Candidates must be provided with the following information for this exam:

- Need to provide QCGP 3-1, Attachment A, sheet 3, Generator Capability Curve. (Q68)
- Need to provide Reportability Manual and EAL sheets (Hot Plant ONLY) with fission product barrier portion removed! (Q80)
- Provide candidate QGA 300 with entry conditions blanked out. (Q85)
- Need to provide applicants copy of TS 3.1.7 (Q87)
- Provide page 3 of 3 of TS Table 3.3.1.1-1 and 2 LCO pages ONLY (No Surv. Pages) (Q88)
- Provide TS 3.8.1, "Condition" pages 1-5 (Q90)
- Reportability Manual needed. (Q95)
- Need to provide QCOA 0010-20, Security Event (Q99)

Changes to the exam during either administration or changes made to this exam after administration are highlighted in Yellow. The effected questions include:
Q25, Q26, Q48, Q99 and the answer key for Q40.

QUESTION: 001 (1.00)

Unit 1 is at 80%. All condensate/booster pumps and feedwater pumps are in operation. The Unit 1 NSO observes the following conditions:

- a decrease in power level as indicated on APRMs.
- a decrease in “B” loop recirculation flow.
- a decrease in feedwater flow.

These conditions were most likely due to . . .

A. a loss of feedwater heating.

B. de-energization of bus 12.

C. the trip of a condensate booster pump.

D. a spurious actuation of ATWS circuitry.

QUESTION: 002 (1.00)

Both Units have experienced a station blackout. Both SBO diesels have been started. Local operations have resulted in a successful start of the U1 EDG.

In order to parallel and transfer electrical loads FROM the Unit 1 SBO TO the Unit 1 EDG, what would be the required status of the (1) SBO ISOCH/DROOP setting, and required position (2) of the EDG SPEED DROOP knob?

	(1) SBO ISOCH/DROOP	(2) EDG SPEED DROOP
A.	DROOP	0
B.	ISOCHRONOUS	50
C.	DROOP	50
D.	ISOCHRONOUS	0

QUESTION: 003 (1.00)

The DC System Engineer has confirmed that voltage on the 125 VDC Safety Related bus has lowered to 120 VDC due to a hard ground. During ground isolation procedure, QOP 6900-06, the NLO completed the GREEN switches.

In order to operate a YELLOW switch, the NLO must receive permission from the Unit Supervisor and _____ prior to operating the switch.

A. NSO

B. Shift Manager

C. Shift Operations Supervisor

D. Load Dispatcher

QUESTION: 004 (1.00)

The Unit Supervisor ordered the Unit 1 reactor to be scrammed due to drifting Control Rods. Post trip conditions are normal.

In accordance with QCGP 2-3, Reactor Scram procedure, the NSO will VERIFY ALL of the following regarding the electrical distribution system status after the turbine generator trips EXCEPT:

A. Load shed relay on Bus 11 and Bus 12 has picked up.

B. Both 345 KV OCB circuit breakers 6-7 and 7-8 are open.

C. Aux Power has transferred.

D. Main Generator Exciter Field breaker is open.

QUESTION: 005 (1.00)

A transient has occurred that resulted in the Unit 2 NSO scramming the reactor. The following post-trip conditions exist:

- Reactor power is range 8 on IRMs and lowering
- CRDs A-6 and A-10 are at position 04
- Drywell pressure is 2.1 psig and rising slowly
- Drywell temperature is 175°F and rising slowly
- Reactor water level dropped to 4 inches and is rising slowly
- Torus temperature is 98°F and rising slowly

The NSO recommends to the Unit Supervisor to enter _____(1)_____ because _____(2)_____ exceeds the QGA Entry Condition.

	(1)	(2)
A.	QGA 100, RPV Control	RPV Water
B.	QGA 100, RPV Control	Reactor Power
C.	QGA 200, Primary Containment Control	Drywell Temperature
D.	QGA 200, Primary Containment Control	Torus Temperature

QUESTION: 006 (1.00)

Unit 1 has been shutdown for a month for a refuel outage. Unit 2 has been shutdown for a week for a forced outage. The "B" Control Room ventilation system is operating for testing.

A spill of sulfuric acid occurs in the Auxiliary Electric Room. The Control Room is notified that personnel received skin burns from the fumes and that everyone has left the area. The Shift Manager ordered the Control Room abandoned and had “B” CR HVAC system secured.

Securing the “B” CR HVAC will limit the FORCED circulation of fumes through each of the following areas EXCEPT the . . .

A. Cable Spreading Room.

B. Auxililary Electric Room.

C. 3rd Floor Service Building.

D. “B” Control Room HVAC Equipment Room.

QUESTION: 007 (1.00)

Both units are at full power operation. With the Mississippi river water temperatures about 85°F and constant, the Unit 1 NLO reports a rising trend in the temperatures of various heat exchangers that discharge service water to the Unit 1 King Hole. Temperatures of systems serviced by the Unit 1 Queen Hole are steady.

If the cause is blockage of the Unit 1 King Hole, the Operators would expect to see which ONE of the following?

A. drywell pressure rising.

B. SSMP room temperature rising.

C. service water header pressure lowering.

D. main generator stator temperature rising.

QUESTION: 008 (1.00)

With Unit 1 instrument air system in its normal lineup, what actuations/alarms occur in the ORDER LISTED as the instrument air system pressure lowers:

A. Unit 1A Dryer Bypass Valve Opens,
Unit 1A Instrument Air Low Pressure Alarms,
1A Service Air Backup Valve Opens.

B. 1A Service Air Backup Valve Opens,
Unit 1A Dryer Bypass Valve Opens,
Unit 1A Instrument Air Low Pressure Alarms.

C. Unit 1A Dryer Bypass Valve Opens,
1A Service Air Backup Valve Opens,
Unit 1A Instrument Air Low Pressure Alarms.

D. 1A Service Air Backup Valve Opens,
Unit 1A Instrument Air Low Pressure Alarms,
Unit 1A Dryer Bypass Valve Opens.

QUESTION: 009 (1.00)

The following plant conditions exist on Unit 1 prior to refueling:

- Unit 1 is in Mode 3 with “A” RHR operating in shutdown cooling.
- Reactor water temperature is 220°F and steady.
- The “B” condensate booster pump is operating with RWCU rejecting to the condenser.
- Both Reactor Recirc Pumps are OFF, but available.
- Main Condenser backpressure is 26 inches Hg.

Control Room Operators then receive alarm 901-3 B-6, RHR PUMP TRIP.

- Reactor Dome Pressure is 35 psig and rising slowly.
- Reactor Metal Temperatures are rising slowly.
- Reactor water level is being maintained between 25 inches and 35 inches.

To prevent thermal stratification from occurring, Operators should:

A. start at least one Reactor Recirc pump.

B. raise Reactor water level to >115 inches and perform a feed and bleed with RWCU.

C. raise Reactor water level to between 90 inches and 100 inches and secure RWCU reject.

D. open a Main Turbine Bypass Valve and maintain Reactor water level between 20 inches and 40 inches.

QUESTION: 010 (1.00)

Unit 2 is in a refueling outage. During core offload, the Fuel Handling Supervisor reported that a spent fuel assembly has been dropped in the spent fuel pool. Bubbles were seen rising from the damaged assembly.

The IMMEDIATE operator actions include which one of the following?

A. Evacuate all personnel from the refuel floor.

B. Evacuate all personnel from the refuel bridge only.

C. Verify proper operation of SBGTS PRIOR to evacuation of all personnel from refuel floor.

D. Direct the Fuel Handlers to retract refuel hoist PRIOR to evacuation of personnel from the refuel bridge.

QUESTION: 011 (1.00)

A transient initiated on Unit 2. One minute later, the following was noted on the 902-3 panel:

- Drywell pressure is 4.5 psig and rising.
- Drywell air temperature is 240°F and rising.
- Torus pressure is 3.0 psig and rising.
- Torus water temperature is 82°F and rising.

Which of the following is occurring/has occurred?

A. An ERV lifted but is now closed.

B. The Drywell to Torus d/p system is malfunctioning.

C. The containment is functioning as designed with a LOCA in progress.

D. An ERV has failed open and its tail pipe is cracked in the torus air space.

QUESTION: 012 (1.00)

Unit 1 is at rated power. A transient condition has occurred that has resulted in a high pressure condition in the Unit 1 reactor pressure vessel.

As pressure increases, which of the following would actuate FIRST to ensure vessel integrity?

A. RPS

B. Target Rock Valve

C. Low set Safety Valve

D. Electromatic Relief Valve

QUESTION: 013 (1.00)

Unit 1 was at full power operation when Electromatic Relief Valve 1-203-3B spuriously opened. With Torus water average temperature exceeding 110°F, Operators placed RHR "A" in the Torus cooling mode.

What additional action is REQUIRED?

A. Blow down the reactor.

B. Depressurize the reactor to <150 psig within 12 hours.

C. Lower Torus temperature to <95°F within 12 hours.

D. Place the Reactor Mode Switch in SHUTDOWN immediately.

QUESTION: 014 (1.00)

The following plant conditions exist on Unit 2:

- Unit 2 is in Mode 1, steady state.
- Drywell Average temperature is 135°F and steady.
- Drywell pressure is 1.4 psig and steady.
- All other plant conditions are normal for full power operation.

Operators observed that:

- temperatures in the vicinity of the inboard MSIV pilot solenoids have RISEN.
- NO annunciator alarms have actuated.

With regard to the drywell cooling ventilation system, the most probable cause for this condition is:

A. the drywell coolers F and/or G are degraded.

B. the drywell cooler blowers have auto tripped.

C. there is a loss of RBCCW cooling to the drywell coolers.

D. an automatic temperature control damper in the vicinity of MSIV pilot solenoids has failed closed.

QUESTION: 015 (1.00)

Unit 2 has experienced a LOCA. With Drywell temperatures increasing, the Unit Supervisor ordered the U2 NSO to spray the Drywell.

The reason for initiating Drywell sprays is:

A. to prevent flashing of the Reactor water level instrument variable legs.

B. to draw condensibles from the Torus back into the Drywell.

C. to ensure the capabilities of the Drywell to Torus vacuum breakers are NOT exceeded.

D. to ensure that the LOCA will NOT raise containment temperature or pressure above design limits.

QUESTION: 016 (1.00)

Which of the following systems operation is prohibited with a lowering Torus water level and why?

A. RCIC operation when Torus level drops below 10 feet because RCIC would lose NPSH.

B. HPCI operation when Torus level drops below 11 feet because the HPCI turbine exhaust would be exposed.

C. RCIC operation when Torus level drops below 12 feet because the RCIC turbine exhaust would be exposed.

D. HPCI operation when Torus level drops below 13 feet because HPCI would lose NPSH.

QUESTION: 017 (1.00)

A transient has occurred on Unit 1 with the following conditions existing:

- Reactor water level is -20 inches and lowering at 20 inches per minute.
- Reactor power is 7% and steady.
- HPCI, feedwater, and condensate systems are unavailable.
- QCOP 0250-02 has been completed, bypassing the Group I isolation.
- ALL MSIVs are OPEN.
- RPV pressure is being controlled using Turbine Bypass Valves.

The Unit Supervisor has ordered Reactor water level lowered to at least -35 inches. Regarding RCIC operation, operators will ____(1)_____ because ____(2)_____ .

	(1)	(2)
A.	TRIP RCIC	NO RPV injection is allowed.
B.	TRIP RCIC	RCIC injection would cause a significant power excursion.
C.	allow RCIC to inject	RCIC injection will be required later for reactor water level control
D.	allow RCIC to inject	RCIC will be required later for RPV pressure control.

QUESTION: 018 (1.00)

Given the following plant conditions on Unit 2:

- APRMs read 10% and are steady.
- Reactor pressure is 970 psig and steady.
- Drywell pressure is 1.7 psig and steady.
- Torus pressure is 0.2 psig and steady.
- The Reactor Mode switch is in SHUTDOWN.
- Reactor water level is -24 inches and lowering.

The Unit Supervisor ordered QCOP 0250-02, "Bypassing MSIV Group I Isolation from Low Low Reactor Water Level" be performed. Before any QCOP 0250-02 jumpers could be placed, a GROUP I isolation occurred due to reactor water level. The NSO assigned to perform QCOP 0250-02 continued with the procedure and completed placing the jumpers. He is now ready to reset the Group I isolation, and the following plant conditions have changed:

- Reactor water level is -72 inches.
- Reactor pressure is 1080 psig and rising.

Assume there is NO Group I high temperature or high steam line flow signal present. The NSO then places the MN STM ISOL RESET switch to the INBD and then OUTBD position.

The GROUP I isolation . . .

A. will NOT reset, and the MSIVs and the steam line drain valves will REMAIN CLOSED.

B. resets, and the MSIVs and the steam line drain valves AUTOMATICALLY OPEN.

C. resets, and the MSIVs and the steam line drain valves REMAIN CLOSED.

D. resets, and the MSIVs remain closed but the steam line drain valves will AUTOMATICALLY OPEN.

QUESTION: 019 (1.00)

Running Turbine Building Ventilation . . .

A. ensures Turbine Building air is filtered prior to release to the environment.

B. ensures Turbine Building air is monitored prior to release to the environment.

C. ensures Turbine Building pressure is maintained lower than Reactor Building pressure.

D. allows an alternate lineup for the Standby Gas Treatment System to take a suction from the Turbine Building.

QUESTION: 020 (1.00)

A fire has been reported behind the Main Turbine shield wall. Regarding ventilation, Control Room Operators MUST . . .

A. OPERATE Turbine Building Ventilation as requested by the Fire Brigade Leader.

B. SECURE ALL Turbine Building Ventilation immediately to prevent fanning the fire.

C. OPERATE Turbine Building supply fans ONLY to prevent fire spread IAW QCOA 0010-12, Fire/Explosion.

D. OPERATE Turbine Building exhaust fans ONLY to remove smoke IAW QCOA 0010-12, Fire/Explosion.

.

QUESTION: 021 (1.00)

The following plant conditions exist on Unit 1:

- Mode 1 at 30% reactor power and holding.
- Reactor pressure is being controlled by the Turbine Bypass Valves following a Stator Water Runback.
- Condenser backpressure is at 5 inches Hg and degrading rapidly.

As condenser vacuum is lost, the ___(1)____ will close on a ___(2)____ signal.

	(1)	(2)
A.	Turbine stop valves (only)	Loss of condenser vacuum
B.	Turbine stop valves and turbine bypass valves	Loss of condenser vacuum
C.	Turbine stop valves and turbine bypass valves	Reactor protection system
D.	Main steam isolation valves	Group I Isolation

QUESTION: 022 (1.00)

HPCI has automatically started for injection. ERV's are controlling Reactor pressure, following the expected trend for automatic operation.

Compare present HPCI pump FLOW and SPEED to what it would be IF the Main Turbine Bypass Valves were controlling Reactor Pressure instead of the ERV's.

Assume the Operator has made NO manipulations to HPCI:

With ERV's controlling Reactor pressure, HPCI pump FLOW is presently (higher than / the same as) it would be IF Main Turbine Bypass Valves were controlling Reactor pressure; AND

With ERV's controlling Reactor pressure, HPCI pump SPEED is presently (higher than / the same as) it would be IF Main Turbine Bypass Valves were controlling Reactor pressure.

	FLOW	SPEED
A.	higher than	higher than
B.	higher than	the same as
C.	the same as	higher than
D.	the same as	the same as

QUESTION: 023 (1.00)

Unit 2 was operating at 75% reactor power when it scrammed due to a loss of EHC.

Moments later, ALL Reactor Feed Pumps TRIPPED due to a faulty low suction pressure switch.

Reactor water level reached -45 inches before HPCI was manually started and injected. Five minutes later, HPCI was MANUALLY TRIPPED when reactor water level reached 44 inches. Ten minutes later, the NSO preparing to restart the “B” RFP reports that it cannot be started, because reactor water level is at 51 inches.

What caused RPV level to reach this level?

A. RCIC automatically started and injected.

B. Decay heat is affecting the water injected.

C. HPCI automatically re-started and injected.

D. The condensate system is injecting.

QUESTION: 024 (1.00)

Unit 2 was operating at 95% of rated power when the oil system pressure on the “C” reactor feedwater pump lowered to 4 psig. What effect does this condition have on the recirculation system without operator action?

A. The Recirc Pumps will immediately run back to 70%.

B. The Recirc Pumps will immediately run back to minimum.

C. When Reactor water level reaches 26 inches within 45 seconds, the Recirc Pumps will run back to minimum.

D. When Reactor water level reaches 26 inches within 45 seconds, the Recirc Pumps will run back to 70%.

QUESTION: 025 (1.00)

Unit 1 was operating at 85% power with the feedwater level control (FWLC) system in AUTO, and in 3-Element control.

The NSO received a reactor scram signal and noted that Reactor water level lowered to 5 inches before recovering. About 15 seconds after the scram, the NSO observed that Reactor water level was responding ~~slowly~~ to the level demand.

The NSO determined that the FWLC system _____(1)_____ and responds by ____(2)_____ .

	(1)	(2)
A.	was NOT operating properly	taking FWLC to MANUAL
B.	was NOT operating properly	taking FWLC to Single-Element
C.	WAS operating properly	verifying feedwater flow is 15% for <2 minutes after the scram
D.	WAS operating properly	verifying reactor water level stabilizes at 15 inches.

QUESTION: 026 (1.00)

Unit 2 is operating in Mode 1. A Non-Licensed Operator reported to the Control Room that the Unit 2 Torus area water level was about 3 inches with the sump pump operating. To prevent an uncontrolled release of radioactivity to the environment, the water will be ~~filtered~~ processed by the Radioactive Liquid Waste system by first being pumped to the _____ .

A. Waste Collector Tank

B. Floor Drain Surge Tank

C. Floor Drain Collector Tank

D. Floor Drain Sample Tank

QUESTION: 027 (1.00)

An accident has occurred on Unit 2 that has resulted in fuel damage and hydrogen release. The following atmospheric conditions exist in Unit 2 primary containment:

- Drywell Hydrogen 5%
- Torus Hydrogen 5%
- Drywell Oxygen 3%
- Torus Oxygen 3%
- Drywell pressure 4 psig
- Torus pressure 3 psig

QGA 200-5, "Hydrogen Control," has the Operators vent the Torus and Drywell for hydrogen control. Assuming that the offsite release rate is expected to stay below the LCO during venting, which vent path is an NSO required to use FIRST?

A. Vent the Torus using the Hardened Vent.

B. Vent the Drywell using the Drywell/Torus purge fans.

C. Vent the Torus through the Standby Gas Treatment system.

D. Vent the Drywell through the Standby Gas Treatment system.

QUESTION: 028 (1.00)

A Recirc System leak resulted in a reactor scram and entry into the QGAs on high Drywell pressure and low RPV level. The NSO established Torus Spray, and Torus Cooling. The MO 1-1001-16A, RHR HX Bypass Valve, is fully closed. The NSO notes that the maximum RHRSW flow with the MO 1-1001-5A, RHR HX SW Disch Valve, full open is 2500 gpm at a discharge pressure of 275 psig.

Which action(s) (if any) must be taken to correct the RHRSW System operation?

A. Start a 2nd RHRSW Pump.

B. Cross-tie the “A” and “B” RHRSW loops.

C. None, adequate RHRSW flow has been achieved.

D. Stop the RHRSW Pump, reverse heat exchanger flow and restart the RHRSW Pump.

QUESTION: 029 (1.00)

A LOCA is in progress on Unit 1. RHR Loop Select Logic has determined that there is NO difference between “A” and “B” Jet Pump Riser pressures. MO 1-1001-28A (1A LPCI LOOP OUTBOARD INJ VLV) closes and MO 1-1001-29B (1B LPCI LOOP DOWNSTREAM SV) fails to automatically open when the reactor low pressure permissive is satisfied. RPV level is -85 inches.

Regarding LPCI injection into the RPV; the Operator _____(1)_____ , and the injection valves ____(2)_____ .

A. (1) is directed to reset the LPCI Loop Select Logic
(2) will open automatically

B. (1) is directed to reset the LPCI Loop Select Logic
(2) can then be manually opened using the control switches on 901-3 panel

C. (1) can NOT maintain the injection valves open from the Control Room
(2) must be manually opened locally

D. (1) can NOT maintain the injection valves open from the Control Room
(2) must be remotely opened from the valve motor breakers

QUESTION: 030 (1.00)

The following plant conditions exist on Unit 1 prior to refueling:

- Unit 1 is in Mode 3 with “A” RHR operating in shutdown cooling.
- Reactor Pressure is 97 psig and rising slowly.
- Reactor Temperature is 320°F and rising slowly.
- Reactor water level is being maintained between 20 inches and 40 inches.
- The “B” condensate booster pump is operating with RWCU rejecting to the condenser.
- Reactor Recirculation Pumps are off.

Control Room Operators then receive the following annunciator alarm:

- 901-3 B-6, RHR PUMP TRIP

This condition was caused by _____(1)_____ and Operators should _____(2)_____.

A. (1) MO 1-1001-43 (RHR PMP SHUTDOWN CLG SUCT VLV) closing on rising reactor pressure;
(2) lower reactor pressure by raising RWCU reject

B. (1) MOs 1-1001-47 and 1-1001-50 (SHUTDOWN CLG SUCT VLVS) closing on rising reactor pressure;
(2) lower reactor pressure by raising RWCU reject

C. (1) a Group II isolation occurring on low reactor water level;
(2) raise reactor water level by opening the feedwater regulating valve

D. (1) shutdown cooling low pressure permissive tripping RHR pump on high reactor pressure;
(2) reset the low pressure condition by depressing the isolation valves' reset switch on the 901-3 panel.

QUESTION: 031 (1.00)

Unit 1 is shutdown with refueling operations in progress. 1C RHR pump is in shutdown cooling operation at 3500 gpm. Maintenance personnel are LOCALLY cycling MO 1-1001-37B (LOOP "B" TORUS SPRAY SV) for testing.

When MO 1-1001-37B is opened by the Mechanics, refueling water begins rapidly draining into the Torus. Operators would expect to find valve _____(1)_____ NOT FULLY CLOSED and would observe _____(2)_____ .

A. (1) MO 1-1001-34B, (LOOP "B" TORUS SPRAY/CLG SV);
(2) FR 1-1040-7, RHR FLOW lowering

B. (1) MO 1-1001-36B, (LOOP "B" TORUS COOLING SV);
(2) FI 1-1040-11B, CTMT SPRAY FLOW rising

C. (1) MO 1-1001-36B (LOOP "B" TORUS COOLING SV);
(2) PI 1-1040-2B, RHR HX INLET pressure lowering.

D. (1) MO 1-1001-34B, (LOOP "B" TORUS SPRAY/CLG SV);
(2) Annunciator Alarm 901-3 A-5 CNMT SPRAY A or B LOW FLOW is IN ALARM

QUESTION: 032 (1.00)

Unit 2 HPCI is operating during an accident with the following plant conditions:

- Reactor pressure 100 psig, lowering.
- Drywell pressure 2.0 psig, steady.

The plant responds by automatically closing the following valves, associated with the AC trip logic . . .

A. MO 2-2399-4, Inbd Steam Isolation valve ONLY.

B. MO 2-2301-5, Outbd Steam Isolation valve ONLY.

C. MO 2-2301-40, Vacuum Breaker Isolation valve AND
MO 2-2301-5, Outbd Steam Isolation valve.

D. MO 2-2399-40, Vacuum Breaker Isolation valve AND
MO 2-2301-4, Inbd Steam Isolation valve.

QUESTION: 033 (1.00)

Unit 2 HPCI is operating with the following Control Room indications:

HPCI Pump Inlet Pressure	20 psig
HPCI Discharge Pressure	1180 psig
HPCI Turbine Inlet Pressure	940 psig
HPCI Turbine Exhaust Pressure	45 psig
HPCI Turbine Speed	4950 rpm

Given the above parameters, what concerns (if any) would operators have with operating HPCI?

A. none, HPCI operating normally.

B. HPCI operating close to overspeed.

C. HPCI experiencing failure in the turbine exhaust.

D. HPCI suction pressure is low.

QUESTION: 034 (1.00)

A transient has occurred on Unit 1 with the following conditions existing:

- Reactor pressure is 275 psig.
- Reactor water level is -68 inches.
- "A" Core Spray line break detection d/p is 1.2 psid.
- MO 1-1402-24A, (CORE SPRAY PUMP 1A OUTBD DISCH VLV) has DUAL position indication.
- MO 1-1402-25A, (CORE SPRAY PUMP 1A INBD DISCH VLV) has a CLOSED position indication.
- Core Spray pump "A" is RUNNING.

Discharge valve MO 1-1402-25A indicates CLOSED because . . .

A. it must wait for the 8.5 minute timer to time out.

B. the Core Spray injection valve logic has failed.

C. MO 1-1402-24A must reach FULL OPEN before MO 1-1402-25A opens.

D. the Core Spray line break detection system has inhibited MO 1-1402-25A from opening.

QUESTION: 035 (1.00)

There is a severe, uncontrolled fire on Unit 2. It is in an area where Unit 2 RCIC cables are routed.

Under these conditions, which of the following systems is the preferred Unit 2 RPV injection source which will meet the requirements of Appendix R?

A. U2 Core Spray Pump

B. U2 Condensate/Feedwater

C. Safe Shutdown Makeup Pump

D. U1 Reactor Core Isolation Cooling Pump

QUESTION: 036 (1.00)

Core plate differential pressure LOW pressure is sensed from the ____(1)_____ and the core plate differential pressure HIGH pressure is sensed from the _____(2)_____.

	(1)	(2)
A.	standby liquid control outer pipe	standby liquid control sparger
B.	standby liquid control sparger	standby liquid control outer pipe
C.	calibrated jet pump #11	RPV bottom head drain
D.	loop "B" core spray sparger	RPV bottom head drain

QUESTION: 037 (1.00)

Bus 29-2 has tripped. How does this affect the U2 Reactor Protection System (RPS)?

A. RPS MG set “A” trips half scram occurs.

B. RPS MG set “A” trips NO effect on RPS.

C. RPS MG set “B” trips NO effect on RPS.

D. RPS MG set “B” trips half scram occurs.

QUESTION: 038 (1.00)

Unit 2 is in startup mode. Following a Control Rod withdraw, the NSO received the following TWO alarms ONLY:

- 902-5 A-5, IRM HIGH
- 902-5 C-3, ROD OUT BLOCK

This condition was caused by . . .

A. improper detector ranging.

B. loss of IRM detector high voltage.

C. an IRM drawer module that was unplugged.

D. an IRM function switch that was out of the OPERATE position on an IRM drawer.

QUESTION: 039 (1.00)

An upward spike has occurred on Unit 1 SRM 23. Neutron level then returned to normal.

How will the resulting UPSCALE HIGH light indication on the 901-5 panel clear?

A. It will automatically clear since the condition has cleared.

B. The Operator must momentarily take the SRM Bypass switch to "23" position.

C. The NSO must place the RESET switch on SRM 23 drawer to the TRIP position

D. The NSO must take the RESET switch on SRM 23 drawer to the TRIP position AND momentarily take the SRM Bypass switch to the "23" position.

QUESTION: 040 (1.00)

With Unit 2 in Mode 1 on the 60% rod line, Operators raise recirculation flow with both pumps to 80% of rated drive flow.

Assume that the APRM Flow Biased scram signal is set to the analytical value.

The APRM Flow Biased scram set point is now . . .

A. 108.0%.

B. 112.2%.

C. 115.9%.

D. 125.0%.

(Correct answer for this question was changed. See Answer Key at end of document)

QUESTION: 041 (1.00)

While operating Unit 1 RCIC for a surveillance test, the NLO in the RCIC room reported that the RCIC vacuum pump and condensate pump failed to start. This failure most likely was due to loss of power from . . .

A. 125 Volts DC Bus 2B.

B. 125 Volts DC Bus 2A.

C. 250 Volts DC MCC 1B.

D. 250 Volts DC MCC 1A.

QUESTION: 042 (1.00)

Unit 2 is at 100% power. NO testing is in progress. The ANSO reports that ADS valve 2-202-3B has a tailpipe temperature of 210°F and stable. This indicates that . . .

A. the valve is lifting.

B. the tailpipe is at ambient conditions, the valve has NOT lifted.

C. the valve has seat leakage, but there is no immediate concern of valve operability.

D. the valve has a significant seat leak and the control switch must be placed in OFF immediately.

QUESTION: 043 (1.00)

You are the Unit 1 NSO. After a change in reactor power on Unit 1, you observe the following conditions:

Annunciator 901-5 B-9, Channel “A” MSL Hi-Hi Radiation Alarm In alarm
Annunciator 901-5 B-16, Channel “B” MSL Hi-Hi Radiation Alarm NOT alarming
Annunciator 901-3 A-2, MSL High Radiation NOT alarming

Based on the above, you. . .

A. manually INITIATE a Group II isolation AND a Reactor scram.

B. VERIFY automatic actions have occurred and INITIATE a reactor scram.

C. do NOT initiate any isolations, and INITIATE MONITORING of all main steam line radiation monitors.

D. do NOT initiate any isolations, but reactor power must be LOWERED until alarm condition clears.

QUESTION: 044 (1.00)

To prevent reopening of an ADS relief valve, within _____(1)_____ seconds of valve closure, the interlock timers have been set for approximately _____(2)_____ seconds.

	(1)	(2)
A.	4	14
B.	10	14
C.	14	20
D.	20	24

QUESTION: 045 (1.00)

With Unit 2 operating at 100% power, the Control Room Operators receive the following alarms:

- 902-5 C-8, 2A FW ACTUATOR TROUBLE
- 902-5 H-8, 2B FW ACTUATOR TROUBLE

A Non-Licensed Operator set to investigate the annunciators reported back that there must have been a momentary loss of the control signal, but that everything at the local skid looks normal EXCEPT that neither FWRV appears to be moving like the NLO is used to seeing on rounds.

This condition _____ after Control Room Operators null the deviation between FWRV demand and indicated position.

A. will automatically reset immediately

B. will automatically reset after a time delay

C. must be manually reset from the Control Room

D. must be manually reset locally at the FWRV hydraulic control station

QUESTION: 046 (1.00)

The charcoal filter in the Standby Gas Treatment System (SBGTS) is DESIGNED primarily to remove . . .

A. at least 99% of radioactive particles >0.3 microns in size.

B. radioactive isotopes of iodine released during an accident.

C. inert and halogenated fission products released to the primary containment.

D. dust particles and other debris that have been entrained into the system flow.

QUESTION: 047 (1.00)

Unit 2 is operating at full power with a normal electrical lineup, EXCEPT:

- 345KV GCB 8-9 is OPEN for maintenance activities.

An electrical fault has actuated the lockout relays for Line 0402, (345 KV line to Cordova). This condition results in a trip of the Unit 2 turbine generator.

After the electrical transient has stabilized, and with NO Operator action,
Bus 23 is ____(1)_____ and Bus 24 is ____(2)____ .

	(1)	(2)
A.	powered from T21	powered from T21
B.	de-energized	de-energized
C.	powered from T22	powered from T22
D.	de-energized	powered from T22

QUESTION: 048 (1.00)

With Unit 2 operating at 100% power, a loss of the Instrument Bus power occurred. Regarding the feedwater level control circuitry, this condition would immediately result in a . . .

A. lockup of the 2B FWRV.

B. Nematron system alarm.

C. BLAC system alarm.

D. Feedwater Regulator Hydraulic Power Unit Trouble alarm.

Acronym clarification
BLAC = The BLAC system is part of the GE FANUC control system logic.

QUESTION: 049 (1.00)

If 250 VDC Turbine Building MCC 2 was inadvertently deenergized, what Reactor Building (RB) busses would be affected?

A. RB MCC 2A Main Feed AND
RB MCC 2B Reserve Feeds ONLY

B. RB MCC 2A Main Feed AND
RB MCC 2B Reserve Feeds AND
RB MCC 1B Main Feed

C. RB MCC 2A Reserve Feed AND
RB MCC 2B Main Feed AND
RB MCC 1B Reserve Feed

D. RB MCC 2A Reserve Feed AND
RB MCC 2B Main Feed ONLY

QUESTION: 050 (1.00)

When locally starting the Emergency Diesel Generator, the maintenance toggle switch on the Engine Mounted Control Panel must be in the REMOTE AUTOSTART position, otherwise . . .

A. the EDG Cooling Water Pump will NOT auto start.

B. the generator field will NOT flash when the EDG is started.

C. the normal engine trips will NOT be available during manual operation.

D. the undervoltage load shedding of nonessential loads will NOT occur automatically following a LOOP.

QUESTION: 051 (1.00)

An NLO on rounds identified the following conditions associated with the 1A Instrument Air compressor air dryer:

- Instrument air header pressure is 95 psig and steady.
- Dryer Pre-filter d/p is 2 psid and steady.
- Dryer After-filter d/p is 10 psid and slowly rising.
- The CHAMBER PERFORMANCE DEGRADING alarm is CLEAR.

Assuming that the Instrument Air System load is NOT changing, these conditions are:

A. normal.

B. caused by a loss of pilot air to the dryer.

C. caused by desiccant break through.

D. caused by excessive moisture in the system.

QUESTION: 052 (1.00)

Unit 2 was at 100% power in January, when Instrument Air line supplying the Unit 2 Reactor Building was severed.

As the Instrument Air system slowly depressurizes, what effect would this have on the RBCCW system or systems cooled by the RBCCW system?

A. An increase in drywell pressure.

B. Degraded lubrication of the Reactor Recirc pump motor bearings.

C. The ability to manually and automatically replenish the RBCCW expansion tank is lost.

D. High temperature in the RWCU non-regenerative heat exchanger return line to the reactor.

QUESTION: 053 (1.00)

Unit 1 was operating at full power when a loss of offsite power occurred.

- HPCI was trip-latched when DW pressure was 1.7 psig and RISING.
- Reactor water level lowered to 20 inches when RCIC was manually started for injection.

Presently:

- Reactor water level is 25 inches and STEADY.
- DW pressure is 4 psig and STEADY.

Which one of the pumps listed below will have the greatest impact on the discharge rate of the Unit 1 Safety Related 250VDC battery?

A. HPCI Auxiliary Oil pump.

B. HPCI Emergency Oil pump

C. Main Turbine Emergency Bearing Oil pump.

D. RCIC Barometric Condenser Condensate pump.

QUESTION: 054 (1.00)

Unit 2 experienced a Recirculation Pump trip from 100% power due to the pump discharge valve going to the fully closed position. Preparations are being made to restart the pump.

The recirculation pump can be restarted following the trip, since the discharge valve closure pump trip is . . .

A. removed from the start circuitry after the discharge valve is full closed.

B. removed from the start circuitry as soon as the pump speed is indicating 0% after the trip.

C. bypassed by setting the pump speed demand signal to 14% during preparation for pump start.

D. removed from the start circuitry as soon as the motor- generator set breaker is tripped and the pump is coasting down.

QUESTION: 055 (1.00)

Unit 1 was operating at 95% of rated power when Control Room Operators received the following alarms:

- 901-6 F-5, Condensate Booster Pump Auto Trip
- 901-4 F-7, Recirculation Loop Flows Limited by Feedwater Flow and Reactor Vessel Level

The Operators observe that:

- The “C” Condensate/Condensate booster pump indicates tripped.
- Reactor Feedwater Pump suction pressure stabilized at about 155 psig.
- Recirc flow controllers transferred to Manual.

NO additional automatic actions occur.

Reactor water level is 25 inches and slowly lowering.

The Operators respond by . . .

A. inserting a reactor scram.

B. attempting to restart the “C” booster pump.

C. placing the Recirc flow controllers in Auto.

D. lowering Recirc pump speeds until core flow is at 70%.

QUESTION: 056 (1.00)

Unit 1 is at 97% power when a valving error in the RWCU room results in the “A” train of non-regenerative heat exchangers becoming isolated. The following annunciator alarms (assume that this is the ONLY alarm received):

- 901-4 F-12, CU System After Non-Regen Hx High Temp

The operator's actions are to . . .

A. immediately trip the operating RWCU pump(s).

B. VERIFY a Group III isolation has occurred.

C. VERIFY that MO 1-1201-133 DEMIN BYPASS VALVE automatically OPENS.

D. isolate RWCU system before non-regenerative heat exchanger outlet temperature reaches 140°F.

QUESTION: 057 (1.00)

Unit 1 is at 50% power.

Operators were withdrawing in-sequence control rod K-14 from 24 to notch 36 using continuous withdraw. As the Control Rod reached position 28, the under-vessel cable disconnected from the rod drive assembly.

The plant response is ____(1)_____ and the Operator actions would be to ___(2)____.

	(1)	(2)
A.	a RBM rod block	verify rod motion stopped
B.	an annunciator RPIS INOP alarm	stop rod motion
C.	an annunciator rod drift alarm	stop rod motion
D.	NO alarm or rod block would occur	return control rod back to pos. 24.

QUESTION: 058 (1.00)

Unit 1 is at 96% power with the Traverse In-Core Probe System (TIPS) operating for a surveillance. Upon a valid Group II actuation, the isolation of TIPS occurs by . . .

A. manually firing the shear valve.

B. automatic retraction of the cable, then manual closing of the ball valve as soon as the detector clears the indexer.

C. automatic retraction of the cable, and automatic closing of the ball valve after the detector enters the shield chamber.

D. automatic retraction of the cable, and automatic firing of the shear valve after the detector enters the shield chamber.

QUESTION: 059 (1.00)

Unit 1 is operating at 45% reactor power. NO LPRMs or APRMs are bypassed. The NSO selects in-sequence rod R-9 for rod withdraw and notices that the Rod Block Monitor (RBM) recorder on the 901- 5 panel goes downscale. This indication is due to . . .

A. an edge rod being selected.

B. insufficient LPRM inputs to the RBM.

C. insufficient neutron flux in the vicinity of rod R-9.

D. the RBM is automatically bypassed at this power level.

QUESTION: 060 (1.00)

The RPV Metal Temperature recorder 1-0263-104 is located in the ___(1)____ and it senses and records the ____(2)_____ metal temperatures.

	(1)	(2)
A.	Aux Electric Room	Vessel Head Flange and FW Nozzle
B.	Aux Electric Room	Vessel Bottom Head and Steam Outlet Nozzle
C.	Control Room	Vessel Head Flange and FW Nozzle
D.	Control Room	Vessel Bottom Head and Head Vent Nozzle

QUESTION: 061 (1.00)

An accident has occurred on Unit 2. The Unit Supervisor entered QGA 200, "Primary Containment Control." The operating crew could NOT control Torus water temperature and entered QGA 500-1, RPV Blowdown due to exceeding:

A. Heat Capacity Limit.

B. Primary Containment Pressure Limit.

C. Pressure Suppression Pressure.

D. Drywell Spray Initiation Limit.

QUESTION: 062 (1.00)

Unit 1 is in Mode 3, cooling down for a refuel outage. De-inerting is in progress using Reactor Building Vents. Reactor vessel water level drops to -2 inches due to a minor transient and then recovers to normal level.

Which of the following is NOT true?

If RUNNING, the _____(1)_____, will TRIP due to a _____(2)_____.

	(1)	(2)
A.	pumpback air compressor	low suction pressure
B.	drywell/torus purge fan	Group II signal
C.	CAM sample pump	low suction pressure
D.	reactor building floor drain sump pump	Group II signal

QUESTION: 063 (1.00)

Unit 2 is in Mode 1. A LOOP/LOCA occurs. Relief valves are cycling to control reactor pressure. The following annunciators are in alarm:

- Annun 902-8, C-7, Diesel Generator 2 Fail To Start
- Annun 902-3, E-7, RHR System Bus 23-1 Supply From ½ EDG

Non-Licensed Operators have been dispatched to the affected diesel generators.

Under these conditions, which of the following should be used, if the Unit Supervisor directs you to establish Torus cooling?

A. “A” and “B” RHR pumps

B. “C” and “D” RHR pumps

C. “A” and “C” RHR pumps

D. “B” and “D” RHR pumps

QUESTION: 064 (1.00)

Unit 2 was operating at 97% power with the A EHC pressure regulator controlling reactor pressure at 1002 psig. The “A” EHC pressure regulator input then failed downscale.

With NO Operator action, the backup pressure regulator will control reactor pressure at . . .

A. 996 psig.

B. 999 psig.

C. 1002 psig.

D. 1005 psig.

QUESTION: 065 (1.00)

Both Units are in Mode 1. The U1 and U2 Fuel Pools are connected through the transfer canal. Maintenance activities in the U1 Fuel Pool have just started, and resulted in a release of Styrofoam® blocks on the surface of the pool. The Styrofoam® has clogged the weir plates on the SOUTH side of the Unit 1 Fuel Pool.

Without Operator actions, the Fuel Pool water level will _____.

A. lower, resulting in a trip of the operating Fuel Pool pump

B. rise, resulting in Fuel Pool water overflowing into the pool ventilation ducts

C. rise slightly as the pool level will be controlled by the remaining weir plates

D. vary due to intermittent draining/refilling of the skimmer surge tank and the automatic tripping/restarting of the Fuel Pool pump

QUESTION: 066 (1.00)

In accordance with the Shift Turnover Procedure, choose the list below contains only activities (but not necessarily all activities) that must be included on the shift turnover sheets.

A. LCO status,
completed C/O checklists,
panel annunciators in alarm.

B. Completed C/O checklists,
panel annunciators in alarm,
electric operation/transmission system changes.

C. LCO status,
panel annunciators in alarm,
electric operation/transmission system changes.

D. LCO status,
completed C/O checklists,
electric operation/transmission system changes.

QUESTION: 067 (1.00)

In accordance with OP-AA-111-101, "Operating Narrative Logs and Records," the Unit Control Room log . . .

A. is maintained by the Unit Supervisor.

B. may be created or printed with blue ink.

C. must be devoid of any wit, irony and sarcasm.

D. must be complete, legible, accurate, and understandable.

QUESTION: 068 (1.00)

Unit 1 was operating at 100% power with the main generator regulator being operated in manual. Non-Licensed Operators notified the Control Room that all Unit 1 Generator Hydrogen Seal Oil pumps have tripped. Hydrogen pressure dropped and finally stabilized at 40 psig.

Given the resulting hydrogen pressure for this condition and the attached generator capabilities curve, which of the following represents the allowed station output with the HIGHEST power factor?

A. 800 Mw 250 MVARs

B. 800 Mw 150 MVARs

C. 700 Mw 250MVARs

D. 600 Mw 300MVARs

QUESTION: 069 (1.00)

The following Unit 2 plant conditions are given:

- Reactor power is 40%.
- QCOS 2300-5, "Quarterly HCIC Pump Operability Test" is in progress.
- Torus water temperature is 77°F and rising at 3°F every 15 minutes.
- Torus cooling is in operation.

What is the MAXIMUM amount of time this test may continue without Tech Specs requiring the test to be terminated?

A. 90 minutes

B. 140 minutes

C. 165 minutes

D. 215 minutes

QUESTION: 070 (1.00)

Which of the following lists ONLY examples (but NOT necessarily all examples) of conditions that require a Clearance Order to be EXCEPTIONAL?

A. freeze seal,
relief valve gagging device,
work in electrical cubicles that contain backfeed voltages.

B. relief valve gagging device,
work in electrical cubicles that contain backfeed voltages,
MO valve that is opened, de-energized and has the handwheel removed.

C. freeze seal,
work in electrical cubicles that contain backfeed voltages,
MO valve that is opened, de-energized and has the handwheel removed.

D. freeze seal,
relief valve gagging device,
MO valve that is opened, de-energized and has the handwheel removed.

QUESTION: 71 (1.00)

SRM signal to noise ratio is 15:1. Per Tech. Specs, what is the MINIMUM counts on the SRM's that will allow refueling operations to proceed.

A. 0.7 cps

B. 3.0 cps

C. 7.0 cps

D. 30 cps

QUESTION: 072 (1.00)

In order to extend the Exelon administrative dose limit for an individual to 3000 mrem TEDE, per RP-AA-203 Exposure Control and Authorization, the individual must request the extension AND the request must be approved by the . . .

A. work group Supervisor ONLY.

B. work group Supervisor AND the RP Manager ONLY.

C. work group Supervisor AND the RP Manager AND the Plant Manager ONLY.

D. work group supervisor AND the RP Manager AND the Plant Manager AND the Site Vice President.

QUESTION: 073 (1.00)

Operators are preparing to vent the primary containment and will NOT be allowed to exceed radioactive release rate limits.

Which of the following can NEVER be used as THE ONLY method of ensuring that the radioactive release rate will remain below the allowed release rate limit?

A. A calculation provided IAW EP-MW-110-200, Dose Assessment.

B. The ABSENCE of annunciator 912-1, E-3, Main Chimney GE Radiation Monitor High-High Radiation.

C. The ABSENCE of annunciators 912-1, E-9, or F-9, High Radiation Detected on Eberline Radiation Monitors A or B.

D. A vent recommendation from Chemistry IAW QCCP 1300-01, Drywell & Suppression Chamber Sampling, Venting, & Purging.

QUESTION: 074 (1.00)

Complete the following sentence:

During transient conditions, the NSO _____(1)_____ immediate operator actions of abnormal procedures from memory ___(2)____ the Unit Supervisor.

	(1)	(2)
A.	may NOT perform	until directed by
B.	may NOT perform	until concurred upon by
C.	may perform	WHILE verbalizing actions being taken to
D.	may perform	only AFTER receiving concurrence from

QUESTION: 075 (1.00)

Unit 2 is operating at 83% power with the following plant conditions existing:

- Bus 25-2 is OOS.
- MCC 28-2 has tripped and is being investigated.
- ALL expected actions occurred.
- One minute later, APRM 5 FAILED, resulting in an INOP trip.

The NSO noted the appropriate alarms on 902-5, but ONLY ONE of the RPS solenoid group lights is extinguished. The other 3 lights are LIT.

The FIRST action that the NSO should take is to . . .

A. depress the “A" manual scram pushbutton

B. depress the “B" manual scram pushbutton.

C. bypass APRM 5 and reset the half scram.

D. refer to TS 3.3.1.1 to determine proper actions.

QUESTION: 076 (1.00)

Unit 1 is at 100% power following a refueling outage.

The 1B Recirc MG Set tripped on high current. NO action was taken other than reducing 1A Recirc MG Set to 78% speed. The NSO notes that approximately 10 LPRM Hi lights are coming in and out near the center of the core at a frequency of about once every second. APRMs do NOT indicate appreciable change.

As Unit Supervisor, what procedure do you enter and what actions do you order?

A. Enter QCOA 0202-04, Reactor Recirc Pump Trip - Single Pump AND insert CRAM rods

B. Enter QCOA 0202-04, Reactor Recirc Pump Trip - Single Pump AND insert a reactor scram

C. Enter QCOA 0400-02, Core Instabilities AND insert CRAM rods

D. Enter QCOA 0400-02, Core Instabilities AND increase Reactor Recirc flow

QUESTION: 077 (1.00)

Unit 2 was operating at 60% power with a normal electric plant lineup when a transient occurred. The following valid annunciators were received in the order listed:

- 902-8, F3, 4 KV Bus Overcurrent
- 902-8, A1, 4KV Main Feed Breaker Trip
- 902-8, D3, 4KV Busses 23/24 Low Voltage
- 902-8, A7, Diesel Gen #2 Trouble

The Unit Supervisor diagnoses the failure as an overcurrent ____(1)_____. To mitigate this event, the Unit Supervisor orders the Operators to _____(2)_____ .

	(1)	(2)
A.	trip of Bus 23.	establish alternate power to Bus 23-1 IAW QCOP 6500-08, 4KV Bus Cross-Tie Operation.
B.	trip of Bus 24.	verify proper operation of U2 EDG IAW QCOP 6500-02, Diesel Generator 1(2) Startup Procedure.
C.	condition that locked out Bus 24-1.	reestablish normal power to Bus 24 IAW QCOP 6500- 09, Energizing 4KV Switchgear & Transferring Auxiliary Power.
D.	trip of Transformer 21 that deenergized Bus 24.	verify proper operation of U2 EDG IAW QCOP 6500-02, Diesel Generator 1(2) Startup Procedure.

QUESTION: 078 (1.00)

Unit 1 was operating at 26% of rated power when the following annunciator alarmed:

- 901-7, A-4 TURB TRIPPED OPERATING OIL LOW PRESSURE

During the transient, Reactor pressure remained between 900 and 1000 psig, and Reactor water level remained between 15 inches and 38 inches. As Unit Supervisor, you enter procedure _____(1)_____ and _____(2)_____ .

	(1)	(2)
A.	QCGP 2-3, Reactor Scram	verify all main turbine stop, control, intercept and bypass valves are closed.
B.	QGA 100, RPV control	follow pressure and level legs.
C.	QOA 5600-04, Loss of Turbine Generator	verify main turbine bypass valves control reactor pressure.
D.	QCOA 5650-01, Malfunction of EHC Pressure Control System	reduce power using recirculation flow.

QUESTION: 079 (1.00)

Unit 1 was operating at 96% steady state power. The ANSO reports that the MO-1-3702, RBCCW to Drywell Supply Isolation Valve, shows DUAL indication. 30 seconds later, he reports that it briefly showed GREEN light indication but now it has NO light indication.

As the Unit Supervisor you will . . .

A. direct the Unit 1 NSO to scram Unit 1 and secure both Recirc Pumps.

B. dispatch a Non-Licensed Operator to open the bypass around MO-1-3702 within 5 minutes or scram Unit 1.

C. dispatch a Non-Licensed Operator to reset the thermals for MO-1-3702. If the NLO CAN NOT reset the thermals to allow reopening MO-1-3702 within 5 minutes, THEN scram Unit 1.

D. dispatch a Non-Licensed Operator to manually re-open MO-1-3702. If the NLO CAN NOT start to reopen MO-1-3702 within 1 minute, THEN scram Unit 1.

QUESTION: 080 (1.00)

During refueling in Unit 2, a fuel assembly is dropped in the reactor vessel. Immediate actions taken include manual insertion of Group II isolation and manual start of the SBGTS in anticipation of automatic actuation. Radiation levels on the refuel floor slowly increase to 20 mrem/hr general area. NO personnel exceed any radiation exposure limits.

How would this be categorized AND what is the FIRST NRC notification REQUIRED of this event?

A. This is categorized as an Unusual Event, the NRC must be notified within 15 minutes.

B. This is categorized as an Alert, the NRC must be notified within 15 minutes.

C. This is categorized as a valid actuation of safety system, the NRC must be notified within 8 hours.

D. This is considered a Reportable Event (Only), the NRC must be notified within 60 days.

QUESTION: 081 (1.00)

Unit 2 is in Mode 1 with suppression pool initial conditions of:

Suppression pool level at 14 feet 3 inches.
Suppression pool average temperature 70°F.

Subsequently, a relief valve begins to leak past its seat. Suppression pool level increases by 0.2 inches/hr and average suppression pool temperature increases at 10 degree F/hr.

Which suppression pool Tech Spec limit will be reached FIRST (level or average temperature) AND what is the Tech Spec Bases for that high limit?

A. High average Torus water temperature limits will be reached first.
Basis: to prevent primary containment pressures and temperatures from exceeding maximum allowable values during a DBA LOCA.

B. High average Torus water temperature limits will be reached first.
Basis: to prevent excessive down-comer loads to cause excessive swell during relief valve operations during a DBA LOCA.

C. High Torus water level limits will be reached first.
Basis: to prevent primary containment pressures and temperatures from exceeding maximum allowable values during a DBA LOCA.

D. High Torus water level limits will be reached first.
Basis: to prevent excessive down-comer loads to cause excessive swell during relief valve operations during a DBA LOCA.

QUESTION: 082 (1.00)

The following plant conditions exist on Unit 1 after following a LOCA that has resulted in:

- Fuel Failure
- Drywell Pressure 10.7 psig and stable
- Reactor Pressure 75 psig and stable
- All MSIVs are closed
- Drywell sprays and drywell cooling have failed
- Torus venting per QCOP 1600-13 is in progress
- Drywell temperature is 285°F and increasing very slowly
- Reactor water level is at -100 inches and slowly increasing
- CRD pumps are the only pumps providing water to the core

Based on these conditions, which Emergency Action Level classification would you declare?

A. Unusual Event - FU1

B. Alert - FA1

C. Site Area Emergency - FS1

D. General Emergency - FG1

QUESTION: 083 (1.00)

After a long operating period, the Unit 1 Reactor was manually scrammed due to steam tunnel temperatures rapidly rising. Steam tunnel temperature peaked at 200°F. Reactor pressure is cycling between 1115 psig and 1070 psig.

In accordance with the pressure leg of QGA 100, "RPV Control," you order the operator to _____(1)_____ using _____(2)_____.

	(1)	(2)
A.	STABILIZE reactor pressure below 1060 psig	Main Steam Line drains
B.	DEPRESSURIZE the reactor at <100°F/hr	ADS valves
C.	STABILIZE pressure below 1060 psig	turbine bypass valves
D.	DEPRESSURIZE the reactor at >100°F/hr	ADS valves

QUESTION: 084 (1.00)

Unit 2 was at 35% power. Due to a transient condition, AND a failure of the RPS system to actuate, the reactor was operated with reactor pressure at 750 psig for a short period of time.

Reactor Engineering determined that this condition resulted in Minimum Critical Power Ratio (MCPR) being <1.05.

As Unit Supervisor, you realize this condition is a violation of _____(1)_____ and you MUST _____(2)_____ .

	(1)	(2)
A.	Safety Limit 2.1.1	Fully insert all insertable control rods within 2 hours.
B.	TS 3.1.1, Shutdown Margin	Restore Shutdown Margin within 6 hours.
C.	Safety Limit 2.1.1	Restore MCPR to within allowable limits immediately.
D.	TS 3.1.1, Shutdown Margin	Fully insert all insertable control rods immediately.

QUESTION: 085 (1.00)

Unit 1 is at full power operation. RCIC is operating for QCOS 1300-5, RCIC Quarterly Pump Operability Test. The Unit 1 Control Room receives the following annunciators in quick succession:

901-4, A-16, RCIC Turbine Exhaust Diaphragm High Pressure
901-3, D-3 Core Spray Pump Area High Temperature

Reactor pressure, level and power are stable, but attempts to isolate RCIC have failed. RCIC Room Temperature quickly rises to 170°F.

As Unit Supervisor, you . . .

A. reduce reactor power IAW QCGP 3-1, "Reactor Power Operations."

B. enter QGA 100, "RPV Control," ONLY, and scram the reactor.

C. enter QGA 300, "Secondary Containment Control," and shutdown the reactor IAW QCGP 2-1, "Normal Unit Shutdown."

D. Enter QGA 300, "Secondary Containment Control," and then scram and enter QGA 100, "RPV Control."

QUESTION: 086 (1.00)

Unit 2 is starting up in accordance with QCGP 1-1, Normal Unit Startup, following a weekend outage. NO work was performed on HPCI, but periodic overspeed testing is scheduled during startup. A Clearance Order, was placed to allow the Mechanics to prepare HPCI for the overspeed test, and those preparations are COMPLETE. The Clearance Order has been TEMP LIFTED. The Startup schedule indicates that Reactor pressure should be raised to 155 psig for HPCI overspeed testing. Reactor pressure is presently 136 psig, increasing to 155 psig. The ANSO just brought to your attention, a caution statement in QCGP 1-1 that reads:

"IF HPCI / RCIC overspeed testing is to be performed, THEN do NOT allow Reactor pressure to exceed 150 psig until testing is completed."

(1) What Reactor pressure should you direct the ANSO to maintain?
AND
(2) What is the basis for the response?

	(1)	(2)
A.	142 psig.	The caution statement is correct, BUT HPCI IS ALREADY OPERABLE.
B.	155 psig.	The caution statement is correct, BUT HPCI IS ALREADY OPERABLE.
C.	142 psig.	The caution statement is correct, HPCI is NOT OPERABLE and MUST BE MADE OPERABLE before pressure goes above 150 psig.
D.	155 psig.	The caution statement does NOT APPLY in this case because HPCI does NOT need to be OPERABLE until 12 hours AFTER Reactor pressure exceeds 150 psig. The procedure can be REVISED later.

QUESTION: 087 (1.00)

Unit 1 is in Mode 1 and the electrical breaker to the Standby Liquid Control (SBLC) Tank heaters has failed. The SBLC tank initial temperature was 90°F, level was at 3600 gallons and boron concentration (by weight) was 15.5%. Pump suction piping temperature is steady at 95°F.

Given these conditions AND that the tank heater breaker will NOT be repaired before tank temperature decreases below the minimum value allowed by Technical Specifications, what TS Action statement is applicable AND what MINIMUM TS surveillance requirements must be completed upon return of the tank heaters to service before the SBLC tank can be declared operable?

	Action Statement	Surveillance Requirements
A.	TS 3.1.7 A	SR 3.1.7.2, SR 3.1.7.3, SR 3.1.7.5, SR 3.1.7.9
B.	TS 3.1.7.A	SR 3.1.7.1, SR 3.1.7.2, SR 3.1.7.5
C.	TS 3.1.7.B	SR 3.1.7.2, SR 3.1.7.3, SR 3.1.7.5, SR 3.1.7.9
D.	TS 3.1.7.B	SR 3.1.7.1, SR 3.1.7.2, SR 3.1.7.5

QUESTION: 088 (1.00)

Unit 2 is at 75% power. Instrument Maintenance personnel report that pressure switch PS 2-5641-122, (Unit 2 Turbine Control Valve Fast Closure), can NOT be aligned and must be replaced.

(1) What transient is this pressure switch designed to protect against,
AND
(2) if Technical Specification 3.3.1.1 is applicable.

	(1)	(2)
A.	Turbine Trip	Tech Spec IS NOT applicable
B.	Turbine Trip	Tech Spec IS applicable
C.	Generator Load Reject	Tech Spec IS NOT applicable
D.	Generator Load Reject	Tech Spec IS applicable

QUESTION: 089 (1.00)

You are the Unit 2 Unit Supervisor. The Unit 2 NSO has just informed you that alarm 902-4 F-18, FAILURE OF TARGET ROCK VALVE 3A BELLOWS has just come in. The following plant conditions exist:

Acoustic Monitor Activated alarm.
Tail-pipe Temperature Recorder TRX-260-20 indicates 225°F.
Drywell pressure increasing very slowly.
Torus Temperature increasing very slowly.
Reactor Pressure steady at 975 psig.
Total RCS Leakage is 7.5 gpm.

As the Unit Supervisor which of the following actions must you direct?

A. Cycle Target Rock Valve 2-203-3A control switch between AUTO and MANUAL in an attempt to reseat the valve and if that is unsuccessful the Unit 2 Reactor must be shutdown to MODE 3 with in 6 hours and MODE 4 within 24 hours.

B. Cycle Target Rock Valve 2-203-3A control switch between AUTO and MANUAL in an attempt to reseat the valve and if that is unsuccessful start to shutdown the Unit 2 Reactor prior to Torus Temperature reaching 95°F.

C. Do NOT attempt to reseat Target Rock Valve 2-203-3A.
Based on current plant conditions power operation may continue indefinitely.

D. Do NOT attempt to reseat Target Rock Valve 2-203-3A.
Based on current plant conditions the Unit 2 Reactor must be shutdown to MODE 3 within 12 hours and MODE 4 within 36 hours.

QUESTION: 090 (1.00)

Unit 1 is in Mode 1. At 0200 on June 1, DG 1 Circulating Oil Pump develops a motor short and trips. Surveillance Requirement 3.8.1.1 is completed at 0250. Without requiring entry into a TS Condition that requires a plant shutdown and using allowed TS extensions, as Unit Supervisor, what is the LATEST time that you must assure the NEXT completion of SR 3.8.1.1?

A. June 1, by 1000

B. June 1, by 1050

C. June 1, by 1250

D. June 1, by 1300

QUESTION: 091 (1.00)

Unit 1 is at 97% power. Control Rod H-10 had just been moved to position 36 per QCOS 0300-01, CRD Exercise procedure, when ALL position indication was lost due to a faulty connector. NO other Control Rods were affected by this failure.

As the Unit Supervisor, which of the following actions MUST you take to address the failed rod position indication?

A. Enter QCOA 0280-01, RPIS Failure procedure, Reset Reactor Manual Control System, Reduce Reactor Power.

B. Enter QCOA 0280-01, RPIS Failure procedure, Insert Control Rod H-10, Disarm Control Rod Drive mechanism for rod H-10.

C. Reset Reactor Manual Control System, complete QCOS 0300-01, CRD Exercise procedure, then enter QCOA 0280-01, RPIS Failure procedure.

D. Notify the Shift Manager and the Unit 1 QNE, reduce Reactor Power to minimize xenon production, enter QCOA 0280-01 RPIS Failure procedure.

QUESTION: 092 (1.00)

Technical Specification 3.7.7 The Main Turbine Bypass System requires the Main Turbine Bypass Valves to be Operable.

What is the LOWEST power when this Tech Spec is applicable, AND what core thermal limit are the Main Turbine Bypass Valves protecting?

A. ≥15% RTP APLHGR

B. ≥15% RTP MCPR

C. ≥25% RTP APLHGR

D. ≥25% RTP MCPR

QUESTION: 093 (1.00)

What is one of the RCS Temperature Limits associated with the Reactor Pressure Vessel AND what are the consequences if the RCS Pressure and Temperature (P/T) Limits are exceeded.

A. RCS Cooldown rates must be ≤100°F/Hr so that undetected flaws will NOT propagate and cause non-ductile failure of the reactor coolant pressure boundary, a condition that is unanalyzed.

B. RCS Heat-up rates must be ≤100°F/Hr so that pressure stresses in the reactor pressure vessel do NOT cause a non-ductile failure of the reactor pressure vessel as analyzed in the Design Bases Accident analyses.

C. Reactor Vessel flange and Head flange temperatures must be ≥93°F to prevent exceeding the Reactor Vessel stress analyses.

D. The difference between the bottom head coolant temperature and the reactor pressure vessel coolant temperature must be ≤125°F so that pressure stresses in the reactor pressure boundary do NOT cause a non-ductile failure of the reactor pressure vessel as analyzed in the Design Bases Accident analyses.

QUESTION: 094 (1.00)

During the performance of a special test while at 95% reactor power the 1A Core Spray Pump is placed in Pull-to-Lock. For the special test the Shift Manager has dedicated one NSO as being responsible for restoring the 1A Core Spray pump in the event that it becomes necessary, and hence has determined that the 1A Core Spray pump remains OPERABLE. As the Unit 1 Unit Supervisor you . . .

A. agree with the Shift Manager's operability determination regarding the 1A Core Spray pump and continue with the special test.

B. disagree with the Shift Manager's operability determination regarding the 1A Core Spray pump and enter Tech Spec 3.5.1, ECCS-Operating.

C. agree with the Shift Manager's operability determination regarding the 1A Core Spray pump and enter Tech Spec 3.3.5.1 ECCS Instrumentation.

D. disagree with the Shift Manager's operability determination regarding the 1A Core Spray pump and enter Tech Specs 3.3.5.1 ECCS Instrumentation and 3.5.1 ECCS-Operating.

QUESTION: 095 (1.00)

You are the Unit 1 Unit Supervisor during an accident when the Safety Parameter Display System (SPDS) starts displaying a YELLOW parameter.

The Yellow parameter display indicates _____(1)_____.
The MAXIMUM time that SPDS can be out of service before the NRC must be notified is ____(2)____ .

	(1)	(2)
A.	an ALERT condition	8 hours
B.	an ALARM condition	8 hours
C.	an ALERT condition	24 hours
D.	an ALARM condition	24 hours

QUESTION: 096 (1.00)

While moving fuel in the vessel and the Reactor Mode Switch in the REFUEL position, the failure of the _____(1)_____ interlock requires _____(2)_____.

	(1)	(2)
A.	refuel platform fuel grapple to fully retract	suspension of ALL fuel movement.
B.	refuel platform position	control rod withdraw block insertion AND verification of all control rods fully inserted.
C.	refuel platform monorail position	suspension of in-vessel fuel movement involving the refuel platform monorail.
D.	refuel platform frame mounted hoist	control rod withdraw block insertion OR verify all control rods are fully inserted.

QUESTION: 097 (1.00)

At the beginning of shift, 4 NLOs have identical dose histories. Towards the end of shift, the NLOs have received the following radiation exposures:

Bill:	45 mrads of beta-gamma exposure
Brad:	35 mrem of neutron exposure
Bob:	2 hours working in a 25 mrem/hr field
Bruce:	6 hours working in an area of airborne concentration of 2 DACs (without respiratory protection)

In accordance with ALARA practices, which NLO will you assign for the last job of the shift in a high radiation area?

A. Bill

B. Brad

C. Bob

D. Bruce

QUESTION: 098 (1.00)

According to QOP 2000-25, “Discharging to the River from the River Discharge Tank Using the River Discharge Pump,” the concentration of radioactive material released to the river shall _____ the limit stated in Appendix B, Table II, Column 2 of 10CFR20.

A. be NO greater than half

B. be LESS THAN

C. NOT exceed 5 times

D. NOT exceed 10 times

QUESTION: 099 (1.00)

This question has been redacted from the public file due to its security-related content.

QUESTION: 100 (1.00)

Given the initial conditions on Unit 1:

- Reactor scram has occurred, all rods in,
- Reactor water level at -55 inches and lowering rapidly,
- Reactor pressure 700 psig and lowering slowly,
- Drywell pressure 2.7 psig and rising slowly
- RCIC pump is being started,
- No other high pressure injection sources are available,
- Annunciator 901-3, B-13, Automatic Blowdown Timer Start has just alarmed.

As Unit Supervisor, you have just determined that you can NOT hold level above -59 inches. You order the NSO to inhibit ADS. The NSO places the ADS Inhibit switch in INHIBIT.

Annunciators . . .

- 901-3, G-14, Auto Blowdown Inhibit is EXTINGUISHED
- 901-3, B-13, Auto Blowdown Timer Start is LIT

Which of the following actions could you order to ENSURE that ADS blowdown, does NOT occur?

A. Secure low pressure ECCS pumps.

B. Place individual ADS valve control switches in OFF.

C. Spray the drywell to lower drywell pressure below the reset pressure point.

D. Momentarily (<1 second) depress the ADS Timer Reset pushbutton every 2 minutes.

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

A N S W E R K E Y
MULTIPLE CHOICE

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

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