Quad Cities Initial License Examination for Reactor Operators

Docket Nos. 50-254; 50-265

Nuclear Regulatory Commission
Operator Licensing
Examination

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U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information	
Name:	Region: III
Date: 08/13/2001	Facility/Unit: Quad Cities U1 & U2
License Level: RO	Reactor Type: GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results		
Examination Value	100.0	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

WRITTEN EXAMINATION GUIDELINES

1. Cheating on any part of the examination will result in a denial of your application and/or action against your license.

2. After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.

3. To pass the examination, you must achieve a grade of 80.00 percent or greater; grades will not be rounded up to achieve a passing score. Every question is worth one point.

4. For an initial examination, the nominal time limit for completing the examination is six hours; extensions will be considered under extenuating circumstances.

5. You may bring pens, pencils, and calculators into the examination room. Use black ink to ensure legible copies; dark pencil should be used only if necessary to facilitate machine grading.

6. Print your name in the blank provided on the examination cover sheet and the answer sheet.

7. Mark your answers on the answer sheet provided. Use only the paper provided. Use the pencils provided and erase completely if you need to change an answer. Any answer not readable by the examiner will be marked incorrect.

8. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only.* When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.

9. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.

10. When you complete the examination, assemble a package including the examination cover sheet and answer sheet, and give it to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. Leave the examination and any scrap paper at your desk.

11. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

11. Do you have any questions?

QUESTION: 001 (1.00)

The reactor was operating at 25% power when all Inboard MSIVs inadvertently shut. The MSIV closure scram signal was NOT generated. Which of the following scram signals would be generated next if there were no operator actions taken?

a. Turbine Control Valve Fast Closure

b. Reactor Vessel Steam Dome Pressure - High

c. Intermediate Range Monitors Neutron Flux - High

d. Average Power Range Monitor Neutron Flux - High

QUESTION: 002 (1.00)

The plant has been operating at 100% power for 156 days. Which of the following actions is required when a review of operating logs by QNE shows that MCPR was 1.09 for two hours during the previous shift? It is currently 1.13 and increasing.

a. Have the NSO scram the reactor immediately.

b. Insert all inerrable control rods within 2 hours.

c. Continue operations, notify the NRC within 4 hours.

d. Continue operations, no limits have been exceeded.

QUESTION: 003 (1.00)

An unisolable reactor coolant leak on Unit 2 has resulted in a reactor scram and a rapid increase in drywell pressure. The Unit Supervisor has just entered the QGAs to take action to mitigate the leak. Plant conditions are as follows:

- All rods are inserted
- Torus pressure = 4 psig
- Torus level is above normal, but less than 20 feet
- All automatic plant functions have performed properly
- HPCI is maintaining reactor level at 0 inches

Select the correct action that the Unit Supervisor should direct in order to control primary containment pressure in accordance with the QGAs.

a. Initiate torus sprays only.

b. Initiate drywell sprays only.

c. Initiate torus and drywell sprays.

d. No action is required until torus pressure exceeds 5 psig

QUESTION: 004 (1.00)

While operating at 60% rated thermal power, an EHC failure caused all of the Turbine Bypass Valves to open. The MSIVs did not close until reactor pressure reached 745 psig, causing a reactor scram. RPV level decreased to -8 inches, but was restored and is being maintained at the normal post-scram water level (no operator action). Pressure is being controlled by SRVs. Which of the following describes this condition?

a. No safety limit has been exceeded.

b. The Reactor Core Safety Limit has been exceeded.

c. The Reactor Vessel Water Level Safety Limit has been exceeded.

d. The Reactor Coolant System Pressure Safety Limit has been exceeded.

QUESTION: 005 (1.00)

The reactor was operating at full power when an MSIV isolation occurred. No control rods inserted due to blockage of the scram discharge volumes. Reactor pressure was observed to have reached 1425 psig. Which one of the following will automatically trip and CANNOT be restarted during this transient?

a. Reactor recirc pumps

b. Reactor feedwater pumps

c. Reactor core isolation cooling (RCIC)

d. Residual heat removal (RHR) pumps (suppression pool cooling mode)

QUESTION: 006 (1.00)

Given the following:

- Unit 2 is at 75% power
- At 0600 Control rod movements per QNE were completed
- Control rod J-08 in-sequence position is "36"
- At 0715 Control rod J-08 is discovered latched at position "30"
- Control rod drive cooling water flow was noted to be high

The operator should . . .

a. reduce recirc flow 50 MWe, then contact a QNE.

b. withdraw control rod J-08 to its in-sequence position, then notify a QNE.

c. take action to reduce cooling water flow, insert control rod J-08 to position "00", then contact a QNE.

d. take action to reduce cooling water flow, stop all control rod movements and recirc flow changes, and contact the Unit Supervisor.

QUESTION: 007 (1.00)

Which one of the following describes why the charging water header to the Hydraulic Control Unit (HCU) should not exceed a MAXIMUM of 1510 psig?

a. ensures control rod insertion speeds are not excessive on a scram, thus preventing damage to the drive tubes or Belleville washers.

b. ensures control rod insertion speeds are not excessive during normal operations thus preventing damage to the drive tubes or Belleville washers.

c. prevents damage to the accumulator during a scram due to high differential pressures.

d. avoids the possibility of exceeding the design pressure of the accumulator diaphragm/seals.

QUESTION: 008 (1.00)

The plant is operating at 100% power. While reviewing reactor water level instrumentation, the NSO found the narrow range YARWAYs were reading approximately thirty (30) inches less than the wide range YARWAYS. Which one of the following statements correctly describes the reason for the level instrument discrepancy?

a. The wide range level instrument is calibrated for no jet pump flow.

b. Level discrepancy is due to the physical difference in height of the reference legs.

c. The wide range level instrument is calibrated to a lower reactor pressure and drywell temperature.

d. The wide range level instrument is calibrated to a lower setting to provide conservative initiation of ECCS equipment.

QUESTION: 009 (1.00)

The reactor was at 100% power with recirc control in master manual, feedwater control in single element, and EHC set at 920 psig. Select the plant parameter which would NOT change if a safety relief valve opened and stuck open (steady state to steady state):

a. MWe

b. Reactor power

c. Reactor water level

d. Turbine 1st stage pressure

QUESTION: 010 (1.00)

The standby reactor feed pump is out of service with the unit at 85% reactor power. If a running reactor feed pump trips, how will the plant and feedwater system respond. (Assume no operator action.)

a. The plant will remain critical; RPV level will initially decrease and then recover to normal value without a SCRAM.

b. The plant will remain critical; recirc flow will run back; RPV level will be maintained within the normal operating band.

c. The unit will SCRAM on low level. Following the SCRAM feed flow will be adequate to recover level.

d. The unit will SCRAM on low level. Following the SCRAM level will continue to decrease to the low level ECCS initiation setpoint.

QUESTION: 011 (1.00)

The following conditions exist:

- The reactor has scrammed from 100% reactor power.
- Reactor water level has stabilized at +25 inches.
- No operator actions have been taken.

What are the MINIMUM actions required to return reactor water level to the Master Level Controller setpoint?

a. Successfully reset the scram.

b. Restore RPV water level above the scram setpoint.

c. Depress the "Runout Flow Control" reset button at any time.

d. Match the Master Level Controller to the current level then depress automatic on the Master Level Controller.

QUESTION: 012 (1.00)

An auto start signal is present on the Unit One Diesel Generator. The diesel has failed to start from the control room. Power for Bus 14-1 is AVAILABLE. The diesel generator may be auto started by directing an E.O. to . . .

a. manually open the feed breaker to Bus 14-1.

b. place an HGA relay block in the auto start relay.

c. manually close the tie breaker from 24-1 to 14-1.

d. place the transfer switch at the diesel annunciator panel in LOCAL.

QUESTION: 013 (1.00)

Auxiliary operators are required to make weekly HPCI pump discharge temperature checks to identify possible back-leakage into the HPCI system. What are the indications and consequences of back-leakage in to the HPCI system via the HPCI 7 (discharge check) valve?

a. A high HPCI pump suction pressure; HPCI would be INOPERABLE due to a high suction pressure isolation. This would be indicated by a HPCI GRP 4 PCI VLVS not open annunciator, 90X-3 C-10.

b. A high HPCI pump discharge pressure; the HPCI discharge relief valve would open, raising torus water level. This would be indicated by a high torus level alarm.

c. A high HPCI pump suction temperature; the HPCI pump could be full of hot water which could lead to cavitation if the system were to initiate. This may be indicated by high pump suction pressure or alarm.

d. A high HPCI pump discharge temperature; hot water in the discharge piping may result in elevated room temperatures requiring the U1 DGCWP to be started in order to maintain room temperatures less than the alarm setpoint.

QUESTION: 014 (1.00)

Given the following conditions:

- Both Unit 1 and Unit 2 were at 100% power.
- Each Unit's ½ DG output breaker keylock switch was in OFF.
- A tornado destroyed all of the 345kV Switchyard off-site transmission lines.
- Unit 2 generator tripped first.
- 10 minutes after Unit 1 generator tripped, Unit 1 drywell pressure rapidly increased to greater than 3 psig.
- DGs 1 and 2 started and supplied their respective buses.

Which statement describes the response of the ½ DG to the above conditions? (Assume no operator actions.)

a. The ½ DG starts and supplies Bus 23-1 at all times.

b. Upon receipt of the Unit 1 high drywell pressure, the ½ DG starts and supplies Bus 13-1.

c. The ½ DG initially supplies Bus 23-1, when Unit 1 generator trips the ½ DG breaker to Bus 23-1 trips and the ½ DG breaker to Bus 13-1 closes. Bus 23-1 remains de-energized.

d. The ½ DG initially supplies Bus 23-1 with no change in status when Unit 1 generator trips. Upon receipt of the Unit 1 high drywell pressure, the ½ DG breaker to Bus 23-1 trips and the ½ DG breaker to Bus 13-1 closes. Bus 23-1 remains de-energized.

QUESTION: 015 (1.00)

A Shift Supervisor has authorized placement of a caution card on a sparge air compressor due to an oil leak. Who may initiate corrective actions to remove the caution card?

a. A Unit Supervisor

b. A System Engineer

c. A Nuclear Station Operator (NSO)

d. A Mechanical Maintenance Supervisor

QUESTION: 016 (1.00)

Which of the following Control Room Ventilation flowpaths is NOT an operational flowpath? The B-train running . . .

a. on outside air supply.

b. in the recirculation mode.

c. in the Smoke/Purge mode.

d. in recirc with the Air Filtration Unit on.

QUESTION: 017 (1.00)

Unit 2 was operating at 60% power with a HPCI surveillance in progress when the following annunciator was received:

- 3A TARGET ROCK RELIEF VLV OPEN

Assuming reactor pressure is normal, when would the crew be REQUIRED to initiate a manual reactor scram?

a. When Torus Bulk Water Temperature reaches 95°F.

b. When Torus Bulk Water Temperature reaches 105°F.

c. Immediately AFTER verifying the safety relief valve (SRV) is actually open.

d. Immediately, IF the SRV is actually open and it CANNOT be closed with the keylock switch.

QUESTION: 018 (1.00)

The EMERGENCY IN position of the rod out notch override switch bypasses all interlocks that prevent rod insertion, EXCEPT those from the __(1)__ and the select block. Functionally, it directly energizes the directional control valves by __(2)__.

a. (1) rod worth minimizer insert block, (2) bypassing the timer.

b. (1) rod position indication system inop, (2) bypassing the timer.

c. (1) rod worth minimizer insert block, (2) stopping the timer at the drive in cycle.

d. (1) rod position indication system inop, (2) stopping the timer at the drive in cycle.

QUESTION: 019 (1.00)

The ½ Instrument Air Compressor supplies air to . . .

a. the ½ receiver.

b. the unit 1 air system ONLY, downstream of the receivers.

c. the unit 2 air system ONLY, downstream of the receivers.

d. both units' air systems downstream of the receivers.

QUESTION: 020 (1.00)

A normal reactor startup was in progress at 5% reactor power with normal operating pressure and temperature. Rod H-5 did not move when given a withdraw signal from notch position 12. Drive pressure is 450 psig. The operator attempted a second time to move H-5, but the rod failed to move. The operator should . . .

a. scram H-5 individually; disarm H-5 electrically and hydraulically.

b. attempt to move the rod by performing "Double Clutching."

c. declare H-5 INOPERABLE; have H-5 disarmed electrically and hydraulically.

d. increase drive pressure 50 psig and re-attempt to withdraw H-5.

QUESTION: 021 (1.00)

Which of the following components does condensate go through FIRST after leaving the condensate pumps?

a. Drain Coolers

b. Condensate Demineralizers

c. Condensate Booster Pumps

d. Steam Jet Air Ejector Condensers

QUESTION: 022 (1.00)

Unit 1 was operating at 100% power on the 101% FCL. A single alarm appeared on the 901-3, 4, 5,6,7,8 912-1 and 5 panels, 'DC ANNUN PWR FAILURE'. Steam flow from the reactor dropped and stabilized about 20% below it's previous value. Level stabilized at +30 inches after initially rising to about +38 inches. When you called for assistance from Unit 2 you noticed they have numerous alarms and appear to be in a casualty of their own. Which one of the following describes Unit 1's condition?

a. A complete loss of 125 VDC has occurred resulting in a loss of scoop tube coupling, resulting in a coast-down of both recirculation pumps.

b. A complete loss of 125 VDC has occurred resulting in a trip of both recirculation pumps.

c. A loss of Unit 1 125 VDC has occurred resulting in a spurious feed flow/steam flow mismatch that is finally corrected by the dominant level signal.

d. A loss of Unit 1 125 VDC has occurred resulting in some instrumentation providing inaccurate control room readings until power supplies switch to alternate sources.

QUESTION: 023 (1.00)

Unit 1 is shutting down and reactor water temperature is 200°F, with 'A' loop RHR operating in the SDC mode. Which of the following would be an expected response to throttling closed MO-1-1001-28A, Outbd LPCI Inj. Vlv under these conditions?

RHR Flow recorder 1-1040-7 indicates that 'A' loop flow . . .

a. decreased and RHR 'B' loop flow has increased.

b. decreased to <1500 gpm; no valves open to provide minimum flow protection.

c. decreased; Flow Indicator 1-1040-11A 'Containment Spray Flow' indicates 'A' loop flow has increased.

d. decreased to < 1500 gpm; MO-1-1001-47, SDC HDR DOWNSTREAM SV, closes if it's breaker is closed.

QUESTION: 024 (1.00)

Maximum torus cooling was in service on Unit 2 when an electrical fault caused Bus 23-1 to de-energize. All other buses are energized. Which one of the following describes how the torus cooling lineup will be affected by the loss of this bus?

a. The 2A and 2B RHR Pumps will be de-energized; ALL RHRSW Pumps will be operable.

b. The 2A and 2B RHR Pumps and the 2A and 2B RHRSW Pumps will be de-energized.

c. The 2C and 2D RHR Pumps and the 2C and 2D RHRSW Pumps will be de-energized.

d. ALL RHR Pumps will be operable; the 2A and 2B RHRSW Pumps will be de-energized.

QUESTION: 025 (1.00)

Which one of the following describes the operation of the MSIV pilot solenoids and MSIV actuators during a Main Steam isolation?

a. The pilot solenoids energize to port air to the over-piston air chamber, the MSIV closes by over-piston air pressure only.

b. The pilot solenoids de-energize to port air to the over-piston air chamber, the MSIV closes by over-piston air pressure only.

c. The pilot solenoids energize to vent air from under the valve actuating piston, the MSIV closes by spring pressure and over-piston air pressure.

d. The pilot solenoids de-energize to vent air from under the valve actuating piston, the MSIV closes by spring pressure and over-piston air pressure.

QUESTION: 026 (1.00)

The Mechanical Vacuum pump discharges to the . . .

a. main chimney.

b. on-line Recombiner.

c. turbine building vents.

d. 30-minute holdup volume.

QUESTION: 027 (1.00)

A reactor cooldown is in progress with RHR in the shutdown cooling mode of operation. Reactor pressure is 50 psig. Fifteen minutes ago, reactor pressure was 90 psig. Which of the following best describes the overall cooldown rate (°F/hr) using the past fifteen minutes data? (Ask for steam tables if not provided and you need them.)

a. 99°F/hr

b. 132°F/hr

c. 156°F/hr

d. 192°F/hr

QUESTION: 028 (1.00)

For a loss of Shutdown Cooling during refueling operations, the first discernable reactivity addition to the core will be from the __(1)__ coefficient and it will be __(2)__.

a. (1) Moderator (2) Positive

b. (1) Doppler (2) Negative

c. (1) Moderator (2) Negative

d. (1) Doppler (2) Positive

QUESTION: 029 (1.00)

Unit 1 reactor has tripped. The following plant conditions exist:

- All control rods are fully inserted.
- Drywell pressure is at 2 psig.
- RPV pressure is at 500 psig.
- RPV level is at -150 inches.
- No injection source is available to the RPV and none is expected in the near future.

Based on the above plant conditions, what is the strategy required by QGA 100, RPV Control?

a. Enter QGA 500-4, RPV Flooding while continuing with QGA 100.

b. Exit all QGAs and enter the SAMGs.

c. Enter QGA 500-1 RPV Blowdown while continuing with QGA 100.

d. Exit QGA 100 and enter QGA 500-2, Steam Cooling.

QUESTION: 030 (1.00)

Which of the following supplies control rod withdrawal and insertion blocks to the Reactor Manual Control System?

a. Rod Block Monitor.

b. Rod Worth Minimizer.

c. Reactor Mode switch in the REFUEL position.

d. Reactor Mode switch in the SHUTDOWN position.

QUESTION: 031 (1.00)

The following conditions exist on Unit 1:

- Unit 1 is in Mode 3.
- It is desired to de-inert the Unit 1 Primary Containment (both the drywell and torus) as soon as possible to permit containment access for maintenance.
- Based on drywell and torus air samples, Chemistry recommends that the vent path be the Reactor Building Vents.

Based on the above, what flowpath and sequence would permit the most expeditious de-inerting of the Unit 1 Primary Containment?

a. With the Standby Gas Treatment System with the drywell and torus de-inerted simultaneously.

b. Through the Reactor Building Ventilation System with the drywell and torus de-inerted simultaneously.

c. With the Standby Gas Treatment System with the drywell de-inerted first and then the torus de-inerted.

d. Through the Reactor Building Ventilation System with the drywell de-inerted first and then the torus de-inerted.

QUESTION: 032 (1.00)

The following conditions exist on Unit 1:

- Unit 1 is in the STARTUP mode with control rods being withdrawn in an approach to criticality.
- The Rod Worth Minimizer (RWM) has just failed with 25% of the control rods withdrawn.

Per QCGP 1-1, NORMAL UNIT STARTUP, what is the action that is required?

a. Suspend withdrawal of the control rods, place the reactor mode switch in the SHUTDOWN position within 1 hour, and verify operability of the RWM before commencing a reactor startup.

b. Bypass the RWM, verify control rod movements are in compliance using a qualified person, and continue the reactor startup.

c. Suspend withdrawal of the control rods, verify operability of the Rod Block Monitor, and continue the reactor startup.

d. Bypass the RWM, fully insert all control rods, and verify operability of the RWM before commencing a reactor startup.

QUESTION: 033 (1.00)

QGA Detail 'A' tells you that an RPV water level instrumentation may be unreliable if drywell temperature is at or above RPV saturation temperature.

The water level instrumentation may be unreliable because . . .

a. the reference leg is assumed to have flashed, causing level to read falsely high.

b. the variable leg is assumed to have flashed, causing level to read falsely high.

c. the reference leg is assumed to have flashed, causing level to read falsely low.

d. the variable leg is assumed to have flashed, causing level to read falsely low.

QUESTION: 034 (1.00)

The plant conditions were:

- Reactor power 85%
- the Flow Control Line is 100%
- Recirc Flow Control is in MASTER MANUAL

Subsequently, one string of low pressure feedwater heaters isolated and the heater string bypass opened, resulting in a 100°F feedwater temperature reduction.

How will the plant respond and what Operator Action should be taken? The plant response will be . . .

a. a drop in recirc speed to hold power constant. The plant operators should insert control rods to maintain a 100% Flow Control Line.

b. an increase in main generator output at a constant recirc speed. The plant operators should reduce recirc flow and insert control rods.

c. an increase in main generator output at a constant recirc speed. The plant operators should hold recirc speed constant and insert control rods.

d. a drop in recirc speed to hold power constant. The plant operators should place switch the Recirc Flow Control in INDIVIDUAL MANUAL and insert control rods.

QUESTION: 035 (1.00)

As a result of a concern with the operation of the jet pumps on unit 2, a special test has been approved. The test will entail tripping the B recirculation pump from 100% speed and 80% reactor power to observe the response of all jet pumps during the pump coast down.

You have been stationed at panel 902-38 in the Aux. Electric Room to observe the response of the 20 individual single tap jet pump flows. If all the jet pumps are intact and operating properly what response do you expect to see?

When the B recirculation pump is tripped, the flow indication for all the B loop jet pumps should decrease to zero as the pump coasts to a stop, then the flow indication for all the B loop jet pumps should . . .

a. drop below zero as the flow reverses in the B loop jet pumps. The flow indication for all the A loop jet pumps should increase during the transient.

b. increase to a positive value as the flow reverses in the B loop jet pumps. The flow indication for all the A loop jet pumps should increase during the transient.

c. drop below zero as the flow reverses in the B loop jet pumps. The flow indication for all the A loop jet pumps should not change during the transient.

d. increase to a positive value as the flow reverses in the B loop jet pumps. The flow indication for all the A loop jet pumps should not change during the transient.

QUESTION: 036 (1.00)

The following plant conditions exist on Unit 1:

- Reactor is subcritical.
- All control rods are fully inserted.
- Average reactor coolant temperature is 160°F.
- All reactor vessel head closure bolts are fully tensioned.
- Reactor Mode Switch is in the Refuel position.
- There are NO special operations in progress.

Unit 1's Operational Mode is . . .

a. Refueling

b. Cold Shutdown

c. Hot Standby

d. Startup

QUESTION: 037 (1.00)

PRIMARY CONTAINMENT CONTROL, QGA 200, has an override that states:

IF	THEN
Torus sprays running	Before torus pressure drops to 0 psig Stop torus sprays.

IF	THEN
Drywell sprays running	Before drywell pressure drops to 0 psig Stop torus sprays.

Which of the following statements describes the reason for this requirement?

a. It prevents drawing a negative pressure in the containment, which would open the vacuum breakers and draw air into the containment.

b. 0 psig drywell pressure ensures a drywell temperature below 180°F, therefore there is no need to continue drywell sprays.

c. It makes one more RHR loop available as soon as possible for injection into the reactor pressure vessel.

d. This action ensures that the drywell structure will not endure excessive thermal stresses due to rapid cooldown.

QUESTION: 038 (1.00)

A reactor startup is in progress. Given the following conditions:

- The mode switch is STARTUP/HOT STANDBY.
- The reactor is super-critical on a 75 second period.
- Three SRMs read between $1X10^3$ and $1X10^4$, and are fully inserted.
- One SRM partially withdrawn and reading $5X10^5$.
- No SRMs are bypassed.
- Five IRMs are fully inserted and reading mid-scale on range 2.
- Two IRMs are fully inserted and reading mid-scale on range 3.
- One IRM has a failed high detector, is fully withdrawn and bypassed.
- All six APRMs are down scale

Why is a rod block present, and how could the rod block be cleared?

a. The rod block is being caused by the short reactor period. Since only a rod withdrawal block is present, inserting a control rod to lengthen the period will clear the rod block.

b. The rod block is being caused by the high reading on the partially withdrawn SRM. Since no other SRM is bypassed, bypassing this SRM will clear the rod block.

c. The rod block is being caused by the IRM that is not fully inserted. Since it is bypassed, the rod block can be cleared by fully inserting the IRM.

d. The rod block is being caused by the combination of IRMs on range 2 and an SRM not full-in. Since the reactor is on a positive period, the rod block will clear when the IRMs are up- ranged.

QUESTION: 039 (1.00)

What keeps the Steam Separator from lifting off the core shroud at high core flows?

a. The Steam Separator is bolted to the top of the core shroud.

b. The weight of the Steam Separator is sufficient to hold it in place.

c. Pads on the inside of the vessel head hold the Dryer and Separator in place.

d. The combined weight of the Steam Dryer and Steam Separator hold it in place.

QUESTION: 040 (1.00)

The plant is operating at 75% power with all plant systems in their normal, operable mode. What would happen if the switches for both "A" RHR loop Drywell spray valves (MO-1001-23 and 26) were placed in the open position if drywell pressure was 1.3 psig?

a. Both spray valves would remain closed, because there is no LPCI initiation signal present.

b. Only one spray valve would open, because interlocks allow one spray valve to be open at a time unless a LPCI initiation signal is present.

c. Both spray valves would open, because interlocks that prevent valve opening would not be in effect for the stated plant condition.

d. Both spray valves would remain closed, because interlocks prevent valve opening unless the Containment Cooling Permissive switch is in the "ON" position.

QUESTION: 041 (1.00)

The plant conditions are:

- A Loss of Coolant Accident (LOCA) is in progress
- Offsite power has been lost
- HPCI and RCIC have failed
- ADS has auto initiated
- The 5 ADS safety/relief valves are open
- Reactor pressure is 800 psig
- All other plant systems are operating as designed.

Which of the following describes the ADS logic system response if all RHR and Core Spray pumps trip off under these conditions?

a. Depressurization will cease and both inhibit switches must be taken to "INHIBIT" and back to "NORMAL" to re-establish depressurization.

b. Depressurization will cease and will automatically re- establish immediately after an RHR or a Core Spray pump is restored.

c. Depressurization will continue without RHR and Core Spray pumps running due to the seal-in of the ADS initiation logic.

d. Depressurization will cease and will automatically re-establish 110 seconds after an RHR or a Core Spray pump is restored.

QUESTION: 042 (1.00)

You were assigned to perform QCOS 2300-01 PERIODIC HPCI PUMP OPERABILITY TEST in the control room. HPCI appeared to be running normally when you were taking the pressure and flow readings to verify Tech Spec compliance. As you finished taking the readings, a Group IV isolation was received. As called for in QCOS 2300-01 the HPCI Auxiliary Oil Pump control switch was in the "AUTO" position and the Emergency Oil Pump control switch was in the "AUTO AFTER STOP" position. How will the Auxiliary and Emergency Oil Pumps respond as the HPCI turbine speed coasts down?

a. The Auxiliary Oil Pump will continue to run and the Emergency Oil Pump will remain off.

b. The Auxiliary Oil Pump will start as oil header pressure decreases below 51 psig, and the Emergency Oil Pump will remain off.

c. The Auxiliary Oil Pump will remain off and the Emergency Oil Pump will start as oil header pressure decreases below 36 psig.

d. Neither the Auxiliary or Emergency Oil Pumps will start without operator intervention.

QUESTION: 043 (1.00)

The following initial conditions exist:

- Unit 1 reactor power is 75%.
- "A" RPS is being supplied by the "A" RPS MG Set
- "B" RPS MG Set is tagged out-of-service for maintenance.
- "B" RPS Bus is being supplied by the reserve feed (dirty power).

The 4KV feed breaker to T-19 trips causing a loss of Bus 19. Which of the following will happen to the Reactor Protection System?

a. RPS will be unaffected.

b. A half SCRAM will occur on "A" RPS.

c. A half SCRAM will occur on "B" RPS.

d. A full SCRAM will occur.

QUESTION: 044 (1.00)

With the Unit at 50% power, annunciator 901-5-D-6, APRM FLOW REF OFF NORM, annunciates. Besides the annunciator what other automatic actions, if any, are expected?

a. A rod block will occur.

b. A half SCRAM will occur.

c. A full SCRAM will occur.

d. No other automatic actions will occur.

QUESTION: 045 (1.00)

An APRM Downscale and INOP would result from the loss of which of the following power sources?

a. The Reactor Protection System Bus.

b. The Instrument Bus.

c. The Essential Service Bus.

d. The 125 VDC Main Bus.

QUESTION: 046 (1.00)

A LOCA with loss of offsite power has occurred on unit 2. Which of the following would cause power to be lost to the Unit 2 Core Spray B Inboard Pump Discharge Valve MO2-1402-25B?

a. A fault on BUS 28.

b. A fault on BUS 29.

c. A trip of the ½ Diesel Generator.

d. A trip of the supply breaker to BUS 25.

QUESTION: 047 (1.00)

Unit 1 is operating at 100% power when the following sequence of events occur:

At t_0	Drywell pressure increases to 2.5 psig. Reactor pressure = 1002 psig.
At $t_{30\ seconds}$	Reactor pressure drops below 325 psig.
At $t_{5\ minutes}$	An NSO throttles MO1-1402-25A to achieve 900 GPM Core Spray flow.
At $t_{10\ minutes}$	The NSO places the 1A Core Spray pump in PULL TO LOCK.

Assume that all plant equipment operates as designed. Which of the following correctly describes the operation of MO 1-1402-38A the CS PMP MIN FLOW VLV during the above event?

At t_0 The 1A Core Spray pump starts and MO-38A opens. THEN . . .

a. At $t_{30\ seconds}$ An interlock causes MO-38 to close when MO-25 opens.
At $t_{5\ minutes}$ When Core Spray flow drops below 1000gpm MO-38 opens.
At $t_{10\ minutes}$ When the Core Spray pump is placed in PULL TO LOCK MO-38 closes.

b. At $t_{30\ seconds}$ When Core Spray flow exceeds 700gpm MO-38 closes.
At $t_{5\ minutes}$ When Core Spray flow drops to 900gpm MO-38 remains closed.
At $t_{10\ minutes}$ When the Core Spray pump is placed in PULL TO LOCK MO-38 opens.

c. At $t_{30\ seconds}$ An interlock causes MO-38 to close when MO-25 opens.
At $t_{5\ minutes}$ When Core Spray flow drops to 900gpm MO-38 remains closed.
At $t_{10\ minutes}$ When the Core Spray pump is placed in PULL TO LOCK MO-38 remains closed.

d. At $t_{30\ seconds}$ When Core Spray flow exceeds 700gpm MO-38 closes.
At $t_{5\ minutes}$ When Core Spray flow drops to 900gpm MO-38 remains closed.
At $t_{10\ minutes}$ When the Core Spray pump is placed in PULL TO LOCK MO-38 remains closed.

QUESTION: 048 (1.00)

Unit 1 is at 80% power with the Recirculation Flow Control System being operated in Individual Manual. In this mode of operation what signals are being compared in the control system to control reactor recirculation flow?

a. The output of the Manual/Auto Transfer Station manual control potentiometer is compared to the recirc MG set generator speed.

b. The output of the Manual/Auto Transfer Station manual control potentiometer is compared to jet pump flow.

c. The output of the Manual/Auto Transfer Station manual control potentiometer is compared to the recirculation loop flow.

d. The output of the Manual/Auto Transfer Station manual control potentiometer is compared to the recirc scoop tube position.

QUESTION: 049 (1.00)

Both units were aligned for normal full power operation when the following events occurred.

At t_0 Alarm 901-8 E-5 "4KV BUS 13-1 VOLTAGE DEGRADED" was received.
At $t_{3\ minutes}$ A LOCA signal was received on Unit 2.

Assuming there is NO loss of offsite power and NO operator action, which of the following describes the expected response of the ½ EDG?

a. The ½ EDG will start at $t_{3\ minutes}$ and connect to BUS 23-1 at ~ 10 seconds later.

b. The ½ EDG will start at t_0 and connect to BUS 13-1 at ~ 5 minutes later.

c. The ½ EDG will start at $t_{3\ minutes}$ and not connect to BUS 13-1 or 23-1.

d. The ½ EDG will start at t_0 and connect to BUS 13-1 at ~ 10 seconds later.

QUESTION: 050 (1.00)

Unit 1 was in REFUEL, loading fuel when a sustained (approximately 30 second) upward trend was observed on the source range instrument nearest to the fuel assembly that was being loaded. Which of the following actions (if necessary) are required to be IMMEDIATELY taken by the control room operator monitoring fuel loading?

a. Announce that the reactor is critical and inject Standby Liquid Control.

b. Announce that the reactor is critical and evacuate the reactor building.

c. None, this is a normal response to loading a fuel assembly near a SRM.

d. Immediately direct the fuel handling staff to remove the assembly being loaded. from the core.

QUESTION: 051 (1.00)

In an emergency with the control room inaccessible how are the steam line relief valves opened locally? At the Main Steam Relief Valve controller valve boxes . . .

a. remove fuses.

b. install jumpers.

c. install finger blocks.

d. manually close relay contacts.

QUESTION: 052 (1.00)

In responding to a plant emergency QGA 100 was entered. During the course of the emergency, use of RWCU in the recirculation mode (QCOP 1200-11) was ordered. To fulfill a prerequisite of QCOP 1200-11 you are told to perform QCOP 1200-02 BYPASSING ALL RWCU ISOLATION SIGNALS.

Which of the following is a reason the performance of QCOP 1200-02, BYPASSING ALL RWCU ISOLATION SIGNALS, would be necessary?

a. Drywell pressure has increased to 3.5 psig.

b. Standby Gas Treatment System has initiated.

c. Reactor water level has dropped to -5 inches.

d. Main Steam Tunnel temperature has reached 145°F.

QUESTION: 053 (1.00)

Following an automatic initiation of RCIC, annunciator 901-3 B-12, TORUS HI LVL HPCI/RCIC SUCTION XFR alarmed.

Which of the following describes the expected RCIC system response?

a. Torus suction valves MO-25 & 26 open, CCST suction valve MO-22 closes as soon as MO-25 & 26 begin to open.

b. Torus suction valves MO-25 & 26 open, CCST suction valve MO-22 remains open.

c. Torus suction valves MO-25 & 26 open, CCST suction valve MO-22 closes when MO-25 & 26 are full open.

d. Torus suction valves MO-25 & 26 close, CCST suction valve MO-22 opens when MO-25 & 26 leave the open position.

QUESTION: 054 (1.00)

The Following Sequence was loaded into the Rod Worth Minimizer. The RWM is in operation, and the reactor is sub-critical with all rods full in.

Step 1	Position 00 to 24 Rods H-2, B-8, H-14, P-8
Step 2	Position 00 to 12 Rods H-6, F-8, H-10, K-8
Step 3	Position 24 to 48 Rods H-2, B-8, H-14, P-8
Step 4	Position 12 to 24 Rods H-6, F-8, H-10, K-8

The NSO was instructed to withdraw rods through Step 3. After completing Step 1 and while withdrawing the last rod in Step 2 the NSO was distracted by a recirc system alarm and stopped withdrawing the rod at position 10. When the NSO resumed rod withdrawal, rather than withdrawing rod K-8 from position 10 to 12, the NSO selected rod H-2. How will the RWM respond?

a. No rod blocks will be applied.

b. Only an insert rod block will be applied.

c. Only a withdrawal rod block will be applied.

d. Withdrawal and insert rod blocks will be applied.

QUESTION: 055 (1.00)

Unit-1 was operating at full power when an instrument air line break caused the outboard MSIVs to go closed. The following then occurred:

- The reactor failed to scram and attempts to drive rods were unsuccessful.
- The Unit Supervisor ordered SBLC injection.
- The SBLC control switch was operated in the SYS 1&2 position.
- The pump running lights on the 901-5 panel lit.
- The squib valve continuity lights are lit.
- The flow indicating light on the 901-5 panel is NOT lit.
- Pump discharge pressure is 1460 psig.
- Reactor Pressure is currently 1025 psig.

Based on these indications the NSO would reach which of the following conclusions?

a. SBLC is injecting to the reactor vessel.

b. The SQUIB valves are closed, therefore, SLC is NOT injecting.

c. The SLC pumps are not running, therefore SLC is NOT injecting.

d. Reactor pressure is too high for SLC to inject into the vessel.

QUESTION: 056 (1.00)

Unit 1 was operating at 100% power with all systems operable when the following alarm was received:

- 912-1 C-1 RXBLDG CLOSED CLG WATER PUMP TRIP

Upon investigation you find that both RBCCW pumps have tripped. If no operator action is taken, which of the following would be the first automatic action to occur?

a. Trip of both operating feed pumps.

b. Closure of the RWCU isolation valves.

c. Trip of the operating control rod drive pump.

d. Closure of the RBCCW drywell isolation valve.

QUESTION: 057 (1.00)

A spurious automatic initiation of RCIC has occurred on unit 2. In accordance with the QCOA immediate actions you tripped the RCIC turbine. While you were obtaining a copy of QCOP 1300-05, a valid RCIC initiation signal was received. With these conditions, which of the following actions would result in restart of the RCIC system?

a. Depressing the TURB RESET pushbutton on panel 902-4.

b. Depressing the INITIATION SIGNAL SEAL-IN AND RESET pushbutton.

c. Depressing and holding the RCIC MAN INITIATION pushbutton for 30 seconds.

d. Manually resetting the Turbine Trip Throttle Valve, then depressing and holding the RCIC MAN INITIATION pushbutton for 30 seconds.

QUESTION: 058 (1.00)

Following a refueling the Unit 1 Reactor Head Cavity and Dryer/Separator Storage Pit was being drained using QCOP 1900-12, DRAINING THE REACTOR CAVITY AND THE DRYER/SEPARATOR STORAGE PIT. The level in the Reactor Head Cavity and Dryer/Separator Storage Pit had decreased by 20 feet when the supervisor in charge of the drain down ordered the FPC Reject Flow Control Valve AO-1901-58 closed to terminate the drain down. After the AO-1901-58 valve was closed, but before any other valves were repositioned, both Unit 1 fuel pool cooling water pumps tripped. (Assume all closed valves and check valves are leak tight.)

If no operator action is taken which of the following describes the response of fuel pool level?

a. Water level in the fuel pool will drop until it reaches the level of the overflow to the Skimmer Surge Tanks.

b. Water level in the fuel pool will drop until the anti- siphon holes in the fuel pool return line uncover.

c. Water level in the fuel pool will drop until the Skimmer Surge Tanks fill to the level of the fuel pool.

d. Water level in the fuel pool will not change following the closure of the AO-1901-58 valve.

QUESTION: 059 (1.00)

The Unit 2 HPCI turbine automatically tripped on high reactor level following an automatic initiation on high drywell pressure.

The following conditions are now present:

- Drywell pressure at 8 psig.
- Reactor level at 44 inches and slowly lowering.
- Reactor pressure at 950 psig.
- 'HPCI Turbine Tripped' on the 90X-3 is alarmed.
- 'HPCI Low flow' on the 90X-3 is alarmed.

Which of the following describes operator actions necessary to re-establish HPCI flow when RPV water level reaches low low water level?

a. The NSO must depress the RESET button on the 90X-3 panel and manually open the HPCI Pump discharge valve (2301-8) to reestablish injection.

b. The turbine will reset automatically, the NSO must manually open the HPCI Pump Discharge Valve (2301-8) to reestablish injection.

c. The NSO must reset the isolation from the keylock switches on the 902-3 panel, and manually open the isolation valves to reestablish injection.

d. No operator actions are required, the turbine will reset automatically, and the HPCI Pump Discharge Valve (2301-8) will open automatically to reestablish injection.

QUESTION: 060 (1.00)

Unit 1 was at 100% power when all 3 circulating water pumps tripped. The NSO should IMMEDIATELY . . .

a. Attempt to restart the circulating water pumps.

b. Scram the reactor and enter the Reactor Scram procedure.

c. Reduce the recirc pumps to minimum and Scram the reactor.

d. Reduce the recirc pumps to minimum and insert the CRAM rods.

QUESTION: 061 (1.00)

Units 1 and 2 were operating at 100% power when alarm 902-8 D-10, 250V TURB BLD BUS MAIN BRKR TRIP, annunciated. Which of the following equipment will be inoperable?

a. Unit 1 RCIC & Unit 1 HPCI.

b. Unit 1 RCIC & Unit 2 HPCI.

c. Unit 2 RCIC & Unit 1 HPCI.

d. Unit 2 RCIC & Unit 2 HPCI.

QUESTION: 062 (1.00)

Unit 1 is being returned to operation following a refueling outage using QCGP 1-1, NORMAL UNIT STARTUP. The plant conditions are:

- Reactor Power 20%
- Mode Switch in RUN
- Main Generator connected to the grid

Then the main turbine tripped due to low condenser vacuum, and the turbine bypass valves failed to open. Which of the following describes the effect of this transient on reactor neutron flux?

Closure of the turbine stop valves will result in . . .

a. an automatic reactor scram signal with accompanying decrease in neutron flux.

b. a reactor pressure increase causing a reactor core void collapse, which in turn increases positive core reactivity and the neutron flux.

c. a reactor pressure increase, causing an increase in reactor core voiding, which in turn decreases positive core reactivity and the neutron flux.

d. a reactor pressure increase, causing relief valves to open, which in turn causes a level swell and a resulting increase in positive core reactivity and the neutron flux.

QUESTION: 063 (1.00)

The bases for the reactor vessel instrumentation High Reactor Water Level Trip Setpoint is to . . .

a. prevent water from filling the steam lines during a transient, thereby protecting the piping from excessive stress.

b. prevent the steam separators from being flooded, thereby protecting equipment from high moisture carryover.

c. prevent the reactor vessel from going solid, thereby protecting the reactor from a loss of reactor pressure control.

d. prevent filling the level control instrumentation variable legs with water, thereby protecting from a loss of level control.

QUESTION: 064 (1.00)

Which of the following describes the bases for the 100 Rem/hr primary containment isolation signal?

a. High radiation in the drywell is an abnormal condition, this isolation is provided to prevent the release of radioactive material from the drywell or torus.

b. This isolation is provided to guard against the release of fission products from the fuel to the reactor coolant and subsequently to the turbine.

c. High radiation in the drywell is indicative of a line break, therefore a signal is provided to isolate lines which penetrate the reactor vessel.

d. This signal is provided to initiate a Group II isolation if high radiation, indicating leakage, is detected in the area around the reactor water cleanup pump room.

QUESTION: 065 (1.00)

The unit 1 was operating at 100% power when alarm 912-1 E-1, RX BUILDING COOLING WATER HIGH TEMP annunciated. Upon investigation the operator determined that the cause of the alarm was an increasing water temperature, caused by a malfunctioning temperature control valve on the 1A RBCCW heat exchanger.

Which of the following symptoms would be consistent with the above condition?

a. An increasing temperature in the unit 1 drywell.

b. An increasing temperature in the outboard MSIV room.

c. A high temperature trip of the 1A Instrument Air Compressor.

d. A high temperature alarm on the running ½ Diesel Generator.

QUESTION: 066 (1.00)

The A train control room Air Handling Unit is in operation. A fire starts on the service building roof which results in smoke entering the control room ventilation air intake. Which of the following describes the expected automatic response of the control room ventilation system?

The A train Air Handling Unit will . . .

a. trip and the B train will auto start.

b. switch to the smoke purge mode.

c. switch to the isolation/recirculation mode.

d. trip and the Air Filtering Unit will auto start.

QUESTION: 067 (1.00)

The following annunciators have come in:

- 912-1 C-2, TURBINE BUILDING COOLING WATER PUMP TRIP
- 912-1 D-2, TURBINE BUILDING COOLING WATER LOW PRESSURE

Which of the following describes an EXPECTED response?

a. EDG ½ room temperature increases.

b. CRD Pump Bearing temperature increases.

c. Outboard MSIV room temperature increases.

d. Recirc MG set lube oil temperature increases.

QUESTION: 068 (1.00)

Unit 1 is in shutdown with both reactor recirculation pumps off. A spurious Group 2 isolation occurred. Which of the following would be an indication of reactor vessel water stratification?

a. An unexpected increase in Reactor pressure.

b. A constant Reactor Recirc Loop temperature.

c. An unexpected decrease in Reactor pressure.

d. An unexpected decrease in Reactor vessel metal temperature.

QUESTION: 069 (1.00)

Unit 1 is shutdown for refueling, Unit 2 is operating at 100% power. When the steam dryer was being removed from the Unit 1 reactor vessel, high airborne contamination was detected on the refuel floor. The airborne contamination caused High High Channel A and B Reactor Building Vent Radiation Monitor trips. Assume all equipment operates as designed.

Which of the following areas must be monitored for an expected increasing temperature that could require entry into QGA 300, SECONDARY CONTAINMENT CONTROL?

a. SBGT Floor.

b. Refueling Floor.

c. Unit 1 MSIV Room.

d. Unit 2 MSIV Room.

QUESTION: 070 (1.00)

Unit 1 is at 100% power with all systems operable.

A normal shutdown was in progress on Unit 2; the plant conditions are:

- Mode Switch in "Startup/Hot Standby"
- IRMs are on range 6
- Reactor pressure 650 psig.
- Control rod pattern is "black and white" (50% of the rods are full out in a checker board pattern)

The Unit 2 running CRD pump tripped. When the NSO attempted to start the standby pump it also tripped. Approximately 5 minutes later, while the cause of the pump trips was being investigated two CRD accumulator trouble alarms were received on withdrawn control rods. The NSO immediately placed the Mode Switch in "Shutdown" and entered the scram procedure. Was the action taken by the NSO correct and why?

a. Yes, because under these plant conditions CRD scram speeds would be degraded without fully charged accumulators.

b. No, because under these plant conditions it would be preferable to take as much as 20 minutes to attempt pump restoration.

c. Yes, because an automatic scram should have occurred under these plant conditions.

d. No, because under these plant conditions the CRD cross- tie should have been used to restore drive pressure.

QUESTION: 071 (1.00)

What is the automatic response, if any, when instrument air pressure drops low enough to energize Annunciator 912-1 A-11, U1A INST AIR LOW PRESSURE?

a. The Drywell Pneumatic Compressor will automatically start to maintain control air for the MSIVs and the Target Rock Valve.

b. The 1 / 2 Instrument Air Compressor will automatically start in an attempt to restore instrument air pressure.

c. The Service air back-up valve will automatically open in an attempt to restore instrument air pressure.

d. The air supply to non-critical systems will automatically isolate to conserve instrument air pressure.

QUESTION: 072 (1.00)

A loss of Off Site power occurred.

- The reactor has scrammed and all control rods are full in.
- All high pressure ECCS is out of service or failed.
- Reactor water level is -140 inches.
- Torus temperature is 105°F.
- Drywell temperature is 200°F.

An emergency reactor vessel depressurization followed by level restoration with low pressure systems was ordered. Which of the following statements describes the response of the RPV Wide and Narrow range level indication and the proper operator action to be taken during this event?

a. Wide range level remains accurate, but Narrow range level is unreliable. Following the depressurization use low pressure systems to restore water level to between 8 and 48 inches.

b. Wide and Narrow range level remain reliable. Following the depressurization use low pressure systems to restore water level to between 8 and 48 inches.

c. Wide and Narrow range level will be unreliable due to flashing of the reference leg. Enter QGA 500-4, RPV Flooding, to assure core cooling.

d. Wide and Narrow range level will be unreliable due to gasses coming out of solution. Enter QGA 500-4, RPV Flooding, to assure core cooling.

QUESTION: 073 (1.00)

Which of the following correctly describes how the Drywell is monitored to verify that unidentified leakage is within Technical specification limits?

a. Once a week a stop watch is used to time the pump down of the Drywell floor drain and equipment drain sumps, these times are then compared to previous pump down times to verify Tech Spec compliance with the limit on unidentified leakage.

b. The Drywell floor drain and equipment drain sumps are pumped down approximately once every four hours, the change in the sum of the gallons shown on the two control room integrators is then used to determine Tech Spec compliance with the limit on unidentified leakage.

c. Once a week a stop watch is used to time the pump down of the Drywell floor drain sump, this time is then compared to previous pump down times to verify Tech Spec compliance with the limit on unidentified leakage.

d. The Drywell floor drain sump is pumped down approximately once every four hours, the change in the number of gallons shown on the control room floor drain sump integrator is then used to determine Tech Spec compliance with the limit on unidentified leakage.

QUESTION: 074 (1.00)

QGA 200, PRIMARY CONTAINMENT CONTROL, requires that if torus level cannot be maintained above 11 feet, HPCI operation must be prevented. Why is there no similar requirement for RCIC operation with torus level below 11 feet?

a. The RCIC steam exhaust will still be submerged at a torus level below 11 feet.

b. The RCIC steam exhaust flow is low enough that it can be vented without causing containment failure.

c. Maintaining a small amount of injection for core cooling irrespective of containment pressure concerns takes precedence.

d. The RCIC turbine will already have tripped on low pump suction pressure by the time torus level reaches 11 feet.

QUESTION: 075 (1.00)

Following a major plant casualty which threatens the Primary Containment, drywell venting to control hydrogen via the reactor building vents was ordered. When the NSO attempted to open AO1699-7, 'VENT TO RX BLDG,' it would not open. Which of the following is a reason AO1699-7 may be interlocked closed?

a. The 18" drywell vent valve 1601-23 is open.

b. SBGT has an auto start signal.

c. The 18" torus vent valve 1601-60 is open.

d. The master vent mode switch is in the APCV position.

QUESTION: 076 (1.00)

There has been a failure to Scram and QGA 101, RPV CONTROL, has been entered. The plant conditions are:

- APRMs read 10% and are holding steady
- RPV water level is -24 inches and dropping
- RPV pressure is 970 psig and dropping
- Containment pressure is 1.7 psig and holding steady
- Reactor Mode Switch is in Shutdown

The SRO directing the QGAs ordered that QCOP 0250-02, BYPASSING MSIV GROUP I ISOLATION SIGNALS: LOW LOW REACTOR WATER LEVEL OR MSL HIGH RADIATION, be performed. Before any QCOP 0250-02 jumpers were placed, a GROUP 1 isolation occurred due to low low level. The NSO assigned to perform QCOP 0250-02 continued with the procedure and completed placing the jumpers. He is ready to reset the GROUP I isolation, and the following plant condition have changed. RPV water level is now -72 inches and RPV pressure is now 1080 psig. Assume there is no GROUP I high radiation or high temperature signal present. Which of the following describes the steam line response when the NSO takes the action of placing the MN STM ISOL RESET switch in the INBD then OUTBD position?

a. The GROUP I isolation will not reset, and the MSIVs and the steam line drain valves remain closed.

b. The GROUP I isolation resets, and the MSIVs and the steam line drain valves automatically open.

c. The GROUP I isolation resets, and the MSIVs and the steam line drain valves remain closed.

d. The GROUP I isolation resets, and the MSIVs remain closed but the steam line drain valves open.

QUESTION: 077 (1.00)

In QGA 500-1, RPV BLOWDOWN, there is a decision point at which it is questioned if torus water level is above or below 5 feet. What is the significance of the 5 foot or greater water level decision point?

With torus water level at 5 feet or greater, . . .

a. the ADS discharge will still be submerged; therefore, the steam release will be condensed.

b. the drywell downcomers will still be submerged; therefore, the torus will still be isolated from the drywell.

c. the ECCS suction vortex limit will not be violated; therefore, water will be available to reflood the reactor.

d. there will still be sufficient NPSH for the ECCS pumps; therefore, water will be available to reflood the reactor.

QUESTION: 078 (1.00)

Units 1and 2 were operating at 100% power, when a problem with the Unit 2 feed water level control system resulted in a low reactor water level Scram. Assume Unit 1 continues to operate uneventfully at 100% power. In the management of the event response who would have the responsibility for directing plant actions in accordance with the QGAs?

a. The Unit 1 Supervisor

b. The Unit 2 Supervisor

c. The Shift Technical Adviser

d. The Shift Manager

QUESTION: 079 (1.00)

An ATWS has occurred. Core spray injection was prevented as one of the first actions taken in accordance with QGA 101, RPV CONTROL (ATWS). Why is the action to prevent core spray injection taken?

Core spray injection is prevented because, . . .

a. core spray takes suction from the torus. Preventing core spray from operating protects the pumps from damage caused by loss of NPSH or vortexing.

b. core spray injects directly above the reactor core. The injection of relatively cold water could result in a core damaging power excursion.

c. reactor pressure will be held at approximately 920 psig. This would result in the core spray pumps running for an extended period at minimum flow possibly causing pump damage.

d. because feedwater, HPCI, and RCIC will be used to control water level. Therefore the use of core spray will not be required during an ATWS.

QUESTION: 080 (1.00)

Unit 1 was operating at 25% power with relief valve testing in progress, when a relief valve failed in the open position. Procedure QCOA 0203-01, FAILURE OF A RELIEF VALVE TO CLOSE OR RESEAT PROPERLY was entered. The IMMEDIATE operator actions of QCOA 0203-01 did not result in closing the stuck open relief valve. In accordance with the SUBSEQUENT OPERATOR ACTIONS the Reactor Operator scrammed the reactor. Why does the SUBSEQUENT OPERATOR ACTIONS of QCOA 0203-01 direct a reactor scram?

A scram is directed because,...

a. the relief valve tailpipes are not designed for continuous blowdown with the reactor at power, and structural damage could result.

b. with a stuck open relief valve, reaching the low pressure scram setpoint with the mode switch in RUN is unavoidable.

c. the relief valve tailpipe vacuum breakers will not function under these conditions which could result in structural damage.

d. with a stuck open relief valve, heat capacity temperature limit will be exceeded.

QUESTION: 081 (1.00)

Both unit are operating at 100% power, when alarm 901-3 G-3, RX BLDG VENT CHANNEL A HI HI RADIATION annunciates. Alarm 901-3 H- 3, RX BLDG VENT CHANNEL B HI HI RADIATION does NOT annunciate. The SBGTS TRAIN MODE SELECTOR SWITCH A is in STBY and the SBGTS TRAIN MODE SELECTOR SWITCH B is in PRIM.

Which of the following is the expected response of the Standby Gas Treatment System?

a. Both trains of Standby Gas Treatment auto start.

b. The A train of Standby Gas Treatment auto starts.

c. The B train of Standby Gas Treatment auto starts.

d. Neither train of Standby Gas Treatment auto starts.

QUESTION: 082 (1.00)

With regard to the Rod Position Reed Switches, what is the function of the top 4 and bottom 4 switches?

a. The function of the top 4 switches is:
2 switches to indicate the rod is past full in; 2 switches to indicate rod is full in.
The function of the bottom 4 switches is:
1 switch to indicate the rod is withdrawn 141 inches; 1 switch to indicate the rod is full out; 2 switches to indicate the drive is below position 48.

b. The function of the top 4 switches is:
1 switch to indicate the rod is past full in; 2 switches to indicate the rod is full in; 1 switch to indicate the rod is withdrawn 3 inches.
The function of the bottom 4 switches is:
1 switch to indicate the rod is withdrawn 141 inches; 2 switches to indicate the rod is full out; 1 switch to indicate the drive is below position 48.

c. The function of the top 4 switches is:
2 switches to indicate the rod is past full in; 1 switches to indicate the rod is full in; 1 switch to indicate the rod is withdrawn 3 inches.
The function of the bottom 4 switches is:
1 switch to indicate the rod is withdrawn 141 inches; 1 switch to indicate rod is full out; 2 switches to indicate the drive is below position 48.

d. The function of the top 4 switches is:
1 switch to indicate the rod is past full in; 2 switches to indicate rod is full in; 1 switch to indicate the rod is withdrawn 3 inches.
The function of the bottom 4 switches is:
2 switches to indicate rod is full out; 2 switches to indicate the drive is below position 48.

QUESTION: 083 (1.00)

The Intermediate Range Monitors "DRIVE IN" and "DRIVE OUT" push buttons can be used to vertically position the IRM detectors anywhere from _____ (maximum insertion), to _____ (maximum withdrawal).

a. the top of active fuel, just outside the reactor vessel

b. 3/4 core height, bottom of active fuel

c. 2/3 core height, a few feet below active fuel.

d. ½ core height, just below the bottom of active fuel.

QUESTION: 084 (1.00)

The reactor core is being reloaded during a refueling outage. Prior to the start of the reload all SRMs were verified operable, and all Tech Spec required SRM surveillances are current, showing 4 operable SRMs. During the subsequent fuel loading, who has the responsibility for verifying that the Tech Spec SRM operability requirements for CORE ALTERATIONS continue to be met between surveillances?

a. The Reactor Operator.

b. The SRO supervising the fuel handling.

c. The Unit Supervisor.

d. The Fuel Handling Verifier.

QUESTION: 085 (1.00)

Which one of the following approaches to performing a job should be used based on ALARA considerations for total collective dose?

a. Two individuals performing the job in a 60 Mrem/hr field for 35 minutes.

b. One individual performing the job in a 60 Mrem/hr field for 60 minutes.

c. Two individuals installing temporary shielding in a 60 Mrem/hr field for 15 minutes and then these individuals performing the job in a 6 Mrem/hr field for 40 minutes.

d. One individual installing temporary shielding in a 60 Mrem/hr field for 30 minutes and then performing the job in a 6 Mrem/hr field for 60 minutes.

QUESTION: 086 (1.00)

Given the following conditions:

- A SCRAM occurred 2 minutes ago from 100% reactor power due to a loss of offsite power.
- Reactor water level is slowly decreasing and has just reached the low low set point.
- Drywell pressure is 2.0 psig and is holding steady .
- Reactor pressure is 1080 psig and slowly increasing.
- HPCI has failed.
- All other systems are operating normally.

Assume that plant parameters continue to trend as stated above, and that there is no operator intervention. What is the expected response of the Automatic Depressurization System?

ADS will . . .

a. initiate as soon as any low pressure ECCS pump is running.

b. initiate in 110 seconds.

c. NOT initiate with plant parameters trending as indicated above.

d. initiate in 8.5 minutes.

QUESTION: 087 (1.00)

Following a LOCA on Unit 1, drywell spray is initiated. Which of the following alarms would be indicative of drywell pressure dropping below suppression chamber pressure?

a. 901-5 F-3 TORUS ISOLATION OVERRIDE

b. 901-3 C-13 TORUS VACUUM BKR OPEN DIV I

c. 901-3 A-15 DRYWELL/TORUS ISOL VALVES AUTO BYPASS

d. 901-3 B-14 TORUS TO RX BUILDING NEGATIVE DP

QUESTION: 088 (1.00)

The plant was operating at 60% power when a failure in the EHC control system caused the turbine control valves to fail full open. Which of the following describes the expected plant response?

a. When the pressure at the D-ring reaches the low pressure set point, a Group I isolation occurs.

b. When the pressure in the reactor steam dome reaches the low pressure set point, a Group I isolation occurs.

c. When the turbine first stage pressure reaches the low pressure set point, a Group I isolation occurs.

d. When the pressure at the steam line flow restrictors reaches the low pressure set point, a Group I isolation occurs.

QUESTION: 089 (1.00)

With a normal electrical plant lineup, annunciator 901-8-A-9, 125 V BATTERY CHARGER 1 TRIP, alarmed. Which of the following conditions could have caused this alarm and what is the current status of the Unit One 125 VDC system?

a. The Fuse downstream of the disconnect switch (Fusible Switch) has blown, and the Unit One 125 VDC loads are currently being carried by the batteries.

b. The feed breaker from MCC 19-2 opened, and the Unit One 125 VDC loads are currently being carried by the batteries.

c. The Fuse downstream of the disconnect switch (Fusible Switch) has blown, and the Unit One 125 VDC loads are currently de-energized.

d. The feed breaker from MCC 19-2 opened, and the Unit One 125 VDC loads are currently de-energized.

QUESTION: 090 (1.00)

When motor operated throttle valves are driven closed, which of the following is the proper Operator Action?

a. Throttle valve control switches should be held in the close position an additional 25 seconds or more after the closed indication is received.

b. Throttle valve control switches should be returned to the neutral position as soon as the closed indication is received.

c. Throttle valve control switches should be held in the close position for less than 25 seconds after the closed indication is received.

d. Valves with yellow control switches should be driven closed for less than 25 seconds after the closed indication is received, and valves with red control switches should be left to close on their seal-in circuit.

QUESTION: 091 (1.00)

If the Protectowire in Unit One HPCI room actuated, which of the following describes the effect on the Fire Protection System?

a. At Panel 912-1 the red FIRE PROT SYSTEM ALARM will light, a bell will sound, and in the HPCI room the pre-action headers will fill with water.

b. At Panel 912-1 the yellow FIRE PROT SYSTEM ALARM will light, a horn will sound, and in the HPCI room water will spray the area.

c. At Panel 912-1 the red FIRE PROT SYSTEM ALARM will light, a bell will sound, and in the HPCI room water will spray the area.

d. At Panel 912-1 the yellow FIRE PROT SYSTEM TROUBLE will light, a horn will sound, and in the HPCI room the pre- action headers will fill with water.

QUESTION: 092 (1.00)

The 'A' train of Control Room Ventilation was operating normally when instrument air was lost. Which of the following describe the resulting control room ventilation operating mode and control room pressure?

a. The 'A' train of Control Room Ventilation will be operating in 100% recirculation mode, control room pressure will be less than 1/8 inch of water above atmospheric.

b. The 'B' train of Control Room Ventilation will be operating in 100% recirculation mode, control room pressure will be less than 1/8 inch of water above atmospheric.

c. The 'A' train of Control Room Ventilation will be operating in 100% recirculation mode, control room pressure will be 1/8 inch of water or more above atmospheric.

d. The 'B' train of Control Room Ventilation will be operating in 100% recirculation mode, control room pressure will be 1/8 inch of water or more above atmospheric.

QUESTION: 093 (1.00)

Units 1 and 2 are operating at 100% power when a loss of offsite power occurs to both units with a simultaneous loss-of-coolant accident on Unit 2. Assume that all plant equipment operates as designed.

Which of the following U-1 RBCCW system valves, if any, will be powered from the emergency diesel generators prior to any operator action to restore power?

MO-3701, the non-Drywell RBCCW header isolation valve
MO-3702, the RBCCW Drywell supply valve
MO-3703, the outboard RBCCW Drywell return isolation valve
MO-3706, the inboard RBCCW Drywell return isolation valve

a. MO-3701, MO-3702, and MO-3703.

b. only valves MO-3701 and MO-3703.

c. only valves MO-3702, and MO-3706.

d. no U-1 RBCCW valves are powered from the EDGs.

QUESTION: 094 (1.00)

It is discovered that a mis-calibrated instrument was used to set the Drywell High Pressure setpoint. Which of the following type of isolation valves could be inoperable due to the error?

Isolation valves on lines . . .

a. which penetrate the containment.

b. associated with the HPCI or RCIC systems.

c. which penetrate the containment and the reactor vessel and are open to systems other than HPCI or RCIC.

d. which penetrate the containment and reactor vessel and connect to systems outside containment not required during isolation conditions.

QUESTION: 095 (1.00)

Given the following conditions:

- Unit One scrammed from 100% power due to a high Drywell pressure.
- The Standby Gas Treatment System (SBGTS) was aligned with the B Train in Primary and the A train in Standby.
- Unit Two is operating normally at full power.

Which of the following indicates the Standby Gas Treatment System is NOT operating properly?

a. B train SBGTS flow indicates 4000 scfm.

b. SBGTS Train Inlet Damper, MO-1/2-7505B indicates open.

c. DTI-1/2-7540-12B (process flow delta temp) indicates 12°F 40 minutes after initiation.

d. Reactor Building Suction Dampers, 1-MO-7503 indicates open and 2-MO-7503 indicates closed.

QUESTION: 096 (1.00)

The Station Blackout (SBO) diesel is running for a surveillance. The SBO mode switch is in NORMAL. Which of the following signal(s) will trip open the safety related tie breakers at the safety related bus?

a. A LOCA signal only.

b. A LOOP signal only.

c. A LOCA or a LOOP signal.

d. A LOOP signal concurrent with a loss of normal 13.8 KV feed.

QUESTION: 097 (1.00)

Unit 1 was operating at 50% reactor power, when drywell pressure suddenly increased to 5 psig. Which of the following automatic plant responses would you expect to observe?

a. Closure of the main steam isolation valves.

b. Isolation of the reactor water cleanup system.

c. Startup of both trains of Standby Gas Treatment.

d. A closure of the reactor building isolation dampers.

QUESTION: 098 (1.00)

Which one of the following conditions requires entry into QGA 300, SECONDARY CONTAINMENT CONTROL?

a. Drywell pressure above 2.5 psig.

b. 6 inches of water on the floor below the torus.

c. Reactor Building ventilation exhaust radiation level of 2 mrem/hr.

d. Reactor Building Differential Pressure below 0 inches of water.

QUESTION: 099 (1.00)

Which of the following describes the station's expectations when working to a procedure designated as REFERENCE USE?

a. an operator is required to have the procedure at the work site, read each step of the procedure prior to execution, and execute the steps in the sequence specified.

b. the operator is required to review the procedure prior to commencing work but is not required to have the procedure at the work site.

c. an operator is required to have the procedure at the work site and to periodically review the procedure during the performance of the activity to confirm that steps are being performed correctly and in the sequence specified.

d. the operator can perform the procedure from memory because they are trained and qualified as User Capability.

QUESTION: 100 (1.00)

QGA 101, "RPV Control (ATWS)", contains the following “CAUTION: Injecting to fast may damage the core.” Which of the following statements is correct regarding this caution?

Injecting too fast is . . .

a. a concern when boron is in the core region.

b. only a concern when injecting inside the core shroud.

c. not a concern when injecting with Alternate ATWS Systems.

d. not a concern when injecting with RPV level above the “Minimum Steam Cooling RPV Water Level.”

(********** END OF EXAMINATION **********)

ANSWER: 001 (1.00)
b. (deleted)
REFERENCE:
T.S. Table 3.3.1.1-1
Modified
Higher
295007A201 ..(KAs)

ANSWER: 002 (1.00)
b.
REFERENCE:
TS sect 2.0
295014 2.1.12
Modified
Higher
295014 2.1.12 ..(KAs)

ANSWER: 003 (1.00)
a.
REFERENCE:
QGA-200 Primary Containment Leg
Modified
Higher
295010A202 ..(KAs)

ANSWER: 004 (1.00)
b.
REFERENCE:
Technical specification 2.0
295006 2.2.25
modified
higher
295006 2.2.22 ..(KAs)

ANSWER: 005 (1.00)
a.
REFERENCE:
LP IF-0202 Appendix A
bank
memory
295025K302 ..(KAs)

ANSWER: 006 (1.00)
d.
REFERENCE:
QCOA 0300-4 Steps D1 & 2
201001A212
bank
higher
201001A212 ..(KAs)

ANSWER: 007 (1.00)
a.
REFERENCE:
QCOP 0300-23
LP LF0302
qc bank 11869
memory
201001 2.1.32 ..(KAs)

ANSWER: 008 (1.00)
a.
REFERENCE:
TRNOPSLP\LIC-0263.R03
qc bank
memory
216000A301 ..(KAs)

ANSWER: 009 (1.00)
c.
REFERENCE:
LP LIC-0250 pp20
qc bank
higher
239002A307 ..(KAs)

ANSWER: 010 (1.00)
c.
REFERENCE:
LIC 2300, Feedwater & Condensate, Section I.1.a, pp 11
ILT.04364
modified
higher
259001K301 ..(KAs)

ANSWER: 011 (1.00)
a.
REFERENCE:
QCGP 2-3, Reactor Scram, Revision 35, Step F.3.a
modified
higher
259002A410 ..(KAs)

ANSWER: 012 (1.00)
b.
REFERENCE:
QCOA 6600-01, Rev 11, Step D.3
264000 2.1.8
qc bank
higher
264000 2.1.8 ..(KAs)

ANSWER: 013 (1.00)
c.
REFERENCE:
LP LIC-2300, pp 59
206000 2.1.32
qc bank
higher
206000 2.1.32 ..(KAs)

ANSWER: 014 (1.00)
d.
*REFERENCE
LN-6600, Table 6600-1
New
LoD(1 - 5): 3
Analysis
264000K302 ..(KAs)

ANSWER: 015 (1.00)
a.
REFERENCE:
OP-AA-101-202
2.2.13
bank
memory
2.2.13 ..(KAs)

ANSWER: 016 (1.00)
c.
REFERENCE:
LP LN-5752, p5
2.1.29
ILT.06091
bank
higher
2.1.29 ..(KAs)

ANSWER: 017 (1.00)
d.
REFERENCE:
QCAN 901(2)-3 D-13
ILT.10032
bank
memory
295013A201 ..(KAs)

ANSWER: 018 (1.00)
a.
REFERENCE:
LP LIC-0280 pp14
ILT.09735
bank
higher
201002K406 ..(KAs)

ANSWER: 019 (1.00)
d.
REFERENCE:
Overview Drawing 4701-01
300000 2.1.27
ILT.05108
bank
memory
300000 2.1.28 ..(KAs)

ANSWER: 020 (1.00)
d.
REFERENCE:
QCOA 0300-02 pp1
ILT.11949
bank
memory
201003A201 ..(KAs)

ANSWER: 021 (1.00)
d.
REFERENCE:
LIC-3200 pp2
bank
memory
256000K107 ..(KAs)

ANSWER: 022 (1.00)
c.
REFERENCE:
LP LN-6900 pp36
ILT.11996
bank
higher
202001K604 ..(KAs)

ANSWER: 023 (1.00)
b.
REFERENCE:
Overview Drawing 1000-01
QCOP1000-05 p11
ILT.10060
bank
higher
205000K502 ..(KAs)

ANSWER: 024 (1.00)
a.
REFERENCE:
LP LF-1000 pp62
Overview Drawing 6500-01
ILT.10027
bank
higher
219000K202 ..(KAs)

ANSWER: 025 (1.00)
d.
REFERENCE:
LP LIC-0250 pp 7 & 8
bank
memory
239001K506 ..(KAs)

ANSWER: 026 (1.00)
a.
REFERENCE:
LP LN-5400 pp20
ILT.04016
bank
memory
271000K101 ..(KAs)

ANSWER: 027 (1.00)
b.
REFERENCE:
steam tables
ILT.10111
295021A201
Modified
Memory
295021A201 ..(KAs)

ANSWER: 028 (1.00)
c.
REFERENCE:
General Electric BWR
Academic Series, Reactor
Theory, Page 4-8
Bank - 05000410
Memory
295021K201 ..(KAs)

ANSWER: 029 (1.00)
d.
REFERENCE:
Lesson Plan Module
L-QGA100, "QGA 100, RPV
Control"
Objective # S-0001-EK018,
Section I, "Steam Cooling"
2.4.6
New
higher
2.4.6 ..(KAs)

ANSWER: 030 (1.00)
b.
REFERENCE:
LP LIC-0207, "Rod Worth Minimizer"
LP LIC-0280 pp 8 & 9
Technical Specifications Bases, Section B 3.3.2.1
2.2.33
New
Memory
2.2.33 ..(KAs)

ANSWER: 031 (1.00)
d.
REFERENCE:
Technical Specification 3.6.1.3 and SR 3.6.1.3.1.
QCOP 1600-07, DE-INERTING OF PRIMARY CONTAINMENT WITH SBGTS.
QCOP 1600-08, DE-INERTING OF PRIMARY CONTAINMENT THROUGH THE REACTOR BUILDING VENTILATION SYSTEM.
2.3.9
New
higher
2.3.9 ..(KAs)

ANSWER: 032 (1.00)
b.
REFERENCE:
QCGP 1-1, NORMAL UNIT STARTUP.
Lesson Plan Module LIC-0207, "Rod Worth Minimizer"
Technical Specification 3.3.2.1
2.2.1
New
higher
2.2.1 ..(KAs)

ANSWER: 033 (1.00)
a.
REFERENCE:
Lesson Plan L-QGA100, overview drawing 0263-01
295028 2.4.20
Bank
higher
295028 2.4.20 ..(KAs)

ANSWER: 034 (1.00)
b.
REFERENCE:
QCOA 3500-02
New
higher
245000A206 ..(KAs)

ANSWER: 035 (1.00)
b.
REFERENCE:
Lesson Plan If-0202 p 36 & 58
New
higher
295001A204 ..(KAs)

ANSWER: 036 (1.00)
d.
REFERENCE:
Technical Specifications: Section 1.1, definition of MODE Table 1.1-1, 3.10.3
2.1.22
New
Tier/Group: 3
Level of Difficulty (1 - 5): 2
Memory
2.1.22 ..(KAs)

ANSWER: 037 (1.00)
a.
REFERENCE:
OVERVIEW DRAWING QGA 200-P1
Bank
Memory
295024K308 ..(KAs)

ANSWER: 038 (1.00)
b.
REFERENCE:
UFSAR section 7.6.1.3.2
New
higher
215004A104 ..(KAs)

ANSWER: 039 (1.00)
a.
REFERENCE:
UFSAR section 3.9.5.1
New
memory
290002K402 ..(KAs)

ANSWER: 040 (1.00)
c.
REFERENCE:
RHR lesson plan pp 12 & 13
New
Higher
226001A105 ..(KAs)

ANSWER: 041 (1.00)
b.
REFERENCE:
ADS Lesson Plan, Overview Drawing 0203-02
New
Higher
203000K303 ..(KAs)

ANSWER: 042 (1.00)
c.
REFERENCE:
HPCI Lesson Plan
New
Higher
206000K414 ..(KAs)

ANSWER: 043 (1.00)
a.
REFERENCE:
Lesson Plan LN-6500
4KV/480 volt distribution pp
284, 286,2298,
300 & 302
New
Higher
212000K601 ..(KAs)

ANSWER: 044 (1.00)
a.
REFERENCE:
Lesson plan lic-0703
Bank
Memory
215005K101 ..(KAs)

ANSWER: 045 (1.00)
a.
REFERENCE:
Lesson Plan LIC-0703
LPRM/APRM pp58
New
Memory
215005K202 ..(KAs)

ANSWER: 046 (1.00)
b.
REFERENCE:
Lesson Plan LIC-1400 pp25
New
Memory
209001K202 ..(KAs)

ANSWER: 047 (1.00)
d.
REFERENCE:
Lesson Plan LIC-1400.doc
pp4 & 5
New
Higher
209001A404 ..(KAs)

ANSWER: 048 (1.00)
a.
REFERENCE:
Lesson Plan IF-0202.doc
pp21
New
Higher
202002K105 ..(KAs)

ANSWER: 049 (1.00)
c.
REFERENCE:
QOA 900-8 E-5
Lesson Plan LN-6600 pp 41
& 49
Lesson Plan LN-6500 pp 106
New
Higher
295003K103 ..(KAs)

ANSWER: 050 (1.00)
b.
REFERENCE:
QCFRP 0110-02
Bank
Higher
295023K103 ..(KAs)

ANSWER: 051 (1.00)
d.
REFERENCE:
Lesson Plan LIC-0203 pp27
Bank
Memory
295016A108 ..(KAs)

ANSWER: 052 (1.00)
c.
REFERENCE:
Lesson Plan LF-1200 pp3-5
New
Memory
295009A104 ..(KAs)

ANSWER: 053 (1.00)
c.
REFERENCE:
RCIC Lesson Plan
Bank
Memory
295029K209 ..(KAs)

ANSWER: 054 (1.00)
d.
REFERENCE:
Lesson Plan LIC-0207 pp 10,
15, 17
New
Higher
201006A102 ..(KAs)

ANSWER: 055 (1.00)
b.
REFERENCE:
QCOP 1100-02
Bank
Higher
211000K404 ..(KAs)

ANSWER: 056 (1.00)
b.
REFERENCE:
Lesson Plan LR-3700 pp5
Lesson Plan LF-1200 pp 3-5
New
Higher
204000K601 ..(KAs)

ANSWER: 057 (1.00)
a.
REFERENCE:
QCOP 1300-05
Lesson Plan LIC 1300 pp40 & 41
New
Higher
217000A404 ..(KAs)

ANSWER: 058 (1.00)
a. or c.
REFERENCE:
QCOP 1900-12
Lesson Plan LNF-1900 pp 40 & 41
New
Higher
233000K302 ..(KAs)

ANSWER: 059 (1.00)
d.
REFERENCE:
QCOP 2300-06
Modified
Higher
295031K206 ..(KAs)

ANSWER: 060 (1.00)
b.
REFERENCE:
QCOA 4400-01
New
Memory
295002K103 ..(KAs)

ANSWER: 061 (1.00)
b.
REFERENCE:
Lesson Plan LN-6900
QOA 6900-01
New
Memory
295004A102 ..(KAs)

ANSWER: 062 (1.00)
b.
REFERENCE:
LIC-5600
New
Higher
295005K101 ..(KAs)

ANSWER: 063 (1.00)
b.
REFERENCE:
Lesson Plan LIC-0263
295008 2.1.28
New
Memory
295008 2.1.28 ..(KAs)

ANSWER: 064 (1.00)
a.
REFERENCE:
Lesson Plan LN-1603 pp 5
New
Memory
295038K302 ..(KAs)

ANSWER: 065 (1.00)
a.
REFERENCE:
Lesson Plan LF-3700 pp 5
New
Memory
295012K202 ..(KAs)

ANSWER: 066 (1.00)
c.
REFERENCE:
Lesson Plan LF-5752 pp 5
New
Memory
600000A206 ..(KAs)

ANSWER: 067 (1.00)
b.
REFERENCE:
Lesson plan LIC 3800 pp4
Bank
Higher
295018A201 ..(KAs)

ANSWER: 068 (1.00)
a.
REFERENCE:
QCOA 1000-02
Bank
Memory
295020K104 ..(KAs)

ANSWER: 069 (1.00)
d.
REFERENCE:
QOA 5750-7
QCOP 5750-02
QGA 300
New
Higher
295032A103 ..(KAs)

ANSWER: 070 (1.00)
a.
REFERENCE:
QCOA 0300-01; QCAN 901(2)-5 B-2, TS 3.1.5
New
Higher
295022K301 ..(KAs)

ANSWER: 071 (1.00)
c.
REFERENCE:
QCOA 4700-01
QOA 912-1 A-11
New
Higher
295019K301 ..(KAs)

ANSWER: 072 (1.00)
b.
REFERENCE:
QUAD CITIES 1, Lesson plan LIC 063 p 10.
Modified
Higher
216000A210 ..(KAs)

ANSWER: 073 (1.00)
d.
REFERENCE:
Lesson plan LN-2001
QCOS 1600-07
New
Higher
268000A401 ..(KAs)

ANSWER: 074 (1.00)
b.
REFERENCE:
Lesson Plan L-QGA 200 p67
New
Memory
295030A102 ..(KAs)

ANSWER: 075 (1.00)
d.
REFERENCE:
Lesson plan LIC-1602 p 87
Bank
Memory

500000K207 ..(KAs)

ANSWER: 076 (1.00)
c.
REFERENCE:
QCOP 0250-02
Lesson plan LIC-0250
New
Higher
295037A111 ..(KAs)

ANSWER: 077 (1.00)
a.
REFERENCE:
Lesson Plan 500-1
New
Memory
295010K201 ..(KAs)

ANSWER: 078 (1.00)
b.
REFERENCE:
Lesson Plan L-QGAINT 2.4.12
New
Memory
2.4.12 ..(KAs)

ANSWER: 079 (1.00)
b.
REFERENCE:
Lesson plan QGA101 p17
QGA-101A, RPV CONTROL (ATWS)
New
Memory
295015K102 ..(KAs)

ANSWER: 080 (1.00)
d.
REFERENCE:
Lesson Plan LIC-0203
QCOA 0203-01
New
Memory
295026K305 ..(KAs)

ANSWER: 081 (1.00)
c.
REFERENCE:
Lesson Plan LF-7500 pp 19 & 20
Lesson Plan LF-1701 p 34
Modified
Higher
295017K212 ..(KAs)

ANSWER: 082 (1.00)
b.
REFERENCE:
Lesson Plan LIC-0280 pp 6 & 7
New
Memory
214000K401 ..(KAs)

ANSWER: 083 (1.00)
c.
REFERENCE:
Lesson Plan LIC-0701 pp 6 & 7
New
Memory
215003K107 ..(KAs)

ANSWER: 084 (1.00)
a. or c.
REFERENCE:
QCFHP 0100-01
234000 2.2.30
New
Memory
234000 2.2.30 ..(KAs)

ANSWER: 085 (1.00)
d.
REFERENCE:
RP-AA-401
2.3.2
New
Higher
2.3.2 ..(KAs)

ANSWER: 086 (1.00)
d.
REFERENCE:
INPO Question Id 8616
Hope Creek Unit 1
Direct
LoD (1 - 5): 3
Memory
2.3.2 ..(KAs)

ANSWER: 087 (1.00)
b.
REFERENCE:
Lesson Plans LFN-1601 pp 32 & 45; LN-1603 pp21, LIC-1602 pp 83
New
Higher
223001A306 ..(KAs)

ANSWER: 088 (1.00)
a.
REFERENCE:
Lesson Plan IN-1603 p4
New
Memory
241000K504 ..(KAs)

ANSWER: 089 (1.00)
b.
REFERENCE:
Lesson Plan LN-6900 p 7 & 25
Bank
Higher
263000A401 ..(KAs)

ANSWER: 090 (1.00)
a.
REFERENCE:
QAP 0300-02 step D. 19
New
Memory
2.1.1 ..(KAs)

ANSWER: 091 (1.00)
c.
REFERENCE:
QCOA 4100-11
Lesson Plan LN 4100 pp 15, 34, 35, 37
Modified
Higher
286000A303 ..(KAs)

ANSWER: 092 (1.00)
b.
REFERENCE:
Lesson Plan LN 5752 pp 4, 5, & 56
Modified
Higher
290003K304 ..(KAs)

ANSWER: 093 (1.00)
a.
REFERENCE:
Lesson Plan 3700 p20
Lesson Plan LN-6600, Appendix A, p1
New
Higher

400000K202 ..(KAs)

ANSWER: 094 (1.00)
a.
REFERENCE:
Lesson Plan IN-1603 pp2
New
Higher
223002K605 ..(KAs)

ANSWER: 095 (1.00)
c.
REFERENCE:
LF-7500 Standby Gas Treatment System
New
Level of Difficulty (1 - 5): 3
Memory
261000A408 ..(KAs)

ANSWER: 096 (1.00)
c.
REFERENCE:
Lesson Plan IN-6620 p64
Bank
Memory
262001K602 ..(KAs)

ANSWER: 097 (1.00)
d.
REFERENCE:
Lesson Plan LNF-5750 p20
New
Memory
290001A301 ..(KAs)

ANSWER: 098 (1.00)
b.
REFERENCE:
QGA 300
Modified
Memory
2.4.1 ..(KAs)

ANSWER: 099 (1.00)
c.
REFERENCE:
AD-AA-104-101
New
Memory
2.1.21 ..(KAs)

ANSWER: 100 (1.00)
a.
REFERENCE
L-QGA100, QGA 101, RPV Control (ATWS)
New
LoD: 3
Memory
2.4.20 ..(KAs)

(**END OF EXAM**)

A N S W E R K E Y

001 deleted	021 d	041 b	061 b	081 c
002 b	022 c	042 c	062 b	082 b
003 a	023 b	043 a	063 b	083 c
004 b	024 a	044 a	064 a	084 a or c
005 a	025 d	045 a	065 a	085 d
006 d	026 a	046 b	066 c	086 d
007 a	027 b	047 d	067 b	087 b
008 a	028 c	048 a	068 a	088 a
009 c	029 d	049 c	069 d	089 b
010 c	030 b	050 b	070 a	090 a
011 a	031 d	051 d	071 c	091 c
012 b	032 b	052 c	072 b	092 b
013 c	033 a	053 c	073 d	093 a
014 d	034 b	054 d	074 b	094 a
015 a	035 b	055 b	075 d	095 c
016 c	036 d	056 b	076 c	096 c
017 d	037 a	057 a	077 a	097 d
018 a	038 b	058 a or c	078 b	098 b
019 d	039 a	059 d	079 b	099 c
020 d	040 c	060 b	080 d	100 a

(********** END OF EXAMINATION **********)