U.S. Nuclear Regulatory Commission

Site-Specific SRO Written Examination

Applicant Information

Name:

Date: November 21, 2006	Facility/Unit: LaSalle U1/U2
Region: I ☐ II ☐ III ☒ IV ☐	Reactor Type: W ☐ CE ☐ BW ☐ 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. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

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

____
Applicant's Signature

Results

RO/SRO-Only/Total Examination Values	_____ / _____ / _____	Points
Applicant's Scores	_____ / _____ / _____	Points
Applicant's Grade	_____ / _____ / _____	Percent

General Guidelines

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

2. If you have any questions concerning the administration of any part of the examination, do not hesitate to ask them before starting that part of the test.

3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).

4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.

5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

Part B: Written Examination Guidelines

1. 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.

2. To pass the examination, you must achieve an overall grade of 80.00 percent or greater, with 70.00 percent or greater on the SRO-only items, if applicable. If you only take the SRO portion of the exam (as a retake or with an upgrade waiver of the RO exam), you must achieve an overall grade of 80.00 percent or better to pass. SRO-upgrade applicants who do take the RO portion of the exam and score below 80.00 percent on that part of the exam can still pass overall, but may require remediation. Grades will not be rounded up to achieve a passing score. Every question is worth one point.

3. For an initial examination, the nominal time limit for completing the examination is 8 hours for the combined RO/SRO exam. Notify the proctor if you need more time.

4. You may bring pens, pencils, and calculators into the examination room; however, programable memories must be erased. Use dark pencil to facilitate machine grading.

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

6. Mark your answers on the answer sheet provided If you are recording your answers on a machine-gradable form that offers more than four answer choices (e.g., “a” through “e”), be careful to mark the correct column. Use your examination pages for scrap paper. The examination will be retained by the facility licensee.

7. If you have any questions concerning the intent or the initial conditions of a question, do not hesitate to ask them before answering the question. Note that questions asked during the examination are taken into consideration during the grading process and when reviewing applicant appeals. Ask questions of the NRC examiner or the designated facility instructor only. A dictionary is available if you need it.

   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. Similarly, you should assume that no operator actions have been taken, unless the stem of the question or the answer choices specifically state otherwise. 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.

8. 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.

9. When you complete the examination, 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, and bring it together with your answer sheet to the exam proctor.

10. After turning in your examination, leave the examination area as defined by the proctor or NRC examiner (this classroom & the hall in front of this classroom). 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)

Given the following plant conditions:

- 1B Reactor Recirculation pump tripped.
- Power and flow are in the allowable region of Technical Specifications.

Thermal Limits:

(1) Average Planar Linear Heat Generation Rate
(2) Minimum Critical Power Ratio
(3) Linear Heat Generation Rate
(4) Maximum Allowable Power Ratio

Which combination of thermal limits must be adjusted?

a. 1 and 2 only.

b. 1, 2, and 3 only.

c. 1, 2, and 4 only.

d. 3 and 4 only.

QUESTION: 002 (1.00)

An event occurred that resulted in a Reactor SCRAM coincident with a Station Blackout condition. How will the Source Range Monitor Log Count Rate meters on 1H13-P603 respond compared to a scram with off-site power available? Hard card actions by the NSO are complete except those prevented by the station blackout.

The Source Range Monitor Log Count Rate meters will . . .

a. NOT be available.

b. indicate the same.

c. indicate lower.

d. indicate higher.

QUESTION: 003 (1.00)

The Off-Gas system was in operation with flow bypassing the charcoal adsorber trains (Charcoal Adsorber Train mode switch was in AUTO). Power was subsequently lost to 24/48 VDC Distribution Panel 1A. The Off-Gas system flow-path will . . .

a. isolate.

b. remain as is.

c. realign with flow through both the charcoal adsorber trains and the bypass line.

d. realign with flow through the charcoal adsorber trains with the bypass line isolated.

QUESTION: 004 (1.00)

The plant was operating in a normal full power lineup when the Main Turbine tripped due to high vibration. Select the statement below that best describes the response of the Non-Class 1E electrical distribution system:

a. Busses 151, 152, 141X, and 142X will fast-transfer from the UAT to the SAT.

b. Bus 151 will fast transfer from the UAT to the SAT and bus 141X will fast-transfer from the UAT to Class 1E bus 141Y via a bus-tie breaker. Busses 152 and 142X do not transfer.

c. Busses 151 and 141X will fast transfer from the UAT to the SAT, and bus 142X will fast-transfer from the UAT to Class 1E bus 142Y via a bus-tie breaker. Bus 152 does not transfer.

d. Busses 151 and 152 will fast transfer from the UAT to the SAT, bus 141X will fast-transfer from the UAT to Class 1E bus 141Y via a bus-tie breaker, and bus 142X will fast-transfer from the UAT to Class 1E bus 142Y via a bus-tie breaker.

QUESTION: 005 (1.00)

Given the following:

- A reactor scram has occurred.
- The full core display has several full-in lights NOT displayed.
- Computer rod position data is NOT available.

You are to verify the scram and you are aware of industry experiences where several light bulbs on the full core display have failed concurrently.

Which of the following indications would cause you to conclude that the scram was NOT successful?

a. All LPRM "downscale" lights are illuminated.

b. All APRM "downscale" lights are extinguished.

c. RPS channel trip logic lights are extinguished.

d. Reactor period stable at -80 seconds on SRMs.

QUESTION: 006 (1.00)

Upon evacuation of the Main Control Room, the Remote Shutdown Panel provides the operator with the controls and instruments necessary to:

a. mitigate a design basis accident.

b. maintain the plant in a safe shutdown condition.

c. shutdown the reactor and cooldown the plant to Mode 4.

d. shutdown the reactor independent of the Reactor Protection System.

QUESTION: 007 (1.00)

The plant was operating at 93 percent reactor power when the Reactor Building Closed Cooling Containment Supply Outboard Isolation Valve, 1WR029, was declared inoperable. The associated penetration will be isolated, per Technical Specifications, within 4 hours. Which of the following describes the impact on plant operation?

a. No impact on plant operations. Full power operation may continue.

b. Operation may continue, but at reduced power until the valve can be repaired.

c. The Reactor Recirculation Pumps must be shutdown. The plant must be shutdown.

d. The Reactor Recirculation Pumps may remain in operation, but the plant must be shutdown.

QUESTION: 008 (1.00)

Unit-1 and Unit-2 were at rated power with normal system lineups when the Unit-1 Station Air Compressor tripped. The following subsequently occurred:

- Instrument and Station Air header pressures were slowly lowering.
- The Unit-1 NSO started the Common Station Air Compressor from the control room.
- Instrument and Station Air header pressures were still lowering after the Common Station Air Compressor start.

Which one of the following could be the cause of the above conditions?

a. Unit-2 Station Air Compressor is in surge.

b. Unit-2 Station Air Compressor blowoff damper failed closed.

c. Common Station Air Compressor is operating in Modulate Mode.

d. Common Station Air Compressor discharge valve failed to open.

QUESTION: 009 (1.00)

Which one of the following describe the Reactor Water Cleanup (RT) system flow path when the system is utilized for maximum decay heat removal?

a. One cleanup pump with suction from the reactor vessel bottom head drain line, discharging through the tube side of both regenerative heat exchanger trains and both non-regenerative heat exchanger trains, bypassing the filter demineralizers, and returning through the shell side of both regenerative heat exchanger trains to the reactor vessel via the feedwater system return lines.

b. Two cleanup pumps with suction from both of the Reactor Recirculation loops and the reactor vessel bottom head drain line, discharging through the tube side of both regenerative heat exchanger trains and both non-regenerative heat exchanger trains, bypassing the filter demineralizers, and returning through the shell side of both regenerative heat exchanger trains to the reactor vessel via the feedwater system return lines.

c. One cleanup pump with suction from both of the Reactor Recirculation loops and the reactor vessel bottom head drain line, discharging through the tube side of one regenerative heat exchanger train and one non-regenerative heat exchanger train, through the filter demineralizers, and returning through the shell side of the other regenerative heat exchanger train to the reactor vessel via the feedwater system return lines.

d. Two cleanup pumps with suction from both of the Reactor Recirculation loops, discharging through the tube side of one regenerative heat exchanger train and one non-regenerative heat exchanger train, through the filter demineralizers, and returning through the shell side of the other regenerative heat exchanger train to the reactor vessel via the feedwater system return lines.

QUESTION: 010 (1.00)

During refueling operations, a fuel bundle was being transferred from the reactor well to the spent fuel pool when a malfunction of the fuel hoist caused the bundle to drop within the transfer canal. The fuel bundle is still connected to the grapple. Additionally:

- Bubbles were observed coming up from the dropped bundle.
- Area radiation levels on the Refuel Floor and upper elevations of the Reactor Building are slowly increasing.
- Currently, there are NO radiation monitor alarms.

Select the statement that correctly describes actions expected to be performed by Main Control Room personnel.

a. Immediately stop all refueling operations; evacuate unnecessary personnel from the Refuel Floor, Reactor, Auxiliary, and Turbine Buildings; and verify Reactor Building and Primary Containment ventilation system isolations.

b. Immediately stop all refueling operations; evacuate unnecessary personnel from the Refuel Floor and Reactor Building; and isolate Reactor Building and Primary Containment ventilation systems as directed by the Unit Supervisor.

c. Place the bundle in a safe condition; evacuate unnecessary personnel from the Refuel Floor and Reactor Building; and verify Reactor Building and Primary Containment ventilation system isolations.

d. Place the bundle in a safe condition; evacuate unnecessary personnel from the Refuel Floor, and Reactor and Auxiliary Buildings; and isolate Reactor Building and Primary Containment ventilation systems as directed by the Unit Supervisor.

QUESTION: 011 (1.00)

An event caused a rapid increase in drywell pressure resulting in a reactor scram. Drywell pressure is approximately 3 psig and increasing slowly.

Select the statement below that describes the required action(s).

a. Initiate Suppression Chamber Sprays

b. Initiate Suppression Chamber and Drywell Sprays

c. Vent the containment using SBGT and initiate Suppression Chamber Sprays

d. Vent the containment using SBGT, initiate Suppression Chamber Sprays, and initiate Drywell Sprays

QUESTION: 012 (1.00)

The plant has been operating at full power for an extended period of time when a Group 1 Isolation occurred due to a steam leak in the Turbine Building. All components/systems are operable except the Motor Driven Reactor Feed Pump, which is out of service.

Which one of the following best describes the INITIAL strategy and basis for controlling reactor pressure under these plant conditions?

Reactor pressure is . . .

a. reduced, at a rate not to exceed Tech Spec cooldown rate, to allow low pressure ECCS injection to maintain RPV water level.

b. stabilized below the lowest safety relief valve lift set-point, to minimize RPV level fluctuations caused by cycling of the safety relief valves.

c. maintained automatically by the safety relief valves to minimize RPV inventory loss and maximize the supply pressure at the RCIC turbine inlet.

d. rapidly reduced, irrespective of cooldown rate, to minimize long term heat addition to the suppression pool and maximize injection to the RPV.

QUESTION: 013 (1.00)

Unit 2 had been operating at full power for an extended period of time when a Group 1 Isolation occurred due to a steam leak in the Turbine Building. All components/systems were operable prior to the Group 1 Isolation. After the reactor scram, reactor power remained between 5-10% of rated due to failure of all control rods to insert. Operators have placed RHR A and B in suppression pool cooling. No other actions have been completed.

Based on the above conditions, suppression pool temperature SHALL be determined using . . .

a. SPDS.

b. 2TI-CM037, on the Remote Shutdown Panel 2C61-P001.

c. Bulk Average Temperature from either NUMAC 2UY-CM037 OR 2UY-CM038.

d. an average of the divisional Average Suppression Pool Temperature readings from 2TR-CM037A AND 2TR-CM038A.

QUESTION: 014 (1.00)

You are the Unit-2 assist NSO. The plant has been operating at full power, under steady state conditions, for several weeks. Over the last several days, during performance of the shiftly surveillance, you have noticed an upward trend in drywell ambient air temperature.

As the Unit-2 assist NSO you should . . .

a. discuss your findings with the Unit Supervisor and proceed as directed.

b. direct the responsible non-licensed operator to adjust the chiller load controllers to increase cooling to the drywell.

c. direct the Unit Reactor Operator to reduce reactor power to 95 percent to reduce heat addition to the drywell.

d. discuss your findings with the responsible system engineer and proceed with their recommendations.

QUESTION: 015 (1.00)

Unit 1 had been operating at 100% RTP for 237 days when a Group 1 Isolation occurred. After responding to the event, operators found the following plant conditions:

- RPV pressure is being maintained 800 to 1000 psig using RCIC and SRVs.
- RPV water level is being maintained between 11 in. and 59.5 in. with RCIC.
- RCIC is taking a suction from the Suppression Pool.
- Both loops of RHR are in Suppression Pool Cooling.
- Suppression Pool Temperature is 110°F and increasing slowly.
- Suppression Pool Level is -5 ft and decreasing slowly.

Which one of the following will occur first as Suppression Pool level drops?

a. Damage to the RHR pumps due to inadequate Net Positive Suction Head.

b. Damage to the RCIC pump due to air entrainment in the pump suction.

c. Damage to the RCIC pump due to inadequate Net Positive Suction Head.

d. Pressurization of the suppression chamber due to inadequate condensation of steam by the Suppression Pool.

QUESTION: 016 (1.00)

Given the following conditions:

- Several rods are NOT inserted beyond 04.
- RCIC, SBLC, and CRD are the only RPV injection systems in operation.
- Reactor Water Level indicates -200" on Fuel Zone and decreasing.
- All seven ADS valves are open.
- Reactor Pressure is 500 psig and decreasing.

Adequate core cooling . . .

a. is being maintained because water level is above -210" on Fuel Zone.

b. is NOT being maintained because water level is below - 185" on Fuel Zone.

c. is being maintained because reactor pressure is above 180 psig.

d. is NOT being maintained because neither HPCS or LPCS is in operation.

QUESTION: 017 (1.00)

Select the statement below that completes the description of the basis behind the "RPV Level Instrument Criteria" (Table K) found in the emergency operating procedures (LGAs).

Elevated temperatures in the Drywell and/or Reactor Building causes the water density to decrease in the . . .

a. horizontal runs of the instrument variable legs, causing indicated level to read lower than actual level.

b. vertical runs of the instrument variable legs, causing indicated level to read lower than actual level.

c. horizontal runs of the instrument reference legs, causing indicated level to read higher than actual level.

d. vertical runs of the instrument reference legs, causing indicated level to read higher than actual level.

QUESTION: 018 (1.00)

Unit 2 was operating at 90% RTP when a small-break loss of coolant accident occurred. Upon completion of the NSO's hard card actions, the NSO determined the following plant conditions existed:

- Drywell pressure was 2 psig and slowly increasing.
- The RWM and full core display indicated that many rods are not fully inserted.
- Reactor power was oscillating between 4% and 6% RTP.
- The turbine was still on-line.
- Reactor water level was +39 inches.

The earliest time a forced cooldown of the reactor plant can begin is:

a. Immediately.

b. Once reactor power is less than 3 percent.

c. After Hot Shutdown Boron Weight has been injected.

d. After Cold Shutdown Boron Weight has been injected.

QUESTION: 019 (1.00)

LGA-09 directs the operator to restart turbine building ventilation if needed. This will . . .

a. provide a source of dilution flow for the SBGT system if running.

b. prevent a possible unmonitored ground level release from the turbine building.

c. provide a backup to secondary containment if reactor building ventilation fails to isolate.

d. allow continued operation of turbine building equipment without exceeding max safe conditions.

QUESTION: 020 (1.00)

If an alarm was received on the Fire Detection Display indicating a fire in the RPS MG Set Room, you should . . .

a. start a Diesel Driven Fire pump in anticipation of sprinkler system actuation.

b. call out the Fire Brigade because the location contains safety related equipment.

c. dispatch a Non-Licensed Operator to the area to determine if an actual fire exists.

d. dispatch a Non-Licensed Operator to the area to verify that RPS MG Set room CO_2 system actuated.

QUESTION: 021 (1.00)

Given the following plant conditions:

- All control rods are fully inserted.
- RPV water Level is 12" and increasing slowly using the Feedwater system.
- RPV pressure is being maintained at 800 psig using the Turbine Bypass Valves.
- Reactor Recirculation Loop A is isolated.
- Drywell Pressure is 3 psig and steady.
- Drywell Temperature peaked at 200°F and is steady.

Select the statement below that correctly describes the action necessary to control Drywell Temperature.

a. Startup the second Primary Containment Cooling Loop to supplement the operating Primary Containment Cooling Loop.

b. Restore a Primary Containment Cooling loop to operation after resetting the containment isolation signal(s).

c. Drywell Sprays must be initiated to cooldown and depressurize the Drywell

d. Place both Primary Containment Cooling loops in operation after defeating the containment isolation signal(s).

QUESTION: 022 (1.00)

In response to a stuck open SRV, which of the following conditions would require scramming the reactor?

a. Suppression pool temperature is 112°F.

b. SRV tailpipe temperature reaches 350°F.

c. One minute has elapsed since the SRV first opened.

d. Two cyclings of the SRV's handswitch were unsuccessful.

QUESTION: 023 (1.00)

Given the following conditions:

- A reactor startup is in progress.
- The reactor is critical at the POAH.
- Reactor coolant temperature is 330°F.
- Reactor heat-up rate is approximately 30°F/hr.
- All required systems/components are operable.

If the most reactive control rod were to drop under these conditions, fuel damage . . .

a. will NOT occur due to enforcement of the rod withdrawal sequence.

b. will occur but be limited by enforcement of the rod withdrawal sequence.

c. will occur with exposures at the site boundary approaching 10 CFR 100 limits.

d. will NOT occur because the control rod velocity limiter limits the free fall velocity.

QUESTION: 024 (1.00)

Unit 2 had been operating at full power for an extended period of time with all components/systems operable and lined up for normal operation when an instrument technician inadvertently caused an isolation of the Outboard PCIS Valves associated with RPV Level 2 trip relays.

Drywell pressure will . . .

a. decrease due to isolation of the Drywell Pneumatic System.

b. decrease due to isolation of the VQ Nitrogen Makeup System.

c. increase due to isolation of Primary Containment Cooling Water to the Drywell.

d. increase due to isolation of Reactor Building Closed Cooling Water to the Drywell.

QUESTION: 025 (1.00)

Given the following initial conditions:

- A Unit 2 reactor startup was in progress.
- The reactor was critical at the POAH.
- Reactor coolant temperature was 330°F.
- Reactor heat-up rate was approximately 30°F/hr.
- All required systems/components were operable.

The running Control Rod Drive Pump tripped, and operators could NOT start the standby pump from the control room. A short time later, an ACCUMULATOR TROUBLE was received on fully withdrawn control rod 18-27. The equipment operator dispatched to investigate reported that:

- the pipe between the N_2 bottle and the accumulator was ruptured and,
- accumulator pressure was 0 psig.

If a reactor SCRAM occurs under these conditions, control rod 18- 27 will . . .

a. NOT insert.

b. insert; the scram time will NOT be affected.

c. insert; the scram time will NOT meet Tech Spec requirements.

d. insert; the scram time will be slow but still meet Tech Spec requirements.

QUESTION: 026 (1.00)

LGA-03, Primary Containment Control, requires Emergency Depressurization if Suppression Pool water level, as a function of RPV Pressure, cannot be restored and maintained below the specified limit.

Emergency Depressurization is implemented to prevent exceeding the . . .

a. maximum containment pressure at which SRVs can be opened and will remain opened.

b. code allowable stresses in the SRV tail pipe, tail pipe supports, quencher, or quencher supports.

c. pressure capabilities of limiting primary containment components at the most limiting temperatures.

d. primary containment water level at which pressure suppression capability sufficient to accommodate an RPV breach by core debris can be maintained.

QUESTION: 027 (1.00)

An area high temperature alarm was received in the control room for the RCIC Equipment Area followed by a report of smoke in the area. Which of the following fire suppression methods are available in this area?

a. CO_2 hose reels

b. water hose reels

c. deluge sprinkler system

d. CO_2 room flood system

QUESTION: 028 (1.00)

The following conditions existed on Unit-1:

- 100 percent power, steady state
- All ECCS systems are lined up for STANDBY

If a valid ECCS initiation signal occurs concurrently with Bus 142Y undervoltage, when Bus 142Y re-energizes, the ____(1)____ starts immediately and ____(2)_____ starts approximately five seconds later.

	(1)	(2)
a.	1C RHR Pump	1B RHR Pump
b.	1B RHR Pump	1C RHR Pump
c.	1A RHR Pump	LPCS Pump
d.	LPCS Pump	1A RHR Pump

QUESTION: 029 (1.00)

1) What is the normal LPCS System pressure when the LPCS System is in standby and,
2) what other system/sub-system could also be impacted by a condition that caused the LPCS SYS DISCH PRESS LO (C308) alarm to annunciate?

	(1)	(2)
a.	0 psig (alarm is normally bypassed when LPCS pump not running)	ADS
b.	50-55 psig	RCIC
c.	65-70 psig	RHR A
d.	90-100 psig	HPCS

QUESTION: 030 (1.00)

Unit 1 was in MODE 3 preparing for a refuel outage following 273 days of full power operations. RHR 'A' has been lined up and is operating in the Shutdown Cooling Mode with a reactor coolant temperature of approximately 250°F.

It the SAT feed breaker (1412) to bus 141Y tripped due to a degraded bus undervoltage condition under these plant conditions, what plant response would be expected if control room operators took NO actions?

a. Reactor Coolant System temperature and pressure will increase and, since bus 141Y is de-energize, RHR 'A' will not isolate leading to potential failure of the RHR 'A' system piping and subsequent loss of coolant which will be recovered by RHR B/C and HPCS.

b. Reactor Coolant System temperature and pressure will increase until SRVs open to relieve the pressure and, even though bus 141Y is de-energize, RHR 'A' will be isolated by the Division 2 powered Shutdown Cooling isolation valves at approximately 140 psig.

c. EDG '0' will start and re-energize bus 141Y, RHR 'A' will restart automatically in the Shutdown Cooling Mode, and Reactor Coolant System temperature and pressure may increase slightly but will begin to decrease once shutdown cooling is resumed.

d. EDG '0' will start and re-energize bus 141Y, RHR 'A' will NOT restart automatically in the Shutdown Cooling Mode, Reactor Coolant System temperature and pressure will increase until SRVs open to relieve the pressure, but RHR 'A' will automatically isolate at approximately 140 psig.

QUESTION: 031 (1.00)

While preparing for refueling operations, RHR common shutdown cooling line temperature indication became inoperable. Given that good flow existed through the RHR heat exchanger prior to the instrument failure, which of the following provides the most accurate indication for controlling temperature?

a. Service Water Differential Temperature

b. RHR Differential Temperature

c. RHR Heat Exchanger Outlet Temperature

d. RHR Heat Exchanger Inlet Temperature

QUESTION: 032 (1.00)

Given the following Unit 1 information:

- Reactor steam dome pressure is 525 psig.
- One RPV level indicator is reading -140 inches.
- One RPV level indicator is reading -150 inches.
- One Drywell pressure indicator is reading 8 psig.
- One Drywell pressure indicator is reading 1.75 psig.

Which of the following describes the status of LPCS under these conditions?

a. The LPCS pump is running and the injection valve (F005) is open.

b. The LPCS pump is running and the injection valve (F005) is closed.

c. The LPCS pump is NOT running and the injection valve (F005) is open.

d. The LPCS pump is NOT running and the injection valve (F005) is closed.

QUESTION: 033 (1.00)

While performing HPCS SYSTEM INSERVICE TEST, LOS-HP-Q1, contacts in the control switch for the full flow test valve (F023) stick, causing the full flow test valve to go to the full open position. The operator notes that indicated flow is approximately 7500 gpm, which is above the target flow rate of 6300 gpm.

The surveillance . . .

a. should be terminated, because the high flow could result in pump vortexing.

b. should be terminated, because the high flow could result in pump cavitation.

c. may continue, because the flow rate is within the normal pump design flow range.

d. may continue, as long as the length of time that the pump operates above 6300 gpm is documented.

QUESTION: 034 (1.00)

While Unit 1 was operating at 100 percent RTP, the SBLC STORAGE TANK HI/LOW LEVEL alarm was received in the Main Control Room. Upon investigation, the NSO reported that he was seeing a rapidly decreasing SBLC tank level.

The cause for this abnormal indication is . . .

a. an increase in bubbler air flow.

b. an isolation of the bubbler air supply.

c. boron precipitation on the level standpipe.

d. failure of the level instrument piping heat tracing.

QUESTION: 035 (1.00)

Following a loss of input power to a RPS M/G set, an internal flywheel will maintain M/G set output voltage and frequency for ____(1)_____ which ____(2)_____ .

	(1)	(2)
a.	at least 2 seconds (typically 10-30 seconds)	permits automatic transfer of the associated RPS bus to the alternate power supply without a loss of power.
b.	at least 2 seconds (typically 10-30 seconds)	maintains the associated RPS bus energized during momentary input power outages to the RPS M/G sets.
c.	approximately 10 seconds	ensures the associated RPS bus remains energized long enough to complete automatics actuations (i.e., scrams and isolations).
d.	approximately 30 seconds	permits manual transfer of the associated RPS bus to the alternate power supply without a loss of power.

QUESTION: 036 (1.00)

Unit 1 was in Mode 2 with the reactor critical at the point of adding heat when the following instruments all failed down scale:

- SRMs B and D,
- IRMs B, D, F, and H
- Off-Gas Post Treatment Radiation Monitor B

Which one of the following correctly summarizes:

1) the cause,
2) the expected plant response, and
3) the required operator action FOLLOWING CORRECTION of the cause?

	(1)	(2)	(3)
a.	Loss of Division 2 ESF 125 VDC	A half-SCRAM will occur and control rod motion will be prevented (blocked)	Reset the half-SCRAM; no additional action required to reset rod block
b.	Loss of Division 2 ESF 125 VDC	A full SCRAM will occur and control rod motion will be prevented (blocked)	Reset SCRAM; rod block will remain until Mode 2 is reentered.
c.	Loss of 24/48 VDC Bus 1B	A half-SCRAM will occur and control rod motion will be prevented (blocked)	Reset the half-SCRAM; no additional action required to reset rod block
d.	Loss of 24/48 VDC Bus 1B	A full SCRAM will occur and control rod motion will be prevented (blocked)	Reset SCRAM; rod block will remain until Mode 2 is reentered.

QUESTION: 037 (1.00)

The Unit 1 Mode switch is in STARTUP. NSOs have pulled control rods and established an 86 second period . SRMs are reading 50,000 cps and all IRM channels are reading less than 25 on range 1.

With no operator action and reactivity held constant, which of the following is expected within the next 2 minutes?

a. "SRM SHORT PERIOD" alarms.

b. "CHAN A SRM HI-HI" alarms AND a scram occurs.

c. "SRM UPSCALE TRIP" alarms AND a rod block occurs.

d. "SRM INOPERATIVE OR HI" alarms AND a rod block occurs.

QUESTION: 038 (1.00)

Given the following conditions:

- APRM Channel A is 51.0 percent from its Computer Point
- APRM Channel B is 51.5 percent from its Computer Point
- APRM Channel A is 50.6 percent from the OD-3 printout
- APRM Channel B is 51.4 percent from the OD-3 printout
- CTP is 49.3 percent from the OD-3 printout
- CTP is 50.1 percent from its Computer Point

Per LOS-NR-SR1, APRM Gain Adjustment, which of the following is appropriate?

a. Adjust APRM Channel A ONLY

b. Adjust APRM Channel B ONLY

c. BOTH APRM Channels require adjustment

d. NEITHER APRM Channel requires adjustment

QUESTION: 039 (1.00)

The RCIC system was being operated from the Remote Shutdown panel when the amber low oil pressure light illuminated.

The RCIC turbine . . .

a. will trip automatically upon energization of the trip solenoid.

b. governor valve will close due to loss of oil pressure to the governor.

c. can be manually tripped using the manual trip latch mounted on the turbine over-speed trip device.

d. can be manually tripped using the Trip & Throttle Valve control switch at the Remote Shutdown panel.

QUESTION: 040 (1.00)

Given the following:

- RPV Blowdown has been initiated due to exceeding the Pressure Suppression Pressure curve.
- Drywell Pneumatic Bottle Bank header pressures both read approximately 130 psig.

Of the answers given below, which is the highest drywell pressure that will allow the ADS valves to open and remain open?

a. 40

b. 50

c. 60

d. 70

QUESTION: 041 (1.00)

Unit 1 was operating at 98% RTP when the 1A RPS power supply and Bus 111Y were simultaneously de-energized:

Which of the following valves will close?

a. Inboard WR isolation valve

b. Outboard RI isolation valve

c. Inboard MS isolation valves

d. Outboard VP isolation valves

QUESTION: 042 (1.00)

The Drywell Pneumatic system REGULATED header supplies compressed gas to ___(1)___ safety relief valves. The system UN-REGULATED header supplies compressed gas to the ___(2)___ safety relief valves at ___(3)___ pressure.

	(1)	(2)	(3)
a.	the 6 non-ADS designated	7 ADS designated	a higher
b.	all (ADS and non-ADS)	7 ADS designated	a higher
c.	all (ADS and non-ADS)	6 non-ADS designated	same
d.	the 6 non-ADS designated	7 ADS designated	same

QUESTION: 043 (1.00)

What will be the impact on safety relief valve 1B21-F013U, if power is lost (e.g., blown fuse) to the "C" solenoid. (NOTE: LLS = Low-Low Set; Manual = P601 Control Switch)

The 'U' SRV will operate in the . . .

a. Safety mode ONLY.

b. Safety and ADS modes ONLY.

c. Safety, ADS, and Relief/LLS modes ONLY.

d. Safety, ADS, Relief/LLS, and Manual modes.

QUESTION: 044 (1.00)

If a small electrical fire damages the TSC Uninterruptible Power Supply (including the static transfer switch), what will be the impact on the TDRFPs?

The TDRFPs will . . .

a. trip due to a loss of speed signal caused by the loss of power to the speed control systems.

b. lock in at the last known speed command and can be manually reset following verification that the speed control system has power.

c. continue to run normally since the speed control system has a backup power supply which is auctioneered with the TSC UPS supply.

d. lock in at the last known speed command until power to the speed control system is manually transferred to the TSC UPS Alternate AC source.

QUESTION: 045 (1.00)

Given the following:

- Unit 1 has experienced a DBA LOCA
- SBGT Inlet flow is 4000 CFM
- SBGT Outlet flow is 1000 CFM

Select the answer below that describes both: (1) a possible cause for the above SBGT flow indications; and (2) the potential consequence.

	(1)	(2)
a.	Blown loop seal on filter train drain line	Increased Primary Containment radiation levels
b.	Filter train inspection door open	Increased Secondary Containment radiation levels
c.	Filter train inlet flow control damper (1VG002) malfunction	Higher Primary to Secondary Containment differential pressure
d.	Filter train outlet isolation damper (1VG003) NOT full open	Less negative Reactor Building to outside atmosphere differential pressure

QUESTION: 046 (1.00)

Which one of the following will cause a lockout of all breaker feeds to bus 142Y?

a. Bus 142Y Overcurrent

b. Bus 142Y Degraded Voltage

c. SAT TR-142 Differential Overcurrent

d. Emergency Diesel Generator Differential Overcurrent

QUESTION: 047 (1.00)

The 250 VDC MCC 121Y feed to the Unit 1 Process Computer UPS tripped open. How does this affect the power source to the UPS Distribution Panel?

UPS Distribution Panel loads will receive power from ...

a. the UPS Inverter through the Static Transfer Switch.

b. the UPS Inverter through the Manual Bypass Switch.

c. an alternate AC source through the Static Transfer Switch.

d. an alternate AC source through the Manual Bypass Switch.

QUESTION: 048 (1.00)

Running the battery room exhaust fans continuously . . .

a. prevents the buildup of Hydrogen gas within the battery rooms.

b. ensures that battery capacity is NOT decreased by low temperatures.

c. ensures that an Oxygen deficient atmosphere does NOT develop within the battery rooms.

d. ensures that the environmental qualification of the battery is NOT invalidated by either high or low temperatures.

QUESTION: 049 (1.00)

Which of the following fire suppression methods would be available and preferred for use to extinguish an advanced fire in one of the ESF battery rooms?

a. CO_2 Hose Reels

b. Water Hose Reels

c. Halon Room Flooding

d. Pre-action sprinkler system

QUESTION: 050 (1.00)

Given a DBA LOCA coincident with a loss of off-site power (LOP) the expected loading, in percent of the continuous KW rating, on the unit Emergency Diesel Generators is ....

a. <50%

b. >50 - <70 percent

c. ≥70 - <90 percent

d. ≥90 percent

QUESTION: 051 (1.00)

Given the following:

- The Plant Air system is lined up and operating with Station Air Compressors 0SA01C and 1SA01C in operation with all Station Air Dryers in service.
- The STATION AIR DRYER TROUBLE alarm on 2PM10J is received.
- Instrument and Service Air header pressures in both units are approximately 105 psig and decreasing slowly.
- AMP readings on both running air compressors are increasing slowly.
- No other alarms or abnormal trends have been observed.

Which one of the following actions is expected based on the above indications?

a. SCRAM both Unit Reactors per LGP 3-2.

b. Verify proper operation of the Station Air Dryers.

c. Open the breakers for the Compressor Pre-lube Oil Pumps.

d. Manually start the standby Station Air Compressor (2SA01C).

QUESTION: 052 (1.00)

Given the following:

- REACTOR BLDG CCW EXP TANK LEVEL HI/LO
- RBCCW Expansion Tank Level is 52"
- RBCCW RAD HI/LO
- RBCCW PRM reading 10,000 CPM

Which one of the following could cause the above symptoms?

a. RBCCW Heat Exchanger tube leak.

b. Drywell Penetration Cooling Coil leak.

c. Reactor Recirc Pump Motor Winding cooler leak.

d. Reactor Water Cleanup Non-Regenerative Heat Exchanger tube leak.

QUESTION: 053 (1.00)

Unit 2 was operating at full power when a loss of all feedwater occurred. The Main Turbine Generator is still on-line. The following also occurred:

- Reactor pressure reached a maximum of 1030 PSIG and is now 900 PSIG slowly falling.
- Both Reactor Recirc pumps have tripped off.

How would you expect the RBCCW System to have responded?

a. No change in RBCCW System operation.

b. RBCCW is in operation, but flow to and from the drywell is automatically isolated.

c. RBCCW is in operation, but flow to and from the RWCU heat exchangers is automatically isolated.

d. RBCCW pumps trip on low suction pressure after flow to and from the Drywell is automatically isolated.

QUESTION: 054 (1.00)

A control rod drift is detected when an ___(1)____ numbered reed switch ___(2)____ while the control rod is moving ___(3)___ a command to move the control rod.

	(1)	(2)	(3)
a.	odd	opens	with
b.	odd	closes	without
c.	even	opens	without
d.	even	closes	with

QUESTION: 055 (1.00)

Which one of the following is NOT a function provided by the Traversing In-core Probe system?

a. Substitute data, to replace failed LPRM inputs to the APRMs.

b. Calibration standard against which the LPRMs are calibrated.

c. Substitute data, to replace failed LPRM inputs to the process computer.

d. Used by process computer, during LPRM calibrations, to calculate gain adjustment factors for LPRM inputs.

QUESTION: 056 (1.00)

Which one of the following provides the 30 percent reactor power input that enables/disables the Rod Block Monitor?

a. APRMs

b. Feedwater Flow

c. Generator MWe

d. Turbine First Stage Pressure

QUESTION: 057 (1.00)

(1) How is the measurement of reactor vessel water level affected by a rapid depressurization of the reactor pressure vessel (e.g., an ADS actuation or Bypass Valves sticking open and not a LOCA) and,

(2) what design feature(s) are in place to compensate?

	(1)	(2)
a.	Water flashing to steam in the reference leg displaces water in the reference leg causing indicated level to read higher than actual.	Minimize vertical runs of reference leg piping within the drywell.
b.	A decrease in reactor coolant temperature causes density of water in the variable leg to increase causing indicated level to read higher than normal.	Electronic density compensation.
c.	Degassing in the reference leg displaces water in the condensing pot and reference leg causing indicated level to read higher than actual.	Continuous backfill of reference leg condensing pots.
d.	Degassing in the variable leg displaces water in the variable leg causing indicated level to read lower than actual.	Variable leg orifice which limits pressure changes within the instrument piping.

QUESTION: 058 (1.00)

An event occurred on Unit 1 resulting in the following conditions:

- Bus 111Y was de-energized and remained de-energized.
- All control rods are fully inserted.
- Conditions in the Drywell require RPV Blowdown.
- NO ADS valves opened when the ADS Manual Initiation pushbuttons were depressed.

Which of the following describes the action necessary to successfully complete the required RPV Blowdown?

a. Manually open SRVs from the remote shutdown panel.

b. Manually open the ADS safety relief valves using the key-lock control switches.

c. Manually open the ADS safety relief valves using the pistol grip control switches.

d. Manually open the NON-ADS safety relief valves using the pistol grip control switches.

QUESTION: 059 (1.00)

During normal at power operation, the Primary Containment pressure is maintained . . .

a. manually by regulating the Primary Containment Chilled Water system temperature.

b. with automatic nitrogen makeup when pressure is low and manual venting when pressure is high.

c. automatically by a pressure controller that cycles the nitrogen makeup and vent valves as necessary to maintain pressure within the prescribed band.

d. by manual operation of the nitrogen makeup valves when pressure is low and manual operation of the containment vent valves when pressure is high.

QUESTION: 060 (1.00)

A common mode failure has disabled all Division 1 ECCS Drywell Pressure signals. Select the answer below that summarizes the ability of RHR 'A' to respond to a LOCA:

MODE:	LPCI	SUPPRESSION POOL COOLING	SUPPRESSION CHAMBER SPRAY	DRYWELL SPRAY
a.	Available	Available	Available	Available
b.	Available	Available	Unavailable	Unavailable
c.	Available	Unavailable	Available	Unavailable
d.	Unavailable	Unavailable	Unavailable	Unavailable

QUESTION: 061 (1.00)

Unit 2 had been operating for 273 days at 100 percent RTP. There was no inoperable equipment, but RHR B was operating in the Suppression Pool Cooling mode prior to a small break LOCA occurring. The NSO reported the following conditions after the reactor scrammed, but prior to taking any actions:

- All rods fully inserted.
- Drywell pressure is 5 psig.
- Reactor pressure is 600 psig increasing slowly.
- Reactor water level is -25 inches and increasing slowly.

Assuming that no operator action has taken place, what is the status of the RHR B?

a. Realigned for LPCI and injecting into the RPV.

b. Operating in the Suppression Pool Cooling Mode.

c. Realigned for LPCI and operating at minimum flow.

d. Operating in the Suppression Pool Cooling Mode and injecting into the RPV.

QUESTION: 062 (1.00)

Unit-1 is in Mode 5 with fuel moves between the Spent Fuel Pool and the Reactor in progress. If a 100 gpm leak develops in the Refueling Bellows, ______(1)________ level will lower, and then the operating Fuel Pool Cooling Pump will trip on low ____(2)________.

	(1)	(2)
a.	ONLY Skimmer Surge Tank	Suction Pressure
b.	ONLY Skimmer Surge Tank	Skimmer Surge Tank Level
c.	Reactor Cavity Well and Fuel Storage Pool ONLY	Reactor Cavity Well and/or Fuel Storage Pool Level
d.	Skimmer Surge Tank, Reactor Cavity Well, and Fuel Storage Pool	Suction Pressure

QUESTION: 063 (1.00)

Unit 2 was initially operating steady state at 75 percent RTP. If one MSIV drifted closed under these conditions, the turbine's Electro-Hydraulic Control System will respond to maintain a constant __(1)___ by ___(2)___ .

	(1)	(2)
a.	reactor pressure	opening, then closing the Turbine Control Valves
b.	reactor pressure	repositioning the Turbine Control Valves as necessary
c.	turbine throttle pressure	opening, then closing the Turbine Control Valves
d.	turbine throttle pressure	repositioning the Turbine Control Valves as necessary

QUESTION: 064 (1.00)

Which one of the following is NOT cooled by the Unit 2 Turbine Building Closed Cooling Water system?

a. Unit 2 EHC Fluid Coolers

b. Unit 2 Motor Driven Reactor Feed Pump Lube Oil Cooler

c. Unit 2 Turbine Driven Reactor Feed Pump Lube Oil Coolers

d. Unit 2 Condensate/Condensate Booster Pump Lube Oil Coolers

QUESTION: 065 (1.00)

Unit 2 was operating at 100 percent RTP when a seam on the Unit 2 Main Turbine Condenser Hotwell split open. Hotwell level is now rapidly decreasing. Condenser vacuum is approaching atmospheric pressure. Assuming no operator actions, which of the following describes the impact this will have on the Control Rod Drive (CRD) System?

a. This event will NOT impact the CRD system.

b. The running CRD pump will trip on low suction pressure as the hotwell empties.

c. CRD pump discharge pressure will decrease as hotwell level decreases, but will recover when the CRD's pump suction source transfers to the CST.

d. CRD system flow will increase when the reactor scrams. The running CRD pump will trip on low suction pressure when the CST empties.

QUESTION: 066 (1.00)

As required by the "Fitness for Duty Program," which of the following is the MINIMUM time an operator must abstain from the consumption of alcohol prior to any SCHEDULED shift?

a. 3 hours

b. 5 hours

c. 8 hours

d. 12 hours

QUESTION: 067 (1.00)

Select the answer below that reflects the recommended verbalization of component 1FC088A when giving an order to manipulate the component.

a. One F C Eighty Eight A

b. One F C Zero Eight Eight A

c. One F C Eighty Eight Alpha

d. One F C Zero Eight Eight Alpha

QUESTION: 068 (1.00)

A CHANNEL CHECK ...

a. compares channel indication and status to the indications and/or status of independent instrument channels measuring the same parameter.

b. compares the channel output to known values of the parameter that the channel monitors and adjustments are made, as necessary, so that the channel responds within the necessary range and accuracy.

c. an in-place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel.

d. injects a simulated or actual signal into the channel as close to the sensor as practicable to verify operability of all devices in the channel required for channel operability.

QUESTION: 069 (1.00)

When hanging a Clearance on a manual valve with a remote operator, the local valve actuator is NOT required to be tagged if . . .

a. the valve is located in a contaminated area.

b. the valve position is indicated in the Main Control Room.

c. the actual valve position is verified locally at the valve body.

d. the remote operating mechanism is verified to be operational.

QUESTION: 070 (1.00)

Given the following conditions on Unit 1:

- The plant is shutting down for a mid-cycle outage.
- Reactor Power is 20 percent .
- The Unit Operator inserted the selected Control Rod past its Group Insert Limit.
- All other Control Rods are at their correct positions.
- RWM BLOCK TO FULL ENABLED

For these conditions, which of the following indications would result?

a. Insert Error ONLY

b. Withdraw Error ONLY

c. Insert Error and Insert Block

d. Withdraw Error and Withdraw Block

QUESTION: 071 (1.00)

This year you have accumulated 10 Rem Shallow Dose Equivalent, Whole Body.

What's the maximum ADDITIONAL external dose whole body skin exposure that you can receive before you exceed the Legal Federal Annual Limit?

a. 5 Rem

b. 25 Rem

c. 40 Rem

d. 50 Rem

QUESTION: 072 (1.00)

What is the concern with operating the Hydrogen Recombiner (HG) system with high drywell pressure (15.3 psig)?

a. A release of drywell atmosphere to the reactor building could result.

b. Pre-ignition of hydrogen may be produced by high operating pressure.

c. The recombiner water separator downstream piping could be damaged.

d. High pressure could cause damage to the recombiner blower assembly.

QUESTION: 073 (1.00)

During a casualty, an NSO opened an SRV to control RPV pressure. The SRV was closed and manually opened again 15 seconds later.

Which one of the following describes the potential adverse consequences of this action?

a. Suppression Pool wall damage due to cyclic dynamic loading.

b. SRV tailpipe damage due to excessive water level in the tailpipe.

c. ECCS pump damage due to the creation of a vortex in the suppression pool.

d. SRV seat damage due to partial opening of the valve with limited air pressure.

QUESTION: 074 (1.00)

Which one of the following describes the expected Plant Condition (PC) AND associated Automatic Actions (AA) if the GEN COOLANT RUNBACK CKT alarm energized on panel 1PM02J?

	(PC)	(AA)
a.	Stator Inlet Flow 480 gpm	Turbine Runback to 23 percent
b.	Stator Inlet Pressure 48 psig	Turbine Runback to 20 percent
c.	Stator Outlet Temperature 80°C	Turbine Runback to 20 percent
d.	Stator Water Conductivity greater than 0.5 μmho	Turbine Runback to 70 percent

QUESTION: 075 (1.00)

Unit 2 was slightly below Rated Thermal Power (RTP) conducting a RCIC full-flow surveillance. All procedures were followed correctly during the RCIC surveillance. If the ADS LOGIC A INITIATED annunciator energized under these conditions, which of the following should have or will take place in response to this annunciator, and what actions should the NSO take?

a. Nothing will occur under these plant conditions. Monitor plant parameters; investigate the cause of the alarm.

b. Reactor scram from low RPV pressure. Monitor RPV parameters; stop suppression pool cooling to prevent the scram.

c. Non-preventable reactor scram from RPV low level 3. Monitor RPV level, maintain RPV level between RPV level 3 and 8 post-scram.

d. Main turbine trip from RPV level 8 with accompanying reactor scram. Monitor RPV level, maintain RPV level between RPV level 3 and 8 post-scram.

QUESTION: 076 (1.00)

The Main Turbine is coasting down following a trip from full power. As speed reduces below 1400 rpm, the unit assist Reactor Operator reports that turbine vibration has increased above 10 mils. You should direct the unit assist Reactor Operator to . . .

a. continue to monitor vibration, as high vibrations are normal as the turbine coasts down and vibrations levels should decrease as speed approaches 800 rpm.

b. lower Main Lube Oil temperature, to increase the oil viscosity, which will slow the turbine down faster.

c. open the condenser vacuum breaker to slow the turbine down to zero speed as quickly as possible to prevent further damage.

d. throttle open the condenser vacuum breaker, to reduce turbine speed more quickly, and when vibrations are less than 10 mils to close the condenser vacuum breaker.

QUESTION: 077 (1.00)

You are the Unit Supervisor for Unit 1. The following alarms (flashing red) are indicated on the Unit 1 Fire Detection Display:

- CONTROL RM ELEV 768' FZ 1-5
- VC RET AIR MON

Select the statement below that best describes your expected actions.

a. Ensure that the reactors in both units are shutdown, dispatch the Fire Brigade, notify plant personnel in both units of the fire location, and evacuate the Main Control Room.

b. Direct Main Control Room personnel to don emergency breathing air apparatus, dispatch the Fire Brigade, and notify plant personnel in both units of the fire location.

c. Ensure that the reactors in both units are shutdown, direct Main Control Room personnel to don emergency breathing air apparatus, direct the unit assist Reactor Operators to locate and extinguish the fire.

d. Verify that the Main Control Room HVAC system has shutdown and isolated, dispatch the Fire Brigade, notify plant personnel in both units of the fire location.

QUESTION: 078 (1.00)

Given the following conditions:

- The plant has been operating at full power for an extended period of time.
- All components/systems were operable and lined up for normal operation prior to the following event.

A rupture of the main condenser inlet water box results in a trip of all running Circulating Water pumps. Select the statement below that describes your procedure use.

a. RPV Control to control RPV Level and Pressure.
Primary Containment Control to control Suppression Pool level and temperature.

b. RPV Control to control RPV Level.
Secondary Containment Control to mitigate flooding caused by the condenser water box rupture.

c. RPV Control to control RPV pressure.
Primary Containment Control to control Suppression Pool and Drywell temperatures.

d. Primary Containment Control to control Suppression Pool level and temperature.
Secondary Containment Control to mitigate flooding caused by the condenser water box rupture.

QUESTION: 079 (1.00)

The plant was operating at 100 percent power when a LOCA occurred. Given the following plant conditions:

- All control rods are fully inserted.
- LPCS @ 5500 gpm and LPCI 'A' @ 7500 gpm are both injecting into the RPV.
- As long as both pumps are injecting into the RPV, RPV water level can be maintained above TAF.
- NO other injection sources are currently available.
- Suppression Pool temperature is 160°F and rising at a rate of approximately 10°F/hr.

Select the statement below that correctly describes the use of LPCI 'A' for Suppression Pool cooling.

a. LPCI 'A' must be diverted to Suppression Pool Cooling to ensure that Suppression Pool temperature is maintained below the Heat Capacity Limit, since LPCS can maintain adequate core cooling through spray cooling alone.

b. LPCI 'A' may be alternated between Suppression Pool Cooling and RPV injection as long as RPV water level is maintained above -210 inches FZ.

c. LPCI 'A' must be diverted to Suppression Pool Cooling, irrespective of adequate core cooling, when neither Suppression Pool temperature nor Reactor pressure can be maintained below the Heat Capacity Limit (HCL).

d. LPCI 'A' may be diverted to Suppression Pool Cooling if additional injection sources become available to be used with LPCS to maintain RPV water level above -185 inches FZ.

QUESTION: 080 (1.00)

After many days at full power, Unit-1 was manually scrammed due to a small leak in the primary containment. Drywell pressure is 2.0 psig and slowly rising; drywell temperature is 215°F and slowly rising.

Which one of the following identifies whether LGA-VP-01, Primary Containment Temperature Reduction can be used to reduce Drywell temperature and the basis for that decision?

a. No Even though LGA-003, Primary Containment Control has entry conditions that are met, Drywell temperature is greater than 212°F with a LOCA in the containment.

b. Yes LGA-001, RPV Control and LGA-003, Primary Containment Control both have LOCA entry conditions that are met.

c. Yes LGA-003, Primary Containment Control has entry conditions met, and temperature in the drywell is greater than 135°F.

d. No Neither LGA-001, RPV Control nor LGA-003, Primary Containment Control have entry conditions that are met.

QUESTION: 081 (1.00)

Unit-1 was at full power when it was determined that the Suppression Pool Wide Range level instruments for both divisions were improperly calibrated. The system engineer determined that actual Suppression Pool level is 700 feet 2.5 inches.

For this condition, the MOST limiting action according to the Technical Specifications can be found in ...

a. 3.3.3.1 Post-Accident Monitoring Instrumentation.

b. 3.3.3.2 Remote Shutdown Monitoring Instrumentation.

c. 3.6.2.2 Containment Systems - Suppression Pool Water Level.

d. 3.6.2.3 Containment Systems - Suppression Pool Cooling

QUESTION: 082 (1.00) **DELETED FROM EXAMINATION**

Unit 1 was operating at 100 percent power when a LOCA occurred, concurrent with a leak from the suppression pool. Following a successful reactor scram and isolation of the suppression pool leak, operators observed the following plant conditions:

- RPV Pressure is 25 psig.
- Drywell Pressure is 25 psig.
- Drywell Temperature is 250°F.
- Suppression Chamber Pressure is 25 psig.
- LPCS is injecting into the RPV@ 7500 gpm.
- RPV water level is -150" FZ and rising very slowly.
- RHR/LPCI 'A' was recently shifted to Drywell Sprays.
- Suppression Pool level is -14 ft. (Suppression pool leak.)
- Suppression Pool Temperature is 200°F and is expected to remain constant.
- NO other injection sources are currently available.

Operating RHR/LPCI 'A' in the Drywell Spray mode will FIRST cause ____(1)____ and will require the Unit Supervisor to direct _____(2)____.

	(1)	(2)
a.	LGA-001 Figure J limits to be exceeded	a realignment of RHR/LPCI 'A' to inject into the RPV
b.	LGA-001 Figure NL limits to be exceeded	a LPCS pump flow reduction
c.	LGA-001 Figure NR limits to be exceeded	a continuation of current plant lineups
d.	LGA-003 Figured D limits to be exceeded	securing of Drywell Sprays

QUESTION: 083 (1.00)

A unit startup was in progress on Unit 2 in accordance with the Normal Unit Startup LGP. All conditions for entering Mode 1 had been satisfied. When repositioning the Reactor Mode Switch, the Reactor Operator inadvertently rotated the Reactor Mode Switch to SHUTDOWN. The following conditions existed after the SCRAM:

- Five control rods, various positions and widely scattered throughout the core, have failed to insert beyond position 04.
- Reactor power is decreasing with a -80 second period and is currently indicating on Ranges 2 and 3 of the IRMs.
- Reactor water level is being maintained at +20 inches.
- Reactor pressure is 900 psig and decreasing slowly.

Which one of the following identifies the appropriate procedure(s) to be entered?

a. LGP 3-2, Reactor Scram and LGA-NB-01, Alternate Rod Insertion ONLY.

b. LGA-001, RPV Control and LGP 3-2, Reactor Scram ONLY.

c. LGA-001, RPV Control, LGP 3-2, Reactor Scram, and LGA- NB-01, Alternate Rod Insertion

d. LGA-010, Failure to Scram (entered from LGA-001) and LGA-NB-01, Alternate Rod Insertion

QUESTION: 084 (1.00)

LGA-009, Radioactivity Release Control has been entered due to an unisolable Main Steam System leak in the Turbine Building coupled with damaged fuel. The reactor is shutdown with all control rods fully inserted. Which of the following actions will most effectively minimize the radiation exposure to both onsite and offsite personnel?

a. Start MSIV Leakage Control.

b. Blowdown of the RPV using the ADS valves.

c. Ensuring that the Turbine Building HVAC system is in operation.

d. Rapid depressurization of the RPV using the Main Turbine Bypass Valves.

QUESTION: 085 (1.00)

Unit 1 was operating at full power when a loss of feed occurred. All RPV Level 3 and Level 2 actuations and isolations functioned as designed except the Standby Gas Treatment system failed to start. RCIC subsequently isolated due to a high RCIC room temperature; however, RCIC room temperature is now trending downward. Operators have determined that NO other actuation or isolations signals currently exist.

Select the statement below that correctly describes action(s) required to be directed by the Unit Supervisor in accordance with LGA-002, Secondary Containment Control:

a. Restart the Reactor Building Ventilation system.

b. Close the MSIVs and start MSIV Leakage Control.

c. Start the Primary Containment Purge system (aligned for Secondary Containment pressure control).

d. Rapidly depressurize the RPV, using the Main Turbine Bypass Valves, in anticipation of RPV Emergency Depressurization.

QUESTION: 086 (1.00)

While operating at RTP, with no surveillances or tests in progress, Unit 1 received a 1A RHR/LPCS LN INTEGRITY MONITOR alarm. The Reactor Building Equipment Operator reported that DPIS-1E12-N029A was reading normal at zero psid on the local panel.

Which of the following actions are required for this condition?

a. Declare LPCS INOPERABLE. Restore to OPERABLE status within 7 days.

b. Declare RHR ‘A’ INOPERABLE. Restore to OPERABLE status within 7 days.

c. Declare RHR ‘A’/LPCS dP instrumentation channel INOPERABLE. Restore to OPERABLE status within 72 hours.

d. Declare RHR ‘A’ and LPCS INOPERABLE. Restore RHR ‘A’ or LPCS to OPERABLE status within 72 hours.

QUESTION: 087 (1.00)

RHR 'B' is operating in the Suppression Pool Cooling mode following a Group 1 Isolation at 1300 on November 22, 2006. Select the statement below that describes the impact on the RHR 'B' if the RHR ‘B’ room temperature rises to 185°F by 1500 on the same day.

a. RHR 'B' MUST be declared INOPERABLE immediately.

b. RHR 'B' MUST be declared INOPERABLE if room temperature is NOT restored to <150°F by 1600 on November 22, 2006.

c. An Operability Determination MUST be completed before 1700 on November 22.

d. An Operability Determination MUST be completed before 1300 on December 22, 2006.

QUESTION: 088 (1.00)

An unisolable RWCU system leak to the Reactor Building is in progress with the following:

- A failure to scram has occurred.
- Reactor power is 15%.
- RPV water level is being intentionally lowered.
- Both RHR pump room water levels are 2 feet.
- Only 2 SRVs can be opened and are open.
- Reactor pressure is 1080 and slowly rising.
- Suppression chamber pressure is 2 psig and steady.

(1) Which of the following identifies the MSIV isolations that should be defeated and
(2) what is the required pressure control band?

	(1)	(2)
a.	All isolations	less than 33 psig
b.	Lo-Lo RPV water level ONLY	800 - 1000 psig
c.	Lo-Lo RPV water level ONLY	less than 33 psig
d.	All isolations	800 - 1000 psig.

QUESTION: 089 (1.00)

The ‘0' Emergency Diesel Generator was started using both air banks to conduct LOS-DG-M1. While operating fully loaded in parallel with the Unit 2 SAT in accordance with LOS-DG-M1, a lockout of the Unit 2 SAT occurred.

(1) What is the status of the '0' Emergency Diesel Generator (EDG), AND
(2) what, if any, operator action(s) must be directed to restore the ‘0' EDG to OPERABLE status?

	(1)	(2)
a.	The EDG will remain running as the only source connected to bus 241Y.	The governor Speed Droop dial must be set to '0 percent ', AND bus voltage and frequency returned to nominal values.
b.	The ‘0' EDG breaker (2413) will auto trip, then re-close to pick up loads on bus 241Y.	No operator action is required.
c.	The EDG will remain running as the only source connected to bus 241Y.	The governor Speed Droop dial must be set to '100 percent ', AND EDG output voltage and frequency returned to nominal values.
d.	The ‘0' EDG breaker (2413) will auto trip, then re-close to pick up loads on bus 241Y.	EDG output voltage and frequency must be returned to nominal values.

QUESTION: 090 (1.00)

Unit 1 was operating at full power with 2SA01C OOS for maintenance when the following events occurred.

- A break occurred in an instrument air riser located in the Unit 1 Turbine Building.
- A manual scram was initiated, but approximately 30 control rods failed to insert completely; the reactor is currently sub-critical.
- Breaker 1415 failed to close automatically, resulting in de-energization of Bus 141X.
- 0SA01C tripped on overcurrent.
- RPV pressure is being maintained 900-1000 psig using SRVs.
- RCIC is injecting at rated flow; the MDRFP is operating on Min Flow.
- RPV water level is -10" WR and decreasing slowly with each SRV cycle.
- The instrument air line break was located and isolated.

Which of the following summarizes the sequence of steps/procedures, specified by the station's Abnormal/Emergency Operating Procedures, necessary to restore RPV water level?

a. Ensure air compressor pre-lube oil pump breakers are closed (LOP-SA-01).
Start 0SA01C (LOA-IA-201) using backup bottle air supply (LOP-SA-01).
Restore RPV water level using the FRV or Low Flow FRV M/A station on P603 (LGA-010).

b. Restore plant air using external trailer mounted air compressor (LOP-SA-04).
Restore RPV water level by locally taking manual control of the FRV (LGA-001).

c. Ensure air compressor pre-lube oil pump breakers are open (LOP-SA-01).
Manually close tie breaker 1415(LOA-AP-101).
Start 1SA01C using backup bottle air supply (LOP-SA-01).
Restore RPV water level using the FRV or Low Flow FRV M/A station on P603 (LGA-010).

d. Ensure air compressor pre-lube oil pump breakers are open (LOP-SA-01).
Start 1SA01C using backup bottle air supply (LOP-SA-01).
Restore RPV water level using the FRV or Low Flow FRV M/A station on P603 (LGA-010).

QUESTION: 091 (1.00)

Unit 1 was in Mode 5 with refueling operations in progress. Control rod 14-23 was to be withdrawn for replacement of the drive mechanism. Control rod 14-23 was notched out to position 02 to test the one-rod-out interlock in accordance with Attachment C of LOS-RD-SR4, Control Rod Operations in Mode 5. As the NSO was testing the one-rod-out interlock, Control rod 10-27 was selected on the second of three attempts to select another control rod.

WHAT actions are required in accordance with Technical Specifications?

a. IMMEDIATELY suspend loading of irradiated fuel into the RPV; initiate action to restore Secondary Containment to operable.

b. IMMEDIATELY suspend in-vessel fuel movement with equipment associated with the inoperable interlock and insert all insertable control rods.

c. IMMEDIATELY suspend control rod withdrawal and initiate actions to fully insert all insertable control rods in cells containing one or more fuel assemblies.

d. IMMEDIATELY initiate action to insert all insertable control rods and place the mode switch in the SHUTDOWN position in 1 hour.

QUESTION: 092 (1.00)

Unit 2 had been operating at full power for several weeks when the output of the EHC Pressure Regulator failed high (instantaneously). Select the statement below that:

(1) describes the plant response to the failure, and
(2) the operator actions, if any, that must be directed to the NSO to terminate the pressure transient.

Assume all required immediate operator actions have been taken.

	(1)	(2)
a.	Turbine Control Valves and Bypass Valves will start to open, then pressure control will shift to the backup pressure regulator and pressure will stabilize at a slightly lower pressure than before the transient.	No direction required; no operator actions are required to control RPV pressure.
b.	Turbine Control Valves and Turbine Bypass Valves will open fully; rapid depressurization will cause a Group 1 isolation on low steam line pressure and subsequent reactor scram. Reactor pressure will increase, following the MSIV closure.	Take manual control of SRVs to control RPV pressure below 1059 psig.
c.	Turbine Control Valves will open fully and Turbine Bypass Valves will open until limited by the Max Combined Flow Limiter; rapid depressurization will cause indicated RPV level to shrink, resulting in a L3 trip of the reactor. The pressure decrease will be terminated when the Main Turbine is tripped (SCRAM immediate action).	Use alternate means to control RPV pressure below 1059 psig.
d.	Turbine Control Valves will open until limited by the Load Limiter and Turbine Bypass Valves will open until limited by the Max Combined Flow Limiter; rapid depressurization will cause indicated RPV level to swell. The pressure decrease is terminated by closure of the MSIVs.	Use alternate means to control RPV pressure below 1059 psig.

QUESTION: 093 (1.00)

A Unit 2 Startup is in progress; with reactor power at approximately 45 percent. Reactor Recirculation Pumps are in fast speed. The TDRFP A is providing feedwater flow in AUTO; TDRFP B is operating on minimum flow with it's M/A station in MANUAL. As the Unit Supervisor you have directed the unit assist NSO to perform LOS-FW-SR1, Turbine Feedwater Pump Surveillance on TDRFP B.

During performance of the Low Pressure Stop Valve test, the valve continued to stroke to the Closed position when the Test pushbutton was released. Which of the following describes:

(1) the status of TDRFP B, and
(2) the direction you should give to the unit assist Reactor Operator?

	(1)	(2)
a.	Coasting down toward 0 RPM	Depress the TURB RESET pushbutton and verify that the Low Pressure Stop Valve reopens.
b.	Coasting down toward 138 RPM	Shutdown TDRFP B in accordance with LOP-FW-05.
c.	Operating at the set speed	Depress the TURB RESET pushbutton and verify that the Low Pressure Stop Valve reopens.
d.	Operating at the set speed	Shutdown TDRFP B in accordance with LOP-FW-05.

QUESTION: 094 (1.00)

Unit-1 was performing a normal unit shutdown. The containment was being de-inerted when annunciator 1H13-P603-B501, PRI CNMT PRESSURE HI/LO was received. Drywell pressure indication was verified to read negative 0.6 psig (-0.6 psig).

The NEXT action required by Technical Specifications is to . . .

a. place the mode switch in SHUTDOWN immediately because containment design limits will be exceeded if Drywell Spray is initiated.

b. restore pressure to within the limits in 1 hour so that containment pressure remains within design values if Drywell Spray is initiated.

c. place the mode switch in SHUTDOWN immediately because containment design limits will be exceeded if Suppression Chamber Spray is initiated.

d. restore pressure to within the limits in 1 hour so that containment pressure remains within design values if Suppression Chamber Spray is initiated.

QUESTION: 095 (1.00)

A Unit 1 shutdown is in progress due to the following chemistry parameters which were reported approximately 6 hours ago. The plant was operating at 50% power prior to commencing the shutdown.

Reactor pH	8.8
Reactor Water conductivity	11 micromhos/cm
Reactor Water chlorides	150 ppb

Six hours later with the plant having just entered Mode 2, Chemistry reports the following:

Reactor pH	6.5
Reactor Water conductivity	0.9 micromhos/cm
Reactor Water chlorides	150 ppb

Which one of the following actions is required for these plant conditions?

a. Restore RCS Chemistry to within limits within 24 hours.

b. Restore RCS Chemistry to within limits within 48 hours.

c. Restore RCS Chemistry to within limits within 72 hours.

d. Be in Mode 3 in 12 hours and Mode 4 in 36 hours.

QUESTION: 096 (1.00)

While operating in Mode 3. A new system engineer has requested that the Unit-1 HPCS pump be started with the full flow test valve throttled to 75% open to determine starting current.

The evolution is NOT described in current procedures, nor the Safety Analysis Report.

The Shift Manager may . . .

a. approve the evolution without restrictions.

b. NOT approve the test under any conditions.

c. ONLY approve the test if another SRO with an engineering degree agrees.

d. NOT approve the test until a written safety evaluation has been performed and approved.

QUESTION: 097 (1.00)

Given the following Unit 2 conditions:

- CORE ALTERATIONS are in progress.
- The next fuel bundle move is designated for reactor cavity position 05-18.
- The fuel bundle is currently in reactor cavity position 47-44.
- The following SRM readings have been observed by the Unit Reactor Operator.
- The signal to noise ratio is 15 to 1.

SRM A	2 cps
SRM B	4 cps
SRM C	1 cps
SRM D	3 cps

A reactor core map is provided for reference.

As the Unit Supervisor, which one of the following actions regarding the next fuel bundle move should you perform, including the bases for this action?

a. Suspend the fuel bundle move; it cannot be completed since an SRM in one of the affected core quadrants is inoperable.

b. Suspend the fuel bundle move; it cannot be completed since the SRMs in the adjacent core quadrants are inoperable.

c. Continue the fuel bundle move; it can be completed since the SRM in one of the adjacent core quadrants is OPERABLE.

d. Continue the fuel bundle move; it can be completed since the SRMs in the affected core quadrants are OPERABLE.

QUESTION: 098 (1.00)

A restoration lineup of the Reactor Water Cleanup System is being performed following local leak rate testing of the containment penetrations. The restoration requires Independent Verification (IV). One of the valves is difficult to access and is located in area where the measured dose rate is approximately 80 mrem/hr.

Which one of the following describes the requirements for independent verification under these conditions?

a. Independent verification may be waived for ALARA concerns. Alternate verification techniques shall be considered.

b. Independent verification may be waived for ALARA concerns, only if there is an alternate method available to verify valve position.

c. Independent verification must be completed, but the operator must be accompanied by a Radiation Protection Technician.

d. Independent verification must be completed, but the Radiation Protection Manager must authorize the planned exposure.

QUESTION: 099 (1.00)

Detail G, RPV Pressure, located in EOP LGA-010, Failure to Scram, lists the RPV pressure, dependent upon the number of SRVs open, at which RPV injection is reestablished following ATWS Blowdown.

The RPV pressures listed correspond to . . .

a. the shutoff head of the lowest head emergency core cooling pump.

b. the shutoff head of the highest head emergency core cooling pump.

c. the lowest pressure at which steam flow through the core will keep fuel clad temperature below 1500°F.

d. the lowest pressure at which steam flow through the core will keep fuel clad temperature below 1800°F.

QUESTION: 100 (1.00)

Which one of the following events requires notification of the NRC Operations Center via the Event Notification System (ENS red phone)?

a. A valid actuation that caused inboard and outboard MSIVs to close.

b. An invalid actuation of HPCS while the pump and injection valve are OOS.

c. An invalid actuation of the RWCU inboard isolation valve that trips the RWCU pump.

d. A valid actuation of LPCS with injection into the vessel as part of a pre-planned test.

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

Q#	ANS	REFERENCE	SOURCE	COG	K/A
001	b.	Technical Specification 3.4.1	BANK	HIGHER	295001A103
002	c.	041 Source Range Monitoring System lesson plan	NEW	HIGHER	295003A202
003	b.	006 DC Distribution Lesson Plan 052 Process Radiation Monitoring System Lesson Plan	NEW	HIGHER	295004 2.3.11
004	b.	005 AC Distribution Lesson Plan	NEW	MEMORY	295005K306
005	b.	System LP #44	BANK	HIGHER	295006A105
006	b.	T.S. 3.3.2 Basis	NEW	MEMORY	295016K201
007	c.	LOA WR-101	MOD	HIGHER	295018K202
008	a.	LOA-IA-1(2)01 120 Plant Air Systems (SA, IA) Lesson Plan	BANK	MEMORY	295019K302
009	c.	027 Reactor Water Cleanup System Lesson Plan LOP-RT-13, RWCU Lineup for Heat Removal	NEW	MEMORY	295021A101
010	b.	LOA-FH-001, Irradiated Fuel Assembly Damage LOA-AR-1(2)01, Area Radiation Monitoring System Abnormal 051 Area Radiation Monitoring System Lesson Plan	MOD	MEMORY	295023A201
011	a.	LGA-003, Primary Containment Control LGA-VQ-01, Containment Vent 503 Primary Containment Control (LGA-003) Lesson Plan	NEW	HIGHER	295024 2.4.11
012	b.	LGA-001, RPV Control 501 RPV Control (LGA-001) Lesson Plan BWR Owners Group Emergency Procedure and Severe Accident Guidelines	NEW	HIGHER	295025A206
013	c.	LGA-003, Primary Containment Control LOP-CM-03, Suppression Chamber Average Water Temperature Determination	NEW	HIGHER	295026 2.4.3
014	a.	OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel	NEW	MEMORY	295028 2.1.1
015	c.	503 Primary Containment Control (LGA-003) Lesson Plan	MOD	MEMORY	295030K102
016	c.	510 Failure to Scram (LGA-010) Lesson Plan	NEW	HIGHER	295031K101

Q#	ANS	REFERENCE	SOURCE	COG	K/A
017	d.	501 RPV Control (LGA-001) Lesson Plan BWR Owners Group Emergency Procedure and Severe Accident Guidelines	NEW	HIGHER	295031K201
018	d.	LGA-010, Failure To Scram 510 Failure to Scram (LGA-010)	NEW	HIGHER	295037K105
019	b.	Lasalle lesson plan LGA-09, Rad Release Control	BANK	MEMORY	295038K203
020	c.	LOA-FP-1(2)01, Unit 1(2) Fire Protection System Abnormal 125 Fire Protection Lesson Plan	NEW	MEMORY	600000K304
021	d.	096 Primary Containment Cooling System (VP) Lesson Plan LGA-003, Primary Containment Control LGA-VP-01, Primary Containment Temperature Reduction	NEW	HIGHER	295012A102
022	a.	LOA-NB-02, Stuck Open Safety Relief Valve	BANK	MEMORY	295013A201
023	b.	048 Rod Worth Minimizer Lesson Plan 024 Control Rod Drive Mechanical Lesson Plan USAR Chapter 15	NEW	HIGHER	295014 2.2.33
024	c.	091 Primary Containment Isolation System Lesson Plan	NEW	HIGHER	295020K105
025	a.	024 Control Rod Drive Mechanical Lesson Plan	NEW	HIGHER	295022K207
026	b.	007 LGA-003 Primary Containment Control Lesson Plan	NEW	MEMORY	295029K301
027	b.	125 Fire Protection Lesson Plan	NEW	MEMORY	295032A104
028	a.	LOS-DG-110, Revision 01, System Description 005, page 18, paragraph D.2	BANK	MEMORY	203000K203
029	c.	063 Low Pressure Core Spray System Lesson Plan 064 Residual Heat Removal System Lesson Plan	NEW	MEMORY	203000A403
030	d.	064 Residual Heat Removal System Lesson Plan 005 AC Distribution Lesson Plan	NEW	HIGHER	205000K301

Q#	ANS	REFERENCE	SOURCE	COG	K/A
031	d.	LOP-RH-07, Attachment D	NEW	HIGHER	205000 2.2.1
032	b.	System lesson plan 063, Low Pressure Core Spray (LPCS)	NEW	HIGHER	209001K408
033	b.	System lesson plan 061, High Pressure Core Spray (HPCS)	NEW	HIGHER	209002K501
034	b.	System lesson plan 028, Standby Liquid Control (SBLC)	NEW	MEMORY	211000K601
035	b.	System lesson plan 049, Reactor Protection System LOP-RP-03(04), RPS Bus A(B) Transfer	NEW	MEMORY	212000A103
036	c.	System Lesson Plan 042, Intermediate Range Monitoring (IRM) System System Lesson Plan 006, DC Distribution LOA-DC-101, Unit 1 DC Power System Failure LOA-NR-101, Neutron Monitoring Trouble.	NEW	HIGHER	215003A205
037	d.	System lesson plan 041, Source Range Monitoring (SRM) System	NEW	HIGHER	215004A302
038	b.	Lesson plan 044, APRM System LOS-NR-SR1, APRM Gain Adjustment	NEW	HIGHER	215005A406
039	c.	032 Reactor Core Isolation Cooling System Lesson Plan 054 Remote Shutdown System Lesson Plan	NEW	MEMORY	217000 2.1.30
040	a.	062 Automatic Depressurization System Lesson Plan 007 Primary Containment Control (LGA-003) Lesson Plan	MOD	HIGHER	218000A104
041	d.	System lesson plan 091, Primary Containment Isolation System (PCIS)	BANK	HIGHER	223002K201
042	b.	070 Main Steam System Lesson Plan 097 Drywell Pneumatic (IN) System Lesson Plan	NEW	HIGHER	239002K108
043	c.	070 Main Steam System Lesson Plan	NEW	MEMORY	239002K301
044	c.	System lesson plan 078, TDRFP Speed Control System	NEW	HIGHER	259002K201

Q#	ANS	REFERENCE	SOURCE	COG	K/A
045	b.	095 Standby Gas Treatment System (VG) Lesson Plan	NEW	HIGHER	261000K305
046	a.	005 AC Distribution Lesson Plan	NEW	MEMORY	262001K401
047	a.	012 TSC/Security DG and UPS Lesson Plan	MOD	MEMORY	262002K602
048	a.	128 Plant Ventilation VD, VY, VX Lesson Plan	MOD	MEMORY	263000K501
049	a.	125 Fire Protection Lesson Plan	NEW	MEMORY	263000 2.4.26
050	d.	USAR Chapter 8, Table 8.3-1	NEW	MEMORY	264000A103
051	b.	LOA-IA-101(201), Loss of Instrument/Service Air	NEW	HIGHER	300000A201
052	d.	114 Reactor Building Closed Cooling Water System (WR) Lesson Plan	MOD	HIGHER	400000K102
053	b.	114 Reactor Building Closed Cooling Water System (WR) Lesson Plan	MOD	HIGHER	400000A301
054	b.	047 Reactor Manual Control System Lesson Plan	NEW	MEMORY	214000K501
055	a.	046 Traversing In-Core Probe System Lesson Plan	NEW	MEMORY	215001K301
056	a.	045 Rod Block Monitor System Lesson Plan	NEW	MEMORY	215002K403
057	c.	040 Reactor Vessel Instrumentation Lesson Plan	NEW	HIGHER	216000K501
058	b.	062 Automatic Depressurization System Lesson Plan 070 Main Steam System Lesson Plan	NEW	HIGHER	239001K601
059	b.	093 Containment Vent and Purge System Lesson Plan	NEW	MEMORY	223001A102
060	b.	064 Residual Heat Removal System Lesson Plan	NEW	HIGHER	226001A210
061	c.	064 Residual Heat Removal System Lesson Plan	NEW	HIGHER	230000A301
062	d.	029 Fuel Pool Cooling and Cleanup System Lesson Plan	MOD	HIGHER	233000A410
063	d.	LSD #26 pg. 44, EHC logic diagram	MOD	HIGHER	241000 2.1.7

Q#	ANS	REFERENCE	SOURCE	COG	K/A
064	c.	WT-1, Turbine Building Closed Cooling Water System Horse Notes	NEW	MEMORY	245000K106
065	d.	RD-1, CRD Hydraulic System Horse Notes	NEW	HIGHER	256000K302
066	b.	10 CFR 26	NEW	MEMORY	2.1.1
067	d.	HU-AA-101, Human Performance Tools and Verification Practices	NEW	MEMORY	2.1.17
068	a.	Technical Specification Definitions	NEW	MEMORY	2.2.12
069	d.	OP-MW-109-101, Clearance and Tagging	NEW	MEMORY	2.2.13
070	c.	LOP RW-2 048, Rod Worth Minimizer Lesson Plan	BANK	MEMORY	2.2.33
071	c.	RP-AA-203, Step 4.1.1	BANK	HIGHER	2.3.10
072	a.	LOP-HG-02, Section E. System Description 094, Section VIII	BANK	MEMORY	2.3.11
073	b.	LGA-001 Lesson Plan, Section IV.D.4.a).6), page 12 LOA-SRV-101 C.7	BANK	MEMORY	2.4.20
074	a.	LOA-GC-101, page 14	MOD	HIGHER	2.4.46
075	a.	NB-1, Automatic Depressurization System, Horse Notes	NEW	HIGHER	2.4.48
076	d.	LOA-TG-1(2)01, Unit 1(2) Turbine Generator	NEW	HIGHER	295005A201
077	b.	117 Control Room HVAC Lesson Plan 125 Fire Protection Lesson Plan LOA-FP-101, Unit 1 Fire Protection System Abnormal LOA-RX-101, Unit 1 Control Room Evacuation Abnormal	NEW	HIGHER	295006 2.4.27
078	a.		NEW	HIGHER	295025A204
079	d.	LGA-001, RPV Control LGA-003, Primary Containment Control 501 RPV Control (LGA-001) Lesson Plan	MOD	HIGHER	295026 2.4.14
080	a	LGA-VP-01, Revision 08, page 1, Step B.1.a. LGA-001, Revision 06 LGA-003, Revision 05	BANK	HIGHER	295028A204
081	c.	Technical Specifications 3.3.3.1, 3.3.3.2, 3.6.2.2, and 3.6.2.3	BANK	HIGHER	295030A204

Q#	ANS	REFERENCE	SOURCE	COG	K/A
082	c.	LGA-001, RPV Control LGA-003, Primary Containment Control **(DELETED)**	NEW	HIGHER	295031 2.1.25
083	d.	501 RPV Control (LGA-001) Lesson Plan 510 Failure to Scram (LGA-010) Lesson Plan LGA-001, RPV Control LGA-010, Failure to Scram LGP 3-2, Reactor Scam	NEW	HIGHER	295015A204
084	b.	509 Radioactivity Release Control (LGA-009) Lesson Plan	NEW	HIGHER	295017 2.4.6
085	a.	LGA-002, Secondary Containment Control 502 Secondary Containment Control (LGA-002) Lesson Plan	NEW	HIGHER	295035A201
086	c.	LOR-1H13-P601-C404 TRM 3.3.f	NEW	HIGHER	209001A205
087	d.	TRM 3.7.g, Area Temperature Monitoring	NEW	HIGHER	205000A207
088	a.	LGA-10, Failure to Scram, LGA-2, Secondary Containment Control LGA-6, ATWS Blowdown	NEW	HIGHER	223002 2.2.2
089	a.	011 EDG and Auxiliaries Lesson Plan LOP-DG-02, Diesel Generator Startup and Operation LOS-DG-M1, 0 Diesel Generator Operability Test	NEW	HIGHER	264000A201
090	c.	LOA-IA-101, Loss of Instrument/Service Air LOA-AP-101, Unit 1, AC Power System Abnormal LOA-FW-101, Reactor Level/Feedwater Pump Control Trouble	NEW	HIGHER	300000 2.4.8
091	c.	Technical Specification LCO 3.9.1 Technical Specification LCO 3.9.2 Technical Specification LCO 3.9.3 LOS-RD-SR4, Control Rod Operations in Mode 5	MOD	HIGHER	234000 2.2.26
092	d.	USAR Chapter 15, section 15.1.3 LGA-001, RPV Control LGP-3-2, Reactor Sram LOA-EH-101(201), Unit 1(2) EHC Abnormal	NEW	HIGHER	239001A201

Q#	ANS	REFERENCE	SOURCE	COG	K/A
093	d.	077 Feedwater System Lesson Plan 078 TDRFP Speed Control System Lesson Plan LOP-FW-05, Shutdown of Turbine Driven Reactor Feedwater Pump LOS-FW-SR1, Turbine Feedwater Pump Surveillance	NEW	HIGHER	259001A209
094	b.	Technical Specification 3.6.1.4, page 3.6.1.4-1 Technical Specification B 3.6.1.4, page B 3.6.1.4-1 and B 3.6.1.4-2	BANK	MEMORY	2.1.11
095	b.	TRM 3.4.b, RCS Chemistry	MOD	HIGHER	2.1.34
096	d.	LS-AA-104-1000, Appendix 7	BANK	HIGHER	2.2.10
097	b.	Technical Specification LCO 3.3.1.2 LFP 100-6	MOD	MEMORY	2.2.29
098	a.	HU-AA-101, Human Performance Tools and Verification Practices	MOD	HIGHER	2.3.10
099	c.	504 RPV Blowdown (LGA-004) Lesson Plan 510 Failure to Scram (LGA-010) Lesson Plan	NEW	MEMORY	2.4.18
100	a.	LS-AA-1400, Reportability Manual, Page 60, SAF 1.7	BANK	HIGHER	2.4.30

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

A N S W E R K E Y
MULTIPLE CHOICE

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

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