demineralizers upon receipt of a High RBCCW temperature signal.

MNGP 2003 SRO NRC Exam

Question No. 69

The No. 11 Instrument Air Compressor is isolated for maintenance. A plant transient occurs resulting in the following annunciators alarming:

- 8-C-34, NO. 104 480V LDCTR MCC FEEDER TRIP
- 7-B-15, EPR TROUBLE
- 6-B-32, RBCCW LOW DISCH PRESS
- 6-B-33, RBCCW STANDBY PUMP START

Which of the following power supplies, if locked-out due to overcurrent in conjunction with the above stated conditions, would lead to a reactor scram?

- a. Bus 13
- b. LC-108
- c. MCC-134
- d. 1R Transformer

MNGP 2003 SRO NRC Exam

Question No. 70

Which of the following describes why Primary Containment should be vented prior to exceeding the Drywell Pressure Limit? Assume normal Torus water level.

- a. At the Drywell Pressure Limit, there is no assurance that SRVs can be opened or will remain open.
- b. Vent valves used to vent the RPV during drywell flooding may not be able to be opened above this pressure.
- c. Exceeding the design pressure limit of 58 psig could result in structural failure of the primary containment.
- d. If the Drywell Pressure Limit is exceeded prior to the start of containment venting then the vent valves may not open.

MNGP 2003 SRO NRC Exam

Question No. 71

A transient is in progress at full power with the following indications:

- Annunciator 5-B-16, REACTOR PRESS HI/LO, is in alarm.
- PI-6-90A, REACTOR PRESSURE A, indicates 1030 psig and rising.
- PI-6-90B, REACTOR PRESSURE B, indicates 1032 psig and rising.

Which of the following actions should be taken for the stated transient?

- a. Push the EPR STOP pushbutton.
- b. Depress both manual scram pushbuttons.
- c. Reduce both Recirc pumps to minimum speed.
- d. Fully open bypass valves with the Pressure Regulator Override.

MNGP 2003 SRO NRC Exam

Question No. 72

Which of the following statements is correct?

It is required to initiate Standby Liquid Control before Torus Temperature reaches _____ to ensure that _____.

- a. 105°F Cold Shutdown Boron can be injected before RPV Cooldown commences.
- b. 110°F Cold Shutdown Boron can be injected before RPV Cooldown commences.
- c. 105°F Hot Shutdown Boron can be injected before exceeding the Heat Capacity Limit of the Torus.
- d. 110°F Hot Shutdown Boron can be injected before exceeding the Heat Capacity Limit of the Torus.

MNGP 2003 SRO NRC Exam

Question No. 73

A plant transient occurred, conditions are as follows:

- Reactor Pressure is 450 psig.
- Drywell Temperature is 295°F and rising at 1°F per minute.
- Drywell Spray is NOT able to be placed in service.

Which of the following actions will protect the containment?

- a. Flood the containment to remove heat via convection.
- b. Start all available Torus Sprays for evaporative cooling.
- c. Place all Torus Cooling in service to allow maximum heat removal.
- d. Initiate Automatic Depressurization System to stop heat input to the Drywell.

MNGP 2003 SRO NRC Exam

Question No. 74

Emergency Depressurization is required due to Low Torus Water Level.

The reason that Torus Water Level is required to be above minus 5.9 (-5.9) feet is to ensure that ____ (1) ____ remain submerged to prevent ____ (2) ____ from exceeding limits.

- | (1) | (2) |
|----------------------------------|-------------------------|
| a. Downcomers | Torus Water Temperature |
| b. Safety Relief Valve Tailpipes | Torus Water Temperature |
| c. Downcomers | Containment Pressure |
| d. Safety Relief Valve Tailpipes | Containment Pressure |

MNGP 2003 SRO NRC Exam

Question No. 75

A rupture in the bottom of the Torus has occurred. A manual reactor scram was initiated and the Control Room Supervisor has given the order to open 3 ADS valves. HPCI is operating to control RPV water level due to a feed system malfunction. The following conditions exist for HPCI:

- Pump discharge pressure is 900 psig.
- Pump suction pressure is 15 psig.
- Turbine exhaust pressure is 2 psig.
- System flow is steady at 800 gpm.

Prior to opening the ADS valves, Torus air space pressure begins to rise at 1.0 psig per minute.

Which of the following actions should be completed?

- a. Do not open the 3 ADS valves.
- b. Start all available Torus cooling.
- c. The HPCI turbine should be tripped.
- d. Wait until 2.0 psig in the Torus then start Torus spray.

MNGP 2003 SRO NRC Exam

Question No. 76

A Loss of Coolant Accident (LOCA) has occurred in the RWCU Room; the system has failed to isolate.

At 09:00:00 RPV Water Level is minus 47 (-47) inches, lowering at 2 inches per minute. HPCI automatically started, immediately tripped and will NOT restart. NO other High Pressure injection systems are available.

Which of the following states the time at which the ADS valves will open and what is the basis for that automatic action?

- | Time | <u>Basis</u> |
|-------------|---|
| a. 09:21:47 | To prevent fuel clad melting during a small break LOCA. |
| b. 09:01:47 | To prevent fuel clad melting during a small break LOCA. |
| c. 09:21:47 | To prevent fuel clad melting during a large break LOCA. |
| d. 09:01:47 | To prevent fuel clad melting during a large break LOCA. |

MNGP 2003 SRO NRC Exam

Question No. 77

Which of the following is correct?

While injecting CRD per C.5-3204 RPV MAKEUP WITH CRD, the _____ flowpaths ONLY are injecting water into the reactor.

- a. Cooling Water, Drive Water, and Test
- b. Charging Water, Drive Water, and Test
- c. Charging Water, Cooling Water, and Test
- d. Charging Water, Drive Water, and Cooling Water

MNGP 2003 SRO NRC Exam

Question No. 78

A manual reactor scram was inserted due to a reactor coolant leak in the HPCI Room in accordance with C.5-1300, SECONDARY CONTAINMENT CONTROL, based on room temperature reaching max safe value.

If the Torus Room temperature reaches max safe value, what action will be required to protect the plant and what is the max safe value based on?

- a. RPV blowdown; habitability of the associated room is no longer allowed after temperature has reached max safe.
- b. RPV blowdown; environmental qualification of the instrumentation in the associated rooms will be exceeded at max safe temperatures.
- c. Enter C.5-1400, RADIOACTIVITY RELEASE CONTROL; habitability of the associated room is no longer allowed after temperature has reached max safe.
- d. Enter C.5-1400, RADIOACTIVITY RELEASE CONTROL; environmental qualification of the instrumentation in the associated rooms will be exceeded at the elevated temperatures.

MNGP 2003 SRO NRC Exam

Question No. 79

The plant is operating at full power with the following conditions:

- Annunciator 4-A-21, TURBINE BUILDING HI RADIATION, is in alarm.
- Area Radiation Monitor, 951 Turbine Floor, amber HI light is lit.
- Annunciator 259-A-6, RBV EFFLUENT HIGH RADIATION, is in alarm.
- The mid range detector for Reactor Building Vent WRGM is now providing the input for calculating effluent release.

Which of the following actions is immediately required by procedure for the stated conditions?

- a. Immediately scram the reactor.
- b. Commence a normal reactor shutdown.
- c. Evacuate all personnel from the Turbine Building.
- d. Dispatch the Turbine Building operator to investigate.

MNGP 2003 SRO NRC Exam

Question No. 80

Given the following:

- A high radiation condition exists in the Reactor Building plenum.
- A Reactor scram has occurred due to low Reactor water level.
- Annunciator 3-B-55, REACTOR BLDG EXH PLENUM HI RAD, is in alarm.
- Annunciator 259-A-6, RBV EFFLUENT HIGH RADIATION, is in alarm.
- EOP-1300, SECONDARY CONTAINMENT CONTROL, has been entered.

Which of the following actions should be taken for the above stated conditions and why?

- a. Restart secondary containment ventilation because both trains of SBGT have failed to start.
- b. Restart secondary containment ventilation to ensure that a negative pressure exists relative to atmosphere.
- c. Depress both TEST pushbuttons on C-24A and C-24B Panels because SBGT failed to automatically initiate.
- d. Depress both TEST pushbuttons on C-24A and C-24B Panels to ensure a filtered exhaust is discharged from the Reactor Building.

MNGP 2003 SRO NRC Exam

Question No. 81

Following a transient, the SCTMT isolated and the SBGT system initiated. The reading for DPI-4424, CONTROL ROOM C24 MANOMETER, is found to be negative 0.02 (-0.02) inches of water.

Which of the following could be a possible cause for this condition?

- a. The Turbine Building Supply fan, V-MZ-1, failed to trip.
- b. V-D-36, REFUELING POOL EXHAUST, damper is found to be open.
- c. The operating Reactor Building Exhaust fan, V-EF-24A/B, failed to trip.
- d. Inlet isolation dampers for V-AC-10A and V-AC-10B are found to be open.

MNGP 2003 SRO NRC Exam

Question No. 82

Which of the following statements is correct?

The reason for the action required when a primary system is discharging into the Reactor Building and two areas have reached MAX SAFE WATER LEVEL is to:

- a. avoid unnecessary transients on the Reactor.
- b. reduce the rate of heat generation by the reactor.
- c. ensure that decay heat is sent to the Main Condenser.
- d. reduce the rate of discharge into the Reactor Building.

MNGP 2003 SRO NRC Exam

Question No. 83

An earthquake has occurred at MNGP causing Torus water level to drop 5 inches in the last few minutes. In addition, a report of a fire at the 935 foot elevation of the Reactor Building in the SW corner has come in to the Control Room. The Fire Brigade is fighting the fire with fire hoses.

Indications now exist that the Torus Area and the 'B' RHR Area water levels are above max safe.

Which of the following correctly describes whether or not a RPV blowdown should be conducted?

A blowdown _____ be conducted per C.5-1300, SECONDARY CONTAINMENT CONTROL, because _____.

- a. should two water levels are above max safe.
- b. should NOT there are no indications of a primary system rupture.
- c. should indications exist of a primary system rupture from the Torus.
- d. should NOT fire fighting can be secured to allow 'B' RHR Area water level to return to normal.

MNGP 2003 SRO NRC Exam

Question No. 84

The plant was operating at 100% power when a transient occurred. The following indications exist after the transient:

- Annunciator 5-B-16, REACTOR PRESS HI/LO, is in alarm.
- Annunciator 5-B-11, REACTOR VESSEL HI PRESS SCRAM TRIP, is in alarm.
- ATWS trip activated.
- SRVs remain open.

Which of the following states the lowest reactor pressure that could have caused the above stated indications?

- a. 1025 psig
- b. 1056 psig
- c. 1135 psig
- d. 1170 psig

MNGP 2003 SRO NRC Exam

Question No. 85

The plant is operating at full power when a transient occurs. Numerous annunciators are now in alarm. A release is in progress with Protected Area radiation levels of 5 - 10 mR/hr as determined from air samples taken by the Radiological Survey Team.

Which of the following is correct for the stated conditions?

- a. Control Room ventilation has automatically shifted into the High Radiation mode.
- b. Control Room ventilation has automatically shifted into the Recirculation mode.
- c. V-EF-40A and V-EF-40B (Battery Room Exhaust Fans) trip and V-EF-11 and V-EF-12 (Control Room Emergency Filtration Unit Fans) start.
- d. V-ERF-14A and V-ERF-14B (Control Room Recirculation/Exhaust Fans) trip and V-EF-11 and V-EF-12 (Control Room Emergency Filtration Unit Fans) start.

MNGP 2003 SRO NRC Exam

Question No. 86

The plant is operating at 100% power when the following occur:

- Annunciator 6-B-32, RBCCW LOW DISCH PRESS, is in alarm.
- RBCCW Pressure indicates 0 psig.
- Annunciator 4-B-5, RECIRC PUMP A LOW COOL WATER FLOW, is in alarm.
- Annunciator 4-B-10, RECIRC PUMP B LOW COOL WATER FLOW, is in alarm.
- Annunciator 4-B-26, CLEAN UP DEMIN TEMP HI, is in alarm.
- NO RBCCW Pumps will start.

Which of the following actions is required within one minute?

- a. Trip both Recirc Pumps.
- b. Vent the Containment to stay below 2 psig.
- c. Trip and Isolate the Reactor Water Cleanup System.
- d. Secure the operating Control Rod Drive Hydraulic Pump.

MNGP 2003 SRO NRC Exam

Question No. 87

Which of the following statements is correct?

The primary purpose of starting CGCS after a Loss of Coolant Accident with degraded ECCS operation is to _____.

- a. preserve containment integrity by limiting Oxygen concentration.
- b. protect containment integrity by limiting Hydrogen concentration.
- c. reduce radioactivity release rates by returning exhaust to the Torus.
- d. lower containment pressure by combining Hydrogen and Oxygen into water vapor.

MNGP 2003 SRO NRC Exam

Question No. 88

The No. 12 Reactor Feedwater Pump is required to be isolated while at 50% power.

Which of the following is the proper sequence for closing and opening the discharge and suction valves and why?

- a. Close the suction valve and then the discharge valve on isolation; open the discharge valve and then the suction valve on restoration; relieves isolated pressure back to the suction.
- b. Close the discharge valve and then the suction valve on isolation; open the discharge valve and then the suction valve on restoration; prevents over pressurization of the suction piping.
- c. Close the suction valve and then the discharge valve on isolation; open the suction valve and then the discharge valve on restoration; relieves isolated pressure back to the suction.
- d. Close the discharge valve and then the suction valve on isolation; open the suction valve and then the discharge valve on restoration; prevents over pressurization of the suction piping.

MNGP 2003 SRO NRC Exam

Question No. 89

The reactor is operating at 100% power when the following occur:

- Annunciator 8-A-17, NO.1 GENERATOR COOLING WATER FAILURE, alarms.
- Speed/Load Changer on C-07 is 104% and intermittently decreasing.
- Neither Stator Cooling Pump can be started.

Which of the following actions is correct for this condition?

- a. manually trip the Main Turbine
- b. lower the Speed/Load Changer
- c. perform C.4-K, IMMEDIATE REACTOR SHUTDOWN
- d. perform C.4-F RAPID POWER REDUCTION

MNGP 2003 SRO NRC Exam

Question No. 90

Which of the following completes the statement correctly?

The Minimum Steam Cooling...

- a. Pressure (266 psig) is the lowest RPV pressure at which steam flow through the open SRVs is sufficient to prevent the hottest fuel rod from exceeding 1500°F.
- b. Pressure (266 psig) is the lowest RPV pressure that will maintain a sufficient number of SRVs open to adequately cool the fuel and keep cladding temperature < 1500°F.
- c. RPV Water Level (minus 149 (-149) inches) is the lowest RPV water level that will produce sufficient steam to maintain the required number of SRVs open to keep cladding temperature < 1500°F.
- d. RPV Water Level (minus 149 (-149) inches) is the lowest RPV water level at which the uncovered portion of the reactor core will generate sufficient steam to prevent the hottest fuel rod from exceeding 1500°F.

MNGP 2003 SRO NRC Exam

Question No. 91

Given the following plant conditions:

- A reactor coolant rupture has occurred in the Reactor Building.
- The rupture has NOT been able to be isolated.
- A manual reactor scram was initiated.
- Four (4) control rods remain at position 04.
- RWCU Pump Room temperature is $> 212^{\circ}\text{F}$.
- 962 foot elevation outside the RWCU Pump Room is 205°F and rising.
- SBTG has automatically initiated.
- C.5-1100, RPV CONTROL, and C.5-1300, SECONDARY CONTAINMENT CONTROL, have been entered.

Which of the following actions should be taken for the above stated conditions?

- a. Restart Turbine Building Ventilation to ensure a diluted, elevated release.
- b. Exit C.5-1100, RPV CONTROL, and enter C.5-2007, FAILURE TO SCRAM.
- c. Open the main turbine bypass valves and exceed a $100^{\circ}\text{F}/\text{hour}$ cooldown rate.
- d. Enter C.5-2002, EMERGENCY RPV DEPRESSURIZATION, and blowdown the RPV.

MNGP 2003 SRO NRC Exam

Question No. 92

The plant is operating at full power with the following conditions:

- Annunciator 5-B-17, CHARGING WATER LO PRESS, is in alarm.
- CRD Charging Water Header pressure indicates 1050 psig on the C-05 panel.
- The No. 11 CRD Pump is operating normally.
- The Reactor Building operator has been dispatched to the No. 11 CRD Pump to investigate per ARP 5-B-17.

One minute later:

- The Reactor Building operator reports that there is a rupture in the charging water header.
- Annunciator 5-B-38 (ACCUMULATOR LOW/PRESS HI/LEVEL) alarms.

Which of the following states the actions that should be taken by Control Room operators?

- a. Perform the actions of C.4-B.01.03.A, LOSS OF CRD FLOW, and start the No. 12 CRD Pump.
- b. Continue to perform the actions of ARP 5-B-17 and throttle open CRD 3-1, 11 CRD PUMP DISCH VALVE.
- c. Perform actions of C.4-K, IMMEDIATE REACTOR SHUTDOWN, and then enter C.5-1100, RPV CONTROL.
- d. Perform the actions of C.4-I, PLANT FLOODING, and then enter C.5-1300, SECONDARY CONTAINMENT CONTROL.

MNGP 2003 SRO NRC Exam

Question No. 93

The following plant conditions exist:

- The plant has scrammed from 100% power.
- A Loss of Coolant Accident has occurred.
- Attempts at Drywell sprays have failed.
- Primary containment pressure is 52 psig and slowly rising.
- Torus level is 10.3 feet and steady.
- Determination has been made to vent the containment.

Which of the following is the best flowpath for venting the primary containment and why?

- a. Vent from the Drywell through the 2 inch line to SBGT to minimize the potential for damage to SBGT duct work.
- b. Vent from the Torus through the Hard Pipe Vent because Torus level precludes using the normal vent flowpaths.
- c. Vent from the Drywell through the Reactor Building Exhaust Plenum to ensure that an elevated release path is used.
- d. Vent from the Torus through the 18 inch line to SBGT so that the containment atmosphere is scrubbed by the suppression pool.

MNGP 2003 SRO NRC Exam

Question No. 94

Given the following plant conditions:

- Plant startup from cold shutdown has begun.
- Reactor coolant temperature is 190°F.
- Primary containment venting is in progress.
- V-EF-25, DRYWELL PURGE FAN, is running.

Which of the following actions must be completed prior to reactor coolant temperature reaching 200°F and why?

- a. Begin inerting the primary containment with Nitrogen to meet the 24 hour Tech Spec requirement.
- b. Stop venting primary containment to SBGT to protect the SBGT duct work in the event a LOCA occurs while venting.
- c. Stop V-EF-25, DRYWELL PURGE FAN, and secure the line-up to ensure primary containment integrity is maintained.
- d. Start venting the primary containment to the Reactor Building Exhaust Plenum to allow monitoring of the effluent activity by the Reactor Building Vent WRGMs.

MNGP 2003 SRO NRC Exam

Question No. 95

The Reactor is operating at 30% power with the 'A' Recirc pump secured and concerns now exist of possible stratification in the idle loop.

Which of the following actions would be a correct method to avoid or correct the loop stratification in the idle loop?

- a. Secure all seal injection to the idle recirc pump to minimize excessive cooldown.
- b. Re-open the 'A' Recirc loop suction valve to provide some flow through the loop.
- c. Maintain the running Recirc pump at as high a speed as allowed with the idle loop discharge valve open.
- d. Ensure the RHR Intertie Line is in use, with the appropriate valves open, to provide maximum flow to the idle loop.

MNGP 2003 SRO NRC Exam

Question No. 96

A NLO has a SOMS clearance order that requires independent verification.

For which of the following conditions can the Control Room Supervisor waive independent verification?

Clearance of a tag on...

- a. PC-26, REACTOR WELL DRN TO PUMP SUCT, during a refuel outage.
- b. MO-1615, FW FROM HP HTRS BLOCK, while the plant is at full power.
- c. CV-1729, 12 RHR HX RHRSW OUTLET, for setting the neutral position.
- d. B3348, SCTMT DIV 1 ISOL & SBGT "A" TRAIN CONTROL PWR, following filter replacement.

MNGP 2003 SRO NRC Exam

Question No. 97

Which of the following describes one of the Control Room Operator's responsibilities in the Control Room during refueling operations?

- a. Enter the time and date for completion of each fuel move on the Procedure Checklist Data File.
- b. Verify that the Area Radiation Monitors for fuel handling areas have been calibrated, checked and are operable.
- c. Move the tag, representing the component in transit, from the tagboard and place it in its new location on the tagboard.
- d. Log the time and date on the Verification Checklist Data File after verifying the component was latched in the proper location.

MNGP 2003 SRO NRC Exam

Question No. 98

Which of the following combinations of plant conditions defines the MODE known as 'Cold Shutdown'?

- a. Reactor water temperature is 112°F and steady with shutdown cooling in service. A fuel assembly is being removed from the core.
- b. Reactor water temperature is 200°F and lowering with shutdown cooling in service. A control rod is being withdrawn for refuel interlock testing.
- c. Reactor water temperature is 221°F and lowering with shutdown cooling in service. A control rod is being withdrawn for refuel interlock testing.
- d. Reactor water temperature is 100°F and steady with shutdown cooling in service. A control rod is being removed from the core for replacement.

MNGP 2003 SRO NRC Exam

Question No. 99

Which of the following statements is correct?

At the beginning of each shift, a Control Room Operator SHALL make a log entry which includes the following:

1. status of off-site power
2. line-up of the ECCS systems
3. availability of the Fire Brigade
4. Reactor Mode Switch position

- a. 1,2 & 3
- b. 2, 3 & 4
- c. 1, 3 & 4
- d. 1, 2 & 4

MNGP 2003 SRO NRC Exam

Question No. 100

Control rod shuffles have just been completed and reactor power has been returned to 100% with Recirc flow. A 3D Monitor Edit taken after returning to 100% power shows that MAPRAT is above the Tech Spec limit.

Which of the following is the correct action to take for the above stated conditions and why?

- a. Initiate action to adjust the control rod pattern within 15 minutes to restore APLHGR to within the limit.
- b. Restore LHGR to within the limits within 2 hours or reduce reactor power to <25% within the next 4 hours.
- c. Restore MCPR to within the limits within 2 hours or reduce reactor power to <25% within the next 4 hours.
- d. Initiate action to reduce reactor power to 97% using Recirc flow within 15 minutes to restore LHGR to within the limit.

MNGP 2003 SRO NRC Exam

1	A	RO
2	D	BOTH
3	C	RO
4	A	RO
5	C	BOTH
6	D	BOTH
7	B	BOTH
8	A	BOTH
9	B	RO
10	B	BOTH
11	D	BOTH
12	C	BOTH
13	B	BOTH
14	B	BOTH
15	B	RO
16	D	BOTH
17	D	RO
18	D	RO
19	A	BOTH
20	C	BOTH
21	B	BOTH
22	C	RO
23	B	BOTH
24	A	RO
25	C	BOTH
26	A	BOTH
27	B	BOTH
28	C	BOTH
29	D	BOTH
30	C	BOTH
31	D	BOTH
32	B	BOTH
33	B	RO
34	A	BOTH
35	B	BOTH

36	D	RO
37	D	RO
38	A	RO
39	B	RO
40	A	BOTH
41	B	BOTH
42	B	RO
43	C	RO
44	B	RO
45	C	BOTH
46	C	BOTH
47	A	BOTH
48	A	BOTH
49	C	BOTH
50	C	BOTH
51	B	BOTH
52	D	BOTH
53	D	BOTH
54	A	RO
55	C	BOTH
56	D	BOTH
57	A	BOTH
58	D	BOTH
59	C	RO
60	A	BOTH
61	A	BOTH
62	A	BOTH
63	B	BOTH
64	A	BOTH
65	D	BOTH
66	B	BOTH
67	D	RO
68	A	BOTH
69	B	BOTH
70	D	BOTH

71	B	BOTH
72	D	BOTH
73	D	RO
74	D	BOTH
75	C	BOTH
76	A	BOTH
77	C	BOTH
78	B	RO
79	C	BOTH
80	D	BOTH
81	D	BOTH
82	D	BOTH
83	B	RO
84	C	BOTH
85	A	BOTH
86	A	BOTH
87	A	RO
88	D	BOTH
89	C	BOTH
90	A	RO
91	C	BOTH
92	C	BOTH
93	D	BOTH
94	C	RO
95	C	BOTH
96	B	BOTH
97	A	RO
98	B	BOTH
99	C	BOTH
100	A	RO

MNGP 2003 SRO NRC Exam

Question No. 1

Which of the following states the correct sequence of rod movement indicating lights when the ROD MOVEMENT CONTROL switch on the C-05 Panel is placed in the ROD OUT NOTCH position?

- e. Rod Out - Rod In - Rod Settle
- f. Rod Settle - Rod Out - Rod In
- g. Rod In - Rod Settle - Rod Out
- h. Rod In - Rod Out - Rod Settle

MNGP 2003 SRO NRC Exam

Question No. 2

An accident has occurred and the following sequence of events has resulted:

- Time 0 Accident begins
- Time +3 seconds PCIS Groups I, II & III isolations
- Time +15 seconds No. 12 RHR Pump auto starts
- Time +20 seconds No. 14 RHR Pump auto starts
- Time +25 seconds No. 12 Core Spray Pump auto starts
- Time +60 seconds All 4 Drywell cooling fans are manually started

NONE of the Div I ECCS pumps are running.

Which of the following sets of conditions would have caused the above sequence of events?

1. Drywell pressure is 5 psig
 2. RPV level is minus 90 (-90) inches
 3. No. 15 Bus lockout
 4. Div I 125 VDC power failure
 6. Loss of all off-site power
- e. 2 and 5
- f. 1 and 4
- g. 2, 4 and 5
- h. 2, 3 and 5

MNGP 2003 SRO NRC Exam

Question No. 3

PCV-2459, B CS LINE PCV, located across from the SBLC system has failed closed.

Which of the following indications would be expected for this failure and what action should be taken?

RHR pressure on PI-10-115A (RHR DIV I HX DISCHARGE PRESSURE) and PI-10-115B (RHR DIV II HX DISCHARGE PRESSURE) would be...

- e. ≥ 40 psig. Bypass the PCV and place the RHRSW system in service.
- f. ≥ 40 psig. Start one RHR pump and ensure a work order is written.
- g. < 40 psig. Start one RHR pump and ensure a work order is written.
- h. < 40 psig. Bypass the PCV and place the RHRSW system in service.

MNGP 2003 SRO NRC Exam

Question No. 4

As a Control Room operator, you are in the process of placing shutdown cooling in service.

Which of the following is correct when the RHR pump is given a start signal?

	<u>Establish flow within...</u>	<u>Basis</u>
e.	10 seconds.	To prevent heat exchanger tube damage.
f.	10 seconds.	To prevent pump damage.
g.	15 seconds.	To prevent heat exchanger tube damage.
h.	15 seconds.	To prevent pump damage.

MNGP 2003 SRO NRC Exam

Question No. 5

A normal Reactor shutdown is in progress. 'A' loop of RHR is being placed in the SHUTDOWN COOLING mode of operation. The system is lined up to the point of opening MO-2029, RHR S/D COOLING SUCTION INDB ISOL. MO-2029 is opened and you notice that Reactor water level drops 2 inches and stabilizes.

Which of the following is a possible explanation for this indication?

- e. SDC piping has not been properly filled and vented.
- f. PC-18, FPCC RETURN FROM RHR HX, has been opened.
- g. RHR-81, RHR SDC SUCTION PRESSURE EQUALIZING CHECK VALVE, is leaking.
- h. 'B' loop of RHR is in Torus cooling and MO-1987, RHR DIV 2 TORUS SUCTION, is open.

MNGP 2003 SRO NRC Exam

Question No. 6

Which of the following describes the minimum flow protection for the Core Spray pumps?

- e. There is no minimum flow protection other than operator action.
- f. Protection is a restricting orifice that always allows up to 300 gpm of flow.
- g. Valves automatically open after 10 seconds if a minimum of 600 gpm is not sensed.
- h. With the pump handswitch in AUTO and the breaker closed, the min flow valve opens if flow is ≤ 300 gpm.

MNGP 2003 SRO NRC Exam

Question No. 7

The Reactor is at 100% power and you receive alarm 3-A-13, CORE SPRAY 1 NOZZLE HI DIFF PRESS. The Reactor building operator reports that the instrument is pegged high in the positive direction.

Which of the following would be a possible reason for this indication and what should your actions be?

- a. A break has occurred in the Core Spray piping inside the shroud. Declare 'A' Core Spray inoperable and enter a 7 day LCO.
- b. A break has occurred in the Core Spray piping inside the shroud. Since it is inside the shroud, no further action is required.
- c. A break has occurred in the Core Spray piping between the Reactor vessel wall and the shroud. Declare 'A' Core Spray inoperable and enter a 7 day LCO.
- d. A break has occurred in the Core Spray piping between the Reactor vessel wall and the shroud. Since injection would occur inside the RPV if used, Core Spray 'A' is still operable.

MNGP 2003 SRO NRC Exam

Question No. 8

Given the following conditions:

- Reactor power is 100%.
- RPS Bus 'B' is on the alternate power supply.
- ACB-52-908 (109/102 Load Center X-tie) is closed.

A loss of Bus 13 then occurs.

Which of the following is correct?

	<u>RPS Bus 'A' scram lights</u>	<u>RPS Bus 'B' scram lights</u>
e.	ON	ON
f.	OFF	ON
g.	ON	OFF
h.	OFF	OFF

MNGP 2003 SRO NRC Exam

Question No. 9

A TIP trace was in progress when a Group II isolation occurred.

Which of the following describes the expected indications on the TIP Valve Control Monitor?

- e. BALL VALVE OPEN red lamp is lit.
- f. SQUIB MONITOR amber lamp is lit.
- g. BALL VALVE CLOSED green lamp is lit.
- h. SHEAR VALVE MONITOR amber lamp is lit.

MNGP 2003 SRO NRC Exam

Question No. 10

The plant is operating at 100% power when one of the electrical protection assemblies for the No. 12 RPS MG set inadvertently trips open.

Which of the following states the expected plant response?

- e. Reactor power indication on APRMs 1,2,and 3 will be lost.
- f. Rod Block Monitor Channel 8 will automatically be bypassed.
- g. A half-scam will occur due to loss of power to IRMs 15, 16, 17 & 18.
- h. Reactor will scram due to the failure of the Scram Discharge Volume level switches.

MNGP 2003 SRO NRC Exam

Question No. 11

A center control rod is being withdrawn from the core during a Reactor startup. The following indications are received immediately after control rod withdrawal begins.

- Annunciators in alarm:
 - 5-A-51, RBM HI/INOP
 - 5-A-3, ROD WITHDRAW BLOCK
 - 5-A-14, APRM HI FLUX
- ROD OUT PERMIT indicating light on C-05 goes OUT.

Which of the following is the correct action to take?

- e. Initiate a Reactor Scram.
- f. Notify the nuclear engineer.
- g. De-select and re-select the rod and verify that the alarms clear.
- h. Push the NULL INITIATION button on the RBM to reset the alarms.

MNGP 2003 SRO NRC Exam

Question No. 12

The following plant conditions exist:

- A refuel outage is in progress.
- RPS shorting links are removed.
- A full core offload has just been completed.
- SRM Channel No. 21 loses its 24 VDC power supply.

Which of the following predicts the response of the Reactor Protection System?

- e. A half scram will occur from a SRM INOP trip signal.
- f. No effect since there is no longer any fuel in the core.
- g. A rod block will occur due to the SRM failing downscale.
- h. A SRM Channel No. 21 INOP trip will result in a full reactor scram.

MNGP 2003 SRO NRC Exam

Question No. 13

LPRM 3D-28-37, which inputs to APRM Channel No. 5, has failed. When the LPRM was bypassed the following annunciators were received:

- 5-A-30, APRM HI-HI/INOP CH 4, 5, 6
- 5-A-3, ROD WITHDRAWAL BLOCK
- 5-B-3, REACTOR NEUTRON MONITOR SCRAM TRIP
- 5-B-5, REACTOR AUTO SCRAM CHANNEL B

Which of the following is the cause of the alarms being received?

- e. LPRM 3D-28-37 was the sixth LPRM bypassed for APRM Channel No. 5.
- f. Bypassing LPRM 3D-28-37 resulted in 50% of the LPRM inputs for APRM Channel No. 5 in bypass.
- g. LPRM 3D-28-37 was the sixth LPRM bypassed at fission detector level 'D' for APRM Channel No. 5.
- h. Bypassing LPRM 3D-28-37 resulted in 50% of the LPRM inputs for APRM Channel No. 5 being bypassed for fission detector level 'D'.

MNGP 2003 SRO NRC Exam

Question No. 14

Given the following plant conditions:

- A break exists in the 'A' side reactor vessel reference leg.
- A loss of feedwater transient has occurred.
- HPCI is operating in the level control mode.
- RPV water level is steady at 25 inches.
- RPV pressure is steady at 950 psig.

Which of the following will result in a loss of HPCI injection?

- e. Break in the variable leg feeding the Safeguards level instruments.
- f. Supply breaker for the Auxiliary Oil Pump (AOP) trips open on overcurrent.
- g. Break in the 'B' side reactor vessel reference leg, which provides the ATWS Recirc pump trip.
- h. Condensate Storage Tank level drops to 3 feet 8 inches during two-tank operation without shifting to the Torus.

MNGP 2003 SRO NRC Exam

Question No. 15

Reactor cool down is in progress with the following conditions:

- Reactor coolant temperature is 433°F.
- Drywell Temperature is 115°F.
- Cool down rate is 70°F/hr.
- Reactor Water Level is 32 inches.
- Reactor pressure is 400 psig.

LI-2-3-85A, Safeguards RPV Level, on C-05 suddenly rises to 44 inches. 30 minutes later, LI-2-3-85A returns to 35 inches.

Which of the following is correct for the above indications?

This is an indication of ____ (1) ____ in the reference leg. This condition can be mitigated by ____ (2) ____ the reference leg.

- | | (1) | (2) |
|----|-------------|---------|
| e. | boiling | cooling |
| f. | gas bubbles | filling |
| g. | boiling | filling |
| h. | gas bubbles | cooling |

MNGP 2003 SRO NRC Exam

Question No. 16

Torus cooling is in service with No. 11 RHR and RHRSW Pumps and No. 12 RHR and RHRSW Pumps operating. A PCIS Group I isolation then occurs resulting in the following conditions:

- Drywell pressure is 3 psig.
- Torus water temperature is 115°F and rising.
- RPV level dropped to minus 35 (-35) inches and is now rising.
- RPV pressure is cycling due to low-low-set actuation.

Which of the following describes the status of Torus cooling operation?

- e. All of the Torus cooling isolation valves have closed from the low RPV water level signal.
- f. Torus cooling is no longer in operation because of an interlock with the LPCI automatic initiation signal.
- g. Torus cooling is still in operation because the Torus cooling isolation valves do not go closed until the LPCI injection valves open at less than or equal to 460 psig.
- h. Torus cooling is still in operation because the RHR CTMT SPRAY/COOLING LPCI INIT BYPASS switches were placed in BYPASS when Torus cooling was started.

MNGP 2003 SRO NRC Exam

Question No. 17

The primary containment is being inerted following plant startup from a refueling outage. PCV-3281, NITROGEN PURGE PRESSURE CONTROL VALVE, fails open.

Which of the following describes the response of the plant to this event?

- e. PCV-3281 will automatically isolate when 2 psig is sensed in the primary containment.
- f. A backup pressure control valve will assume pressure control if Nitrogen pressure reaches 1.75 psig.
- g. When 2 psig is sensed in the primary containment the Torus and Drywell Air Purge isolation valves will close.
- h. The backup pressure control valve will automatically isolate if TS-3276C, CNTNMNT N2 PURGE LOW TEMP ISOLATION, senses 40°F.

MNGP 2003 SRO NRC Exam

Question No. 18

The plant was operating at 100% power when the following indications were received:

- Annunciator 3-A-9, AUTO BLOWDOWN RELIEF VLV LEAKING, is in alarm.
- TR-2-166, TEMP RECORDER FOR SAFETY/RELIEF VALVE LEAKGE, shows tailpipe temperature for RV-2-71E at the alarm setpoint.
- RV-2-71E amber and red indicating lights are NOT lit and green indicating light is lit.

Which of the following describes the impact of this condition on the plant and what action(s) should be taken to correct it?

- e. The leaking SRV will cause high, localized suppression pool temperatures therefore Torus cooling should be placed in service.
- f. The stuck open SRV will cause high, localized suppression pool temperatures therefore Torus cooling should be placed in service.
- g. With SRV tailpipe temperature at 190°F, a spurious SRV lift could occur therefore a reactor scram should be inserted to minimize the heat addition to the Torus.
- h. With SRV tailpipe temperature at 190°F, a spurious SRV lift could occur therefore a normal reactor shutdown should be started to minimize the heat addition to the Torus.

MNGP 2003 SRO NRC Exam

Question No. 19

The plant was operating at 100% power when a transient resulted in the following:

- PCIS Groups I, II, and III isolation signals were generated 4 minutes ago.
- All containment isolation valves have reached their required positions except MO-2399, RWCU RETURN ISOL, which is in intermediate position.

Which of the following describes the indication on SPDS for the above conditions?

- e. The "GP 1 VLV CLSD" indicator has a thick red border.
- f. The "GP 1 VLV CLSD" indicator has a thin green border.
- g. The "GP 2 – 5 ISLN CMD" indicator has a thick yellow border.
- h. The "GP 2 – 5 ISLN CMD" indicator has a thick yellow blinking border.

MNGP 2003 SRO NRC Exam

Question No. 20

What design feature of the Reactor Water Cleanup System is used to ensure that a single failure of the flow element sensing line will NOT prevent a Group 3 Isolation signal on high system flow?

- e. A downscale trip on two of the four RWCU flow transmitters will initiate a Group 3 Isolation signal.
- f. A high Drywell pressure signal at 2 psig provides redundancy to the RWCU high system flow Group 3 Isolation signal.
- g. A negative differential pressure signal will initiate a Group 3 Isolation signal at an indicated flow of minus 200 (-200) gpm.
- h. A single instrument trip will initiate a high system flow Group 3 Isolation signal to ensure conservative automatic action is initiated.

MNGP 2003 SRO NRC Exam

Question No. 21

Which of the following states the locations that Drywell air temperature can be monitored?

5. SPOTMOS
 6. SPDS
 7. Drywell Atmosphere Cooling System Control Panel, Panel C-25
 8. TR-23-115, HPCI, RHR, FUEL POOL, TORUS, DRYWELL TEMPERATURE, on Panel C-21
-
- e. 1, 2 & 4
 - f. 2, 3 & 4
 - g. 2 & 3 only
 - h. 2 & 4 only

MNGP 2003 SRO NRC Exam

Question No. 22

The following conditions exist:

- RHR is in Torus Spray mode on 'A' loop.
- Power has been lost to LC-103.

Which of the following is a concern and why?

- e. Primary Containment integrity is being challenged due to loss of power to RHR Aux Air Compressor.
- f. Secondary Containment integrity is being challenged due to loss of power to RHR Aux Air Compressor.
- g. Primary Containment integrity is being challenged because MO-2010, RHR DIV 1 TORUS SPRAY INBD, will not auto close.
- h. Secondary Containment integrity is being challenged because MO-2010, RHR DIV 1 TORUS SPRAY INBD, will not auto close.

MNGP 2003 SRO NRC Exam

Question No. 23

'A' RHR is operating in the Torus Spray mode due to a small steam leak in the Drywell. The following indications exist for 'A' RHR:

- Annunciator 3-A-18, RHR WATER A HI CONDUCTIVITY, is in alarm.
- Annunciator 3-A-10, RHR HX A TUBE/SHELL LO DIF PRESS, is in alarm.
- 'A' RHR conductivity meter on Panel C-217 is reading 10 umho/cm.

Which of the following is correct for the stated conditions?

- a. Declare 'A' RHR inoperable for containment spray and restore the heat exchanger within 14 days.
- b. Declare 'A' RHR inoperable for ECCS injection and restore the heat exchanger within 30 days.
- c. Declare 'A' RHR inoperable for ECCS injection and restore the heat exchanger within 7 days.
- d. Declare 'A' RHR inoperable for containment cooling and restore the heat exchanger within 7 days.

MNGP 2003 SRO NRC Exam

Question No. 24

A control rod is being installed in the core during a refueling outage. The Control Rod Grapple is being used to move the control rod from the fuel pool to the core. As the control rod is being moved over the core the refueling platform air system fails causing a rapidly lowering air pressure.

Which of the following describes the expected results of the above stated failure?

- e. A cross-tie from the Instrument Air System will automatically open to maintain system pressure.
- f. Without air pressure to the Control Rod Grapple, there is no way of releasing the control rod.
- g. Without air pressure the Control Rod Grapple will release the control rod dropping it on top of the core.
- h. The control rod will need to be seated, to remove the weight from the Control Rod Grapple, and then manually unlatched.

MNGP 2003 SRO NRC Exam

Question No. 25

A refueling outage is in progress with a fuel assembly being moved over the core to its new in-core location. A CRD collet housing failure then occurs causing a control rod to drift out of the core. The following are the only indications of the above failure:

- Annunciator 5-A-27, ROD DRIFT, is in alarm.
- Control rod 10-23 is drifting out of the core as seen on the full core display.

Communication is received from the refuel floor that they are lowering the fuel bundle into the core.

Which of the following describes the action(s) that should be taken?

- a. Place the fuel bundle over the core in a safe condition by placing it in its in-core location.
- b. Immediately stop all refueling operations and declare the refueling interlocks inoperable.
- c. Continue refueling operations after performing procedure 0201, REFUELING INTERLOCKS WEEKLY TEST.
- d. Apply a continuous insert signal to control rod 10-23, disarm the control rod hydraulically, then recommence refueling operations.

MNGP 2003 SRO NRC Exam

Question No. 26

The following plant conditions exist:

- A reactor scram occurred as a result of a PCIS Group 1 isolation.
- Reactor pressure peaked at 1150 psig during the transient.
- C.5-2007 (FAILURE TO SCRAM) has been entered.
- All relief valves closed when reactor pressure dropped to 970 psig.

Immediately after the relief valves close Panel Y-10 loses power and within 5 seconds Reactor pressure has increased to 1075 psig.

When reactor pressure reached 1075 psig, which of the following describes the expected response of the Reactor Pressure Relief System and why?

- e. Relief valves E, G and H are open due to low-low set logic.
- f. None of the relief valves open because of low-low set logic.
- g. None of the relief valves open due to the loss of power to Panel Y10.
- h. Only relief valves G and H automatically open due to pressure rising to their actuation setpoint.

MNGP 2003 SRO NRC Exam

Question No. 27

A plant startup is in progress with the following conditions:

- Reactor pressure is 916 psig.
- MPR setpoint is 920 psig.
- EPR setpoint is 910 psig.
- PRO setpoint is 0%.
- Turbine Generator startup is about to commence.

Which of the following describes how the Turbine Bypass Valves and Control Valves will respond to adjusting the Flow Limit to 0% for testing?

- e. Bypass valves will reposition from a 12% open demand to go fully closed. Control valves will stay in the closed position.
- f. Bypass valves will reposition from a 15% open demand to go fully closed. Control valves will stay in the closed position.
- g. Bypass valves will reposition from a 15% open demand to go fully closed. Control valves will reposition from fully closed to a 15% open demand position.
- h. Bypass valves will reposition from a 12% open demand to go fully closed. Control valves will reposition from fully closed to a 12% open demand position.

MNGP 2003 SRO NRC Exam

Question No. 28

The plant is operating at 100% power. During restoration of the Reactor Water Clean-Up (RWCU) system following maintenance activities, an inadvertent Group 3 isolation occurs.

The Control Room Operator is in the process of restoring RWCU to service and has OPENED MO-2398, RWCU OUTBOARD ISOLATION. Valves MO-2397, RWCU INBOARD ISOLATION, and MO-2399, RWCU RETURN ISOLATION, are CLOSED. The operator is in the process of verifying that RWCU and Reactor pressures are equalized and receives the following information.

- The Reactor Building Operator reports that RWCU pump suction pressure is 1010 psig.
- Normal Reactor pressure indication is unavailable due to I&C work that was in progress.
- The Lead Control Room Operator reports that the Main Steam Line Pressure Averaging Manifold pressure is 960 psig.

What is the next action the Control Room Operator should take to restore the RWCU system?

- e. RWCU pressure and Reactor pressure are equalized and MO-2399, RWCU RETURN ISOLATION, should be fully OPENED.
- f. RWCU pressure and Reactor pressure are equalized and MO-2397, RWCU INBOARD ISOLATION, should be fully OPENED.
- g. RWCU pressure and Reactor pressure are NOT equalized and MO-2397, RWCU INBOARD ISOLATION, should be throttled OPEN to increase RWCU pressure.
- h. RWCU pressure and Reactor pressure are NOT equalized and MO-2404, RWCU DUMP TO HOTWELL, should be OPENED and CV-2403, DUMP FLOW, throttled OPEN to lower RWCU pressure.

MNGP 2003 SRO NRC Exam

Question No. 30

A Loss of Coolant Accident resulting in significant core damage has occurred. The 'A' train of SBGT has been operating continuously for over 2 weeks filtering and ventilating Primary containment. A loss of off-site power then occurs and the No. 11 EDG fails to start and energize Bus 15.

Assuming no operator action, which of the following is a concern with regards to the SBGT system?

- e. 'A' train may over heat due to the decay heat of the fission products on the filters.
- f. No SBGT trains are running because there is not an auto start signal for 'B' train.
- g. Loss of power to SBGT Aux air compressor would cause the 'B' train valves to fail close.
- h. Loss of both Dilution Air fans would prevent the air from properly discharging up the stack.

MNGP 2003 SRO NRC Exam

Question No. 31

A major electrical transient has occurred with the following conditions:

- Electrical system is in a SEBO.
- No. 11 EDG has failed to start.

The Transmission System Operator wishes to restore control power back to the 345 KV system for eventual switchyard restoration.

In accordance with the appropriate procedure, which of the following correctly restores control power to the 345 KV switchyard?

- e. Energize Bus 16 from No. 12 EDG and restore power via X-31/XFMR.
- f. Energize LC-107 from No. 13 EDG and restore power via X-31/XFMR.
- g. Manually restore power to the #6 transformer and restore power via X-41/XFMR.
- h. Manually restore power to the #10 transformer and restore power via X-41/XFMR.

MNGP 2003 SRO NRC Exam

Question No. 32

The plant was operating at 100% power when the following scenario timeline occurred:

- 0000 Complete loss of Off-Site power occurs.
- 0001 No. 12 EDG fails to start; cause is unknown.
- 0005 No. 11 EDG trips on output breaker overload.
- 0008 No. 13 EDG is unavailable due to lockout on LC-107.
- 0021 No. 12 EDG is started manually.
- 0035 Off-Site power is restored.

Which of the following states the highest Emergency Action Level (EAL) attained during the scenario above?

- a. Unusual Event
- b. Alert
- c. Site Area Emergency
- d. General Emergency

MNGP 2003 SRO NRC Exam

Question No. 33

The Control Room operator records the following Drywell Equipment and Floor Drain Sump pumping integrator data:

- Present Reading
 - Drywell Floor Drain Sump integrator reading is 160,235 gallons.
 - Drywell Equipment Drain Sump integrator reading is 247,082 gallons.
 - Present Time is 0645 (9/19/03)
- Previous Reading
 - Drywell Floor Drain Sump integrator reading is 158,885 gallons.
 - Drywell Equipment Drain Sump integrator reading is 245,432 gallons.
 - Previous Time was 0245 (9/19/03)

Which of the following states the correct Reactor Coolant System Unidentified leakage rate?

- e. 2.70 gpm
- f. 4.17 gpm
- g. 5.63 gpm
- h. 6.88 gpm

MNGP 2003 SRO NRC Exam

Question No. 34

The Off Gas Recombiner Trains are in operation. Due to a power failure AT-7731A, TRAIN 'A' OUTLET HYDROGEN ANALYZER, becomes inoperable and annunciator 252-A-28, TRAIN A OUTLET H₂ ANALYZER HIGH/INOP, alarms.

Which of the following describes the effect of this trip on the Off Gas System?

- e. Analyzer logic circuit shifts to a one-out-of-two-twice matrix.
- f. The recombiner train's outlet valve will automatically close.
- g. Analyzer logic circuit shifts to a one-out-of-two-once matrix.
- h. The associated Off Gas Compressor will automatically shutdown.

MNGP 2003 SRO NRC Exam

Question No. 35

The plant is operating at 100% power. The No. 12 Off Gas Storage Tank has just been filled and was removed from service. Due to an error, the No. 12 Off Gas Storage Tank has been lined-up and is discharging offsite.

Which of the following describes the effect of this malfunction and the interlock that failed to prevent it?

- e. An increased release will occur that should have been prevented by a timed interlock on SV-7642, 12 OFF GAS STORAGE TANK OUTLET VALVE.
- f. An increased release will NOT occur because FCV-7676, OGHU OG TO STACK FLOW CNTRL, will automatically close on high stack effluent radiation.
- g. An increased release will NOT occur because FO-7674, OG DISCHARGE FLOW LIMITING NOZZLE, is sized to prevent the uncontrolled release from the Off Gas Storage System.
- h. An increased release will cause annunciator 259-A-5, STACK EFFLUENT HIGH RADIATION, to alarm which results in SV-7677, COMPRESSED GAS STORAGE TO STACK VALVE, automatically closing.

MNGP 2003 SRO NRC Exam

Question No. 36

Which of the following Secondary Containment design features is used for the floor drains in the Standby Gas Treatment Rooms?

The SBTG Floor drains...

- e. contain a water loop seal which is required to be filled periodically.
- f. contain two valves which open automatically when water is sensed.
- g. discharge to the Turbine Building Floor Sump therefore no design feature is needed.
- h. contain two manual valves which have to be opened on the Reactor Side Weekly Checklist procedure.

MNGP 2003 SRO NRC Exam

Question No. 37

The plant is in a normal HVAC ventilation lineup with the following fans running:

- V-AC-10A, Reactor Building Supply Fan
- V-EF-24A, Reactor Building Exhaust Fan
- V-AH-4A, Refuel Floor Air Handling Unit
- V-EF-28, Refuel Floor Exhaust Fan

The inlet damper for V-EF-24A fails full closed.

Which of the following describes the effect this condition will have on the Reactor Building pressure and what automatic action should occur?

<u>Effect</u>	<u>Automatic Action</u>
e. More negative	V-FU-5, RWCU Pump Room Filter Unit, trips if pressure reaches minus 0.3 (-0.3) inches water column.
f. More negative	V-AH-4A, Refuel Floor Ventilation Unit, trips if pressure reaches minus 0.3 (-0.3) inches water column.
g. Become positive	V-FU-5, RWCU Pump Room Filter Unit, trips if pressure reaches 0.3 inches water column.
h. Become positive	V-AH-4A, Refuel Floor Ventilation Unit, trips if pressure reaches 0.3 inches water column.

MNGP 2003 SRO NRC Exam

Question No. 38

The plant is operating at 100% power when the following information is received from performance of test 0442, Special Jet Pump Operability Test:

- Loop A Average d/p is 8.12 psid.
- Loop B Average d/p is 7.02 psid.
- Jet Pump 11 Raw d/p is 8.29 psid.
- Jet Pump 12 Raw d/p is 3.58 psid.

Which of the following states the correct action to take and the basis for that action?

- a. Reduce recirc pump speed to $< 60\%$ and re-perform the test. Data gathered may not meet acceptance criteria due to systematic instrument errors at high flow.
- b. Reduce recirc and re-perform the test every 24 hours until recirc pumps are at minimum speed. Data gathered may not meet acceptance criteria at high flow.
- c. Declare 12 jet pump inoperable and reduce reactor pressure to < 150 psig within 24 hours. RPV water level may NOT be maintained at minus 174 (-174) inches following a DBA LOCA.
- d. Declare 12 jet pump inoperable and reduce reactor water temperature to $< 212^{\circ}\text{F}$ within 24 hours. RPV water level may NOT be maintained at minus 174 (-174) inches following a DBA LOCA.

MNGP 2003 SRO NRC Exam

Question No. 39

Which of the following statements describes how the reactor vessel steam separator works?

- e. A water-steam mixture passes upward through several standpipes arranged in series creating a torturous path, which removes the moisture.
- f. A water-steam mixture passes upward through a series of horizontally mounted chevron plates, which strip the moisture as the mixture passes by.
- g. A water-steam mixture passes over vanes, which impart a rotational motion. Centrifugal forces separate the high mass liquid from the low mass steam.
- h. 16 vane-type assemblies, each resembling an accordion, are vertically mounted. Steam passes over the vanes at an angle between horizontal and vertical.

MNGP 2003 SRO NRC Exam

Question No. 40

The plant was operating at 100% power when the following annunciators were received:

- 4-C-31, RECIRC DRIVE MOTOR A TRIP
- 4-C-32, RECIRC DRIVE MOTOR B TRIP

Immediately after the above annunciators were received an operator notices Main Turbine Control Valve oscillations between 25% and 35% valve position.

Which of the following actions should be taken?

- e. Restart one of the tripped Recirc pumps.
- f. Immediately insert a manual reactor scram.
- g. Perform B.05.09-05.H.1, CONTROL VALVE OSCILLATIONS.
- h. Enter C.4-F, RAPID POWER REDUCTION, and insert control rods.

MNGP 2003 SRO NRC Exam

Question No. 41

The plant was operating at full power when a transient occurred. The following conditions now exist:

- Main condenser pressure is indicating 8 inches of Mercury absolute.
- Numerous annunciators are in alarm.

Which of the following is correct for the above stated conditions?

- e. Reduce reactor power in an attempt to maintain condenser vacuum.
- f. Insert a manual reactor scram because the Main Turbine has tripped.
- g. Start the Mechanical Vacuum Pump to help restore condenser vacuum.
- h. Perform scram actions because the reactor has scrammed on low vacuum.

MNGP 2003 SRO NRC Exam

Question No. 42

The following conditions exist:

- A large explosion and fire in the upper 4 KV room has occurred.
- A loss of off-site power has occurred.
- The EDGs have energized Bus 15 and 16
- All safety systems are considered functional.
- The fire was extinguished in 12 minutes.

Which of the following describes the correct action and event classification?

- a. Sound the fire alarm and make an Alert notification.
- b. Activate the evacuation siren and make an Alert notification.
- c. Sound the fire alarm and make a Site Area Emergency notification.
- d. Activate the evacuation siren and make a Unusual Event notification.

MNGP 2003 SRO NRC Exam

Question No. 43

The Reactor is at 100% power when the following annunciators are received:

- 8-A-20, DIVISION 1 – 250V DC HI-LOW VOLTAGE
- 4-A-3, UNDERVOLTAGE RCIC DC MCC
- 8-B-25, UNDERVOLTAGE MG SET DC MCC
- 8-A-24, DIV I INVERTER Y71 TROUBLE
- 4-B-21, CLEAN UP FILTER DEMIN FAILURE

Which of the following actions are required and why?

- a. Cool down to < 212°F within 24 hours because of the loss of 250 VDC power.
- b. Entry a 7 day LCO because the 'A' LPCI Loop injection flow path is inoperable.
- c. Declare an ALERT in accordance with Guideline 19 because of a Loss of DC Power.
- d. Close the inboard isolation valve for RWCU within 72 hours because the outboard isolation valve is inoperable.

MNGP 2003 SRO NRC Exam

Question No. 44

The plant is operating at 50% power and a transient has occurred. The following plant conditions exist 10 seconds later without any operator actions having been taken:

- 345 KV Generator Breakers 8N4 and 8N5 green indicating lights are lit.
- Main Generator Field Breaker green indicating light is lit.
- Annunciator 8-A-1, NO. 1 GENERATOR LOCKOUT, is in alarm.
- Main Turbine Bypass valves indicate full open.
- Annunciator 5-A-46, SRV OPEN, is still active.

Which of the following actions should the CRS direct to be performed first?

- a. Enter C.5-2007, FAILURE TO SCRAM, and inhibit ADS.
- b. Enter C.5-1100, RPV CONTROL, and push both manual scram pushbuttons.
- c. Enter C.5-1100, RPV CONTROL, and manually lower RPV pressure to 930 psig.
- d. Enter C.5-2007, FAILURE TO SCRAM, and Reduce Recirc Pumps to minimum speed.

MNGP 2003 SRO NRC Exam

Question No. 45

A plant transient occurred resulting in the following timeline (with no operator action):

- 0700:00 Reactor scram.
- 0700:05 RPV water level goes below 9 inches.
- 0700:12 RPV water level reaches minus 41 (-41) inches and immediately starts to rise.
- 0701:10 RPV water level is above 9 inches.
- 0701:35 Both main FWRVs are closed.
- 0702:20 RPV water level reaches 48 inches.

Which of the following states the time that a Reactor Recirc Pump runback is initiated?

- e. 0702:35
- f. 0700:20
- g. 0700:15
- i. 0701:50

MNGP 2003 SRO NRC Exam

Question No. 46

The plant is operating at 100% power.

Which of the following correctly describes the effect on reactor power for the stated action?

- e. Initiation of Head Spray will result in a significant power rise due to the addition of large amounts of cold water.
- f. Fully opening one Safety Relief Valve will result in a corresponding power rise due to pulling off additional steam flow from the RPV.
- g. Performance of procedure 0255-07-IA-1, MAIN STEAM VALVE EXERCISE TESTS, fully closing the MSIV may result in a full reactor scram.
- h. Performance of procedure 0009, TURBINE STOP VALVE CLOSURE SCRAM TEST, requiring TSVs be closed 10% may result in a full reactor scram.

MNGP 2003 SRO NRC Exam

Question No. 47

A small break LOCA has occurred in the drywell and the following conditions exist:

- Drywell pressure is 7.5 psig and slowly rising.
- Reactor water level lowered to minus 24 (-24) inches and is now steady on the Low Flow FW Reg. Valve at 15 inches.
- Reactor pressure is at 550 psig and slowly lowering.

Which of the following is the status of the RHR system and why?

- e. A LPCI injection signal is present but no RHR pumps are running due to reactor pressure being above the interlock setpoint.
- f. A LPCI injection signal is NOT present therefore no RHR pumps are running due to reactor pressure being above the interlock setpoint.
- g. A LPCI injection signal is present and all RHR pumps are running, but no water is being injected into the vessel because the LPCI outboard injection valves are still closed.
- h. A LPCI injection signal is present and all RHR pumps are running, but no water is being injected into the vessel because the LPCI inboard injection valves are still closed.

MNGP 2003 SRO NRC Exam

Question No. 48

Following a reactor scram, the following conditions exist:

- C.5-1100, RPV CONTROL, has been entered.
- Recirc temperature is 530°F and lowering.
- Reactor pressure is 1010 psig and rising slowly.
- LI-2-3-86, REACTOR FLOODING LEVEL, is 82 inches.
- All other Reactor water level indications are pegged high.

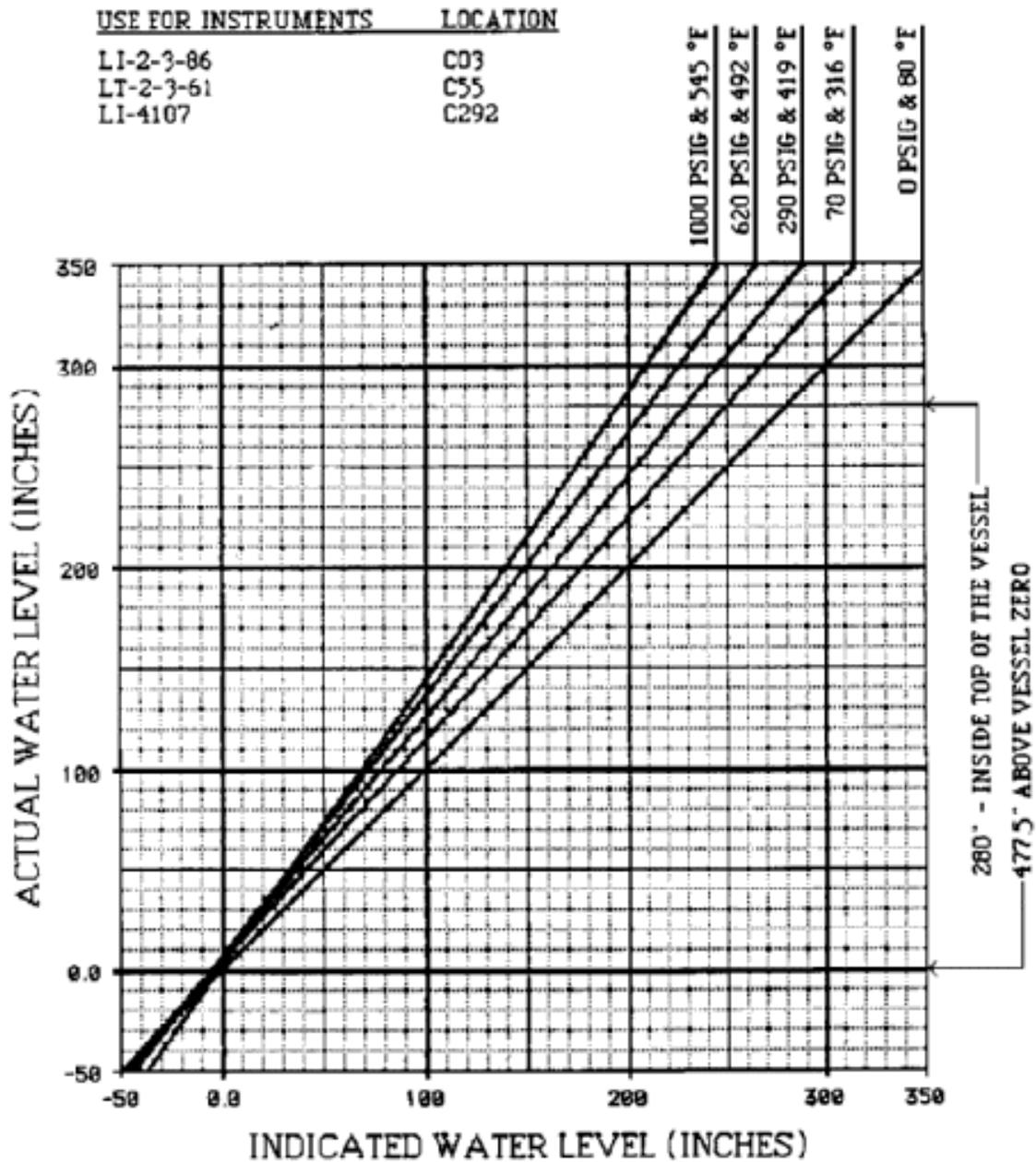
Using Figure 31, VESSEL FLOODING INSTRUMENTS, on the next page, which of the following states the concern that exists?

- e. The Main Steam lines have become flooded which could complicate pressure control.
- f. A complete loss of all level indication exists requiring entry into C.5-2006, RPV FLOODING.
- g. The Steam Separator returns have become covered resulting in a loss of downcomer return flow.
- h. The high pressure/temperature condition coincident with high RPV level may exceed vessel design pressure limits.

MNGP 2003 SRO NRC Exam

Figure 31 Vessel Flooding Instruments

VESSEL FLOODING INSTRUMENTS ACTUAL VERSUS INDICATED LEVEL FOR SELECTED REACTOR VESSEL PRESSURES



MNGP 2003 RO NRC Exam

Question No. 49

The plant was operating at 100% power when a feedwater transient occurred. During the transient the following alarms came in and then cleared after 5 seconds.

- 5-A-9, REACTOR VESSEL L/L WTR LEVEL CH A.
- 5-A-10, REACTOR VESSEL L/L WTR LEVEL CH B.

What is the status of the Reactor Recirculation MG Sets two minutes after the above transient, and what is the configuration of their breakers?

- | | |
|------------|--|
| e. Running | Generator Drive Motor Breaker CLOSED, and Field Breaker CLOSED |
| f. Running | Generator Drive Motor Breaker CLOSED, and Field Breaker OPEN |
| g. Stopped | Generator Drive Motor Breaker OPEN, and Field Breaker CLOSED |
| h. Stopped | Generator Drive Motor Breaker OPEN, and Field Breaker OPEN |

MNGP 2003 RO NRC Exam

Question No. 50

The plant is operating at 100% power when the following occurs:

- Drywell Pressure is 1.1 psig and slowly rising at 0.1 psig per minute.
- The Primary Containment is being vented to Standby Gas Treatment with valves:
 - CV-2385, DW VENT TO STBY GAS
 - AO-2387, DW OTBD VENT

Which of the following statements is correct for the above stated conditions?

Drywell Pressure rises to 2.0 psig, the vent valves will _____ (1) _____, Standby Gas Treatment will _____ (2) _____.

- | | (1) | (2) |
|----|-------------|---------------------|
| e. | Isolate | continue to operate |
| f. | remain open | continue to operate |
| g. | isolate | trip |
| h. | remain open | trip |

MNGP 2003 RO NRC Exam

Question No. 51

The plant is operating at 100% power. The Drywell Atmosphere Cooling System has malfunctioned. Due to a loss of cooling, average Drywell air temperature has risen from 115°F to 127°F and is rising 1°F every 5 minutes.

Which of the following describes the concern, if this trend is continued for another 30 minutes without change?

- e. A reactor scram may occur from 2 psig Drywell pressure.
- f. RPV water level instruments will start to become unreliable.
- g. The EOPs will need to be entered from high Drywell temperature.
- h. Environmental qualification of equipment in the Drywell will no longer be maintained.

MNGP 2003 RO NRC Exam

Question No. 52

The plant is operating at full power with the following conditions:

- Annunciator 5-B-41, CRD HI TEMPERATURE, is in alarm.
- Annunciator 4-B-28, FLOOR DRAIN LEAK RATE CHANGE HI, is in alarm.
- Drywell temperature is 130°F and increasing slowly.

After an investigation and performance of C.4-B.04.01.F, LEAK INSIDE PRIMARY CONTAINMENT, the Control Room Supervisor (CRS) has directed a shutdown to begin.

Which of the following describes why the CRS directed a plant shutdown?

- a. Experiments suggest that for leakage greater than the limit, there is a large probability that the imperfection or crack associated with the leak may grow rapidly.
- b. With leakage in excess of the limits, or if known pressure boundary leakage exists, then the plant should be shutdown for further investigation and corrective action.
- c. The possibility exists that, with a leak from one of the CRD stub tubes, the associated CRDM could be ejected from the RPV possibly damaging the containment boundary.
- d. The possibility exists that, with a leak from one of the CRD stub tubes, cooling will be reduced to several CRDMs resulting in numerous CRD high temperature alarms.

MNGP 2003 RO NRC Exam

Question No. 53

Plant startup is in progress with the following conditions:

- Reactor Pressure is 150 psig.
- HPCI testing is in progress.
- Torus temperature is 91°F.
- Torus level is 2 inches.

Which of the following is correct for the above stated conditions?

The RHR system is required to be in _____ (1) _____ because _____ (2) _____.

- | (1) | (2) |
|----------------------|---|
| e. Torus Cooling | heat is being added to the Torus |
| f. Torus Cooling | HPCI exhaust is raising Torus Level |
| g. LPCI Standby Mode | it is required prior to exceeding 150 psig reactor pressure |
| h. LPCI Standby Mode | the reactor is above 212°F |

MNGP 2003 RO NRC Exam

Question No. 54

Given the following plant conditions:

- The plant is in a startup following a 25 day refuel outage.
- SRV testing is about to commence.
- Both loops of RHR are in Torus Cooling mode.
- Torus temperature is at the minimum recommended temperature.

If 1 open SRV will increase Torus temperature by 1°F/minute, which of the following states the maximum amount of time available for testing before the Torus temperature reaches the limit for testing allowed by Tech Specs?

- e. 28 minutes
- f. 32 minutes
- g. 36 minutes
- h. 40 minutes

MNGP 2003 RO NRC Exam

Question No. 55

The reactor was operating at 100% power when the following events occurred:

- The Main Turbine TRIPPED.
- None of the 121 rods moved.
- MCC-111 DE-ENERGIZED.

Which of the following is correct for the stated conditions?

The scram _____ (1) _____ be RESET. Direct the operator to insert control rods per _____ (2) _____.

- | | (1) | (2) |
|----|---------|--|
| a. | Can | C.5.1-3101, ALTERNATE ROD INSERTION, PART D, RESCRAM CONTROL RODS |
| b. | can NOT | C.5.1-3101, ALTERNATE ROD INSERTION, PART D, RESCRAM CONTROL RODS |
| c. | can | C.4-A, REACTOR SCRAM, by raising drive water pressure and manually inserting control rods. |
| d. | can NOT | C.4-A, REACTOR SCRAM, by raising drive water pressure and manually inserting control rods. |

MNGP 2003 RO NRC Exam

Question No. 56

A fire has been burning in the Cable Spreading Room for 10 minutes. The decision has been made to evacuate the Control Room in accordance with C.4-C, SHUTDOWN OUTSIDE CONTROL ROOM.

Which of the following describes why the operators should "proceed expeditiously" to the ASDS Panel and transfer control of associated systems from the Control Room?

- e. This will minimize the potential for spurious operation of the associated equipment prior to transfer.
- f. Transfer of the 12 EDG should occur as early as possible to ensure an emergency source of power is available.
- g. This will minimize the amount of time that a critical reactor is unmonitored prior to scramming from the ASDS Panel.
- h. EFT Building 3rd floor has its own HVAC System, therefore transition should be quick to minimize exposure to toxic gases from the fire.

MNGP 2003 RO NRC Exam

Question No. 57

Due to a fire in the plant, Control Room operations have been transferred to ASDS Panel C-292. All TRANSFER switches have been placed in the TRANSFER position. The NO. 12 DIESEL GEN TRANSFER SWITCH red indicating light is NOT lit. Grid voltage has dropped to 3750 volts on all buses.

Which of the following is correct with regards to restoring power to Bus 16?

- e. An automatic transfer of power from the 1AR Transformer to Bus 16 should occur after a five second time delay.
- f. No. 12 EDG automatically starts and loads onto the bus when undervoltage is sensed on Bus 16 for nine seconds.
- g. Hold the NO. 12 DIESEL GEN CONTROL switch in the START position at the ASDS Panel until adequate voltage and frequency is verified.
- h. A local manual start of the No. 12 EDG will be required at the No. 12 EDG Control Panel since the ASDS transfer of the No. 12 EDG failed.

MNGP 2003 RO NRC Exam

Question No. 58

A transient has occurred from 100% power resulting in the following conditions:

- All control rods have inserted.
- A reactor coolant leak exists in the Reactor Building and cannot be isolated.
- Reactor Building Ventilation (RBV) Exh Plenum Rad Monitor A indicates 28 mr/hr.
- Reactor Building Ventilation (RBV) Exh Plenum Rad Monitor B is bypassed for testing.

Which of the following is correct for the above stated conditions?

- e. Secondary Containment should isolate and SBGT should start to filter the radioactivity prior to discharge out the Reactor Building Vent.
- f. A Secondary Containment isolation should occur and SBGT should start to reduce the radioactivity discharged from the Off Gas Stack.
- g. A manual secondary containment isolation and start of SBGT will be necessary since one RBV Exh Plenum Rad Monitor is bypassed for testing.
- h. A manual secondary containment isolation and start of SBGT should be initiated since RBV Exh Plenum Rad Monitor A has not reached its trip setpoint.

MNGP 2003 RO NRC Exam

Question No. 59

Due to a transient an offsite release is in progress. The following indications have been reported:

- Dose rates at the site boundary are measured at 50 mrem/hour and are expected to exist for an hour.
- The Containment Radiation Monitors on Panels C-257/C-258 are reading 60 Rem/hour.
- The most recent reactor coolant sample shows dose equivalent I-131 of 3,300 uCi/gm.
- RPV water level lowered to minus 150 (-150) inches during the transient.
- Primary containment pressure rapidly rose to 58 psig and then dropped to 20 psig within one minute.

What is the emergency plan classification of this event?

- a. Unusual Event
- b. Alert
- c. Site Area Emergency
- d. General Emergency

MNGP 2003 RO NRC Exam

Question No. 60

The plant is operating at 100% power. Service Water flow has been reduced through one RBCCW Heat Exchanger due to fouling. RBCCW Temperature is 110°F and rising.

Which of the following describes the reason that a standby RBCCW Heat Exchanger must be placed in service?

- e. RBCCW temperature will rise and eventually the RWCU system will isolate and trip the RWCU pumps.
- f. RWCU Pump Room Temperatures will rise and eventually cause RWCU to isolate and trip the RWCU pumps.
- g. RWCU will operate normally due to the minimal heat load from the RWCU Non-Regenerative Heat Exchangers.
- h. RWCU F/Ds will automatically go into hold and bypass the filter demineralizers upon receipt of a High RBCCW temperature signal.

MNGP 2003 RO NRC Exam

Question No. 61

The No. 11 Instrument Air Compressor is isolated for maintenance. A plant transient occurs resulting in the following annunciators alarming:

- 8-C-34, NO. 104 480V LDCTR MCC FEEDER TRIP
- 7-B-15, EPR TROUBLE
- 6-B-32, RBCCW LOW DISCH PRESS
- 6-B-33, RBCCW STANDBY PUMP START

Which of the following power supplies, if locked-out due to overcurrent in conjunction with the above stated conditions, would lead to a reactor scram?

- e. Bus 13
- f. LC-108
- g. MCC-134
- h. 1R Transformer

MNGP 2003 RO NRC Exam

Question No. 62

Which of the following describes why Primary Containment should be vented prior to exceeding the Drywell Pressure Limit? Assume normal Torus water level.

- e. At the Drywell Pressure Limit, there is no assurance that SRVs can be opened or will remain open.
- f. Vent valves used to vent the RPV during drywell flooding may not be able to be opened above this pressure.
- g. Exceeding the design pressure limit of 58 psig could result in structural failure of the primary containment.
- h. If the Drywell Pressure Limit is exceeded prior to the start of containment venting then the vent valves may not open.

MNGP 2003 RO NRC Exam

Question No. 63

A transient is in progress at full power with the following indications:

- Annunciator 5-B-16, REACTOR PRESS HI/LO, is in alarm.
- PI-6-90A, REACTOR PRESSURE A, indicates 1030 psig and rising.
- PI-6-90B, REACTOR PRESSURE B, indicates 1032 psig and rising.

Which of the following actions should be taken for the stated transient?

- e. Push the EPR STOP pushbutton
- f. Depress both manual scram pushbuttons
- g. Reduce both Recirc pumps to minimum speed
- h. Fully open bypass valves with the Pressure Regulator Override

MNGP 2003 RO NRC Exam

Question No. 64

Which of the following statements about the Reactor Coolant System Pressure Safety Limit is correct?

The Reactor Coolant System Pressure Safety Limit is _____ (1) _____ and is based on not exceeding pressure transients of up to _____ (2) _____, which if exceeded will result in a plant shutdown.

(1)

(2)

- | | |
|--|----------------------------------|
| a. 1332 psig in the vessel steam space | 20% over piping design pressure. |
| b. 1335 psig at the bottom of the vessel | 20% over piping design pressure. |
| c. 1332 psig in the vessel steam space | 10% over vessel design pressure. |
| d. 1335 psig at the bottom of the vessel | 10% over vessel design pressure. |

MNGP 2003 RO NRC Exam

Question No. 65

The following conditions exist:

- Drywell Pressure is 6.5 psig.
- Reactor Pressure is 1000 psig.
- Torus Temperature is 160°F.
- Torus Level is minus 2.5 (-2.5) feet.
- Both loops of Torus Cooling are in service at 6000 gpm per loop.

Which of the following is correct for the above stated conditions?

It is required to...

- a. blowdown.
- b. lower RPV Pressure.
- c. throttle RHR to 5000 gpm.
- d. secure one RHR Pump in each loop.

MNGP 2003 RO NRC Exam

Question No. 66

Which of the following statements is correct?

It is required to initiate Standby Liquid Control before Torus Temperature reaches _____ (1) to ensure that _____ (2) _____.

- | | (1) | (2) |
|----|-------|---|
| e. | 105°F | Cold Shutdown Boron can be injected before RPV Cooldown commences. |
| f. | 110°F | Cold Shutdown Boron can be injected before RPV Cooldown commences. |
| g. | 105°F | Hot Shutdown Boron can be injected before exceeding the Heat Capacity Limit of the Torus. |
| h. | 110°F | Hot Shutdown Boron can be injected before exceeding the Heat Capacity Limit of the Torus. |

MNGP 2003 RO NRC Exam

Question No. 67

A plant transient occurred, conditions are as follows:

- Reactor Pressure is 450 psig.
- Drywell Temperature is 295°F and rising at 1°F per minute.
- Drywell Sprays are not available.
- All RBCCW Pumps are tripped.

Which of the following is correct for the above stated conditions?

It is required to:

- a. Start a cooldown at 70°F / hr in accordance with C.5-1100, RPV CONTROL.
- b. Enter C.5-2006, RPV FLOODING, because Reactor Water Level is unknown.
- c. Inhibit ADS in accordance with C.5-1100, RPV CONTROL, to prevent depressurization due to SRV failure.
- d. Enter C.5-2002, EMERGENCY RPV BLOWDOWN, because Drywell design temperature has been exceeded.

MNGP 2003 RO NRC Exam

Question No. 68

The following plant conditions exist:

- Drywell pressure is 1.8 psig and rising.
- Drywell temperature is 137°F and rising.
- RPV water level is 15 inches and lowering.
- Suppression pool temperature is 89°F and rising.

As the Control Room Supervisor, which of the following procedures should you direct performance of?

- a. C.5-3204, RPV MAKEUP WITH CRD
- b. C.5-3503, DEFEAT DRYWELL COOLER TRIPS
- c. C.5-3504, PRIMARY CONTAINMENT VENT AND PURGE
- d. C.5-3203, USE OF ALTERNATE INJECTION SYSTEMS FOR RPV MAKEUP

MNGP 2003 RO NRC Exam

Question No. 69

The following plant conditions exist:

- A LOCA has occurred from the RPV bottom head.
- RPV water level is minus 135 (-135) inches and steady with injection.
- HPCI and RCIC have become unavailable.
- RPV pressure is 500 psig and lowering.
- Torus and Drywell spray are in operation.
- Torus level is 2.8 feet and rising slowly.

A failure of the Torus level indication in the Control Room then occurs. Several minutes later the following indications exist:

- Drywell pressure is 4 psig and lowering fast.
- Torus pressure is 11 psig and rising slowly.

Which of the following describes the cause of the above indications and as the CRS, what action(s) should be directed to the panel operators?

- a. The primary containment vent header has become covered. Stop Drywell sprays.
- b. The Torus to Drywell vacuum breakers have become covered. Stop Drywell sprays.
- c. The primary containment vent header has become covered. Stop ALL injection to the RPV.
- d. The Torus to Drywell vacuum breakers have become covered. Stop ALL injection to the RPV.

MNGP 2003 RO NRC Exam

Question No. 70

The plant was operating at full power when a transient occurred. During the course of taking actions for the transient it is noticed by the panel operators that Torus water level is at 3.8 feet.

As the CRS, which of the following actions should you direct the panel operators to perform and what is the basis for that action?

- a. Direct the panel operator to insert a manual scram to reduce reactor power and the amount of steam being generated.
- b. Direct the panel operator to open 3 SRVs to provide a sufficient amount of steam flow through the core for cooling.
- c. Direct the panel operator to open 3 SRVs because the SRV solenoids are being covered and may no longer be operable.
- d. Direct the panel operator to insert a manual scram because opening the SRVs at this level will cause discharge line failure.

MNGP 2003 RO NRC Exam

Question No. 71

Emergency Depressurization is required due to Low Torus Water Level.

The reason that Torus Water Level is required to be above minus 5.9 (-5.9) feet is to ensure that ____ (1) ____ remain submerged to prevent ____ (2) ____ from exceeding limits.

- | (1) | (2) |
|----------------------------------|-------------------------|
| e. Downcomers | Torus Water Temperature |
| f. Safety Relief Valve Tailpipes | Torus Water Temperature |
| g. Downcomers | Containment Pressure |
| h. Safety Relief Valve Tailpipes | Containment Pressure |

MNGP 2003 RO NRC Exam

Question No. 72

A rupture in the bottom of the Torus has occurred. A manual reactor scram was initiated and the Control Room Supervisor has given the order to open 3 ADS valves. HPCI is operating to control RPV water level due to a feed system malfunction. The following conditions exist for HPCI:

- Pump discharge pressure is 900 psig.
- Pump suction pressure is 15 psig.
- Turbine exhaust pressure is 2 psig.
- System flow is steady at 800 gpm.

Prior to opening the ADS valves, Torus air space pressure begins to rise at 1.0 psig per minute.

Which of the following actions should be completed?

- e. Do not open the 3 ADS valves.
- f. Start all available Torus cooling.
- g. The HPCI turbine should be tripped.
- h. Wait until 2.0 psig in the Torus then start Torus spray.

MNGP 2003 RO NRC Exam

Question No. 73

A Loss of Coolant Accident (LOCA) has occurred in the RWCU Room; the system has failed to isolate.

At 09:00:00 RPV Water Level is minus 47 (-47) inches, lowering at 2 inches per minute. HPCI automatically started, immediately tripped and will NOT restart. NO other High Pressure injection systems are available.

Which of the following states the time at which the ADS valves will open and what is the basis for that automatic action?

<u>Time</u>	<u>Basis</u>
e. 09:21:47	To prevent fuel clad melting during a small break LOCA.
f. 09:01:47	To prevent fuel clad melting during a small break LOCA.
g. 09:21:47	To prevent fuel clad melting during a large break LOCA.
h. 09:01:47	To prevent fuel clad melting during a large break LOCA.

MNGP 2003 RO NRC Exam

Question No. 74

Which of the following is correct?

While injecting CRD per C.5-3204 RPV MAKEUP WITH CRD, the _____ flowpaths ONLY are injecting water into the reactor.

- e. Cooling Water, Drive Water, and Test
- f. Charging Water, Drive Water, and Test
- g. Charging Water, Cooling Water, and Test
- h. Charging Water, Drive Water, and Cooling Water

MNGP 2003 RO NRC Exam

Question No. 75

The plant is operating at full power with the following conditions:

- Annunciator 4-A-21, TURBINE BUILDING HI RADIATION, is in alarm.
- Area Radiation Monitor, 951 Turbine Floor, amber HI light is lit.
- Annunciator 259-A-6, RBV EFFLUENT HIGH RADIATION, is in alarm.
- The mid range detector for Reactor Building Vent WRGM is now providing the input for calculating effluent release.

Which of the following actions is immediately required by procedure for the stated conditions?

- e. Immediately scram the reactor.
- f. Commence a normal reactor shutdown.
- g. Evacuate all personnel from the Turbine Building.
- h. Dispatch the Turbine Building operator to investigate.

MNGP 2003 RO NRC Exam

Question No. 76

Given the following:

- A high radiation condition exists in the Reactor Building plenum.
- A Reactor scram has occurred due to low Reactor water level.
- Annunciator 3-B-55, REACTOR BLDG EXH PLENUM HI RAD, is in alarm.
- Annunciator 259-A-6, RBV EFFLUENT HIGH RADIATION, is in alarm.
- EOP-1300, SECONDARY CONTAINMENT CONTROL, has been entered.

Which of the following actions should be taken for the above stated conditions and why?

- e. Restart secondary containment ventilation because both trains of SBGT have failed to start.
- f. Restart secondary containment ventilation to ensure that a negative pressure exists relative to atmosphere.
- g. Depress both TEST pushbuttons on C-24A and C-24B Panels because SBGT failed to automatically initiate.
- h. Depress both TEST pushbuttons on C-24A and C-24B Panels to ensure a filtered exhaust is discharged from the Reactor Building.

MNGP 2003 RO NRC Exam

Question No. 77

Following a transient, the SCTMT isolated and the SBGT system initiated. The reading for DPI-4424, CONTROL ROOM C24 MANOMETER, is found to be negative 0.02 (-0.02) inches of water.

Which of the following could be a possible cause for this condition?

- e. The Turbine Building Supply fan, V-MZ-1, failed to trip.
- f. V-D-36, REFUELING POOL EXHAUST, damper is found to be open.
- g. The operating Reactor Building Exhaust fan, V-EF-24A/B, failed to trip.
- h. Inlet isolation dampers for V-AC-10A and V-AC-10B are found to be open.

MNGP 2003 RO NRC Exam

Question No. 78

Which of the following statements is correct?

The reason for the action required when a primary system is discharging into the Reactor Building and two areas have reached MAX SAFE WATER LEVEL is to:

- e. avoid unnecessary transients on the Reactor.
- f. reduce the rate of heat generation by the reactor.
- g. ensure that decay heat is sent to the Main Condenser.
- h. reduce the rate of discharge into the Reactor Building.

MNGP 2003 RO NRC Exam

Question No. 79

The plant was operating at 100% power when a transient occurred. The following indications exist after the transient:

- Annunciator 5-B-16, REACTOR PRESS HI/LO, is in alarm.
- Annunciator 5-B-11, REACTOR VESSEL HI PRESS SCRAM TRIP, is in alarm.
- ATWS trip activated.
- SRVs remain open.

Which of the following states the lowest reactor pressure that could have caused the above stated indications?

- e. 1025 psig
- f. 1056 psig
- g. 1135 psig
- h. 1170 psig

MNGP 2003 RO NRC Exam

Question No. 80

C.5-2007 (FAILURE TO SCRAM) has been entered; conditions are as follows:

- The plant is at 15% power with two Safety Relief Valves OPEN.
- Reactor Water Level is 15 inches.
- Torus Water Temperature is 112°F.
- Drywell Pressure is 2.5 psig.
- ONLY Boron and CRD are injecting to the Reactor.

Which of the following parameter changes, in conjunction with the above stated conditions, will allow for resuming injection with Reactor Feed Pumps?

- a. Power is 5%.
- b. All SRVs are closed.
- c. RPV Level is minus 33 (-33) inches.
- d. RPV Level is minus 126 (-126) inches.

MNGP 2003 RO NRC Exam

Question No. 81

The plant is operating at full power when a transient occurs. Numerous annunciators are now in alarm. A release is in progress with Protected Area radiation levels of 5 - 10 mr/hr as determined from air samples taken by the Radiological Survey Team.

Which of the following is correct for the stated conditions?

- e. Control Room ventilation has automatically shifted into the High Radiation mode.
- f. Control Room ventilation has automatically shifted into the Recirculation mode.
- g. V-EF-40A and V-EF-40B (Battery Room Exhaust Fans) trip and V-EF-11 and V-EF-12 (Control Room Emergency Filtration Unit Fans) start.
- h. V-ERF-14A and V-ERF-14B (Control Room Recirculation/Exhaust Fans) trip and V-EF-11 and V-EF-12 (Control Room Emergency Filtration Unit Fans) start.

MNGP 2003 RO NRC Exam

Question No. 82

The plant is operating at 100% power when the following occur:

- Annunciator 6-B-32, RBCCW LOW DISCH PRESS, is in alarm.
- RBCCW Pressure indicates 0 psig.
- Annunciator 4-B-5, RECIRC PUMP A LOW COOL WATER FLOW, is in alarm.
- Annunciator 4-B-10, RECIRC PUMP B LOW COOL WATER FLOW, is in alarm.
- Annunciator 4-B-26, CLEAN UP DEMIN TEMP HI, is in alarm.
- NO RBCCW Pumps will start.

Which of the following actions is required within one minute?

- e. Trip both Recirc Pumps.
- f. Vent the Containment to stay below 2 psig.
- g. Trip and Isolate the Reactor Water Cleanup System.
- h. Secure the operating Control Rod Drive Hydraulic Pump.

MNGP 2003 RO NRC Exam

Question No. 83

The following conditions exist with containment spray in operation:

- Drywell Pressure is 3.6 psig
- Torus Pressure is 2.4 psig
- Drywell Temperature is 145°F
- Torus Temperature is 105°F
- Torus Level is 2 inches
- Drywell Hydrogen is 3%
- Torus Hydrogen is 2%

Which of the following is correct for the stated conditions?

- a. Blowdown
- b. Start CGCS
- c. Flood the Drywell
- d. Stop Containment sprays

MNGP 2003 RO NRC Exam

Question No. 84

The No. 12 Reactor Feedwater Pump is required to be isolated while at 50% power.

Which of the following is the proper sequence for closing and opening the discharge and suction valves and why?

- e. Close the suction valve and then the discharge valve on isolation; open the discharge valve and then the suction valve on restoration; relieves isolated pressure back to the suction.
- f. Close the discharge valve and then the suction valve on isolation; open the discharge valve and then the suction valve on restoration; prevents over pressurization of the suction piping.
- g. Close the suction valve and then the discharge valve on isolation; open the suction valve and then the discharge valve on restoration; relieves isolated pressure back to the suction.
- h. Close the discharge valve and then the suction valve on isolation; open the suction valve and then the discharge valve on restoration; prevents over pressurization of the suction piping.

MNGP 2003 RO NRC Exam

Question No. 85

Which of the following is REQUIRED to be performed prior to physically removing control rod XX-YY from the core for blade replacement during REFUEL operations?

- a. Ensure that the control cell for control rod XX-YY is defueled.
- b. Ensure all other control rods are fully inserted.
- c. Ensure that all four SRMs are OPERABLE.
- d. Ensure that the REFUEL INTERLOCKS for rod XX-YY have been defeated.

MNGP 2003 RO NRC Exam

Question No. 86

Which of the following is a valid and reportable ESF actuation requiring immediate NRC notification?

- a. HPCI was manually initiated in order to maintain reactor water level during a feedwater transient.
- b. During performance of a post maintenance test procedure, which describes the possibility of HPCI startup, HPCI started and injected.
- c. Reactor power is greater than 15% and a HPCI flow test was in progress. Due to trainee error, HPCI was allowed to inject into the reactor vessel.
- d. During calibration of a HPCI level instrument, HPCI starts but does NOT inject into the reactor vessel as a result of the I&C Technician not following the procedure.

MNGP 2003 RO NRC Exam

Question No. 87

The reactor is operating at 100% power when the following occur:

- Annunciator 8-A-17, NO.1 GENERATOR COOLING WATER FAILURE, alarms.
- Speed/Load Changer on C-07 is 104% and intermittently decreasing.
- Neither Stator Cooling Pump can be started.

Which of the following actions is correct for this condition?

- e. manually trip the Main Turbine
- f. lower the Speed/Load Changer
- g. perform C.4-K, IMMEDIATE REACTOR SHUTDOWN
- h. perform C.4-F RAPID POWER REDUCTION

MNGP 2003 RO NRC Exam

Question No. 88

Given the following plant conditions:

- A reactor coolant rupture has occurred in the Reactor Building.
- The rupture has NOT been able to be isolated.
- A manual reactor scram was initiated.
- Four (4) control rods remain at position 04.
- RWCU Pump Room temperature is $> 212^{\circ}\text{F}$.
- 962 foot elevation outside the RWCU Pump Room is 205°F and rising.
- SBTG has automatically initiated.
- C.5-1100, RPV CONTROL, and C.5-1300, SECONDARY CONTAINMENT CONTROL, have been entered.

Which of the following actions should be taken for the above stated conditions?

- e. Restart Turbine Building Ventilation to ensure a diluted, elevated release.
- f. Exit C.5-1100, RPV CONTROL, and enter C.5-2007, FAILURE TO SCRAM.
- g. Open the main turbine bypass valves and exceed a $100^{\circ}\text{F}/\text{hour}$ cooldown rate.
- h. Enter C.5-2002, EMERGENCY RPV DEPRESSURIZATION, and blowdown the RPV.

MNGP 2003 RO NRC Exam

Question No. 89

The plant is operating at full power with the following conditions:

- Annunciator 5-B-17, CHARGING WATER LO PRESS, is in alarm.
- CRD Charging Water Header pressure indicates 1050 psig on the C-05 panel.
- The No. 11 CRD Pump is operating normally.
- The Reactor Building operator has been dispatched to the No. 11 CRD Pump to investigate per ARP 5-B-17.

One minute later:

- The Reactor Building operator reports that there is a rupture in the charging water header.
- Annunciator 5-B-38 (ACCUMULATOR LOW/PRESS HI/LEVEL) alarms.

Which of the following states the actions that should be taken by Control Room operators?

- e. Perform the actions of C.4-B.01.03.A, LOSS OF CRD FLOW, and start the No. 12 CRD Pump.
- f. Continue to perform the actions of ARP 5-B-17 and throttle open CRD 3-1, 11 CRD PUMP DISCH VALVE.
- g. Perform actions of C.4-K, IMMEDIATE REACTOR SHUTDOWN, and then enter C.5-1100, RPV CONTROL.
- h. Perform the actions of C.4-I, PLANT FLOODING, and then enter C.5-1300, SECONDARY CONTAINMENT CONTROL.

MNGP 2003 RO NRC Exam

Question No. 90

The following plant conditions exist:

- The plant has scrammed from 100% power.
- A Loss of Coolant Accident has occurred.
- Attempts at Drywell sprays have failed.
- Primary containment pressure is 52 psig and slowly rising.
- Torus level is 10.3 feet and steady.
- Determination has been made to vent the containment.

Which of the following is the best flowpath for venting the primary containment and why?

- e. Vent from the Drywell through the 2 inch line to SBGT to minimize the potential for damage to SBGT duct work.
- f. Vent from the Torus through the Hard Pipe Vent because Torus level precludes using the normal vent flowpaths.
- g. Vent from the Drywell through the Reactor Building Exhaust Plenum to ensure that an elevated release path is used.
- h. Vent from the Torus through the 18 inch line to SBGT so that the containment atmosphere is scrubbed by the suppression pool.

MNGP 2003 RO NRC Exam

Question No. 91

The Reactor is operating at 30% power with the 'A' Recirc pump secured and concerns now exist of possible stratification in the idle loop.

Which of the following actions would be a correct method to avoid or correct the loop stratification in the idle loop?

- e. Secure all seal injection to the idle recirc pump to minimize excessive cooldown.
- f. Re-open the 'A' Recirc loop suction valve to provide some flow through the loop.
- g. Maintain the running Recirc pump at as high a speed as allowed with the idle loop discharge valve open.
- h. Ensure the RHR Intertie Line is in use, with the appropriate valves open, to provide maximum flow to the idle loop.

MNGP 2003 RO NRC Exam

Question No. 92

A NLO has a SOMS clearance order that requires independent verification.

For which of the following conditions can the Control Room Supervisor waive independent verification?

Clearance of a tag on...

- e. PC-26, REACTOR WELL DRN TO PUMP SUCT, during a refuel outage.
- f. MO-1615, FW FROM HP HTRS BLOCK, while the plant is at full power.
- g. CV-1729, 12 RHR HX RHRSW OUTLET, for setting the neutral position.
- h. B3348, SCTMT DIV 1 ISOL & SBT "A" TRAIN CONTROL PWR, following filter replacement.

MNGP 2003 RO NRC Exam

Question No. 93

The plant was operating at 100% power when a Loss of Coolant Accident occurred in the Drywell. The following conditions now exist:

- Div II RHR pumps are providing Torus and Drywell sprays at a combined flow of 8000 gpm.
- Div I RHR pumps are providing Torus Cooling at a combined flow of 7000 gpm.
- Div I and II Core Spray Pumps are injecting to the RPV with a flowrate of 3500 gpm each.
- No high pressure injection sources are available.
- RPV water level is minus 60 (-60) inches and rising slowly.
- Drywell pressure is 2 psig and lowering.
- Torus water level is minus 1 (-1) foot and steady.
- Torus water temperature is 150°F and slowly lowering.
- Discharge pressure and flow from low pressure ECCS pumps have begun to oscillate.

Which of the following actions should be taken based on the conditions above?

- a. Reduce the flow from both Core Spray pumps to 2000 gpm each.
- b. Secure one of the Core Spray pumps and maximize injection from the other.
- c. Secure all containment sprays, stop RPV injection from Core Spray, and maintain RPV water level with Div II RHR pumps at 7000 gpm.
- d. Place Div II RHR pumps in Torus cooling mode at full flow (8000 gpm) and switch injection to the RPV to Div I RHR pumps at 7000 gpm total.

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Question No. 94

During refueling operations the Fuel Handling Supervisor notices that the PLANNED MOVES DATA FILE contains the wrong in-core location for one of the blade guides to be installed.

Which of the following states the minimum signature requirements necessary for making a change to the procedure?

- a. SM and CRS
- b. SM, CRS and Nuclear Engineer
- c. SM or CRS and Nuclear Engineer
- d. SM, CRS, Nuclear Engineer and Operations Committee Reviewed Change (OCRC)

MNGP 2003 RO NRC Exam

Question No. 95

The plant is operating at 100% power with the following equipment out of service:

- FIC-23-108, HPCI Pump Flow Controller, for controller replacement.
- AO-2382A, Torus – Drywell Vacuum Breaker, due to failed stroke time testing.

A member of Work Control has brought Procedure 0255-08-IA-1, RCIC SYSTEM PUMP FLOW AND VALVE TESTS, to the Control Room for your approval signature. This procedure is on the approved work schedule to perform the routine quarterly surveillance of the RCIC system and is to be performed on your shift. The last performance of this procedure was 92 days ago.

Which of the following describes why the Control Room Supervisor should/should not provide the authorization signature for this procedure to commence?

- a. The CRS should NOT authorize the procedure to be performed since concurrent inoperability of AO-2382A and RCIC would place the plant in a shutdown LCO.
- b. The CRS should authorize performance of the procedure since it is on the approved work schedule and the procedure has no affect on the equipment already out of service.
- c. The CRS should authorize performance of the procedure since it has been 92 days from its last performance and further delay would cause a violation of Tech Spec 4.0.A.
- d. The CRS should NOT authorize the procedure to be performed since concurrent inoperability of FIC-23-108 and RCIC would place the plant in a shutdown LCO.

MNGP 2003 RO NRC Exam

Question No. 96

A reactor startup is in progress with the following plant conditions:

- Tech Spec 3.7.A.5.b has just been entered to reduce primary containment oxygen concentration to < 4% within 24 hours.
- A breaker fault results in a loss of power to MO-2398, RWCU INLET OUTBOARD ISOLATION VALVE.
- One minute later a loss of power to MCC-133A occurs.

Which of the following correctly describes the most time restrictive Tech Spec required action based on the above stated conditions?

- a. Operation can continue indefinitely however the Reactor Mode Switch cannot be placed in the RUN mode.
- b. Within 1 hour reduce reactor power and return the Reactor Mode Switch to the STARTUP TO HOT STANDBY.
- c. Within 1 hour restore primary containment integrity by manually closing the MO-2397, RWCU INLET OUTBOARD ISOLATION VALVE.
- d. Within 1 hour restore primary containment integrity by manually isolating Div I of Core Spray per B.03.01-05.E.2, 11CORE SPRAY LOOP ISOLATION.

MNGP 2003 RO NRC Exam

Question No. 97

A system engineer brings a Special Procedure for the Control Rod Drive System to the Work Control Center for review.

Which of the following is an indication that the Special Procedure may contain an un-reviewed safety question?

- a. The package for the Special Procedure contains a 50.59 Safety Evaluation for the activity being performed.
- b. The Special Procedure has been prepared and approved in accordance with 4AWI-02.03.08, SPECIAL PROCEDURES.
- c. The Special Procedure package contains Form 3004, SRI REVIEW AND APPROVAL FORM, to document the test reference in the USAR.
- d. The Special Procedure has been reviewed as required by 4AWI-04.07.02, FLAGGING AND SUBMITTAL PROCESSES FOR OPERATIONS COMMITTEE REVIEW ITEMS.

MNGP 2003 RO NRC Exam

Question No. 98

Which of the following combinations of plant conditions defines the MODE known as 'Cold Shutdown'?

- e. Reactor water temperature is 112°F and steady with shutdown cooling in service. A fuel assembly is being removed from the core.
- f. Reactor water temperature is 200°F and lowering with shutdown cooling in service. A control rod is being withdrawn for refuel interlock testing.
- g. Reactor water temperature is 221°F and lowering with shutdown cooling in service. A control rod is being withdrawn for refuel interlock testing.
- h. Reactor water temperature is 100°F and steady with shutdown cooling in service. A control rod is being removed from the core for replacement.

MNGP 2003 RO NRC Exam

Question No. 99

Which of the following statements is correct?

At the beginning of each shift, a Control Room Operator SHALL make a log entry which includes the following:

1. status of off-site power
2. line-up of the ECCS systems
3. availability of the Fire Brigade
4. Reactor Mode Switch position

e. 1,2 & 3

f. 2, 3 & 4

g. 1, 3 & 4

h. 1, 2 & 4

MNGP 2003 RO NRC Exam

Question No. 100

The following plant conditions exist:

- You are the Fuel Handling Supervisor.
- The Fuel Pool to Reactor Cavity Gate is open.
- An irradiated fuel bundle is grappled.
- The Refuel Bridge is traversing the Reactor Cavity towards the Spent Fuel Pool.

Spent Fuel Pool level is lowering at 1 inch per minute.

Which of the following states the correct action to take and why?

- a. Stow the bundle in the core since shielding of the bundle will be maximized.
- b. Stow the bundle in the Spent Fuel Pool because cooling of the bundle will be maximized.
- c. Immediately evacuate the Reactor Building because the fuel bundle will be uncovered.
- d. Immediately stop core alterations because minimum Spent Fuel Pool level is not met.

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1	D	BOTH
2	C	BOTH
3	D	BOTH
4	B	BOTH
5	A	BOTH
6	B	BOTH
7	C	SRO
8	D	BOTH
9	C	BOTH
10	B	BOTH
11	B	BOTH
12	D	BOTH
13	A	BOTH
14	C	BOTH
15	B	BOTH
16	B	BOTH
17	C	BOTH
18	A	BOTH
19	B	BOTH
20	C	BOTH
21	D	BOTH
22	C	BOTH
23	D	SRO
24	D	BOTH
25	B	SRO
26	B	BOTH
27	A	BOTH
28	B	BOTH
29	C	SRO
30	A	BOTH
31	B	BOTH
32	C	SRO
33	C	BOTH
34	C	BOTH
35	A	BOTH

36	A	BOTH
37	C	BOTH
38	D	SRO
39	C	BOTH
40	B	BOTH
41	D	BOTH
42	A	SRO
43	A	SRO
44	B	SRO
45	D	BOTH
46	C	BOTH
47	D	BOTH
48	A	BOTH
49	D	BOTH
50	A	BOTH
51	A	BOTH
52	B	SRO
53	A	BOTH
54	B	BOTH
55	A	SRO
56	A	BOTH
57	D	BOTH
58	B	BOTH
59	D	SRO
60	A	BOTH
61	B	BOTH
62	D	BOTH
63	B	BOTH
64	A	SRO
65	B	SRO
66	D	BOTH
67	D	SRO
68	B	SRO
69	B	SRO
70	A	SRO

71	D	BOTH
72	C	BOTH
73	A	BOTH
74	C	BOTH
75	C	BOTH
76	D	BOTH
77	D	BOTH
78	D	BOTH
79	C	BOTH
80	D	SRO
81	A	BOTH
82	A	BOTH
83	B	SRO
84	D	BOTH
85	A	SRO
86	A	SRO
87	C	BOTH
88	C	BOTH
89	C	BOTH
90	D	BOTH
91	C	BOTH
92	B	BOTH
93	C	SRO
94	B	SRO
95	D	SRO
96	C	SRO
97	A	SRO
98	B	BOTH
99	C	BOTH
100	A	SRO