QUESTION# 1 Points: 1.00

Unit 2 is at 100% power when the scram air header pressure regulator fails CLOSED.

Which of the following would be the FIRST response of the RPS system?

a. Scram on SDV High Level

b. Scram on Group 1 Isolation

c. Scram on APRM Thermal Hi Hi

d. Scram due to Reactor Water Level 8 Feedwater Pumps trip

ANSWER:
a.
REFERENCE:
System Description 49, LOA-IA-201
HIGH
NEW
K/A: 212000K1.15 Knowledge of the physical connections and/or cause effect relationships between REACTOR PROTECTION SYSTEM and the following: SCRAM air header pressure
EXPLANATION:

a. correct: SDV High Level scram would be the first response. As the Scram valves fail open on a loss of air and the SDV vent and drain valves fail closed. This allows for the SDV level to rise to the scram setpoint causing RPS to actuate a scram.
b. incorrect: See a.
c. incorrect: See a.
d. incorrect: See a.

QUESTION# 2 Points: 1.00

Unit-1 and Unit-2 are at rated power

Which one of the following might you expect FIRST as a result of a lowering station air dryer outlet pressure?

a. Closure of the Feedwater Testable Check Valves.

b. Decreasing Feed Pump Suction Pressure.

c. Increasing TBCCW Expansion Tank level.

d. Closure of the Inboard MSIVs.

ANSWER:
b.
REFERENCE:
LOA-IA-101, system description 120
FUNDAMENTAL
NEW
K/A: 300000K1.02 Knowledge of the connections and / or cause effect relationships between INSTRUMENT AIR SYSTEM and the following: Service air
EXPLANATION:

a. incorrect: The feedwater testable check valves are air to open, but will be held open by feedwater flow.
b. correct: The condensate booster min flow valves fail open, lowering feed pump suction pressure.
c. Increasing TBCCW expansion tank level is incorrect: The WT expansion tank makeup valve fails closed on loss of air and is valved out during normal operation (make-up is a manual operation).
d. Closure of the Inboard MSIVs is incorrect: Inboard MSIVs are supplied by instrument nitrogen but by procedure would be required to be closed after Outboards close.

QUESTION# 3 Points: 1.00

Given the following conditions:

- Unit 2 is at rated conditions.
- Bus 236X-2 has lost power.

Which one of the following sets of Average Power Range Monitors (APRMs) and LPRM Groups would indicate downscale?

a. APRM E and LPRM Group A.

b. APRM E and LPRM Group B.

c. APRM F and LPRM Group A.

d. APRM F and LPRM Group B.

ANSWER:
d.
REFERENCE:
System Description 43, LOP-RP-01
FUNDAMENTAL
BANK
K/A: 215005K2.02 Knowledge of electrical power supplies to the following: APRM channels
EXPLANATION:

a. incorrect: see distractor d. Plausible except APRM E and LPRM Group A both are powered via 235X-2.
b. incorrect: see distractor d. Plausible except APRM E is powered via 235X-2 and LPRM Group B is powered via 236X-2.
c. Plausible because APRM F is powered via 236X-2, but LPRM Group A is powered via 235X-2.
d. correct: "APRM F and LPRM Group B." is correct. 236X-2 provides power to RPS Bus B powering LPRMs feeding APRMs B, D, and F, and those LPRMs feeding LPRM Group B.

QUESTION# 4 Points: 1.00

Given the following on Unit 1:

- Reactor is in Mode 5 with the shorting links equipment status tagged and REMOVED.
- Off-Gas Air Purge is in progress.

Which of the following identifies the immediate impact a loss of 24VDC Bus 1B will have on Unit 1?

a. Half Scram and Off-gas isolation

b. Off-gas isolation ONLY

c. Full Scram ONLY

d. Half Scram ONLY

ANSWER:
c.
REFERENCE:
System Description 042 and 41
LER 96-003
HIGH
NEW
K/A: 215003K2.01Knowledge of electrical power supplies to the following: IRM channels/detectors
EXPLANATION:

a. incorrect: see distractor c.
b. incorrect: see distractor c.
c. correct: The SRMs can signal the RPS to generate a High-High count rate Scram, when the RPS Channel shorting links are removed (Figure 41-12). If SRM signal is lost to RPS the High-High count rate scram will not occur. Loss of power to the SRM will cause a fail-safe High-High trip input into RPS.
d. incorrect: see distractor c.

QUESTION# 5 Points: 1.00

Unit 2 is at rated conditions when the Unit 2 TSC UPS output fails to zero volts.

Which of the following would be expected to occur?

a. Reactor scram on low reactor water level.

b. TDRFP Speed Control Trouble alarms.

c. TSC Diesel Generator auto start.

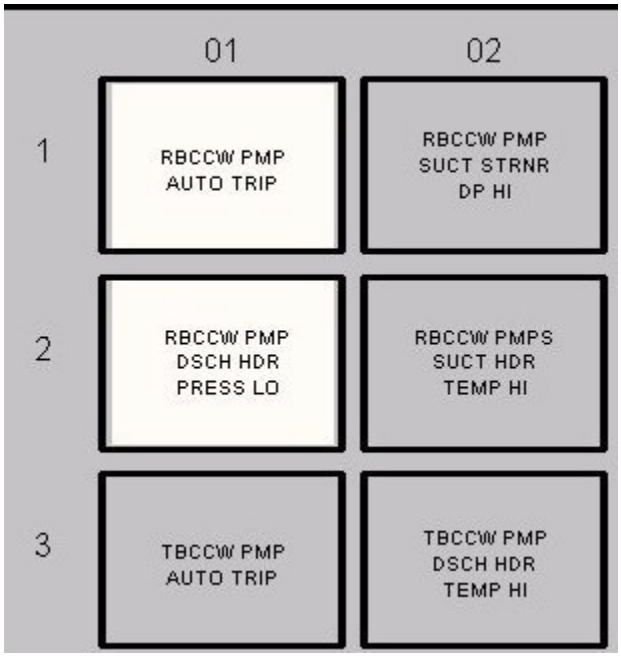
d. Process computer failure.

ANSWER:
b.
REFERENCE
System Description 012, 078, LOP-TX-01, LOP-FW-16
HIGH
NEW
K/A: 262002K3. 08 Knowledge of the effect that a loss or malfunction of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) will have on following: Computer operation:
Plant-Specific
EXPLANATION:

a. incorrect: Reactor scram on low reactor water level is incorrect: Reactor scram on low reactor water level is plausible if you had an issue with loss of all 4 speed signals. The Alt. power supply would be used for Speed Control and the system would continue to run.
b. correct: Primary power supply to Unit 2 TDRFP Speed Control System is Unit 2 TSC UPS with the alternate power supply to both Units TDRFP Speed Control System being 136Y-3. The Process computer UPS does not provide power, but does power Digital Input/Output cabinets.
c. incorrect: TSC Diesel generator auto start is incorrect: TSC Diesel Generator auto start is plausible but the TSC DG looks at the bus and the problem indicated you have had an internal failure in the UPS.
d. incorrect: Process computer failure is incorrect: Process computer failure is plausible as it is powered by a different UPS

QUESTION# 6 Points: 1.00

While operating at 100% reactor power, the following alarms are received on Unit 1:



Which one of the following is the component of MOST limiting concern?

a. Reactor Recirculation Pump Motor Windings

b. Fuel Pool Cooling Demineralizer Resin

c. RWCU Demineralizer Resin

d. CRD Pump Motor Windings

ANSWER:
a.
REFERENCE:
LOA-WR-101
HIGH
BANK
K/A: 400000K3.01 Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS
EXPLANATION:

a. correct: Reactor Recirculation Pump Motor Windings" is correct. The RR Pump Motor windings are of primary concern for continued operation of the plant during a loss of all WR.
b. incorrect: The Fuel Pool demineralizers are cooled by Service Water and there is no effect on this system by a loss of RBCCW.
c. incorrect: RWCU is a primary heat load and securing will gain time for loads on RBCCW to continue operation, but in this case you have lost RBCCW and therefore RR becomes the primary for continued operation.

incorrect: RBCCW cools the CRD pump BEARING COOLER and has no impact on the Pump Motor Windings.

QUESTION# 7 Points: 1.00

Given the following:

- Paralleling of 141Y with the 0 DG is in progress
- 0 DG is at rated frequency and voltage
- ACB 2413, 0 DIESEL GEN TO BUS 241Y, indicates open
- Div 1 Synchroscope indicates at the 12 O'Clock position

The ACB 1413, 0 DIESEL GEN TO BUS 141Y, sync switch is in OFF.

What happens if the ACB 1413, 0 DIESEL GEN TO BUS 141Y, control switch is taken to CLOSE and then NAC?

a. Breaker CLOSES and and trips OPEN after a time delay.

b. Breaker CLOSES and immediately trips OPEN.

c. Breaker CLOSES and remains CLOSED.

d. Breaker remains OPEN.

ANSWER:
d.
REFERENCE:
System Description 05
HIGH
NEW
K/A: 262001K4.05 Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Paralleling of A.C. sources (synchroscope)
EXPLANATION:

a. incorrect: Breaker CLOSES and immediately trips OPEN would be indicative of normal breaker trip.
b. incorrect: Breaker CLOSES and and trips OPEN after a time delay would be associated with the trip if it were a reverse power issue when the breaker were closed.
c. incorrect: Breaker CLOSES and remains CLOSED. Valid if the snych scope were on.
d. correct: Breaker remains OPEN. All 4.16 / 6.9 KV UAT feed, SAT feed, DG output, bus-tie , and unit-tie breakers are interlocked with the synchroscope. The synchroscope must be turned on via the "sync selector" switch to allow closing the associated breaker.

QUESTION# 8 Points: 1.00

The following manual actions were performed on the SBGT Train in the following sequence:

a. Inlet Damper OPENED
b. Cooling Fan STARTED
c. Outlet Damper OPENED
d. Primary Fan STARTED

What is the earliest point in the sequence of events you would expect the Standby Gas Treatment Electric Heater to energize?

a. 1

b. 2

c. 3

d. 4

ANSWER:
d.
REFERENCE:
System Description 095
MEMORY
NEW
K/A: 261000K4. 03 Knowledge of STANDBY GAS TREATMENT SYSTEM design feature(s) and/or interlocks which provide for the following: Moisture removal
EXPLANATION:

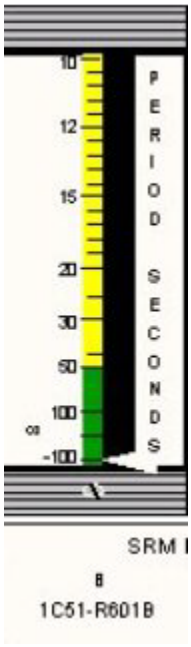
a. incorrect: See d. below.
b. incorrect: See d. below.
c. incorrect: See d. below.
d. "The VG Electric Heater will automatically energize when there is sufficient process flow and temperature is below 200°F." per LP; It is interlocked to energize when the Primary Fan is started and the required flow through the train is maintained. The Electric Heater will de-energize if either:
    1. the Primary Fan is stopped
    2. flow is not maintained through the train

QUESTION# 9 Points: 1.00

The following conditions exist on Unit 1:

- Shutdown is in progress.
- Reactor Power is STEADY on IRM Range 4.

Ten seconds after starting to insert the SRMs, from the fully withdrawn position, the RO notices the SRM Period Meter indicates as shown below.



Is the SRM response EXPECTED or NOT EXPECTED and why? (Note: Assume the core flux is peaked in the CENTER of the core.)

a. This reading is NOT EXPECTED. The period meter should be indicating infinity because reactor power is steady.

b. This reading is EXPECTED. The period meter is responding to detector movement and is an accurate indication of period.

c. This reading is NOT EXPECTED. The period meter should indicate a positive period because the detectors are approaching the center of the core.

d. This reading is EXPECTED. The SRMs are bypassed under the current plant conditions.

ANSWER:
c.
REFERENCE:
LOP-NR-01
HIGH
QC ILT BANK
K/A: 215004K5.03 Knowledge of the operational implications of the following concepts as they apply to SOURCE RANGE MONITOR (SRM) SYSTEM : Changing detector position
EXPLANATION:

a. incorrect: This reading is NOT EXPECTED because the period meter should be rising, not indicating -100 seconds because the source range instrument is moving into a higher flux region of the core: Plausible because actual reactor

power is steady (actual period is infinity).

b. incorrect: This reading is NOT EXPECTED: Plausible because period meter will indicate negative if detectors are withdrawn from the core with the reactor critical.
c. correct
d. incorrect: This reading is NOT EXPECTED: Plausible because some functionality (i.e. interlocks) are bypassed with the current plant conditions

QUESTION# 10 Points: 1.00

Unit 1 is operating at 100% of rated thermal power operating on the 100% Flow Control Line

- All nuclear instruments are operable
- The C Flow Unit fails to 0%

Based on the above conditions, which of the following correctly states the effect on the unit?

a. A Full Scram.

b. A Rod Block ONLY.

c. A Rod Block and a Half Scram.

d. A Flow Comparator alarm ONLY.

ANSWER:
c.
REFERENCE:
LOR 1H13-P603-A209. LOP-AA-03 Table 2 Sheet 1
HIGH
NEW
K/A: 215005K5.05 Knowledge of the operational implications of the following concepts as they apply to AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM: Core flow effects on APRM trip setpoints
EXPLANATION:

a. incorrect: a half-Scram will be generated.
b. incorrect: a half-Scram will be generated.
c. correct
d. incorrect: a half-Scram and rod block will be generated.

QUESTION# 11 Points: 1.00

Given the following Unit 2 conditions:

- DBA LOCA occurs on Unit 2
- Unit 2 Southeast Corner Room water level is 20 inches above floor level and rising 12 inches/minute
- Unit 2 RPV water level is at top-of-active fuel and steady

Which of the following identifies ALL the ECCS systems that will be injecting into the Unit 2 reactor vessel 10 minutes later?

a. A RHR / LPCS; B/C RHR

b. A RHR / LPCS; HPCS

c. B/C RHR; HPCS

d. LPCS; HPCS

ANSWER:
b.
REFERENCE:
System description 064
LGA-002 Bases Lesson Plan
HIGH
NEW
K/A: 203000 RHR/LPCIK6.12 Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) : ECCS room integrity
EXPLANATION:
B/C RHR are in the SE corner room. The rate of rise of the water in the corner room would submerge a portion of the motor cavity rendering the pumps INOP. The rate of rise would also submerge electrical junction boxes causing a trip of the pumps. The other systems would not be affected by this one room's loss of integrity.

a. incorrect: A RHR / LPCS; B/C RHR is incorrect: Plausible as B/C RHR would be injecting if the pumps were not inoperable due to corner room water level.
b. correct
c. incorrect: B/C RHR; HPCS is incorrect: Plausible as B/C RHR would be injecting if the pumps were not inoperable due to corner room water level
d. incorrect: A RHR would still be running.

QUESTION# 12 Points: 1.00

The Division 1 and 2 batteries are sized to start and carry the normal DC loads, plus all DC loads required for Safe Shutdown, and perform the required switching operations for a minimum of _____ hour(s) following the loss of all AC sources.

a. one (1)

b. four (4)

c. eight (8)

d. twelve (12)

ANSWER:
b.
REFERENCE:
System Description 006
FUNDAMENTAL
BANK
K/A: 263000K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the D.C. ELECTRICAL DISTRIBUTION : A.C. electrical distribution
EXPLANATION:
Per the DC the Division 1 and 2 batteries are sized to start and carry the normal DC loads, plus all DC loads required for Safe Shutdown, and perform the required switching operations for four hours following the loss of all AC sources.

a. incorrect: Based on running the Diesel Generator on the day tank which is limited to 50 minutes.
b. correct
c. incorrect: Based on 8 hours to restore pool cooling and the batteries are rated as 8 hours.
d. incorrect: Based on Tech Spec requirements to be in Mode 3 in 12 hours.

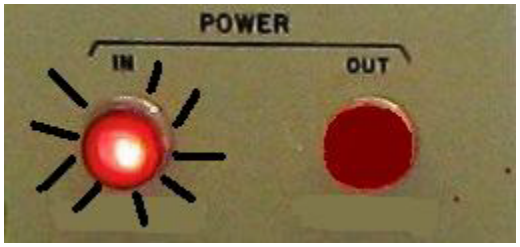
QUESTION# 13 Points: 1.00

The operator has just placed the A RPS MG SET into service IAW LOP-RP-01, Reactor Protection System Startup and Operation.

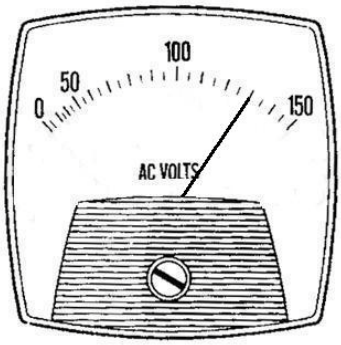
Given the following:

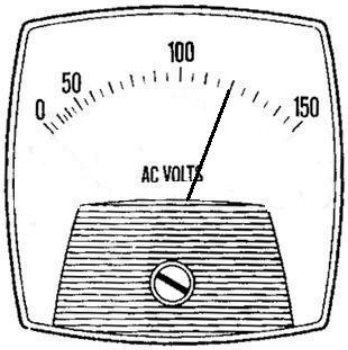
- 2C71-BS001 2H13-P610 MG SETS TRANSFER SWITCH is in the NORM position.
- 2C71-S003A Electrical Protection Assembly (EPA) Breaker is CLOSED.

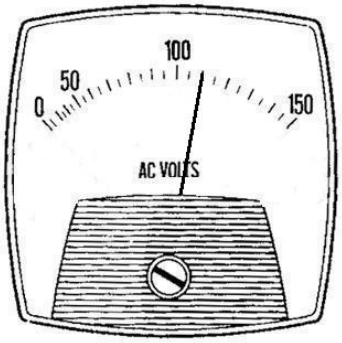
- 10 seconds later 2C71-S003A EPA Breaker indicates the following due to its high voltage setpoint drifting down:

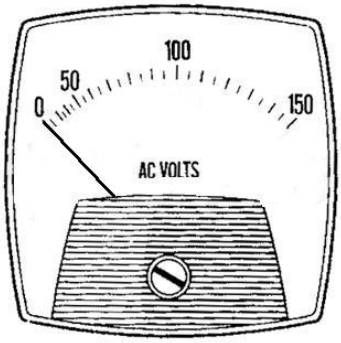


Which of the following indications would you expect to see on the local A RPS MG SET voltage meter?

a.


b.


c.


d.


ANSWER:
b.
REFERENCE:
LOP-RP-01
HIGH
NEW
K/A: 212000A1.04 Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: RPS bus voltage: Plant-

Specific
EXPLANATION:

a. incorrect: 130 volts is credible based on EPMA trip on overvoltage setpoint of 126.5 volts.
b. correct
c. incorrect: 110 volts is credible based on EPMA trip on undervoltage setpoint of 110.5 volts.
d. incorrect: 0 volts is credible if candidate believes EPMA tripping will also trip the associated RPS MG Set.

QUESTION# 14 Points: 1.00

A normal Unit-1 Shutdown is in progress. The 1A loop of RHR has just been placed into Shutdown Cooling. The following conditions exist:

- Reactor water level is +45 inches and stable
- 1A RHR Pump flow is 5000 gpm
- 1A RR loop flow is 3000 gpm
- 1B RR loop flow is 3400 gpm
- RHR Service Water flow to the 1A RHR Heat Exchanger is 8400 gpm

In order to raise the 1A RHR cooldown rate, the operator throttled open the 1E12-F053A, A RHR SHTDN CLS RETURN ISOL, until 1A RHR pump flow was 6200 gpm.

Which one of the following statements is correct with regards to the above conditions?

a. RHR Service Water flow is in the range allowed ONLY for emergency operations.

b. All parameters are within the range of normal Shutdown Cooling operations.

c. 1A RHR pump flow is above the point that will cause Jet Pump vibration.

d. The 1A Reactor Recirculation Pump may be dead headed.

ANSWER:
d.
REFERENCE:
LOP-RH-07
HIGH
NEW
K/A: 205000A1.02 Ability to predict and/or monitor changes in parameters associated with operating the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) controls including: SDC/RHR pump flow
EXPLANATION:
Normally, the Reactor Recirculation Pump will be shutdown after the associated RHR Loop has been started. If an RHR and RR pump in the same loop are operated, the RHR pump may dead head the RR pump. Minimum permissible RR pump flow is 3000 gpm. Maximum RHR flow while RR pump is running is 6000 gpm. This upper limit on RHR flow is to prevent dead heading the running RR Pump.

a. incorrect: RHR Service Water flow is in the range allowed ONLY for emergency operations is plausible since we use RHR Service Water for shutdown cooling, but one pump does not provide 8400 gpm.
b. incorrect: All parameters are within the range of normal Shutdown Cooling operations is plausible except RHR Pump flow is out side of limits of 6,000 gpm with an RR pump running.
c. incorrect: 1A RHR pump flow is above the point that will cause Jet Pump vibration. Jet Pump vibration can be caused by high flow but through the RR system.
d. correct

QUESTION# 15 Points: 1.00

Given the following:

- 0 DG is running and is the only available power supply to the associated Unit 1 bus.
- CO_2 Trouble Alarm (Zone 419) is received
- Operators have left the room and report NO Fire but CO_2 has initiated

(1) What impact would this have on the 0 DG?
(2) What actions should be taken FIRST to control those conditions?

a. (1) 0 DG will trip.
   (2) ISOLATE CO_2 to the 0 DG room.

b. (1) 0 DG will trip.
   (2) RESTART the 0 DG room ventilation fan.

c. (1) 0 DG will continue to operate.
   (2) ISOLATE CO_2 to the 0 DG room.

d. (1) 0 DG will continue to operate.
   (2) RESTART the 0 DG room ventilation fan.

ANSWER:
c.
REFERENCE:
LOA-FP-101
System Description 011
FUNDAMENTAL
NEW
K/A: 264000A2. 08 Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Initiation of emergency generator room fire protection system
EXPLANATION:

a. incorrect: The DG will not TRIP on Fire System actuation.
b. incorrect: The DG will not TRIP on Fire System actuation.
c. correct: IAW LOA-FP-101, Unit 1 Fire Protection System Abnormal, Step B.3.4 – Unlock and close CO_2 header shutoff valve, 0CO001, CO_2 Automatic Flooding Header Tank Shutoff Valve. The isolation of CO_2 will isolate the entire header to all the DG rooms.
d. incorrect: Restoration of ventilation is not directed FIRST at this time.

QUESTION# 16 Points: 1.00

Given the following:

- Unit 2 is at rated conditions.
- Main Steam Line Flows are matched at 3.7 Mlb/hr.
- 2A TDRFP speed control fails such that speed is 5800 rpm.

(1) Predict the response of Reactor Water Level Control (RWLC) and
(2) Select the procedurally required action to mitigate the event.

a. (1) Reduces demand signal to 2B TDRFP
(2) TRIP 2A TDRFP

b. (1) Transfers 2A TDRFP to DEMAND Substitution
(2) Place RWLC in Single Element

c. (1) Reduces demand signal to 2B TDRFP
(2) Place RWLC in Single Element

d. (1) Transfers 2A TDRFP to DEMAND Substitution
(2) TRIP 2A TDRFP

ANSWER:
a.
REFERENCE:
System Description 031, 078,
LOA-FW-201
HIGH
NEW
K/A: 259002A2. 04 Ability to (a) predict the impacts of the following on the REACTOR WATER LEVEL CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: RFP runout condition: Plant-Specific
EXPLANATION:

a. correct: With the 2A TDRFP speed control failing to 5800 rpm you have passed the high speed trip setpoint of 5700 rpm. RWLC would reduce the demand signal sent to the 2B TDRFP to maintain level based on the excess flow from the 2A TDRFP. LOA-FW-201 states that when a TDRFP fails to trip you should trip that pump.
b. incorrect: Required to trip the 2A TDRFP
c. incorrect: Required to trip the 2A TDRFP
d. incorrect If RWLC were to lose speed signals it will transfer the TDRFP to Demand Substitution and allow the operator to maintain level control. Speed signal was not lost.

QUESTION# 17 Points: 1.00

Given the following conditions:

- Unit 2 was at rated conditions.
- Group 1 isolation on Low Condenser Vacuum occurred.
- RCIC and HPCS are injecting.
- LPCS is in a normal standby lineup.
- Reactor Pressure is 1050 psig (highest pressure was 1100 psig).

Immediately following the highest pressure reading you are directed to record SRV Tailpipe Temperatures from the 2H13-P614 panel.

Which SRV Tailpipe temperatures are reading significantly higher than before the transient?

a. ALL SRVs

b. SRVs U and S ONLY

c. SRVs S, C, U, R, V, E and D ONLY

d. SRVs D, E, S, K, C, U, P and F ONLY

ANSWER:
d.
REFERENCE:
LOA-SRV-101
NEW
HIGHER
K/A: 239002A3. 03 Ability to monitor automatic operations of the RELIEF/SAFETY VALVES including: Tail pipe temperatures
EXPLANATION:

a. incorrect: ALL SRVs is based on pressure of 1116 which was not reached.
b. incorrect: SRVs U and S ONLY is based on a pressure of 1050.
c. incorrect: SRVs S, C, U, R, V, E and D ONLY - ADS automatic initiation signals have not been met.
d. Based on the Reactor Pressure of 1096 SRVs D,E,S,K,C,U,P and F would have lifted in Relief mode and activated LLS, as pressure drops the SRVs cycle closed but tailpipe temps for those would still read high.

QUESTION# 18 Points: 1.00

Unit 1 is operating at 75% power. A Low Pressure Core Spray (LPCS) pump surveillance is in progress with the system maintaining rated flow. The 1E21-F001 Thermal Overload Bypass Switch is in TEST.

Which of the following indications will be observed FIRST if the LPCS system receives a high drywell pressure signal with a simultaneous Sudden Pressure signal in the Unit 1 Unit Auxiliary Transformer (UAT)?

a. LPCS pump trips.

b. Injection valve starts to open.

c. Minimum Flow valve starts to open.

d. Full Flow Test valve starts to close.

ANSWER:
d.
REFERENCE:
System Description 063
FUNDAMENTAL
BANK
K/A: 209001A3.01 Ability to monitor automatic operations of the LOW PRESSURE CORE SPRAY SYSTEM including: Valve operation
EXPLANATION:

a. incorrect: The pump will not trip off if initiation signal received during surveillance.
b. incorrect: The injection valve cannot open until Full Flow Test valve closes and vessel pressure interlock of 440 psig met.
c. incorrect: The Min Flow valve is closed and will not open until flow drops to the setpoint.
d. correct

QUESTION# 19 Points: 1.00

Given the following conditions on Unit 1:

- Reactor water level: -60 inches and STABLE

Which of the following Primary Containment Isolation Valve indications is EXPECTED?

a. 

b. 

c. 

d. 

ANSWER:
b.
REFERENCE:
System Description 091
HIGH

NEW
K/A: 223002A4.01 PCS & Auxiliaries: Ability to manually operate and/or monitor in the control room: Valve closures
EXPLANATION:

a. incorrect: On a Level 2 (-48 inches) Inboard and Outboard PCIS valves for groups 2-5 will go closed and indicate RED. 1G33-F001 did receive an isolation signal and should appear RED.
b. correct: 1IN001A does not receives an isolation signal until a valid Level 1 (-129 inches) and should appear GREEN.
c. incorrect: 1WR040 did receive an isolation signal and should appear RED.
d. incorrect: 1VR04YA did receive an isolation signal and should appear RED.

QUESTION# 20 Points: 1.00

LOCA conditions exist in the Drywell:

- Reactor Pressure is 475 psig and dropping slowly
- Reactor Water Level is -140 inches and STABLE
- Drywell Pressure is 0.5 psig and STABLE (Max value reached 2.0 psig)
- ADS has automatically initiated and 7 valves are OPEN

Based solely on the above conditions, what effect would depressing both divisional LOW LEVEL RESET pushbuttons have on the ADS logic?

a. ALL ADS valves would CLOSE and stay CLOSED.

b. The logic is not affected, all ADS valves would remain OPEN.

c. All ADS valves would CLOSE, then time delay Re-OPEN in less than 2 minutes.

d. All ADS valves would CLOSE, then Re-OPEN immediately as both pushbuttons are released.

ANSWER:
c.
REFERENCE:
LOP-MS-03
System Description 062 Drawing
HIGH
BANK
K/A: 218000A4.03 Ability to manually operate and/or monitor in the control room: ADS logic reset
EXPLANATION:

a. The ADS valves would re-open as the logic timed out.
b. The ADS valves would close.
c. The Low Level Reset Pushbuttons will reset both 105 second timers, therefore answer c. is correct. The High Drywell Pressure Reset Pushbuttons would need to be pushed to reset the sealed-in High Drywell Pressures signal (provided that the condition is cleared). The valves would not stay CLOSED because you have not reset the High Drywell signal.
d. The timer would have to time out before the valves re-open.

QUESTION# 21 Points: 1.00

Given the following conditions:

- Unit 1 is in MODE 3.
- The 1A Emergency Diesel Generator is declared INOPERABLE following surveillance testing.

Which of the following actions are required to be taken within one (1) hour of determining the Emergency Diesel Generator is INOPERABLE?

a. Perform LOS-VC-M1, Control Room Emergency Makeup Unit Operability Test.

b. Perform LOS-DG-SR3, 1A and 2A Diesel Generator Action Statement Operability Test.

c. Perform LOS-AA-W1 Attachment 1D and 2D, Unit One and Unit Two Tech Spec Weekly Offsite Power Lineup Verification.

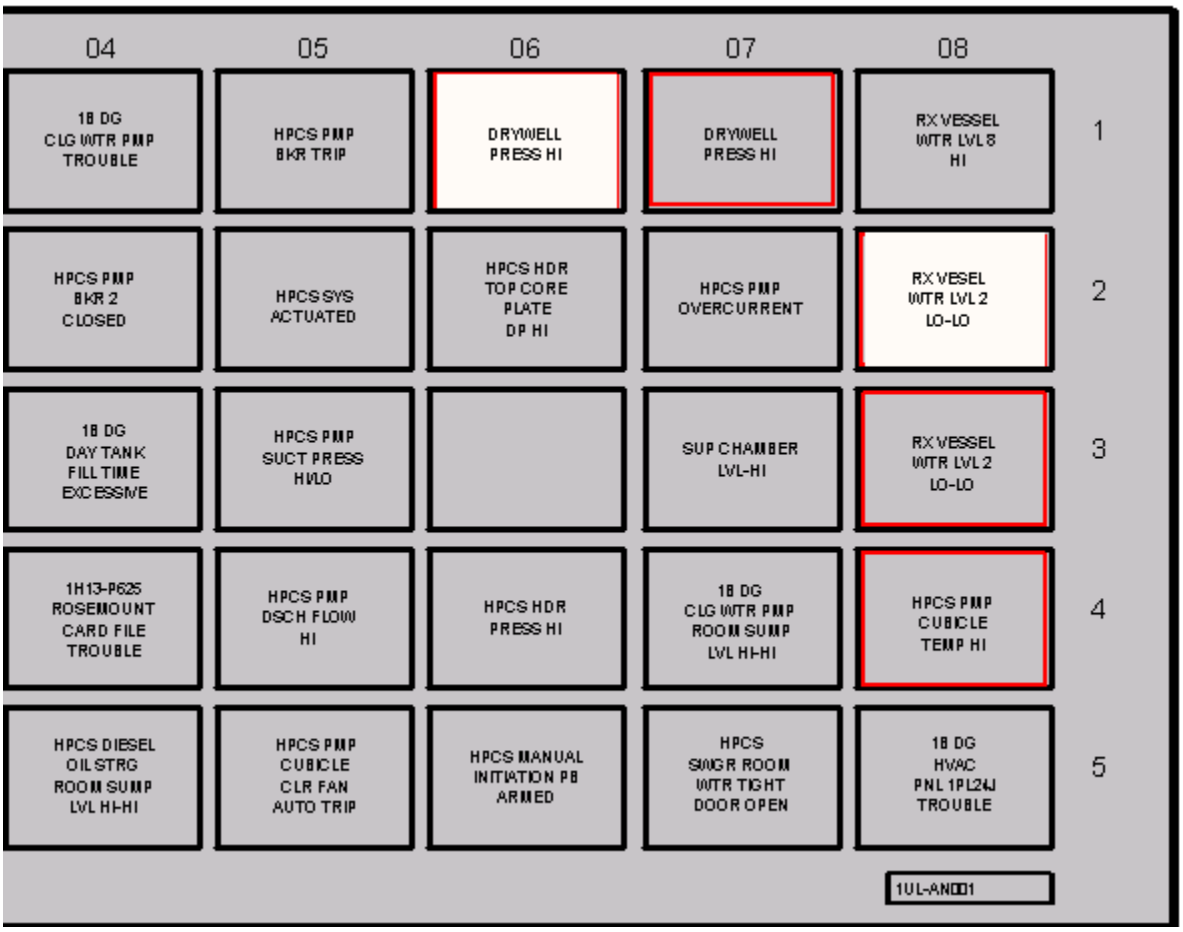
d. Perform LOS-VQ-SR2, Primary Containment Vent And Purge HEPA Filter And Charcoal Filter Leak Test.

ANSWER:
c.
REFERENCE:
Technical Specification 3.8.1, SR 3.8.1.1
FUNDAMENTAL
NEW
K/A: 262001 G2.2.12 Knowledge of AC Distribution surveillance procedures.
EXPLANATION:

a. incorrect: LOS-VC-M1 is plausible because this would be a correct answer if the Unit was in Modes 4 or 5.
b. incorrect: LOS-DG-SR3 is plausible because this action is required for the condition, however, this action must be performed within 24 hours.
c. correct: LOS-AA-W1 Attachment 1D and 2D meets the surveillance testing requirements of Technical Specification LCO 3.8.1, AC Sources-Operating, Condition B.
d. incorrect: LOS-VQ-SR2 is plausible because the Primary Containment Vent and Purge system is considered a redundant feature, however, this action must be performed within 4 hours.

QUESTION# 22 Points: 1.00

While operating at 100% power you receive the following annunciators ONLY:



Predict the impact on HPCS.

HPCS will ...

a. START and inject at 1650 gpm.

b. START and inject at 6250 gpm.

c. START and run on Minimum Flow.

d. remain in STANDBY.

ANSWER:
d.
REFERENCE:
LOR 1H13-P601-A106, A208,
Electrical Drawing 1E-1-4222AB, 1E-1-4222AC, 1E-1-4222AG
HIGH
NEW
K/A: 209002 2.4.45 Ability to prioritize and interpret the significance of each High Pressure Core Spray System (HPCS) annunciator or alarm.
EXPLANATION:

a. incorrect: HPCS is running and injecting at 1650 gpm would be correct if HPCS initiated and was injecting at full rated reactor pressure.

b. incorrect: HPCS is running and injecting at 6250 gpm would be correct if HPCS initiated and was injecting at 330 psig reactor pressure.
c. incorrect: HPCS is running on Minimum Flow would be correct if HPCS initiated and has not reached rated flow.
d. correct: Based on the annunciators given you have HALF of the initiation logic needed for HPCS to START and inject. Per the LOR you need both channels of either Drywell Pressure HI or Rx Vessel Water Level 2 for HPCS to line up to an injection mode.

QUESTION# 23 Points: 1.00

A manufacturing defect resulted in a flow path between the outer tube of the SBLC injection line and the bottom head area.

Which of the following describes the consequences of this failure?

a. HPCS Line Break Detection would be unreliable.

b. CRD Drive Water Flow indication would fail to zero.

c. SBLC solution will not inject into the proper vessel area.

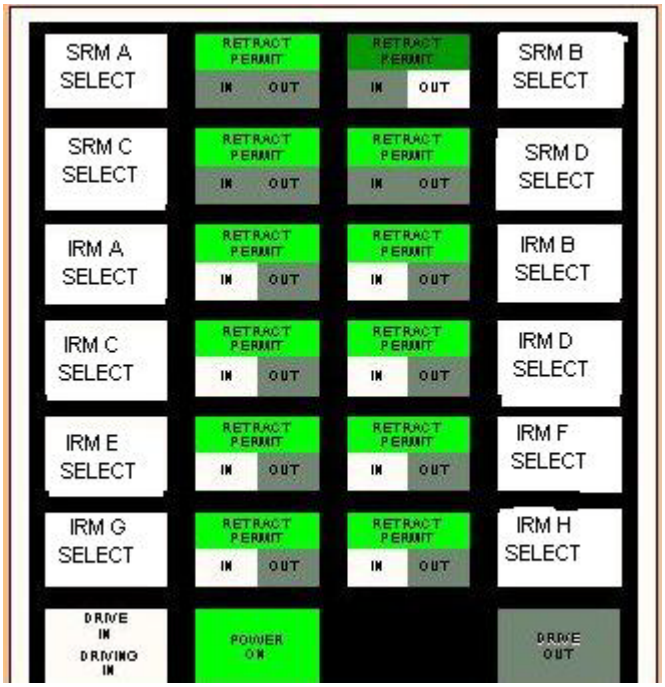
d. RWCU Bottom Head Drain Flow indication would fail to zero.

ANSWER:
a.
REFERENCE:
SBLC System lesson plan 028
FUNDAMENTAL
BANK
K/A: 211000K3. 02 Knowledge of the effect that a loss or malfunction of the STANDBY LIQUID CONTROL SYSTEM will have on following: Core spray line break detection system: Plant-Specific
EXPLANATION:

a. correct: "HPCS Line Break Detection would be unavailable." is correct. HPCS Line Break Detection utilizes the outer tube of the SBLC injection line. A failure in the line would cause a failure of the detection.
b. incorrect: CRD Drive Water Flow may be slightly (less than 10% change) inaccurate but would not fail downscale as the change in pressure sensed would only be the dP across the core plate.
c. incorrect: SBLC Solution is injected through the inner tube and would not be affected.
d. incorrect: RWCU Bottom Heat Drain Flow would not fail to zero since it will measure the d/p across the core plate.

QUESTION# 24 Points: 1.00

Given the following indication while shutting down Unit 1:



(1) What is the indication for SRM B as compared to the other 3 SRMs?
(2) What action must the Reactor Operator take per procedure?

a. (1) Reads Higher
(2) Stop ALL rod motion and bypass SRM B

b. (1) Reads Lower
(2) Stop ALL Rod Motion and bypass SRM B

c. (1) Reads Higher
(2) Continue rod motion and place SRM B function switch to STANDBY

d. (1) Reads Lower
(2) Continue rod motion and place SRM B function switch to STANDBY

ANSWER:
b.
REFERENCE:
System Description 41
LOP-NR-01
HIGH
NEW
K/A: 215004A2. 03Ability to (a) predict the impacts of the following on the SOURCE RANGE MONITOR (SRM) SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Faulty or erratic operation of detectors/system
EXPLANATION:
The indication given is one of a stuck detector. Based on the indication the Reading would be lower than the other three SRMs since the detector is still OUT. By procedure you need to stop all rod motion and bypass the detector that fails to move.

a. incorrect: Reads Higher. Stop ALL rod motion and Bypass SRM B is plausible with the

procedure steps but the the SRM B indication would be lower than the other channels.

b. correct
c. incorrect: Reads Higher. Continue Rod motion and place SRM function switch to STANDBY is plausible but the indication would be higher and you must stop rod motion.
d. incorrect: Reads Lower. Continue Rod motion and place SRM function switch to STANDBY is plausible as it will read lower, but you must stop rod motion.

QUESTION# 25 Points: 1.00

Per LSCS UFSAR RCIC is designed ...

a. as an ECCS system to assure adequate core cooling during a loss of feedwater.

b. as an ECCS system to assure adequate core cooling during a loss of main turbine bypass valves.

c. to assure adequate core cooling during a loss of feedwater, but NOT as an ECCS system.

d. to assure adequate core cooling during a loss of main turbine bypass valves, but NOT as an ECCS system.

ANSWER:
c.
REFERENCE:
UFSAR 5.4.6.1.1 page 5.4-9
FUNDAMENTAL
NEW
K/A: 217000 2.1.27 Knowledge of Reactor Core Isolation Cooling System (RCIC) system purpose and/or function.
EXPLANATION:
Distractor c. is correct: to assure adequate core cooling during a loss of feedwater, but NOT as an ECCS system is correct per UFSAR 5.4.6.1.1.

QUESTION# 26 Points: 1.00

Unit 1 is starting up IAW LGP 1-1, NORMAL UNIT STARTUP

- REACTOR MODE SWITCH is in STARTUP.

Select the one statement that describes a condition in which the Intermediate Range Monitor (IRM) detector(s) is(are) functioning properly.

a. IRM A and IRM G detectors both fail upscale and a reactor scram occurs.

b. IRM B indicates 111/125 of scale on range 7 and NO rod block signal occurs.

c. IRM B indicates 124/125 of scale on range 6, a rod block and a half-scram occurs.

d. IRM C detector drawer mode switch is placed in STANDBY and ONLY a rod block occurs.

ANSWER:
c.
REFERENCE:
System Description 042
LOR-1H13-P603-A107/B310
LGP-1-S1
LOP-RP-05
LOP-AA-03
FUNDAMENTAL
BANK (Used in 2010 Perry ILT)
K/A: 215003K6.04 Knowledge of the effect that a loss or malfunction of the following will have on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM: Detectors
EXPLANATION:

a. incorrect: IRM's A & G are on the same channel of RPS "A" so you would only get a 1/2 scram
b. Rod block occurs at 110/125 Allowable (Field Setting 80/125)
c. correct: a rod block and half-scram occurs at 123/125 of scale Allowable (Field Setting 117/125). Per LGP-1-S1 shorting links must be installed prior to mode change to Startup.
d. incorrect: Drawer mode switch out of operate is a scram and a rod block

QUESTION# 27 Points: 1.00

(Refer to the Drawing of EHC logic)

The plant is at 93% thermal power.

Using the drawing provided, identify how the SIGNAL VALUES at the points marked "A" and "B" would change if one Safety Relief Valve were to FAIL OPEN in this situation.

a. Signal Value "A" Higher
   Signal Value "B" Higher

b. Signal Value "A" Higher
   Signal Value "B" Lower

c. Signal Value "A" Lower
   Signal Value "B" Higher

d. Signal Value "A" Lower
   Signal Value "B" Lower

ANSWER:
d.
REFERENCE:
System Description 74
System Drawing 74-2
HIGH
BANK (2005 DAEC ILT Exam)
K/A: 241000K1.02 Knowledge of the physical connections and/or cause effect relationships between REACTOR/TURBINE PRESSURE REGULATING SYSTEM and the following:
Reactor pressure
Reference provided during exam – EHC Logic
EXPLANATION:

a. incorrect: Signal Value "B" will be lower.
b. incorrect: Signal Value "A" will be lower.
c. incorrect: Signal Value "B" will be lower.
d. correct: The key to the correct answer is in the summers between throttle pressure and pressure set, which can provide either a + or - output. Both outputs will be more negative by the same amount and the HVG would not make a difference. The end result is that the signal from the HVG is lower. That lower signal is not changed in the LVG and is passed on to the Control Valve.

QUESTION# 28 Points: 1.00

Given the following conditions:

- 1A and 1B FC pumps are running for Fuel Pool Cooling
- 1B RHR is running in Fuel Pool Cooling Assist

Which of the following power supplies, if LOST, would have the greatest impact on Fuel Pool Cooling?

a. 141Y

b. 142Y

c. 141X

d. 142X

ANSWER:
b.
Reference: System Description 029, system description 064
HIGH
NEW
K/A: 233000K2.02 Knowledge of electrical power supplies to the following:RHR pumps (Fuel Pool Cooling and Clean-up)
EXPLANATION:
distractor c. is correct: Since all available Fuel Pool cooling is running the greatest impact would be on the loss of 142Y. You would lose both 1B FC pump and 1B RHR pump. Losing 141X or 142X would cause a loss of the Service Water pumps but the loss of one would not cause the greatest impact as one would still have two Hx in service. As well one might assume that since the power supply for 1A is on a non-vital bus it is powered by 141X.

QUESTION# 29 Points: 1.00

The Unit 1 NSO is withdrawing control rod 18-43 from position 00 to position 08 for a sequence exchange.

- The control rod settles at position 12.

Which ONE of the following best describes the effects of the control rod movement?

The control rod will have the MOST significant effect on _(1)_,
and will be indicated PRIMARILY on _(2)_.

a. Radial Power distribution
APRMs

b. Radial Power distribution
All 16 LPRMs for the selected rod

c. Axial Flux shape
All 16 LPRMs for the selected rod

d. Axial Flux shape
APRMs

ANSWER:
a.
REFERENCE:
Reactor Theory Chapter 5
HIGH
NEW
K/A: 201003K3.02 Knowledge of the effect that a loss or malfunction of the CONTROL ROD AND DRIVE MECHANISM will have on following: Flux shaping
EXPLANATION:

a. correct: Since the void content in the upper portions of the reactor is high at rated power conditions, the effects of a deep rod withdrawal will be axially dampened. The power distribution for the power in the vicinity of the rod increases. Power increases for some distance above and below position 12. The high void content magnifies the effect by allowing neutrons to travel further, while slowing down and while thermal. The deep rod does not have a pronounced effect on axial flux. Deep rods can have an appreciable effect on total core power output.
b., c., & d are incorrect. See explanation for a.

QUESTION# 30 Points: 1.00

Given the following conditions:

- The Unit-1 Standby Gas Treatment System (SBGT) is in operation to support an ongoing surveillance.
- An event occurs on the refuel floor that causes 0D21-K604A Refuel Floor High Range ARM to exceed its respective trip setpoint.

The following events then occur:

- 12:00 - The U1 Standby Gas Treatment fan breaker trips
- 12:05 - A low flow condition exist on Unit 1 SBGT train
- 12:10 - A second refuel floor ARM exceeds its trip setpoint
- 12:15 - Reactor Building Ventilation (VR) exhaust PRMs reach their trip setpoint

Based on these conditions, what is the earliest time that the Unit-2 SBGT would automatically start?

a. 12:00

b. 12:05

c. 12:10

d. 12:15

ANSWER:
d.
REVERENCE:
System Description 095
FUNDAMENTAL
NEW
K/A: 288000K4.01 Knowledge of PLANT VENTILATION SYSTEMS design feature(s) and/or interlocks which provide for the following: Automatic initiation of standby gas treatment system
EXPLANATION:

a. incorrect: 12:00 is plausible because both U1and U2 SBGT utilize opposite units logic but does not look at breaker position
b. incorrect: 12:05 would cause the alarm to come in only.
c. correct: Time 12:15 is the correct answer because auto-start is only a function of a valid Group IV isolation signal. You must reach both channels of the isolation system to start Standby Gas treatment.
d. incorrect: already started & 12:10 ARM alarms come in but do not affect the initiation of SBGT.

QUESTION# 31 Points: 1.00

If elevated drywell temperatures were to cause the reference leg of the Wide Range Level instrument to flash to steam, and actual level was +10 inches, what would you expect the Wide Range Level instrument to indicate in the Control Room?

a. +180 inches

b. +60 inches

c. 0 inches

d. -150 inches

ANSWER:
b.
REFERENCE:
System Description 040
HIGH
BANK
K/A: 216000K5.13 Knowledge of the operational implications of the following concepts as they apply to NUCLEAR BOILER INSTRUMENTATION :Reference leg flashing: Design-Specific
EXPLANATION:

a. incorrect: Wide Range band stops at +60 inches
b. correct: "+60 inches" is correct. Reference leg flashing reduces reference leg inventory and pressure which will cause indicated level to INCREASE. The upper scale on the wide range level instruments is +60 inches.
c. incorrect: Upset and Narrow range bottom of band is 0 in. Indicated level is above +10 inches.
d. incorrect: Wide Range Level bottom of band is -150 in.

QUESTION# 32 Points: 1.00

Unit 2 is shutting down.

- The RR pumps LFMG Set Drive Motor Breakers 1A and 1B have been closed in preparation for downshifting both pumps.
- The NSO takes Reactor Recirc Motor Breakers 3A and 3B to Transfer MG position.
- When the Reactor Recirc Motor Breakers 3A and 3B are taken to Transfer MG the LFMG Set Drive Motor Breaker 1A also trips OPEN.

What will be the status of the RR pumps sixty (60) seconds later?

	2A RR Pump	2B RR Pump
a.	Off	Off
b.	Fast	Fast
c.	Fast	Slow
d.	Off	Slow

ANSWER:
d.
REFERENCE:
System Description 022
HIGH
NEW
K/A: 202001K6.06 Knowledge of the effect that a loss or malfunction of the following will have on the RECIRCULATION SYSTEM: Recirculation system motor-generator sets: Plant-Specific
EXPLANATION:
distractor d. correct: During a downshift there is an incomplete sequence timer that is active for 40 seconds. When this timer completes and the sequence has not completed it opens the Breakers 1 and 3 on the affected train only. Normally when you take the 3A and 3B to Transfer MG the 1A and 1B CLOSE. the 3A and 3B OPEN and the pump coast to approximately 350 RPM, at which point the 2A and 2B CLOSE. The RR pump is then in slow speed.

QUESTION# 33 Points: 1.00

Given the following:

- Unit 1 is running at rated conditions
- 1A Primary Containment Cooling (VP) Chiller running
- 1A Primary Containment Cooling (VP) Chill Water pump trips
- The operator immediately starts 1B Primary Containment Cooling (VP) Chill Water pump and the 1B Drywell Cooler Supply Fan.

1) What is the maximum expected cooling provided by the Primary Containment Cooling?
2) What is the expected Primary Containment pressure response?

a. 10 minutes of residual cooling is provided
remains stable for 5 minutes, then starts to increase

b. 20 minutes of residual cooling is provided
start increasing within the first 10 minutes

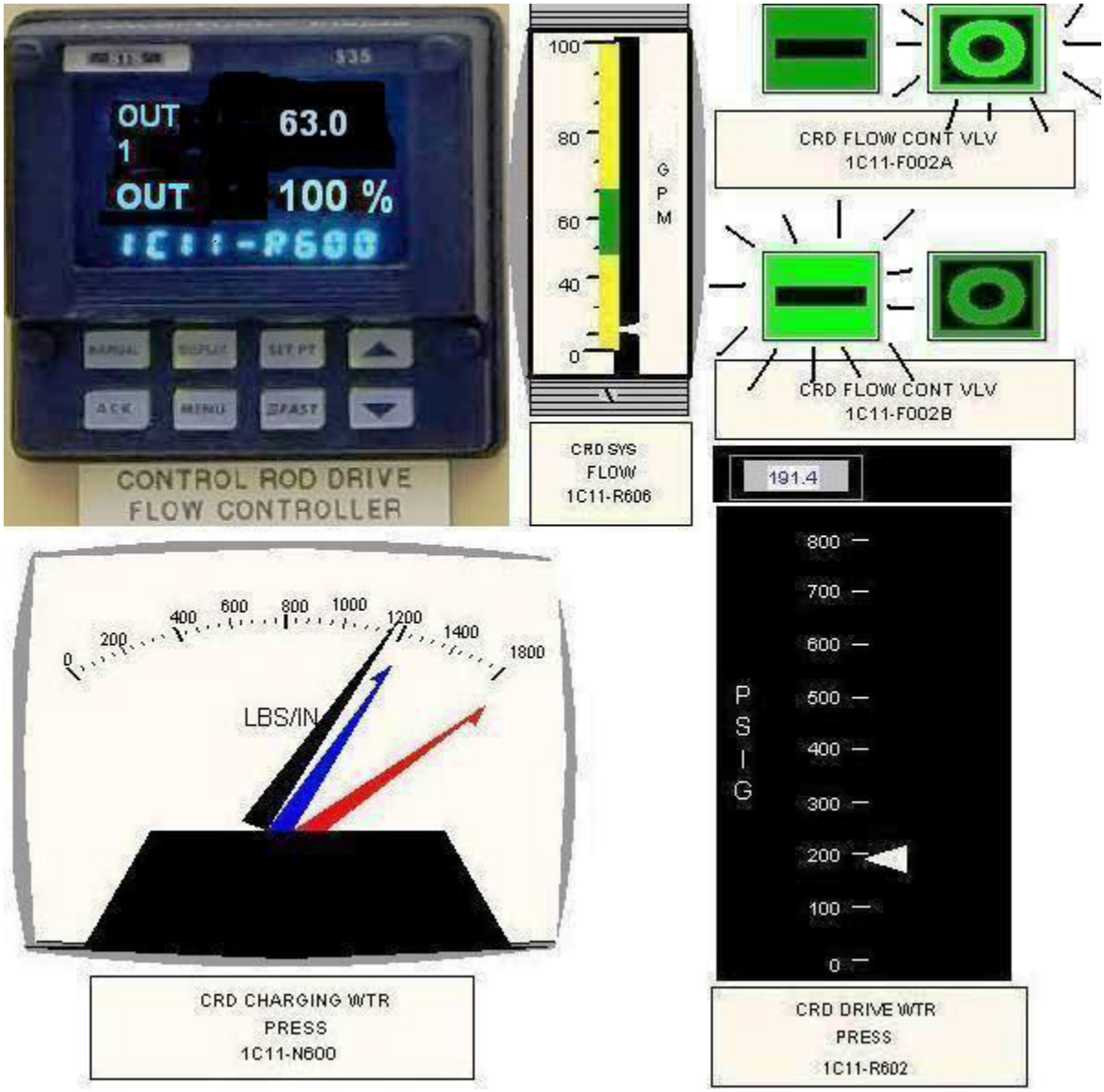
c. 10 minutes of residual cooling is provided
start increasing within the first 5 minutes

d. 20 minutes of residual cooling is provided
remains stable for 10 minutes, then starts to increase

ANSWER:
c.
REFERENCE:
System Description 096
FUNDAMENTAL
NEW
K/A: 223001A1.02 Ability to predict and/or monitor changes in parameters associated with operating the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES controls including: Drywell pressure
EXPLANATION:
distractor c. correct: If a Primary Containment Cooling chill water pump were to trip the associated chiller would also trip but the Hold up tank will provide 10 minutes of cooling to the Primary Containment if the chill water pump and associated fan is running. The drywell pressure will start to rise immediately, but due to cooling provided by the Holdup tank it will be held below the scram setpoint. 20 minutes is plausible because it takes 14 minutes for the Chiller Load recycle to restart the chiller.

QUESTION# 34 Points: 1.00

Unit 1 is at rated power with the 1A CRD Pump online and the following indications:



The required action is to.....

a. swap to FCV, 1C11-F002B.

b. swap to standby stabilizer valve.

c. swap to the standby drive water filter.

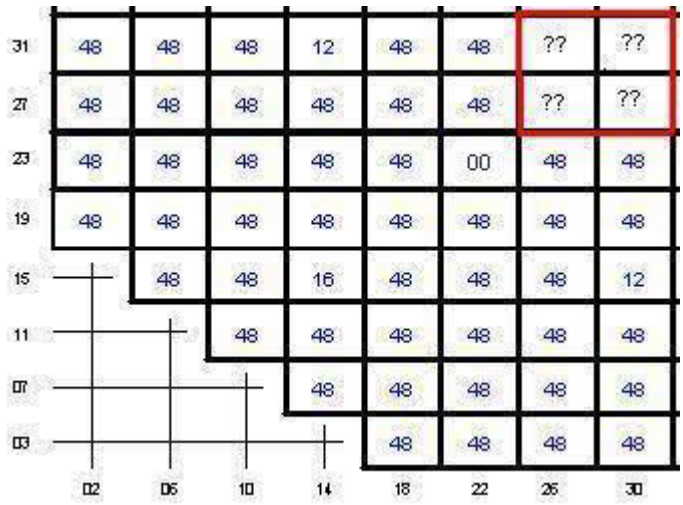
d. throttle CRD drive pressure control valve, 1C11-F003, closed.

ANSWER:
c.
REFERENCE:
System Description 025
HIGH

NEW
K/A: 201001A2. 05 Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Discharge strainer(s) becoming plugged
EXPLANATION:
Distractor (c.) is correct: The indications tell you that you have a plugged drive water filter. Normal drive water pressure is 250-260 psig. CRD Flow controller is set to maintain 63 gpm and shows reduced flow of 20 gpm. CRD Charging Water Pressure is normally above 1200 psig and shows below 1200psig. Based on the indications you have low flow to the system caused by a pump trip or a plugged filter limiting flow to the CRD Hydraulic system since all these readings are taken downstream of the drive water filter. With the CRD Charging water pressure low it indicates it has to be upstream of the FCV since this reading is taken prior to the Flow Control Valve. All others are read downstream of the Flow Control Valve.

QUESTION# 35 Points: 1.00

Unit 1 is at rated power when the operator observes the following:



Which of the following is the cause of these indication for the four control rods in the red box?

a. Data Faults

b. Rods are at the overtravel position

c. Probe MUX Card not responding

d. No position switches are CLOSED

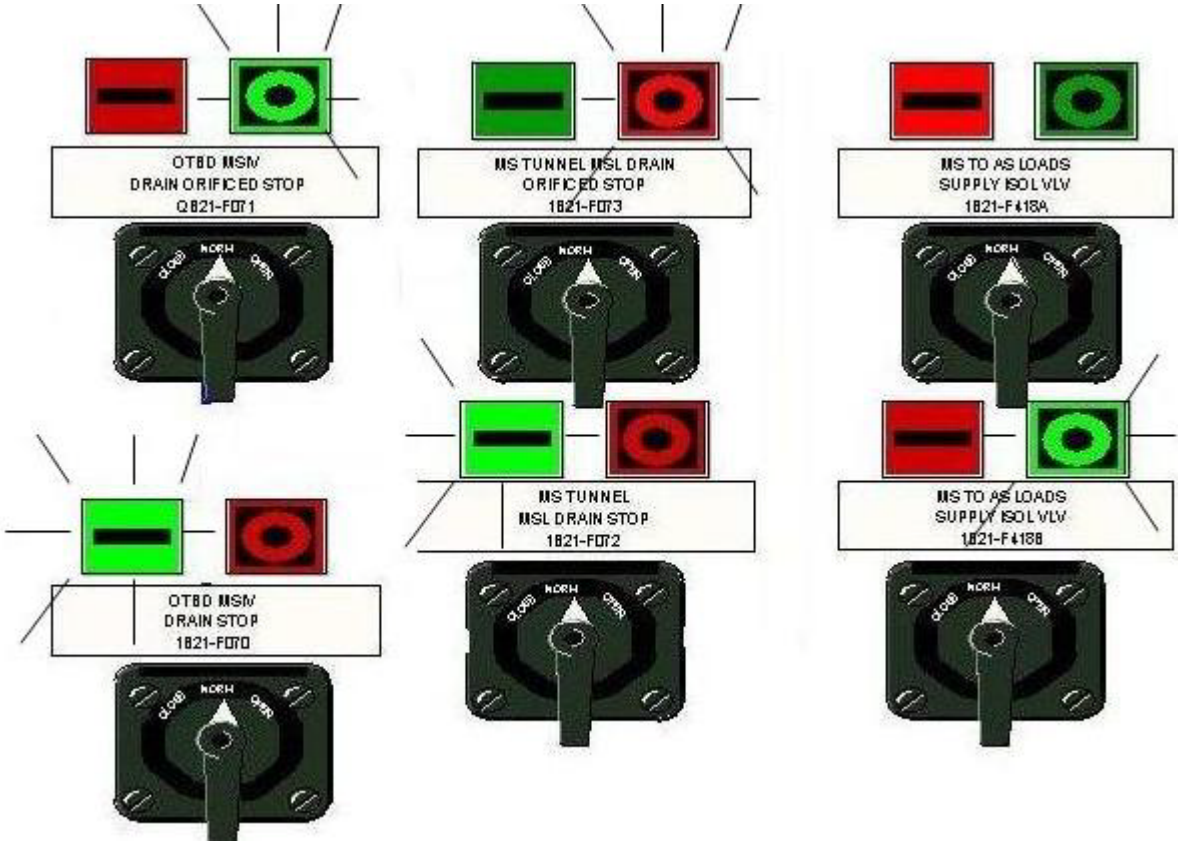
ANSWER:
c.
REFERENCE:
System Description 047
FUNDAMENTAL
NEW
K/A: 214000A3.01 Ability to monitor automatic operations of the ROD POSITION INFORMATION SYSTEM including: Full core display
EXPLANATION:

a. incorrect: Data Fault will cause a text box telling you have lost data and the rod indication on the FUll Core Display will be "XX."
b. incorrect: If a rod has overtraveled there will be a text box stating Withdraw Error and the rod indication on the Full Core Display will be "OT."
c. correct: The loss of the Probe MUX Card will cause an indication of ?? on the Full Core Display. The PIP cables feed to the Probe MUX cards. The Probe MUX cards feed to the File Control processer which feed to the RCMS Controller card. The RCMS Controller then feeds the MCR Controller card which sends data to all RCMS Displays in the control room. When the data from the PIP cable is lost due to Probe MUX Card not responding it will cause the ??.
d. incorrect: If there were no position switches CLOSED the rod indication on the Full Core Display will be blank.

QUESTION# 36 Points: 1.00

Unit 1 is at rated power.

The following indications are observed:



An Equipment Operator reports that the breaker for the 1B21-F418A, MS TO AS LOADS SUPPLY ISOL VLV, is tripped and will NOT reset.

Which of the following is the impact of the valve being de-energized?

a. Loss of steam to Main Steam Bypass valves

b. Loss of steam to the Steam Seal Evaporator (SSE)

c. Loss of HP steam to the 1A TDRFP

d. Loss of an MSIV Leakage Control Boundary valve

ANSWER:
d.
REFERENCE:
LGA-MS-03
FUNDAMENTAL
NEW
K/A: 239003A4.08 Ability to manually operate and/or monitor the MSIV Leakage Control System in the control room: System lineups: (K/A is applicable to LaSalle. LaSalle has abandoned in place hardware, but uses existing piping and components to meet functionality requirements.)
EXPLANATION:

a. incorrect: The Bypass Valves come off the same header and they are part of the MSIV

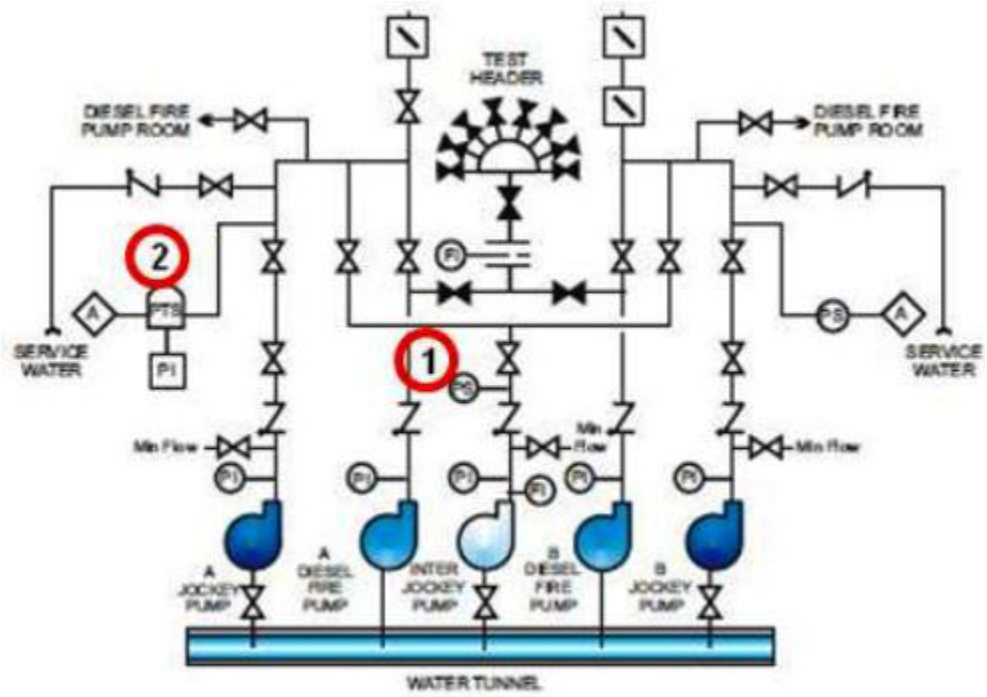
Leakage Control Boundary, but the loss of the 1B21-F418A does not affect steam to the Bypass Valves.

b. incorrect: The Steam Seal Evaporator comes off the Auxiliary Steam Loads, but the 1B21-F418B would isolate this supply.
c. incorrect: The HP steam to 1A TDRFP is a load off of the header but will not be impacted.
d. correct: The 1B21-F418A MS TO AS LOADS SUPPLY ISOL VLV is de-energized. This will impact the MSIV Leakage Control boundary since the valve cannot be controlled from the Main Control Room. The student must understand that the 1B21-F418A is a normally open Motor operated valve and would fail as-is in the open position.

QUESTION# 37 Points: 1.00

Both Units are operating at rated conditions.

- FP is in a normal lineup.
- Fire system checks are being performed at the Lake Screen House.



TIME	POINT 1 PRESSURE	POINT 2 PRESSURE
10:05	195 psig	175 psig
10:10	lowers to 140 psig	lowers to 110 psig
10:15	lowers to 115 psig	lowers to 85 psig
10:20	raises to 150 psig	raises to 120 psig
10:25	raises to 195 psig	raises to 175 psig

Predict the automatic start and stop times of the Fire Protection Intermediate Jockey Pump.

	START	STOP
a.	10:15	10:20
b.	10:15	10:25
c.	10:10	10:20
d.	10:10	10:25

ANSWER:
d.
REFERENCE:
LOP-FP-01
HIGH
NEW

K/A: 286000
2.4.47 Ability to diagnose and recognize trends in the Fire Protection System in an accurate and timely manner utilizing the appropriate control room reference material.
EXPLANATION:

a. incorrect: 10:15 to 10:25: is credible if the student does NOT apply the 15 min minimum run time and uses the wrong interlock of 120 psig header pressure for Diesel Fire Pump
b. incorrect: 10:15 to 10:20: credible if the student does NOT apply the 15 min minimum run time
c. incorrect: 10:10 to 10:20: credible if the student does apply does NOT apply 15 min minimum run time.
d. correct: FP1JP auto starts at approximately 120 psig on control room FP header indication at point 2 and 150 psig from the local pressure switch at point 1. FP1JP will run a minimum of 15 minutes or until pressure is restored (whichever is longer). In this scenario the FP1JP would start at 10:10 and stop at 10:25.

QUESTION# 38 Points: 1.00

During performance of the shiftly surveillance on Unit 2, MCPR is discovered to have decreased from a value of 1.21 to 1.09.

(1) Based on this information you can conclude that the number of fuel clad failures will ...
(2) What is the maximum time you have to complete the required Tech Spec actions?

a. increase significantly and reactor power must be reduced.
   2 hours

b. remain relatively stable but reactor power must be reduced.
   2 hours

c. increase significantly and reactor power must be reduced.
   1 hour

d. remain relatively stable but reactor power must be reduced.
   1 hour

ANSWER:
b.
REFERENCE:
Tech Spec 2.0
BWR Thermodynamics Chapter 9 pp 13
HIGH
MODIFIED – LaSalle 2003 ILT
K/A: 290002A2. 06 Ability to (a) predict the impacts of the following on the REACTOR VESSEL INTERNALS ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Exceeding safety limits
EXPLANATION:

a. incorrect: The number of fuel clad failures does not increase significantly.
b. incorrect: Per the TS, the limit is 1.11 for Unit 2. The MCPR greater than 1.07 ensures that OTB does not take place. To meet the Safety Limit the action is to ensure all insertable control rods are entered within 2 hours. OTB causes rapid thermal cycling of the clad and may lead to film boiling, which results in unacceptable cladding and fuel temperatures. By slightly exceeding the MCPR limit the number of fuel clad failures will NOT increase, however the safety margin has been drastically reduced.
c. incorrect: time allowed is 2 hours.
d. incorrect: time allowed is 2 hours.

QUESTION# 39 Points: 1.00

What are the operational implications of RPS having a built in time delay of 10 seconds before allowing a SCRAM to be manually reset?

a. To ensure all the control rods fully insert.

b. To allow the Scram Air header to repressurize.

c. To allow Rod Worth Minimizer to determine shutdown status.

d. To ensure the Scram Discharge Volume vent and drain valves fully closed.

ANSWER:
a.
REFERENCE:
System Description 49
LOS-RP-R1
FUNDAMENTAL
BANK – Hope Creek Exam 2009
K/A: 295006 SCRAM
AK1.03 Knowledge of the operational implications of the following concepts as they apply to SCRAM : Reactivity control
EXPLANATION:
distractor a: correct: Manual reset of Full Scrams are delayed 10 seconds to allow completion of the scram, ensuring Control Rods drive to FULL IN position.

QUESTION# 40 Points: 1.00

Given the following Unit 2 conditions:

- Reactor is in Hot Shutdown
- All electrical power being supplied from the System Auxiliary Transformer (SAT)
- The SAT trips for unknown reasons
- There were no bus fault alarms activated

Assuming NO OPERATOR ACTIONs are taken, predict the status of the following buses 30 seconds after a trip of the SAT.

	Bus 236X	Bus 237Y
a.	Energized	Energized
b.	Energized	De-energized
c.	De-energized	Energized
d.	De-energized	De-energized

ANSWER:
b.
REFERENCE:
System Description 005
BANK
HIGH
K/A: 295003AK1.04 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Electrical bus divisional separation
EXPLANATION:
Distractor (b.) is correct: The Emergency Diesels will re-energize their respective divisional buses. Bus 237Y, however, is powered from 241X which will load shed and not automatically re-energize, protecting the Division 1 Diesel from overload. Bus 236X, an ESF Bus, is powered from 242Y and will re-energize when the Diesel picks up Bus 242Y.

QUESTION# 41 Points: 1.00

Unit 1 is at rated conditions

- Safety Relief Valve, 1B21-F013K, has inadvertently opened due to a failed 'B' solenoid during normal full power operation.

Which of the following identifies the expected indications available to the operator when this event occurs?

	1B21-R614A, Tail Pipe Temperature Recorder	1H13-P601 Valve Position Indication
a.	525 to 540°F	RED light ON ONLY
b.	525 to 540°F	GREEN light ON ONLY
c.	310 to 335°F	GREEN light ON ONLY
d.	310 to 335°F	RED light ON ONLY

ANSWER:
d.
REFERENCE:
System Description 070
HIGH
BANK
K/A: 295025K1.03 Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE : Safety/relief valve tailpipe temperature/pressure relationships
EXPLANATION:
Distractor (d.) is correct. The pressure drop across the SRV is isenthalpic and therefore temperatures will indicate less than coolant temperature. The RED light comes on and the green light goes off when limit switches sense a change in the SRV position. C/R panel switches only control the Div 1 solenoids. A common misconception is that the valve position indication on the panel also comes from those solenoids.

QUESTION# 42 Points: 1.00

Given the following indications:

DW/SP AIR TEMP
1TR-CM037B

DW/SP AIR TEMP
1TR-CM038B

AND

- TRACOR Point 3, 1A COOLER RETURN, indicates 135°F
- TRACOR Point 4, 1B COOLER RETURN, indicates 115°F

Which of the following High Drywell temperature alarms, if any, are in?

(1) 1PM13J-A503, SUP CHBR AIR PRESS HI/DW AIR TEMP HI
(2) 1PM13J-B503, SUP CHBR AIR PRESS HI/DW AIR TEMP HI

a. 1 ONLY

b. 2 ONLY

c. 1 and 2

d. NO alarms

ANSWER:
b.
REFERENCE:
LOR-1PM13J-A503/B503
HIGH
NEW
K/A: 295028 2.4.31 Knowledge of annunciator alarms, indications, or response procedures for a High Drywell Temperature.
EXPLANATION:

a. incorrect: 1 ONLY would be incorrect because 1TR-CM037B would need to indicate above it's setpoint of 130°F.
b. correct: Based on the indications you would have 1PM13J-B503, SUP CHBR AIR PRESS HI/DW AIR TEMP HI alarm in because the driving points for this alarm come from 1TR-CM038B and the setpoint is above 130°F. The included TRACOR points would have no affect on the DW Temp alarm until either of these indications caused the

recorders to indicate above the setpoint of 130°F.

c. incorrect: 1 and 2 is incorrect because you only have one recorder 1TR-CM038B is above the setpoint of 130°F, but if one were to believe the TRACOR points drive these alarms as well this would be correct.
d. incorrect: NO alarms up would be wrong because you have exceeded the setpoint.

QUESTION# 43 Points: 1.00

Given the following:

- 2A RHR is in Shutdown Cooling with a flow of 6200 gpm.
- 2E12-F047A, 'A' RHR HX INLET VLV, is OPEN.
- 2E12-F003A, 'A' RHR HX OUTLET VLV, is OPEN.
- 2E12-F048A, 'A' RHR HX BYPASS VLV, is OPEN
- Reactor water level is +45 inches on the Shutdown Range.
- No RR pumps are running.
- 2B33-F023A, RR PMP SUCT VLV, is OPEN.
- 2B33-F067A, RR PMP DSCH VLV, is CLOSED.

Which of the following by itself would result in a loss of Shutdown Cooling due to inadequate reactor recirculation flow?

a. lowering Reactor water level by 7 inches

b. closing 2E12-F048A, 'A' RHR HX BYPASS VLV

c. closing 2E12-F003A, 'A' RHR HX OUTLET VLV

d. opening 2B33-F067A, RR PMP DSCH VLV

ANSWER:
d.
REFERENCE:
LOP-RH-07
LOA-RH-201
FUNDAMENTAL
NEW
K/A: 295021K2. 07 Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: Reactor recirculation
EXPLANATION:

a. incorrect: Lowering level 7 inches will not affect reactor recirculation flow because you still have Shutdown Cooling on which will maintain adequate flow and cooling.
b. incorrect: Closing 2E12-F048A will not cause a loss of recirculation flow, it will reduce the Shutdown Cooling capabilities by bypassing the HX.
c. incorrect: Closing 2E12-F003A will not cause a loss of recirculation flow, it will reduce the Shutdown Cooling capabilities by bypassing the HX.
d. correct: Opening the 2B33-F067A, RR PMP DSCH VLV would result is the loss of Shutdown cooling due to short circuiting the Shutdown Cooling Flow per LOA-RH-201 Att D. 3.1. Per LOP-RH-07, adequate reactor recirculation flow exists if:
    - Shutdown Cooling flow greater than 6000 gpm.
    - RR Pump operating in loop that Shutdown Cooling is NOT aligned to.
    - Reactor Vessel level greater than:
    - +50 inches on the Shutdown Range, or
    - +50 inches on the Alternate RX Vessel Level – Instrument Zero Referenced

QUESTION# 44 Points: 1.00

Using the attached reference:

Unit ONE was operating at 65% power and 67 Mlb/hr core flow.

A transient occurred, resulting in the following:
- 1A Reactor Recirc Pump shaft sheared.
- APRMs indicate Reactor Power at 45%.
- Core Flow indicates 37 Mlb/hr.

1H13-P603-A408 OPRM TRIP ENABLE did NOT alarm AND
1H13-P603-A109 OPRM HI is in SOLID.

What are the required operator actions?

a. Immediately SCRAM the reactor - Exit to LGP-3-2.

b. Insert CRAM rods ONLY to a power less than 35%.

c. Monitor APRM/LPRM noise levels two times normal while shutting down the 'A' Reactor Recirc Pump.

d. Lower Recirc Core Flow with the 'B' Flow Control Valve AND insert CRAMS to exit both region 1 and 2.

ANSWER:
a.
REFERENCE:
LOA-RR-101
HIGH
BANK
K/A: 295001AK2.01 Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION and the following: Recirculation system
Reference provided during examination: Modified Power-to-Flow Map
EXPLANATION:
a. correct: The scenario places you in region 1. With OPRM TRIP NOT ENABLED (not functioning) and the OPRM HI in SOLID and you are in Region 1 a SCRAM is required.
b. incorrect: Inserting CRAMS will get you out of Region 1, but per the procedure you must SCRAM since you have lost OPRM trip capability.
c. incorrect: Monitoring for noise levels would be done during Thermal Hydraulic Instabilities.
d. incorrect: Lower Recirc flow would assist you in leaving the region but could not be accomplished due to recirc loop mismatch and is not required.

QUESTION# 45 Points: 1.00

Unit 1 is operating at rated conditions when a grid disturbance results in lowering frequency on the Main Generator. Plant conditions stabilize and the following conditions exist:

- LOR-0PM12J-B407, 345 KV SYSTEM FREQUENCY LO, is in alarm.
- Generator frequency is steady at 58.3 Hz

The Unit 1 CRS directs operators to Manually Scram and verify Main Turbine Trips.

This direction is…

a. REQUIRED; an automatic generator trip should have occurred.

b. NOT REQUIRED; the generator can operate indefinitely at this frequency.

c. REQUIRED; operation at this frequency will cause turbine blade damage.

d. REQUIRED; the generator may become overloaded from excessive reactive currents.

ANSWER:
c.
REFERENCE:
LOR-0PM12J-B407
345 KV SYSTEM FREQUENCY LO
LOP-TG-02, Turbine Generator Startup
FUNDAMENTAL
NEW
K/A: 700000AK3.01 Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Reactor and turbine trip criteria.
EXPLANATION:

a. incorrect: The generator may operate indefinitely at 60 Hz + 0.5 Hz
b. incorrect: The generator will not trip automatically at the stated frequency without an accompanying high voltage condition that trips the PLU unit. Also the Unit will not scram on loss of RPS since the underfrequency trip is set at 58Hz.
c. correct: Operation above a frequency of 60.5 or below 59.5 Hz will cause turbine blade damage. If system frequency drops to 58.3 Hz or less and Reactor power is greater than 25%, then both Unit 1 and Unit 2 Reactors are required to be scrammed and their respective turbines tripped IAW LOR-0PM12J-B407, 345 KV SYSTEM FREQUENCY LO, and LOR-TG-02, Turbine Generator Startup
d. incorrect: Lowering grid frequency will not result in excessive reactive currents and will not overload the generator.

QUESTION# 46 Points: 1.00

LGA-005, RPV Flooding:

Specifies actions that use steam cooling method of heat transfer to _(1)_ that the reactor core remains adequately cooled under conditions when _(2)_ source of ECCS injection into the RPV is permitted.

a. maximize the time
a single

b. indefinitely ensure
a single

c. maximize the time
NO

d. indefinitely ensure
NO

ANSWER:
c.
REFERENCE:
LGA-005 Basis
FUNDAMENTAL
BANK
K/A: 295031K3.04 Knowledge of the reasons for the following responses as they apply to REACTOR LOW WATER LEVEL : Steam cooling
EXPLANATION:
Distractor (c.) is correct: If no high capacity source is available, reactor power remains high, or a primary system break exists, the time required to reach the main steam lines may be long. If RPV pressure cannot be maintained above the Minimum Steam Cooling Pressure there will be no definite assurance of adequate core cooling during the time flooding is in progress. Steam cooling will allow the maximum time to maintain clad temperatures below 1500°F.

QUESTION# 47 Points: 1.00

When fighting a fire on site with a failure of both Diesel Fire Pumps:

- LOA-FP-101, Unit-1 Fire Protection System Abnormal, directs you to SHUTDOWN or SCRAM the reactor if a minimum fire header pressure, indicated on 1PM10J, of at least _(1)_ CANNOT be maintained; because Service Water may have to be diverted to the fire protection header in order to ensure minimum required pressure is available for fighting fires _(2)_ .

a. 125 psig;
in multiple locations at the same time

b. 125 psig;
on the Refuel Floor

c. 175 psig;
on the Refuel Floor

d. 175 psig;
in multiple locations at the same time

ANSWER:
b.
REFERENCE:
LOA-FP-101
FUNDAMENTAL
BANK
K/A:600000K3.04 Knowledge of the reasons for the following responses as they apply to PLANT FIRE ON SITE: Action contained in the abnormal procedure for plant fire on site.
EXPLANATION:
Distractor (b.) is correct: Minimum Fire Pump discharge header pressure of 125 psig ensures minimum required pressure is maintained for fighting fires at the Refuel Floor elevation: Loss of both diesel fire pumps during a plant fire may require shutdown of the units if it becomes necessary to throttle/isolate plant WS headers in order to maintain at least 125 psig fire header pressure especially during lake temperatures above 75°F.

QUESTION# 48 Points: 1.00

Which of the following is directed to be monitored per LOA-WR-101, "Loss of Reactor Building Closed Cooling Water RBCCW" during reduced cooling capacity conditions in the RBCCW system?

a. RR Pump seal cavity outlet temperature

b. Offgas Refrigeration Machine glycol outlet temperature

c. IN Compressor intercooler discharge temperature

d. RWCU Pump Motor Cooler outlet temperature

ANSWER:
a.
REFERENCE:
LOA-WR-101
FUNDAMENTAL
BANK
K/A: 295018A1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : System loads

EXPLANATION:
a. correct: RR Pump seal cavity outlet temperature per LOA-WR-101 section B.1.5 specifically calls for monitoring of RR pump seal temperatures, and no other equipment is listed.
b. c. and d. incorrect: Offgas Refrigeration Machine, IN Compressor and RWCU Pump Motor cooler are all loads of RBCCW and would be required to be shutdown if you lost all RBCCW cooling.

QUESTION# 49 Points: 1.00

With the reactor operating at 50% power, the Main Turbine Trips due to low EHC pressure.

Which one of the following describes the initial expected Reactor Recirculation (RR) pump response to this event?

a. Trips to OFF due to ATWS-RPT signal

b. Downshifts to SLOW speed due to EOC-RPT signal

c. Remains in SLOW speed with FCVs full OPEN

d. Trips to OFF due to Low Reactor Water Level

ANSWER:
b.
REFERENCE:
LGP 1-1, system description 022
HIGH
NEW
K/A: 295005A1.01 Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP : Recirculation system: Plant-Specific
EXPLANATION:

a. incorrect: ATWS-RPT does trip off the pumps. EOC-RPT is a trip but does not trip the RR Pumps OFF.
b. correct: Based on the power level you have upshifted the Reactor Recirc Pumps are above the 25% power bypass for EOC-RPT. When the Main Generator trips due to a Turbine trip on EHC pressure falling below 1100 psig you will see an EOC-RPT. This causes the RR Pumps to downshift to slow speed.
c. incorrect: The pumps would remain in slow speed if reactor power were below 25%.
d. incorrect: It is unlikely that level will drop to the Level-2 setpoint under these conditions. Therefore the RR pumps are not expected to trip

QUESTION# 50 Points: 1.00

The following conditions exist 15 minutes following a loss of offsite power.

- Reactor Pressure is at 750 psig LOWERING
- Reactor Level is -125 in. and STABLE
- Suppression Pool Level is -9 ft. STABLE
- Drywell pressure is 3 psig RISING
- Suppression Chamber pressure is 0 psig RISING
- Division 3 EDG is tripped.

RCIC _____(1)_____ because _____(2)_____

a. must be immediately TRIPPED
operation may cause pump/piping damage due to LOW Suppression Pool Level.

b. is allowed to inject
ALL trips are bypassed.

c. must be immediately TRIPPED
the steam exhaust discharging into the Suppression Pool will cause Pressure Suppression Pressure(PSP) to be exceeded.

d. is allowed to inject
the steam exhaust discharging into the Suppression Pool will NOT cause Pressure Suppression Pressure(PSP) to be exceeded.

ANSWER:
d.
REFERENCE:
LGA-003 Bases
System Description 032
HIGH
NEW
K/A: 295030A1. 02 Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: RCIC: Plant-Specific
EXPLANATION:

a. incorrect: an immediate trip of RCIC is not necessary.
b. incorrect: RCIC Trips are operational unless control is transferred to the Remote Shutdown Panel.
c. incorrect: an immediate trip of RCIC is not necessary.
d. correct: Since normal lineup for RCIC is CY Tank then there will be no affect in regards to Suppression Pool Level. If RCIC were taking a suction off the Supression Pool the suction line will become uncovered at -12 ft and should trip on Low Suction Pressure. The Pressure Suppression Pressure is near limit of -12 ft. but the exhaust would have little effect since it is below actual pool level exhausting into water. RCIC is needed for core cooling since Low Pressure is not injecting and HPCS is not available.

QUESTION# 51 Points: 1.00

A TRIP of which of the following breakers would eventually result in a loss of DC control power to Unit 1 RCIC?

a. BUS 131A & 131B FEED ACB

b. BUS 133A & 133B FEED ACB

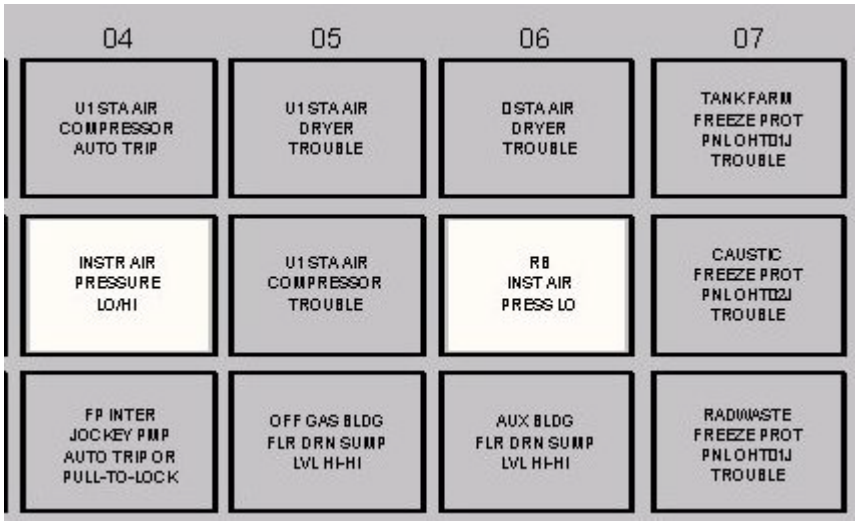
c. BUS 135X & 135Y FEED ACB

d. BUS 137X & 137Y FEED ACB

ANSWER:
c.
REFERENCE:
LOA-DC-101
HIGH
NEW
K/A: 295004A2.01Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Cause of partial or complete loss of D.C. power
EXPLANATION:
Answer (c.) is correct: When you lose BUS 135X and 135Y FEED ACB you lose power to the DC Battery charger for 125v DC Bus 111Y which powers RCIC speed control and 250v DC Bus 121Y which powers RCIC and associated valves. All other Buses are viable Bus Feeds but will not cause a loss of battery chargers for RCIC.

QUESTION# 52 Points: 1.00

While operating at 100% power on both Units you receive the following annunciators:



- Instrument air header pressure reads 50 psig.

Which one of the following describes the expected position of the listed Unit 1 valves? (without operator action)

a. Inboard Main Steam Isolation Valves - CLOSED.

b. CRD HCU Scram Inlet Valves - OPEN.

c. TDRFP Min Flow Valves - CLOSED.

d. DW Vacuum Breakers - OPEN.

ANSWER:
b.
REFERENCE:
LOA-IA-101
LOR-1PM10J-B206
LOR-1H13-P603-A102
HIGH
MODIFIED
K/A: 295019A2.02 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR : Status of safety-related instrument air system loads
EXPLANATION:

a. incorrect: Inboard MSIVs is plausible because they are normally open and with a loss of IA you would close them procedurally.
b. correct: per LOR-1H13-P601-A102 the valve fails open on loss of IA with header pressure below 55 psig
c. incorrect: TDRFP Min Flow Valves is plausible because they fail open on a Loss of IA.
d. incorrect: On a loss of IA the unit would scram on more than one rod moving and under normal conditions you would not expect DW Vacuum breakers to open.

QUESTION# 53 Points: 1.00

Which one of the following meets the criteria of a fuel handling accident?

a. Fuel misplaced in the reactor vessel

b. Fuel misplaced in the spent fuel pool

c. Dropped fuel bundle in the cattle chute

d. Dropped double blade guide in the cattle chute

ANSWER:
c.
REFERENCE:
LOA-FH-001
LSCS-UFSAR 15.7.4
BANK
FUNDAMENTAL
K/A: 295023A2.04 Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS : Occurrence of fuel handling accident
EXPLANATION:

a. incorrect: (a.) (b.) and (d.) are plausible places you could have an accident or in the case of Double Blade guide it could be dropped in the cattle chute but does not constitute a fuel handling accident.
b. incorrect: not a fuel handling accident.
c. correct: Dropped fuel bundle in the cattle chute is correct IAW with LOA-FH-101.
d. incorrect: not a fuel handling accident.

QUESTION# 54 Points: 1.00

Given the following indications:

- Unit 1 has an ATWS.
- SPDS Reactor Power Bar indicates CYAN/BLUE.

Based on the SPDS indication alone Reactor power is …

a. unknown.

b. below low power setpoint.

c. above low power alarm point.

d. between low power alarm point and low power setpoint.

ANSWER:
a.
REFERENCE:
System Description 050
FUNDAMENTAL
NEW
K/A: 295037 2.1.19 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown GENERIC Ability to use plant computers to evaluate system or component status.
EXPLANATION:

a. correct: With a loss of APRM power to SPDS the Reactor Power Bar color would be CYAN/BLUE.
b. c., d., incorrect: With an ATWS you could be either above, below or between the Low Power Setpoint and Alarm Setpoint, but you would still have indication on the SPDS display and the Reactor Power Bar would be GREEN until power represented 0% then the Reactor Power bar would be BLACK.

QUESTION# 55 Points: 1.00

Unit 1 is at 100% power.

The Off Gas 1N62-F042 (Charcoal Adsorber Train Inlet) is CLOSED and the Adsorber Train Inlet Valve Switch is in BYPASS due to Off Gas Reheater temperature approaching adsorber temperature.

The following are observed:

- 1N62-P600-B207 OFF GAS POST-TRMNT RAD HI
- OG POST TRTMT Monitor, 1D18-R601, indicates 10^4cps and rising at 10^3cps/minute

Which one of the following is expected to occur NEXT?

a. Off-Gas Post Treat Rad Hi-Hi will alarm ONLY

b. Off Gas Discharge Valve 1N62-F057 will CLOSE.

c. Off Gas Charcoal Adsorber Inlet Valve 1N62-F042 will OPEN

d. Off Gas Charcoal Adsorber Bypass Valve 1N62-F043 will CLOSE.

ANSWER:
a.
REFERENCE:
LOP-OG-14
System Description 080
LOR-1N62-P600-B207
NEW
FUNDAMENTAL
K/A: 295038K2.10 Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Condenser air removal system
EXPLANATION:

a. correct: Off Gas Post Treat Rad HI-HI alarm ONLY since the 1N62-F042 switch is in bypass.
b. incorrect: Off Gas 1N62-F057 does not reposition till you reach Rad HI-HI-HI.
c. d. incorrect: Off Gas 1N62-F042/43 remains closed because the switch is in BYPASS preventing the switch to reposition upon reaching Off Gas Post Treat Rad Hi, which would occur if the switch were in AUTO.

QUESTION# 56 Points: 1.00

Which one of the following statements regarding the interlocks and automatic functions for 1B Residual Heat Removal (RHR) are true when the Remote Shutdown Transfer Switches are placed in EMERGENCY?

a. ALL 1B Residual Heat Removal (RHR) valve interlocks are disabled.

b. The 1B Minimum Flow Valve is interlocked closed on 1B Residual Heat Removal (RHR).

c. The Shutdown Cooling Suction valve cannot be opened unless the Full Flow Test valve is closed.

d. The automatic Low Pressure Coolant Injection (LPCI) mode of 1B Residual Heat Removal (RHR) remains functional.

ANSWER:
c.
REFERENCE:
System Description 054
FUNDAMENTAL
BANK
K/A: 295016 G2.4.34 4.2/4.1 Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operation effects: Control Room Abandonment
EXPLANATION:

a. incorrect: See (c.) below.
b. incorrect: See (c.) below.
c. correct: "The Shutdown Cooling Suction valve cannot be opened unless the Full Flow Test valve is closed." is correct. The Shutdown Cooling Suction 1(2)E12-F006B cannot be opened unless the Suppression Pool Suction 1(2)E12-F004B and the Full Flow Test Return 1(2)E12-F024B and Suppression Pool Spray 1(2)E12-F027B valves are closed. This prevents uncontrolled draining of the reactor vessel to the suppression pool due to operator error. This interlock continues to function even when the Remote Shutdown Transfer switches are in Emergency.
d. incorrect: See (c.) above.

QUESTION# 57 Points: 1.00

Unit 1 has scrammed and the crew has entered LGA-003 on High Drywell pressure. The Unit Supervisor has directed you to perform LGA-VQ-02, Emergency Containment Vent.

The purpose of this action is to maintain containment pressure below the.....

a. Primary Containment Pressure Limit (PCPL)

b. Pressure Suppression Pressure (PSP).

c. Drywell Spray Initiation Limit (DWSIL).

d. SRV Tail Pipe Level Limit.

ANSWER:
a.
REFERENCE:
LGA-VQ-02
FUNDAMENTAL
NEW
K/A: 295024K3.07 Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Drywell venting
EXPLANATION:

a. correct: Maintain containment below 60 psig, which is the upper limit of Primary Containment Pressure Limit (PCPL), is the reason for using LGA-VQ-02.
b. incorrect: PSP is a limit to containment in LGA-003 leg and used for Emergency Depressurization of Vessel not Containment
c. incorrect: Drywell Spray Initiation is a reference to ensure you can blowdown containment and not exceed containment load limits.
d. incorrect: SRV Tail Pipe Level is a limit to containment in LGA-003 leg.

QUESTION# 58 Points: 1.00

Given the following conditions:

- Suppression Pool temperature is 100°F and rising.
- Suppression Pool water level of -4 ft. and stable.

Which of the following would provide accurate Suppression Pool temperature to determine LGA-003, PRIMARY CONTAINMENT CONTROL, re-entry requirements?

(1) Average Suppression Pool Temperature recorders TR-CM037A/38A.
(2) PPC computer points L122 and L123 SUPP POOL WATER TEMP NE/SW.
(3) PPC computer points A944 and A918 SP WTR BULK TEMP DIV 1/2.
(4) Bulk Average Temperature as read from the NUMAC UY-CM037/38.

a. 1

b. 2

c. 3

d. 4

ANSWER:
b.
REFERENCE:
LGA-003 basis and flowchart
HIGH
BANK
K/A: 295026A1.03 Ability to operate and/or monitor the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Temperature monitoring
EXPLANATION:

a. incorrect: Point 1 is plausible but since level is below -1ft in Suppression Pool instrument is not accurate due to thermocouples becoming uncovered.
b. correct: LGA-003 is entered at 105°F. With Suppression Pool Water Level less than -1 foot, the only accurate Suppression Pool Water Temperature instrument can be found on the process computer (L122 and L123), Safety Parameter Display System (SPDS) and at the Remote Shutdown Panel.
c. incorrect: Point 3 is plausible but since level is below -1ft in Suppression Pool instrument is not accurate due to thermocouples becoming uncovered.
d. incorrect: Point 4 is plausible but since level is below -1ft in Suppression Pool instrument is not accurate due to thermocouples becoming uncovered.

QUESTION# 59 Points: 1.00

Given the following conditions:

- Fuel Pool moves are in progress in preparation for Unit 2 outage.
- 2PM01J-B304, DIV 2 125V DC 212X/Y BUS FEED BKR AUTO TRIP is in alarm.
- R0989, 125VDC Pnl 212Y Mn Fd Bkr Trip is up on SER.
- A loss of the Unit 2 SAT due to a lightning strike has occurred.

As the Unit 1 RO you report that:

- 1H13-P601-F205 DIV 1 FUEL POOL RAD HI-HI is in alarm.
- 1H13-P601-E205 DIV 2 FUEL POOL RAD HI-HI is in alarm.

No Operator actions have been taken.

Which of the following lists the SBGT response and release monitoring ability fifteen minutes later?

a. Unit 1 SBGT train is running and the Radioactive release can NOT be monitored by SBGT WRGM.

b. Unit 2 SBGT train is running and the Radioactive release can NOT be monitored by SBGT WRGM.

c. Unit 1 SBGT train is running and the Radioactive release CAN be monitored by SBGT WRGM.

d. Unit 2 SBGT train is running and the Radioactive release CAN be monitored by SBGT WRGM.

ANSWER:
c.
REFERENCE:
LOP-PR-10
System Description 095
HIGH
NEW
K/A: 295033K1.03 Knowledge of the operational implications of the following concepts as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Radiation releases
EXPLANATION:

a. incorrect: Both Unit 1 and Unit 2 SBGT would start on loss of either 211Y or 212Y, but in this condition you have lost Unit 2 power to the SBGT fan.
b. incorrect: Both Unit 1 and Unit 2 SBGT would start on loss of either 211Y or 212Y. Unit 1 SBGT would be running and the WRGM is powered.
c. correct: When you lose 212Y Bus you will loose 242Y DC Control Power. The SAT trips and this failure will not allow the 2A DG nor 242X to automatically close in on 242Y leaving it unpowered. Due to a loss of Div 2 power on Unit 2 the Unit 2 SBGT. When the FUEL POOL RAD HI-HI Alarm comes in you will receive a Group 4 isolation and should see both Unit 1 and Unit 2 SBGT start, since the Unit 1 SBGT has power it will operate and the SBGT WRGM can monitor the release rate since it is powered by 136X-2.

incorrect: Both Unit 1 and Unit 2 SBGT would start on loss of either 211Y or 212Y. Unit 2 SBGT is unavailable. The release can be monitored because Unit 1 powers the WRGM even though the indication is on the same panel as the Unit 2 SBGT controls (2PM07J).

QUESTION# 60 Points: 1.00

With Unit 2 at rated power, a large LOCA occurred in which fuel became temporarily uncovered.

LGA-001 and LGA-003 have been entered.

20 Minutes after operators started the Post-LOCA H2/O2 monitoring system, the following readings are taken:

- Drywell O2 concentration is 0.5% by volume and stable.
- Drywell H2 concentration is 1% by volume and rising slowly.

1) Would these Post-LOCA H2/O2 monitoring system readings be RELIABLE or would they still NEED MORE TIME to warm up and stabilize?
2) Based souley on the H2/O2 content, for these post-LOCA conditions, would operation of the H2 Recombiners per LGA-HG-101 be DESIRABLE or NOT DESIRABLE?

a. 1) RELIABLE
   2) NOT DESIRABLE

b. 1) RELIABLE
   2) DESIRABLE

c. 1) NEED MORE TIME
   2) DESIRABLE

d. 1) NEED MORE TIME
   2) NOT DESIRABLE

ANSWER:
b.
REFERENCE:
LGA-011
LGA-HG-201
LOP-CM-02
HIGH
NEW
K/A: 500000K2.01Knowledge of the interrelations between HIGH CONTAINMENT HYDROGEN CONCENTRATIONS the following: Containment hydrogen monitoring systems
EXPLANATION:

a. incorrect: RELIABLE, NOT DESIRABLE: Selected if the candidate does not recognize 1) that the Lower Explosive Limit of Hydrogen is 4%, 2) that the LGA-011 breakpoint for recombiner shutdown is 5%, or 3) that LGA-HG-101 does not include recombiner operation with the electric heaters (i.e.: the recombiner) in service.
b. correct: Per LGP 2-1, Drywell de-inerting can begin while at power, making it plausible to have elevated O2 levels. Post-LOCA H2/O2 monitoring system is started as part of LGA-003. Per LOP-CM-02, these analyzers take 15 minutes to warm up and stabilize. After 20 minutes these readings would be RELIABLE. When hydrogen is detected (0.5% is minimum detectable) then LGA-011 Hydrogen Control is entered. The 1st step is to place H2 recombiners in service as a mixing system per LGA-HG-201. They would not be shutdown unless H2 concentrations exceed 5% at the given O2 level, so their operation is DESIRABLE.
c. incorrect: NEED MORE TIME, DESIRABLE: Any time over 20 minutes is plausible if the 15-minute warmup time in not known.
d. incorrect: NEED MORE TIME, NOT DESIRABLE: A combination of Distractor 1 & 2 explanations. Also selected if the candidate thinks the analyzers NEED MORE TIME

because, per LGA-HG-101, unknown readings are interpreted as high readings, which would require H2 Recombiner shutdown.

QUESTION# 61 Points: 1.00

With Unit-1 in Shutdown Cooling on 1A RHR, the following valves close and 1A RHR pump trips:

- 1E12-F053A, 1A RHR Shutdown Cooling Return Isolation
- 1E12-F008, RHR Shutdown Cooling Suction Header Outboard Isolation
- 1E12-F009, RHR Shutdown Cooling Suction Header Inboard Isolation

Determine which one of the following caused the above conditions to occur and why?

a. RHR Pump suction flow at 5700 gpm to prevent lifting blade guides.

b. Reactor Vessel pressure at 135 psig to protect suction piping from overpressurization.

c. Reactor water level at +55 inches to prevent flooding Main Steam Lines.

d. Breaker 1412 trips on overcurrent leaving 141Y a dead bus to prevent damage to 0 DG.

ANSWER:
b.
REFERENCE:
LOP-CX-06, Att. C
LOA-RH-101
System LP 64
HIGH
NEW
K/A: 295007K3.05 Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE : Low pressure system isolation
EXPLANATION:

a. incorrect: 5700 gpm limit is to prevent lifting blade guides but does not cause SDC to isolate. the setpoint is 125% of actual flow LOA-RH-101.
b. correct: "Reactor Vessel pressure at 135 psig" is correct because the indicated pressure is greater than the PCIS Group 6 setpoint and approaching the maximum designed delta P of 150 psig.
c. incorrect: Reactor Water Level +55 inches. The actual setpoint is Level 3(+13.4") for Group 6 isolation and it would be to prevent uncovering fuel. SDC isolates on this low level setpoint.
d. incorrect: Loss of 141Y will cause the pump to trip and the 1E12-F008 valve will remain open. The Diesel will not pick up the Bus due to overcurrent. The 1E12-F009 valve will never close since it is powered by 142Y. This power supply is a manual action to switch to the alternate.

QUESTION# 62 Points: 1.00

Given the following plant conditions:

- After a scram one Control Rod is at position 48
- ARI was initiated 10 minutes ago
- One CRD pump is running
- All scram valves indicate open
- The RPS EPMAs have tripped and will NOT reset
- Reactor pressure is greater than 920 psig

Based on the above conditions, the operator assigned to complete the scram actions should NEXT attempt to insert the remaining control rod using which one of the following?

a. Removing the air supply filter and venting the scram air header.

b. Scramming the rod in using the SRI test switches at its HCU.

c. Venting the CRD withdraw line of this rod.

d. Manually driving the rod in with RCMS.

ANSWER:
d.
REFERENCE:
LGA-NB-01
HIGH
BANK
K/A: 295015A1.03 Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM : RMCS: Plant-Specific
EXPLANATION:

a. incorrect: The SRI Test Switches will not work because RPS is already de-energized.
b. incorrect: Venting the CRD withdraw line of this rod is incorrect because with a CRD pump running venting should be performed after attempting normal RCMS insertion.
c. incorrect: Removing the air supply will not help because scram air header is depressurized.
d. correct: "Manually driving the rod in with RCMS." is the correct answer because, with a CRD pump available you should be attempting to drive rod in parallel with any other method that would be appropriate.

QUESTION# 63 Points: 1.00

Given the following conditions on Unit 1:

At 1500:

- Scram occurred and all rods are in.
- Group 2 isolation occurred.
- WS Header pressure reads 50 psig.

The following annuciators occur at the TIME specified:

- 1600 1H13-P601-B401, RBCCW RAD HI, is in alarm
- 1605 1H13-P601-B301, SERV WTR EFFLUENT RAD HI, is in alarm

Based on the above conditions, which of the following components is the source of the HI RAD alarms?

a. 1A RHR Heat Exchanger

b. 1A RR Pump Seal Heat Exchanger

c. 1A Fuel Pool Cooling Heat Exchanger

d. 1A RWCU Non-Regenerative Heat Exchanger

ANSWER:
d.
REFERENCE:
LOR-1H13-P601-B301/401
System Description 052, 114
FUNDAMENTAL
NEW
K/A: 295017A2.04 Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Source of off-site release
EXPLANATION:

a. incorrect: The 1A RHR heat Exchanger would be a source release to WS but it has a separate alarm for 1A RHR SERV WTR RAD HI
b. incorrect: 1A RR Pump Seal Heat exchanger would be plausible from RBCCW but the Group 2 isolation is in and RBCCW is isolated to the RR Pump Seal Heat Exchanger.
c. incorrect: 1A Fuel Pool Heat Exchanger is serviced by WS but that would be the only alarm in if this system were leaking into WS.
d. correct: With both the Service Water Rad Hi and RBCCW Rad Hi in alarm this would indicate you have a release into the WS system somewhere, since WS pressure has lowered below WR pressure of 60 psig. Based on the data given the only possible answer would be from the 1A RWCU Heat Exchanger.

QUESTION# 64 Points: 1.00

Using the attached reference and given the following:

- Unit 1 VR Radiation Monitors are reading 15 mr/hr.
- LGA-VQ-02, EMERGENCY CONTAINMENT VENT, is in progress on Unit 1 to allow for Low Pressure injection.
- Unit 1 VG is running.
- Unit 2 VG has been shutdown to ensure isokinetic flow.

The operator notices that Reactor Building d/p indication is reading 0" WC.

In accordance with procedures the operator should use which of the following to make Reactor Building d/p more negative?

a. Unit 2 VG system

b. Unit 1 VQ system

c. Unit 2 VQ system

d. VR system

ANSWER:
a.
REFERENCE:
LGA-VG-101
NEW
HIGH
K/A: 295035 2.1.20 Ability to interpret and execute procedure steps for Secondary Containment High Differential Pressure.
Reference provided during examination: LGA-VG-101 Flowchart
EXPLANATION:

a. correct: LGA-VG-101 guides you to use Unit 2 VG to help increase Reactor Building d/p.
b. incorrect: Per LGA-VG-101 you can not use VQ to increase Reactor Building d/p since VQ is running to lower primary containment pressure to allow for Low Pressure injection. Unit 1 VQ system should not be used since LGA-VQ-02 in progress.
c. incorrect: Unit 2 VQ system should not be used since LGA-VQ-02 in progress.
d. incorrect: VR system cannot be used because the VR exhaust readings are above the trip setpoint of 8 mr/hr.

QUESTION# 65 Points: 1.00

LGA-003, Primary Containment Control, requires drywell sprays to be terminated if suppression pool water level exceeds 722 feet.

What is the impact of continued operation of drywell sprays with suppression pool water level in excess of 722 feet?

a. Drywell sprays would be operated outside the drywell spray initiation limit curve.

b. Drywell spray would be rendered ineffective due to the lower ring of drywell spray nozzles being submerged.

c. Post-spray drywell vacuum relief cannot be assured due to the submergence of the vacuum breakers.

d. The static head resulting from the level of water in the suppression pool would cause the drywell spray nozzle flow to exceed design capacity.

ANSWER:
c.
REFERENCE:
LGA-003 Lesson Plan bases
FUNDAMENTAL
BANK (FERMI 2001)
K/A: 295029K1. 01 Knowledge of the operational implications of the following concepts as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Containment integrity
EXPLANATION:
Distractor (c.) is correct: Post-spray drywell vacuum relief cannot be assured due to the submergence of the vacuum breakers. Drywell spray is also only permitted if primary containment water level is below 722 ft. A containment flood level of 722 ft. corresponds to the elevation of the suppression chamber-to-drywell vacuum breaker openings. If the vacuum breaker openings are submerged, the vacuum breakers cannot function as designed to relieve non-condensibles into the drywell and equalize drywell and suppression chamber pressure. Operating drywell sprays with steam in the drywell and the vacuum breaker openings submerged could create a high suppression chamber-to-drywell differential pressure and challenge primary containment integrity

QUESTION# 66 Points: 1.00

Unit-1 and Unit-2 are both operating in Mode 1 with no equipment out of service.

A valving error caused Fire Protection Header Pressure to drop to 116 psig for 30 seconds.

Based on the above event, the control room NSOs should verify proper operation of the Diesel Fire Pumps (DFPs) by observing on ...

a. 1PM09J that both 0A and 0B DFP red lights are lit.

b. 1PM09J that 0A DFP red light is lit and 0B DFP green light is lit.

c. 1PM09J that 0A DFP red light is lit and 2PM09J that 0B DFP red light is lit.

d. 1PM09J that 0A DFP red light is lit and 2PM09J that 0B DFP green light is lit.

ANSWER:
a.
REFERENCE:
LOP-FP-02
System Description 125
FUNDAMENTAL
BANK (2003 LaSalle ILT)
K/A: GENERIC 2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.
EXPLANATION:

a. correct: "1PM09J that both 0A and 0B DFP red lights are lit." is correct. The 0A DFP automatically starts at 124 psig and the 0B DFP starts at 120 psig. Therefore if FP Header Pressure drops to 116 psig, both 0A and 0B DFPs should automatically start.
b. c., d. incorrect: see above.

QUESTION# 67 Points: 1.00

A Unit startup is in progress with the following conditions:

- The reactor is critical, below the point of adding heat
- The reactor is on an infinite period
- Reactor power is on the Intermediate Range Monitors (IRMs) Range 2

The unit NSO withdraws several control rods per the sequence package and takes the following readings to determine reactor period:

- Initial power 20 on IRM Range 2
- Final power 40 on IRM Range 2
- Time to change from initial to final power was 30 seconds.

Based on the above information and calculated reactor period, the SRM SHORT PERIOD annunciator _____(1)_____ be alarming, and the unit NSO _____(2)_____.

a. (1) should NOT;
(2) is required to insert control rods using RCMS.

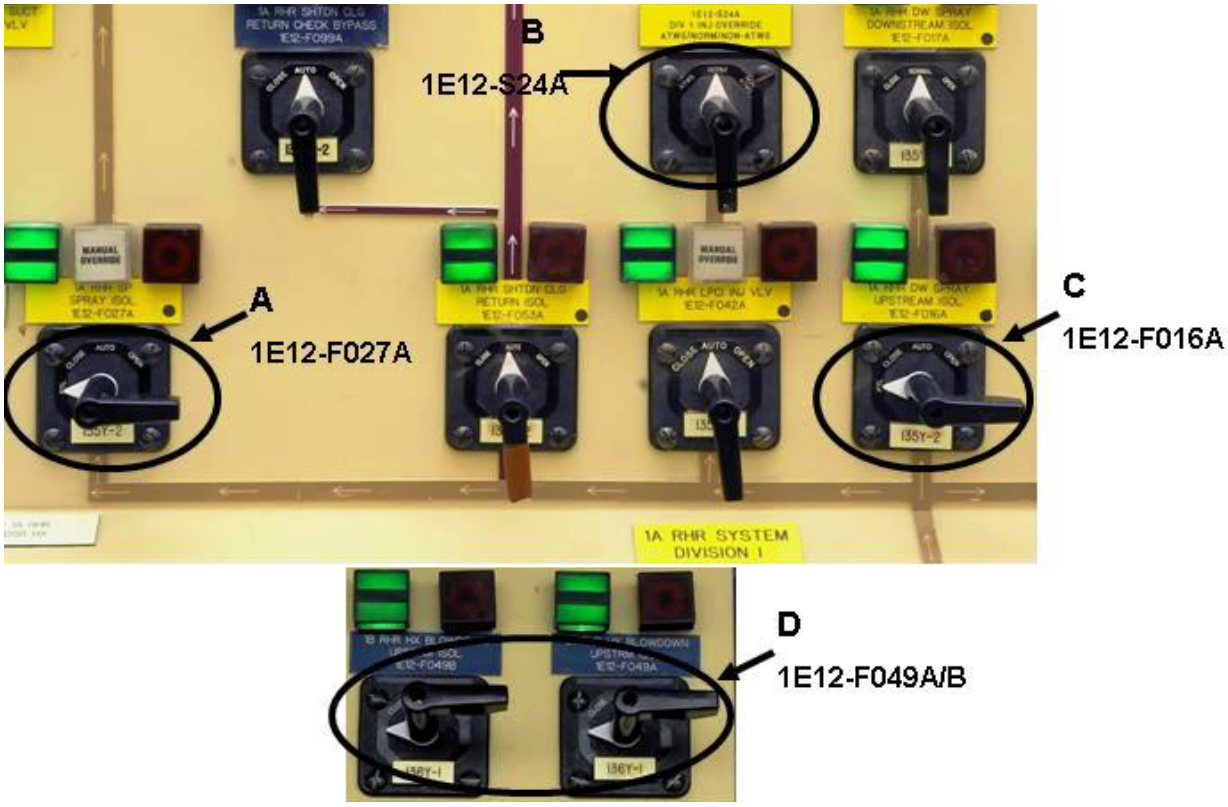
b. (1) should NOT;
(2) is allowed to withdraw additional control rods using RCMS.

c. (1) should;
(2) is required to insert control rods using RCMS.

d. (1) should;
(2) is required to scram the reactor using RPS scram pushbuttons.

ANSWER:
c.
REFERENCE:
LGP-1-1, Caution at top of page 26
HIGH
BANK
K/A: 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
EXPLANATION:
Distractor (c.) is the correct ANSWER: Reactor period = (1.443) x (doubling time) = (1.443) x (30) = 43.3 seconds. The target period should be 150 to 200 seconds and if <50 seconds the RO is required to insert control rods. If the applicant improperly calculated the applicant could fail to understand the Alarm setpoint has been reached and presume control rod withdrawal could continue. The reactor will scram on SRM HI-HI.

QUESTION# 68 Points: 1.00



Which of the following switch modifications on Unit 1 does NOT exist on Unit 2?

a. 1A RHR SP SPRAY ISOL (1E12-F027A)

b. Div. 1 INJ OVERRIDE ATWS/NORM/NON-ATWS (1E12-S24A)

c. 1A RHR DW SPRAY UPSTREAM ISOL (1E12-F016A)

d. 1A/B RHR HX BLOWDOWN UPSTRM ISOL (1E12-F049A/B)

ANSWER:
b.
REFERENCE:
LGA-RH-103/203
FUNDAMENTAL
NEW
K/A: 2.2.3 (multi-unit license) Knowledge of the design, procedural, and operational differences between units.
EXPLANATION:

a. c., d. incorrect: switches are part of the Multiple Spurious Operations modification that was installed first on Unit 2 outage L2R14, which is before L1R15. Therefore both units have these switch modifications.
b. correct: The switch labeled as "B" is part of the RHR Ops Burden Reduction modification that was completed during Unit 1 outage L1R15 and has not been installed on Unit 2.

QUESTION# 69 Points: 1.00

The Unit is at 4% power during a startup.

- Rod 26-35 is stuck at notch position 08.
- The rod can NOT be driven in or out despite multiple attempts.

What is the NEXT required Technical Specification action?

a. Vent the control rod.

b. Disarm the control rod.

c. Verify control rod separation criteria.

d. Use SRI test switches to scram the control rod.

ANSWER:
c.
REFERENCE:
Technical Specification 3.1.3 required action A.1.
FUNDAMENTAL
BANK
K/A: 2.2.39 Knowledge of less than or equal to one hour Technical Specification action statements for systems.
EXPLANATION:

a. incorrect there is no requirement to vent the control rod
b. incorrect: the rod does not have to be disarmed for 2 hours
c. correct: Verify rod separation criteria immediately per Technical Specification 3.1.3 required action A.1.
d. incorrect: there is no provision to use SRI Test Switches to scram the rod when stuck.

QUESTION# 70 Points: 1.00

An Equipment Operator is to perform a clearance that requires independent verification.

Which ONE of the following components could be eligible for an independent verification waiver?

A Danger tag to be hung on the...

a. 1CO01T CO_2 compressor disconnect switch.

b. breaker for 1WS002A at Lake Screenhouse MCC 1A.

c. 1G33-F043A, RT Pump A suction isolation valve, handwheel.

d. 1CP-MV1A condensate polisher A inlet valve control switch at 1PL03J, TB 710.

ANSWER:
c.
REFERENCE:
HU-AA-101
HIGH
BANK
K/A: 2.3.12 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
EXPLANATION:

a. b., d., incorrect: The components in these choices are in areas where radiation levels are not a factor. The candidate must understand that these components are in very low, or no, radiation areas and independent verification would not be waived.
b. correct: A Danger tag to be hung in 1G33-F043A, RT Pump A suction isolation valve, handwheel is correct. The Shift manager may waive verification requirements for ALARA concerns.

QUESTION# 71 Points: 1.00

You are an extra NSO directed to verify a single Reactor Water Clean-up (RT) valve's position. Your Electronic Dosimeter (ED) alarms on "dose rate" immediately after entering the RT Pump room. The Electronic Dosimeter indicated dose rate is LESS than that stated on the applicable RWP.

You are required to...

a. obtain new dosimetry at the Work Execution Center (WEC) and then verify the valve position.

b. call Radiation Protection (RP) and then wait in the area for an RP technician to arrive and verify area dose rates.

c. immediately verify the valve's position and then write a Condition Report (CR) based on the errant alarm.

d. immediately leave the radiologically controlled area and report to Radiation Protection (RP) department.

ANSWER:
d.
REFERENCE:
RP-AA-1008
FUNDAMENTAL
BANK
K/A: 2.3.15 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring
EXPLANATION:

a. incorrect: Obtain new dosimetry would not solve the issue of having higher than expected dose rates.
b. incorrect: "call RP and then wait" is partially correct, but you need to leave the area.
c. incorrect: "Immediately verify valves position" would not protect the worker from higher than expected rates.
d. correct: immediately leave the area and report the problem to RP per procedure.

QUESTION# 72 Points: 1.00

During an annunciator test on 1PM13J the annunciators FAIL to test.

Per LOA-AN-101, LOSS OF ANNUNCIATORS, annunciators at which of the following panels should be checked NEXT?

a. 1H13-P603

b. 1H13-P602

c. 1PM03J

d. 1PM02J

ANSWER:
a.
REFERENCE:
LOA-AN-101
FUNDAMENTAL
NEW
K/A: 2.4.32 Knowledge of operator response to loss of all annunciators.
EXPLANATION:

a. correct: Per the procedure the operator should check 1H13-P603 panel to verify the annunciators are working correctly since you have an unplanned loss of annunciators affecting both Div 1 and 2.
b. incorrect: 1H13-P602 is plausible as systems on this panel are important for operation but not required per LOA
c. incorrect: 1PM03J is plausible as systems on this panel are important for operation but not required per LOA
d. incorrect: 1PM02J is plausible as systems on this panel are important for operation but not required per LOA

QUESTION# 73 Points: 1.00

Assuming a primary system is discharging into the reactor building and all rods are fully inserted, which of the following conditions above Maximum Safe Values would require an RPV Blowdown?

a. RCIC Equipment Area temperature, and RCIC Room Sump water level.

b. RWCU Pump Area Room temperature, and Refuel Floor temperature.

c. HPCS Pump Room radiation level, and HPCS Room water level.

d. RT Phase Separator Room radiation level, and HPCS Pump Room radiation level.

ANSWER:
d.
REFERENCE:
LGA-002 Tables V, R and T
LGA-002 Lesson Plan Basis
FUNDAMENTAL
BANK
K/A: 2.4.21 Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.
EXPLANATION:

a. incorrect: RCIC Equipment Area temperature, and RCIC Room Sump water level. are two areas above Max Safe, but are not in the same parameter.
b. incorrect: RWCU Pump Area Room temperature, and Refuel Floor temperature. is just one area of the same parameter above Max Safe. The Refuel Floor temperature does not apply to Max Safe areas in LGA-002.
c. incorrect: HPCS Pump Room radiation level, and HPCS Room water level. are two areas above max safe, but two different parameters.
d. correct: "RT Phase Separator Room radiation level and HPCS Pump Room radiation level." is correct because it is the only answer with two areas above Maximum Safe value for the SAME PARAMETER.

QUESTION# 74 Points: 1.00

Unit 1 is at rated conditions with TIP traces in progress.

TIP area is posted and verified clear.

- 'B' TIP has just completed a trace and has been returned to the shield.
- 'A' TIP is at position 0001.

The 1H13-P601-B211, RB TIP ROOM RAD HI/DOWNSCALE, has come in andis verified to be HI.

Which of the following is the NEXT expected action(s) for the operator running the TIP trace?

a. close the 'A' TIP ball valve ONLY

b. continue with the next TIP trace

c. close the 'A' TIP ball valve and shutdown the TIP machine

d. withdraw the 'A' TIP to the in-shield position and then close the 'A' TIP ball valve

ANSWER:
b.
REFERENCE:
LOR-1H13-P601-B211
LOP-NR-06
FUNDAMENTAL
NEW
K/A: 2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
EXPLANATION:

a. incorrect: Per LOP-NR-06 you are to return the remaining TIPS, not just 'A' TIP, so closing the TIP ball valve only is incorrect.
b. correct: The TIP room HIGH Rad alarm is a normal occurrence while operating TIPs. So therefore the operator should continue performing TIP traces.
c. d. incorrect: If one were to assume this was an abnormal condition you would withdraw the TIPs to the in-shield position and close the ball valve. Shutdown the TIP machine would normally be done after one withdraws the TIPs but in this case the operator is to continue on with the next TIP trace.

QUESTION# 75 Points: 1.00

Unit 1 scrammed from rated conditions:

- APRM Downscale lights are NOT illuminated
- 27 Control Rods remain out past notch 02
- RPV water level is 38 inches

Which of the following actions can the Reactor Operator perform without Unit Supervisor direction?

1. INITIATE ARI
2. INITIATE SBLC
3. DRIVE IN control rods
4. TRIP RR Pumps

a. 1 and 2 ONLY

b. 1 and 3 ONLY

c. 1, 2, and 3 ONLY

d. 1, 2, 3, and 4

ANSWER:
c.
REFERENCE:
OP-LA-103-102-1002 Strategies for Successful Transient Mitigation
LGP 3-2 Hard Card.
HIGH
BANK
K/A: 2.4.1, Knowledge of EOP entry conditions and immediate action steps.
EXPLANATION:
1, 2, and 3 is the correct answers.The fact that APRM downscale lights are NOT lit indicates that reactor power is greater than 3% and the unit is in an ATWS condition. Per the Ops Strategies (OP-LA-103-102-1002) document the NSO can initiate ARI and SBLC without supervisor direction if power is above 3%. These two actions and inserting control rods are immediate action directed by the LGP 3-2 Hard Card. The Ops Strategies document states that Unit Supervisor permission is not required if the action is directed by the EOPs or is an immediate operator action. In this case, tripping RR pumps is not as there is decision to made prior to tripping the pumps, and they are not to be tripped until level is less than 36".

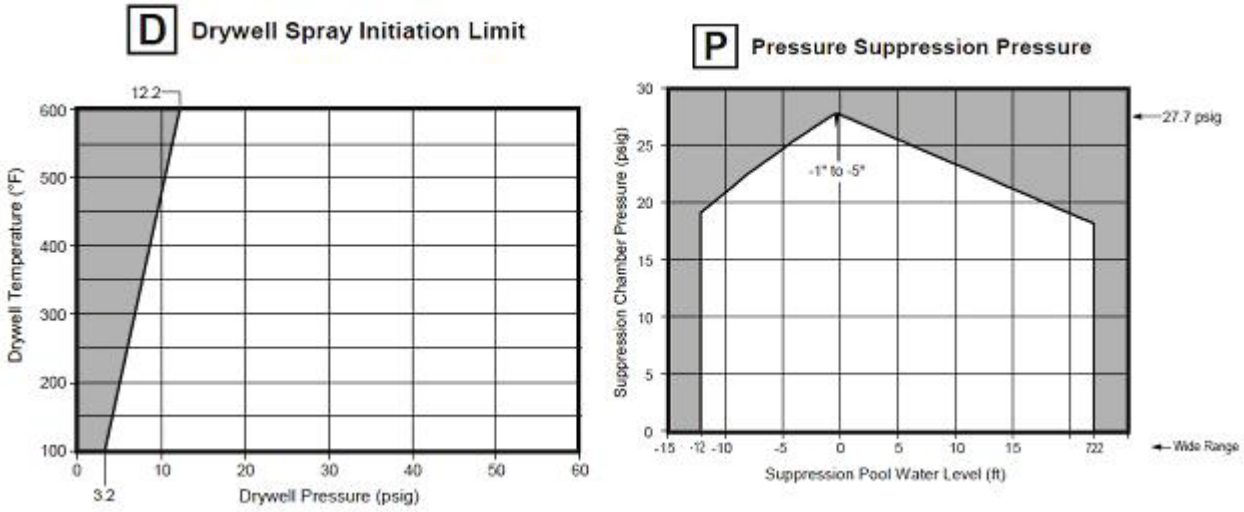
QUESTION# 76 Points: 1.00

LGA-001 and LGA-003 were entered due to a steam leak inside Primary Containment.

The following conditions exist:

- Suppression Chamber Sprays are in service
- Drywell pressure is 5 psig and rising slowly
- Drywell temperature is 290°F and rising slowly
- Suppression Chamber pressure is 4 psig and rising slowly
- Suppression Pool level is 720 ft and steady

Which of the following identifies the use of Drywell sprays and why?



Drywell Sprays…

a. shall be initiated to prevent excessive temperatures inside the primary containment.

b. shall be initiated to prevent chugging in the downcomers which could cause Primary Containment damage.

c. shall NOT be initiated because this could result in Drywell Pressure negative enough to challenge the Primary Containment.

d. shall NOT be initiated because this could cause chugging in the downcomers which could cause Primary Containment damage.

ANSWER:
c.
REFERENCE:
LGA-003 LP
HIGH
NEW
K/A: 295024A2.02 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell temperature
EXPLANATION:

a. incorrect: shall be initiated to prevent excessive temperatures inside the primary containment is incorrect because you are in violation of the PSP curve
b. incorrect: Shall be initiated to prevent chugging in the downcomers which could cause Primary Containment damage is incorrect because you are in violation of

the PSP curve

c. correct: LGA-003 Basis The Drywell Spray Initiation Limit is the highest drywell temperature at which initiation of drywell sprays will not result in an evaporative cooling pressure drop to below the high drywell pressure scram setpoint (1.93 psig). By restricting drywell spray operation with the DWSIL, the operator will have enough time to secure drywell sprays before containment integrity is threatened. Unrestricted operation of drywell sprays could thus cause an excessive negative differential pressure to occur between the drywell wall and the atmosphere causing deinerting due to inleakage or a drywell implosion due to exceeding the negative pressure design capability.
d. incorrect: Shall NOT be initiated because this could cause chugging in the downcomers which could cause Primary Containment damage is incorrect because you are in the correct action but NOT correct reason why.

QUESTION# 77 Points: 1.00

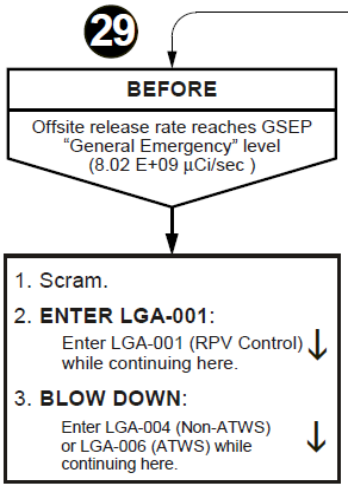
Given the following:

A transient occurred on Unit 2.

At time =00, the following conditions exist:

- Stack WRGM 12.0E8 uCi/sec and rising at 5E6 uCi/sec per second
- Standby Gas treatment WRGM 7.5E8 uCi/sec and stable;

What is the LONGEST time allowed before LGA-004, RPV Blowdown, must be entered?



a. 20 minutes

b. 22 minutes

c. 24 minutes

d. 26 minutes

ANSWER:
a.
REFERENCE:
LGA-009 Lesson Plan
HIGH
MODIFIED
EXPLANATION:

a. correct: Answer is correct because (8.02E9 uCi/sec – 19.5E8 uCi/sec) / (0.5E7 uCi/sec*60 min/sec) = 20.2 minutes therefore the LONGEST time would be 20 minutes.

K/A: 295038A2. 02 Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Total number of curies released

QUESTION# 78 Points: 1.00

Using the attached reference and given the following:

- Unit 1 is at rated conditions
- Fire alarm #223, DG CORR SPRINKLER ACTUATED, is in an alarming state
- Rounds Operator reports that there is no fire in the area

As the CRS which of the following is the minimum group of actions that will meet the TRM requirements?

1. Establish an hourly fire watch patrol
2. Establish a continuous fire watch of the affected area
3. Restore the system to OPERABLE status
4. Prepare a corrective action report

a. 1, 2, and 4 ONLY

b. 2 and 3 ONLY

c. 2 and 4 ONLY

d. 1 and 3 ONLY

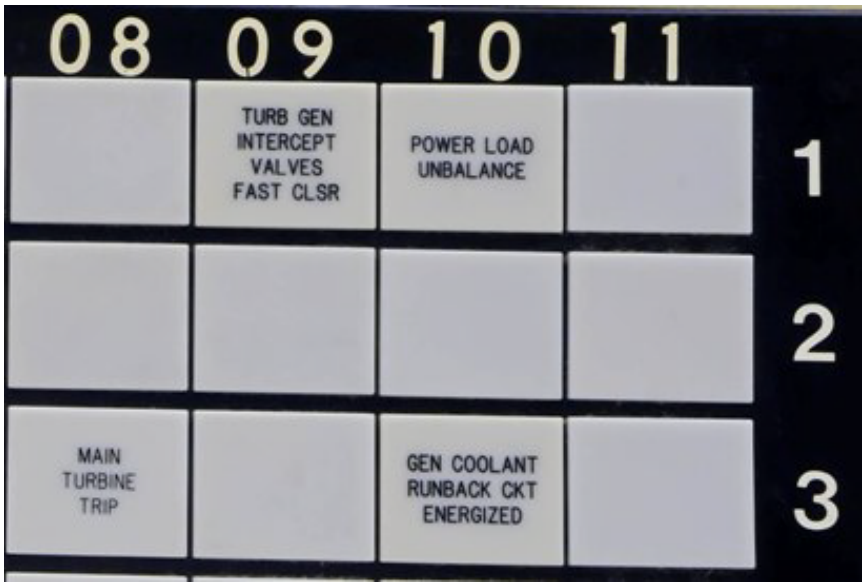
ANSWER:
d.
REFERENCE:
TRM 3.3
HIGH
NEW
K/A: 600000A2.09 Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: That a failed fire alarm detector exists
Reference provided during examination: TRM 3.3.p with 1hr actions removed
EXPLANATION:
distractor (d.) is correct: IAW TRM 3.3.p condition A one or more deluge system inoperable OR one or more Spray/Sprinkler Systems inoperable conditions A1, A2, and A3.1 or A3.2 must be accomplished. In relationship to answers provided that would be a combination of 1, 2 and 3 or 4. Given the provided indications a single detector has failed since there is no fire, but the sprinkler in the DG corridor needs a fire detector signal to actuate.

QUESTION# 79 Points: 1.00

Given the following:

- Unit 1 is in an ATWS
- Reactor Power is 15%
- EHC Pressure is 1300 psig
- Unit 1 Main Condenser reads 9.0" HG Backpressure

The 1PM02J indicates:



Is 1PM02J-B308 indication VALID/INVALID and what should the SRO direct the operator to enter?

a. INVALID and enter LOA-EH-101, UNIT 1 EHC ABNORMAL

b. VALID and enter LGA-MS-01, USING MAIN CONDENSER AS HEAT SINK IN ATWS

c. INVALID and enter LOA-TG-101, UNIT 1 TURBINE GENERATOR

d. VALID and enter LGA-SC-102, UNIT 1 ALTERNATE VESSEL INJECTION USING STANDBY LIQUID CONTROL

ANSWER:
c.
REFERENCE:
LOA-TG-101, LOR-1PM02J-B308
HIGH
NEW
K/A: 295005 2.4.46 Ability to verify that the alarms are consistent with a Main Turbine Generator.
EXPLANATION:
Distractor (c.) is correct: Based on the indication given 1PM02J-B308 should be in alarm because Main Condenser Backpressure is 9" HG, the Turbine Trip setpoint is 8.4" HG. The SRO would direct LOA-TG-101 based on a failed turbine to trip, eventhough you are in an ATWS. The bypass valves can handle the load because reactor power is below 25%.

QUESTION# 80 Points: 1.00

The following conditions exist:

- A refueling accident has occurred on Unit 1
- A General Emergency has been declared
- A release is in progress

Which one of the following events requires an additional state notification?

a. Unit 1 HPCS becomes INOP.

b. Refueling Supervisor becomes contaminated.

c. The wind shifts from 60 degrees to 120 degrees.

d. Non-essential personnel are evacuated from site.

ANSWER:
c.
REFERENCE:
EP-AA-114
HIGH
NEW
K/A: 295023 2.4.30 - Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator: Refueling Accidents
EXPLANATION:
Distractor (c.) is correct: State and Local Notification requirements IAW EP-AA-114 are: INITIATE offsite notification within 15 minutes of the following: declaration of an emergency, classification escalation, change in PARs, change in radioactive release conditions, and a CHANGE in wind direction that affects different combination of subareas or sectors when a release is occurring.

QUESTION# 81 Points: 1.00

Using the attached reference(s) and given the following:

- An event on Unit 1 has occurred.
- RPV level is -40 inches and stable.
- You are informed by IMD that the following level instruments are inoperable.
- Unit 1 Fuel Zone Range Level Recorder 1B21-R610
- Unit 1 Upset Range Level Recorder 1C34-R608

Which of the following identifies the (1) Technical Specification, which must be entered for these inoperable instruments and the (2) basis?

a. (1) 3.3.6.1 Primary Containment Isolation Instrumentation.
(2) In combination with other systems to limit fission product release during and following a DBA.

b. (1) 3.3.6.1 Primary Containment Isolation Instrumentation.
(2) Ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status.

c. (1) 3.3.3.1 Post Accident Monitoring (PAM) Instrumentation.
(2) In combination with other systems to limit fission product release during and following a DBA.

d. (1) 3.3.3.1 Post Accident Monitoring (PAM) Instrumentation.
(2) Ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status.

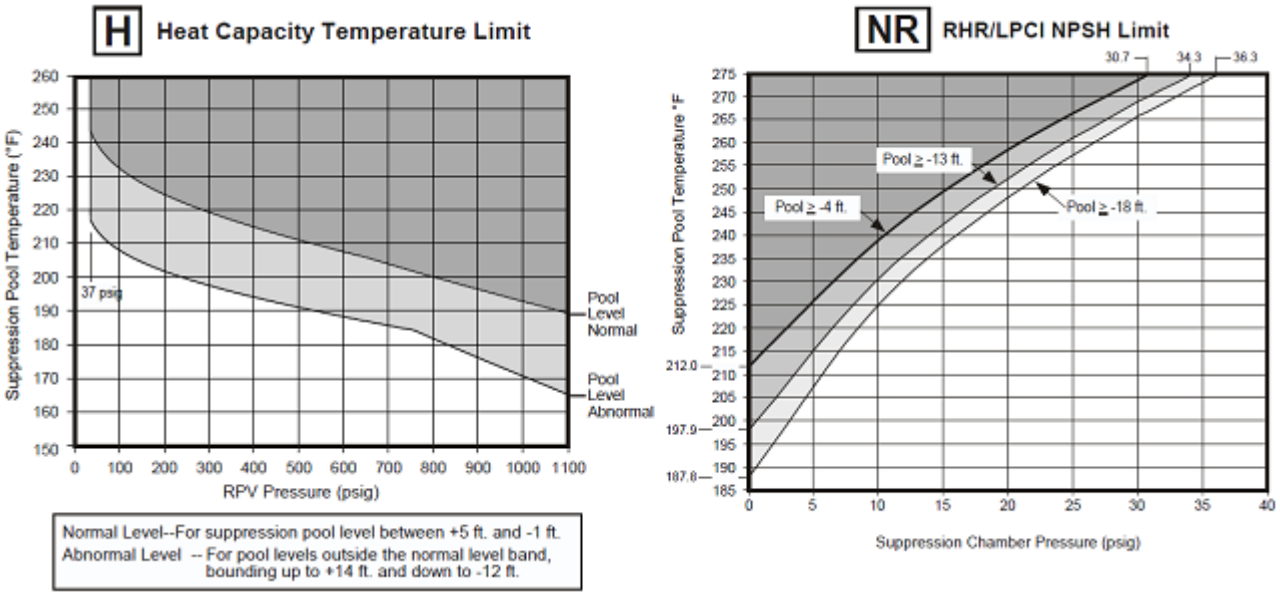
ANSWER:
d.
REFERENCE:
T.S. 3.3.3.1 and Bases 3.3.3.1
FUNDAMENTAL
BANK
K/A: 295031 2.2.40 Ability to apply Technical Specifications for Reactor Low Water Level.
Reference provided during examination: T.S. 3.3.6.1 and 3.3.3.1 table of instruments
EXPLANATION:

a. incorrect: 3.3.6.1 - does not use fuel zone instrumentation
b. incorrect: B.3.3.3.1 - is to ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status.
c. incorrect: B.3.3.6.1 - is in combination with other systems to limit fission product release during and following a DBA.
d. correct: 3.3.3.1 Post Accident Monitoring (PAM) Instrumentation, ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status. The fuel zone and wide range instruments provide post accident indication only.

QUESTION# 82 Points: 1.00

The reactor was at rated power when a LOCA occurred. Present plant conditions include the following:

- All control rods inserted
- RPV pressure is 100 psig and lowering slowly
- RPV water level is 60" (inches) and rising slowly
- 1 Condensate Pump is injecting
- B and C LPCI are injecting
- Suppression Pool Level is 690 ft on 1LR-CM027 (Wide/Narrow Range SP LVL) and slowly rising
- Suppression Chamber pressure is 5 psig and slowly rising
- Suppression Pool temperature is 210°F
- Suppression Chamber and Drywell Sprays are running.



Which of the following shall the SRO direct next?

a. Initiate an ADS in accordance with LGA-004, RPV Blowdown.

b. Align A RHR to shutdown cooling per LOP-RH-07, Shutdown Cooling System Startup Operation and Transfer.

c. Secure A and B RHR pumps and LPCI injection lineup using LOP-RH-12, Shutdown of LPCI After Automatic Initiation.

d. Stop all drywell sprays and raise suppression pool level using LOP-RH-16, Raising and Lowering Suppression Pool Level.

ANSWER:
a.
REFERENCE:
LGA-003 Basis
LGA-003 Flowchart
HIGH
BANK
K/A: 295030 2.1.23 - Ability to perform specific system and integrated plant procedures during

all modes of plant operation. (Low SP Water Level)
EXPLANATION:

a. correct: HCTL curve violation requires the operators to enter LGA-004, RPV Blowdown, while continuing in LGA-003.
b. incorrect; shutdown cooling pressure requirements are met however the parameters given require more EOP actions and the plant is not stable enough to conduct this evolution.
c. incorrect; the pool temperature and chamber pressure are within limits of NPSH no need to secure the pumps.
d. incorrect; the pool temperature and chamber pressure are within limits of NPSH no need to stop corrective efforts to raise pool level yet.

QUESTION# 83 Points: 1.00

Given the following:

- Station Blackout
- 1B Emergency Diesel Generator failed to start
- All Narrow Range meters on 1H13-P603 are reading downscale

(1) What instrument can be utilized to determine RPV water level?
(2) Which procedure should the U1 Unit Supervisor direct the Unit 1 NSO to perform?

a. (1) 1B21-R610, Rx Level Fuel Zone Range, on the 1H13-P601
(2) LOA-AP-101, Unit 1, AC Power System Abnormal

b. (1) 1C61-R010, VSL Level, on the 1C61-P001 Remote Shutdown Panel
(2) LOA-AP-101, Unit 1, AC Power System Abnormal

c. (1) 1B21-R604, Wide Range Rx Water Level, on the 1H13-P603
(2) LOA-NB-101, Reactor Vessel Instrumentation Abnormal

d. (1) 1C61-R010, VSL Level, on the 1C61-P001 Remote Shutdown Panel
(2) LOA-NB-101, Reactor Vessel Instrumentation Abnormal

ANSWER:
b.
REFERENCE:
LP- 40, LOA-AP-101
HIGH
BANK
K/A: 295009A2.01 - Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Reactor Water Level
EXPLANATION:
Distractor b. is correct. with a Station Blackout, per LOA-AP-101 Attachment K, the operator must be dispatched to the RSDP to determine reactor vessel level. With B and C Narrow Range Instruments on the 1H13-P603 are, powered from 112Y and 111Y, reading 0 inches (downscale) the crew should know at the very least reactor water level is < 0 inches. Fuel Zone Range on 1H13-P601 is powered by 136X-3, WR on 1H13-P603 is powered by 135X-3, these are both without power during a SBO.

QUESTION# 84 Points: 1.00

Given the following conditions:

- Unit-1 was at 100% power.
- 'A' IN Compressor is cross-tied to 'B' Dryer.
- Group 1 and Group 10 isolations were caused by an instrument failure.

The Unit 1 Supervisor directs the LOCAL Operators to __(1)__ IAW __(2)__.

a. (1) CHECK, 1IN22M, Rupture Disk is NORMAL to verify the IN Dryer did not over pressurize the purge line
(2) LOA-IN-101, Loss of Drywell Pneumatic Air Supply

b. (1) CHECK, 1IN22M, Rupture Disk is NORMAL to verify the IN Dryer did not over pressurize the purge line
(2) LOP-IN-03, Drywell Pneumatic System Transfer to Station Instrument Air System

c. (1) ISOLATE 1IN09MA, South Side Bottle Bank Gas Manifold System in order to preserve bank pressure
(2) LOP-IN-03, Drywell Pneumatic System Transfer to Station Instrument Air System

d. (1) ISOLATE 1IN09MA, South Side Bottle Bank Gas Manifold System in order to preserve bank pressure
(2) LOA-IN-101, Loss of Drywell Pneumatic Air Supply

ANSWER:
a.
REFERENCE:
LOA-IN-101, LP 97
HIGH
BANK
K/A: 295020 2.4.35 - Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects: Inadvertent Containment Isolation).
EXPLANATION:

a. correct: Check the rupture disk, IN022M - NORMAL: per LOA-IN-101 B.3.3 checking the rupture disc shall be performed by local inspection. On a grp 10 isolation the vent pipe will isolate but the compressor will trip on low suction pressure. When the dryer also trips, the purge solenoids are prevented from energizing and purging into the isolated pipe. When a compressor is cross-tied to the other unit this logic is not in effect. This makes the rupture disc susceptible to over pressurization.
b. incorrect: There is no reference to the rupture disc in the LOP-IN-03 procedure
c. incorrect: ADS bottle banks are always valved in and on standby for use. T.S.3.5.1 compliance.
d. incorrect: ADS bottle banks are always valved in and on standby for use. T.S.3.5.1 compliance and there is no reference in LOA-IN-101 for bottle bank isolation.

QUESTION# 85 Points: 1.00
Per Tech Spec Bases, which of the following is the LOWEST reactor pressure and the LOWEST CRD Accumulator pressure at which CRD pump availability is NOT needed to ensure control rod scram insertion times?

	Reactor Pressure	Accumulator Pressure
a.	800 psig	800 psig
b.	800 psig	940 psig
c.	940 psig	800 psig
d.	940 psig	940 psig

ANSWER:
b.
REFERENCE:
Tech Spec 3.1.4.1 Bases
Tech Spec 3.1.5.2 Bases
FUNDAMENTAL
BANK
K/A: 295022 2.2.37 - Ability to determine operability and/or availability of safety related equipment: Loss of CRD pumps
EXPLANATION:

a. incorrect: Per Tech Spec Bases 3.1.5.2 the accumulators must be maintained above 940 psig to ensure scram times in 3.1.4.1 are met.
b. correct: Per Tech Spec Bases 3.1.4.1 Maximum scram insertion times occur at a reactor pressure of approximately 800 psig because of the competing effects of reactor steam dome pressure and stored accumulator energy. Therefore, demonstration of adequate scram times at reactor steam dome pressure.. 800 psig ensures that the scram times will be within the specified limits at higher pressures.
c. d. incorrect: see distractor (b.) above.

QUESTION# 86 Points: 1.00

The following conditions exist:

- A small LOCA is in progress
- A RHR and LPCS are injecting
- RPV water level is -55 inches and lowering
- Drywell Pressure is at 4 psig and slowly lowering
- Drywell Temperature is at 152°F and slowly lowering
- Drywell and Suppression Chamber Sprays are running on 1B RHR
- LOR-1H13-P601-B112, 1A RHR SERV WTR RAD HI, has just alarmed at 165 cpm and rising rapidly.

What actions must be directed next?

a. SHUTDOWN the 'A' RHR Service Water Loop ONLY per LOP-RH-05, Operation of RHR Service Water System.

b. SHUTDOWN the 'A' RHR System per LOP-RH-13, Suppression Pool Cooling Operation, AND SHUTDOWN the 'A' RHR Service Water Loop per LOP-RH-05, Operation of RHR Service Water System.

c. OPEN 1E12-F048A, A RHR HX Bypass Valve, and ISOLATE the 'A' RHR Heat Exchanger per LOP-RH-03, Draining the RHR and RHR Service Water Systems, ONLY.

d. OPEN 1E12-F048A, A RHR HX Bypass Valve, and ISOLATE the 'A' RHR Heat Exchanger per LOP-RH-03, Draining the RHR and RHR Service Water Systems, AND SHUTDOWN the 'A' RHR Service Water Loop per LOP-RH-05, Operation of RHR Service Water System.

ANSWER:
d.
REFERENCE:
LOR-1H13-P601-B112
HIGH
NEW
K/A: 400000A2.04 Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: Radiation Monitoring system alarm.
EXPLANATION:

a. incorrect: shutting down the RHR WS is not the ONLY thing that is required though desire to stop the spread of the leak is warranted.
b. incorrect: stopping the entire system is not correct as it is required for the given indications and is not procedurally correct. This would be correct if containment pressure were below 1.93 psig and lowering.
c. incorrect: bypassing the heat exchanger to keep the spread of the leak is desired but allowing the RHR service water to remain running is incorrect. The candidate may select this as a required action for pump cooling to keep chamber and drywell sprays on to lower pressure below 1.93 psig.
d. correct: per the LOR response you should, as soon as possible, stop the RHR system flow through the heat exchanger and shutdown the RHR service water loop.

QUESTION# 87 Points: 1.00

In response to an event on Unit 1, the crew scrammed and initiated ADS IAW LGA-004, RPV Blowdown.

- Reactor pressure is 42 psig and lowering.
- Drywell pressure is 0.2 psig and stable.
- 111Y is deenergized.

Then the following occurred:

- Northside Unregulated Header Relief Valve, downstream of the regulator, fails OPEN.
- Annunciator 1H13-P601-F102, ADS VALVE ACCUMULATOR PRESSURE LO, alarms.
- SRV Accumulator pressures supplied by Northside Unregulated header are 100 psig and lowering.
- SRV Accumulator pressures supplied by Southside Unregulated header are 150 psig and stable.

Given the above conditions:

(1) What is the status of the ADS valves?
(2) What action should the SRO direct to mitigate the consequences of these events?

a. (1) ADS valves supplied by the Northside Unregulated header are CLOSED and ADS valves supplied by the Southside Unregulated header are OPEN.
   (2) IAW LGA-004, RPV Blowdown, maintain RPV pressure less than 38 psid above Suppression Chamber pressure.

b. (1) ALL ADS valves are OPEN but those supplied by the Northside Unregulated header will eventually close as accumulators depressurize.
   (2) IAW LGA-004, RPV Blowdown, maintain RPV pressure less than 38 psid above Suppression Chamber pressure.

c. (1) ADS valves supplied by the Northside Unregulated header are CLOSED and ADS valves supplied by the Southside Unregulated header are OPEN.
   (2) IAW LOA-IN-101, Loss of Drywell Pneumatic Air Supply, direct that ADS Bottle Banks be re-pressurized via Emergency Pressurization Station.

d. (1) ALL ADS valves are OPEN but those supplied by the Northside Unregulated header will eventually close as accumulators depressurize.
   (2) IAW LOA-IN-101, Loss of Drywell Pneumatic Air Supply, direct that ADS Bottle Banks be re-pressurized via Emergency Pressurization Station.

ANSWER:
b.
REFERENCE:
LP 62, 97
LGA-004
LPGP-Calc-01
HIGH
BANK (9-Mile Pt.)
K/A: 218000A2.03 Ability to (a) predict the impacts of the following on the AUTOMATIC DEPRESSURIZATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of air supply to ADS valves: Plant-Specific
EXPLANATION:

Distractor (b.) is the correct answer. ADS valves are OPEN but will close. The symptoms provided eventually give you less than 7 SRVs OPEN and you are unable to open the non ADS SRVs due to a loss of IN and 111Y. The ADS Bottle Banks supply air to ADS valve accumulators and with the leak in the Northside header relief valve you would not be able to repressurize the Northside ADS valves. lAW LGA-004, RPV Blowdown with less than 7 SRVs open and RPV-to-Suppression chamber D/P is more than 38 psid, maintain RPV pressure less than 38 psid above suppression chamber pressure. The fact that either 3 or 4 ADS valves are closed is plausible as you would get Valves closed, but currently you are above the 88 psid required to keep the ADS valves open.

QUESTION# 88 Points: 1.00

Unit 1 has been operating at rated conditions for an extended period of time.

- A Loss of Offsite Power results in a Group 1 isolation.
- RCIC is being used to maintain Reactor water level.

Based on the stated conditions, what is the LOWER value of the Reactor Water level band that the CRS should direct the NSO to maintain?

a. 11 inches

b. 0 inches

c. -30 inches

d. -150 inches

ANSWER:
c.
REFERENCE:
LGA-001 and LGA-001 Lesson Plan, OP-LA-103-102-1002
HIGH
NEW
K/A: 259002 2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes: Reactor Water Level Control System
EXPLANATION:

a. incorrect: 11 inches is plausible because this is the normal RPV level control band limit. However, the conditions given in the stem make this level band susceptible to swell.
b. incorrect: 0 inches is plausible because this is the bottom of the Narrow Range RPV level instruments on the 1H13-P603 panel.
c. correct: A Group 1 isolation removes the normal method for heat removal from the reactor. The decay heat produced by a core operated at rated conditions for an extended period of time will require the use of Relief valves to control reactor pressure. When a Relief valve is opened with RPV level at or above 11 inches, the sudden reduction in reactor pressure will cause reactor water level to swell above 59.5 inches. The caution statement in the reactor water level control leg of LGA-001 states: "Control RPV water level between 11 in. and 59.5 in. using any of the systems listed below: If swell could exceed 59.5 in., control level between -30 in. and 59.5 in." This statement is intended to prevent the automatic tripping of the preferred high pressure injection systems should RPV level swell during a pressure reduction. Therefore, the CRS should prescribe an RPV water level control band of -30 inches to 59.5 inches.
d. incorrect: -150 inches is plausible because this is the lower value of the level band given if RPV level cannot be maintained greater than 11 inches.

QUESTION# 89 Points: 1.00

Given the following:

- 0 DG was started to conduct LOS-DG-M1, 0 Diesel Generator Operability Test.
- While operating fully loaded in parallel with the Unit-1 SAT in accordance with LOS-DG-M1, a lockout of the Unit-1 SAT occurred.
- The EO informs you that 0DG03J-2-1, High Water Temperature, is alarming.
- 0 DG temperature is 200°F and rising 1 degree every 5 minutes.

(1) What, if any, operator action(s) must be directed at this time?
(2) In 10 minutes, with NO Operator Action, what will be the status of the 0 DG?

a. (1) VERIFY proper operation of 0 DG Cooling Water System per LOP-DG-04, Diesel Generator Special Operations.
(2) The DG will remain running as the only source connected to bus 141Y.

b. (1) SHUTDOWN the 0 DG per LOS-DG-M1, 0 Diesel Generator Operability Test.
(2) The DG will trip on High Temperature and de-energize bus 141Y.

c. (1) VERIFY proper operation of 0 DG Cooling Water System per LOP-DG-04, Diesel Generator Special Operations.
(2) The DG will trip on High Temperature and de-energize bus 141Y.

d. (1) The governor Speed Droop dial must be set to 50 percent, AND bus voltage and frequency returned to nominal values per LOP-DG-02, Diesel Generator Startup and Operation.
(2) The DG will remain running as the only source connected to bus 141Y.

ANSWER:
a.
REFERENCE:
LP 11
LOR- 0DG03J-2-1
LOP-DG-04
LOP-DG-02
LOA-AP-101
HIGH
MODIFIED (LaSalle 2005 ILT Exam)
K/A: 264000 2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual: Emergency Generators (Diesel/Jet)
EXPLANATION:
Distractor (a.) is the correct ANSWER: Only a LOCA signal will bypass normal trips of the DGs, under voltage will not. So without operator action the DG will eventually trip on high water temperature (208°F) and cause a Lockout relay trip (86 actuation) of the DG. The proper action to direct is to ensure proper lineup of the cooling water system and TCV per LOP-DG-04, DG Special Operations. Though because of the SAT loss you should adjust the Speed Droop and correct for load on the bus adjusting it to 50 is the wrong action. Per LOP-DG-02, DG Startup and Operation adjusting the Speed Droop should be done to “0”. Also found in LOS-DG-M1, 0 DG Operability Test limitation D.6. In the case of SHUTDOWN the 0 DG per LOS-DG-M1, 0 Diesel Generator Operability Test. would be applicable after verifying that the 0 DG cooling water flow was below the minimum flow of 800 gpm. This would be verified in LOP-DG-04.

QUESTION# 90 Points: 1.00

Using the attached reference(s) and given the following:

- Unit-1 is shutdown
- Reactor recirculation temperature is 205□F

Instrument maintenance has completed LIS-LP-108, LPCS PUMP HIGH/LOW DISCHARGE PRESSURE ALARM CALIBRATION.

The instrument technician informs the unit supervisor that the 1E21-N005B, LPCS System Discharge Pressure Low Switch, does NOT meet calibration requirements. 1H13-P601-C308, LPCS System Discharge Pressure Low Annunciator, did NOT reset.

An operator was dispatched and identified that there was water at the high point vent and local pressure indicated 55 psig.

What is the impact on Tech Spec 3.5.1 and 3.5.2?

a. entry into TS 3.5.1 Required Action A.1 is required, 3.5.2 is NOT applicable

b. entry into TS 3.5.2, Required Action A.1 is required, 3.5.1 is NOT applicable

c. LCO requirements of Tech Spec 3.5.1 are met, 3.5.2 is NOT applicable

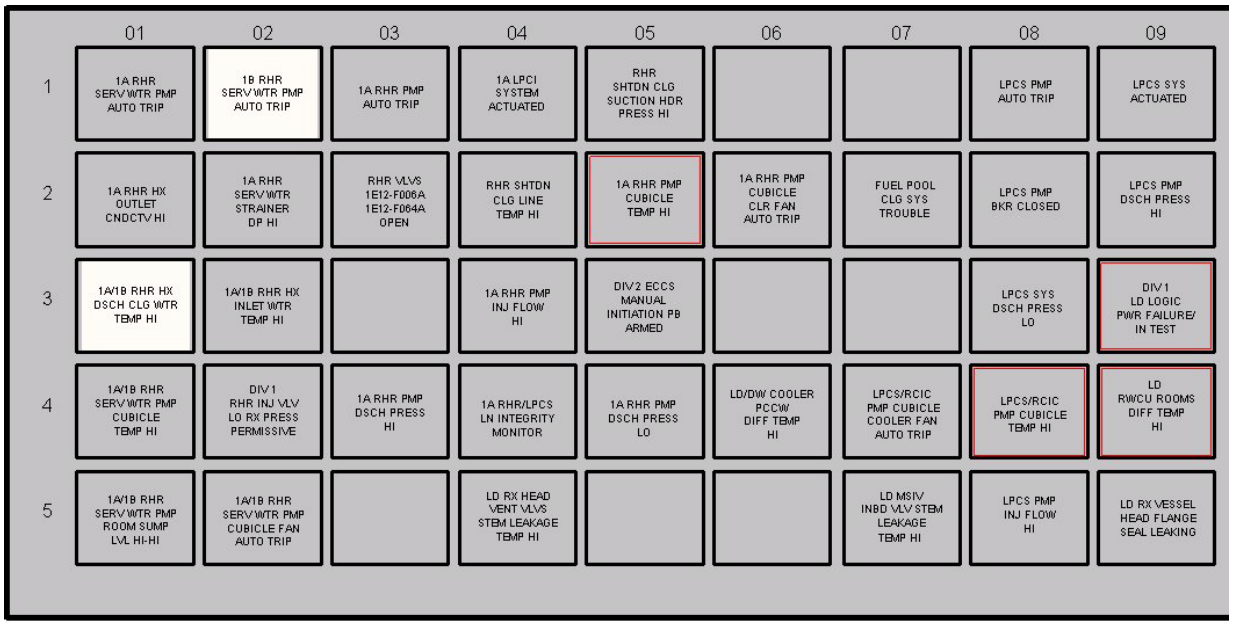
d. LCO requirements of Tech Spec 3.5.2 are met, 3.5.1 is NOT applicable

ANSWER:
c.
REFERENCE:
LOR-1H13-P601-C308, T.S 3.5.1 and bases, T.S 3.5.2 and bases, TRM 3.3.e
HIGH
NEW
K/A: 209001 2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations: Low Pressure Core Spray System
Reference provided during examination: T.S. 3.5.1, 3.5.2
EXPLANATION:
Distractor (c.) is correct: T.S. 3.5.1 is applicable as the unit is still in the mode of applicability. Per Bases for 3.5.1, To ensure rapid delivery of water to the RPV and to minimize water hammer effects, the ECCS discharge line “Keep fill” systems are designed to maintain all pump discharge lines filled with water. Per T.S 3.5.1 bases SR 3.5.1.1 states that one acceptable method of ensuring the lines are full is to vent at the high points. Therefore you meet the LCO requirements for T.S 3.5.1 and T.S 3.5.2 is NOT applicable.

QUESTION# 91 Points: 1.00

Given the following on Unit 1:

- LOCA on Unit 1
- 1A RHR is in Suppression Pool Cooling and Suppression Chamber Spray modes
- 1B RHR is running in Drywell Spray mode
- Suppression Pool Temperature is 200°F



Based on the above information:

(1) Which spray temp will rise the most?
(2) Which of the following actions must be directed first?

a. (1) Suppression Chamber Spray temperature will rise.
(2) Throttle service water flow to prevent runout of running service water pump per LOP-RH-05, Operation of the RHR Service Water System.

b. (1) Drywell Spray temperature will rise.
(2) Lower RHR system flow as required to accommodate for the lower RHR Service Water cooling flow to maintain operating band per LGA-RH-103, Unit 1 A/B RHR Operations in the LGAS/LSAMGS.

c. (1) Suppression Chamber Spray temperature will rise.
(2) Lower RHR system flow as required to accommodate for the lower RHR Service Water cooling flow to maintain operating band per LOP-RH-13, Suppression Pool Cooling Operation.

d. (1) Drywell Spray temperature will rise.
(2) Throttle service water flow to prevent runout of running service water pump per LOP-RH-05, Operation of the RHR Service Water System.

ANSWER:
a.
REFERENCE:
LOR-1H13-P601-C102
LOR-1H13-P601-C301

LOP-RH-05
HIGH
NEW
K/A: 230000A2.16 Ability to (a) predict the impacts of the following on the RHR/LPCI: TORUS/SUPPRESSION POOL SPRAY MODE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of, or inadequate, heat exchanger cooling flow
EXPLANATION:
Distractor (a.) is the correct answer: Indications are the RHR service water pump is degraded and/or slowly going away. The loss of service water flow has the same effect on the plant as if the pump had instantly tripped. Less service water flow through the heat exchanger will cause a hotter discharge temperature of the heat exchanger and subsequent alarms as such. The corrective action for a loss of service water pump to heat exchanger is to throttle the service water flow per LOP-RH-05. Action is depicted in LOR-1H13-P601-C101. 1A and 1B RHR Service water pumps are applied to the 1a RHR system. 1C and 1D RHR service water pumps are used on 1B RHR system. Throttling RHR system flow will do nothing for the inadequate cooling.

QUESTION# 92 Points: 1.00

Given the following plant conditions:

- Unit-1 is shutting down
- RCMS shows INSERT and WITHDRAW blocks
- RCMS shows Power Below LPSP and LPAP box
- 1H13-P603-A308, Rod Out Block is LIT

What is the Technical Specification Basis for the CURRENT Rod Out Block?

a. To prevent exceeding 1% plastic strain during a control rod drop accident.

b. To prevent exceeding 280 cal/gram during a control rod drop accident.

c. To prevent exceeding 1% plastic strain during a control rod withdrawal accident.

d. To prevent exceeding 280 cal/gram during a control rod withdrawal accident.

ANSWER:
b.
REFERENCE:
T.S. 3.3.2.1
FUNDAMENTAL
NEW
K/A: 201006 2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits: Rod Worth Minimizer System (RWM) (Plant Specific)
EXPLANATION:
Distractor (b.) is correct: RWM being INOP would cause a rod withdrawal and insert block. The bases for RWM is to limit the potential amount and rate of reactivity during a CRDA to not exceed 280 cal/gm when <10% RTP. The bases for RBM is to limit the control rod withdrawals if localized neutron flux exceeds a predetermined setpoint during control rod manipulations to preclude MCPR Safety Limits and the cladding 1% plastic strain fuel design limit.

QUESTION# 93 Points: 1.00

Given the following conditions:

- Unit 1 was ascending in power after a startup.
- The reactor scrammed due to high pressure in the Drywell.
- Several control rods did NOT fully insert.

The following LGA-010 actions have been taken:

- ARI has been initiated.
- ADS has been inhibited.
- ECCS injection has been prevented.

Reactor power is low enough that SBLC initiation is NOT required.
RPV water level is at +30 inches and stable.

Prior to inserting control rods per LGA-NB-01, the Recirculation System status must be addressed.

Which LGA-010 direction(s), if any, is/are necessary concerning the Recirculation Pumps and Recirc Flow Control Valves (FCVs)?

a. Trip the Recirc Pumps ONLY.

b. No direction(s) is/are necessary.

c. Verify/runback Recirc FCVs to minimum ONLY.

d. Verify/runback Recirc FCVs to minimum AND then trip the Recirc Pumps.

ANSWER:
b.
REFERENCE:
LGA-010 and LGA-010 Lesson Plan
HIGH
NEW
K/A: 202002 2.4.9 Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies. Recirculation Flow Control System
EXPLANATION:
Distractor (b.) is the correct answer: The low power implication for Recirc Flow Control in the LOCA/ATWS mitigation strategy is that control of the FCVs is not possible and tripping the pumps is not necessary as long as reactor power is <3%. This is a more plausible situation when starting from low power. Per Lesson Plan 012-LGA-010, “If reactor power is less than 3%, tripping the recirc pumps is not desired”. Tripping the pumps will not promote further power reduction and it is better to keep the pumps available to aid in mixing boron in case SBLC injection becomes necessary. Also per Lesson Plan 012-LGA-010, the FCVs would be locked up due to Drywell pressure above the scram setpoint 1.93 psig. The FCVs would be locked up due to Drywell pressure above the scram setpoint 1.93 psig. Per Lesson Plan 012-LGA-010, “If reactor power is less than 3%, tripping the Recirc pumps is not desired”. A combination of distractors 1 & 2. This would be the correct answer during a high power ATWS.

QUESTION# 94 Points: 1.00

Given the following:

- Power is at 100%
- At 1200 on 2/16, it was determined that part of a T.S. required surveillance was NOT performed.
- The incomplete surveillance was performed on 2/13
- The last complete satisfactory surveillance was completed at 1200 on 1/15.
- The surveillance is required to be performed at least once per 31 days

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Equipment Inoperable	A.1 Restore Equipment to OPERABLE Status	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 24 hours

At 1600 on 2/16, the surveillance is performed and is determined to be UNSAT.

Which of the following is required first?

a. Be in Hot Shutdown by NO later than 0400 on 2/17.

b. Be in Cold Shutdown by NO later than 1600 on 2/17.

c. Be in Hot Shutdown by NO later than 0400 on 2/20.

d. Be in Cold Shutdown by NO later than 1600 on 2/20.

ANSWER:
c.
REFERENCE:
T.S. 1.3
HIGH
BANK (Hope Creek)
K/A: 2.1.39 Knowledge of conservative decision making practices.
EXPLANATION:
Distractor (c.) is correct: The surveillance was complete within the required surveillance time of 31 days. Therefore a 72 hour clock starts before the 12 hour clock begins for the requirement to be in Hot Shutdown. This would be a total of 84 hours resulting in a time of 0400 on 2/20. Be in Hot Shutdown by NO later than 0400 on 2/17; an additional 72 hours is allowed by the LCO before beginning the clock toward Hot Shutdown and Cold Shutdown requirements. Be in Cold Shutdown by NO later than 1600 on 2/17; an additional 72 hours is allowed by the LCO before beginning the clock toward Hot Shutdown and Cold Shutdown requirements. Be in Cold

Shutdown by NO later than 1600 on 2/20; Cold Shutdown is required within 24 hours following when Hot Shutdown is achieved.

QUESTION# 95 Points: 1.00

Given the following information:

- Unit 1 is at rated conditions
- IMD is installing a jumper in 1PM13J to troubleshoot the 1CM022A, A POST LOCA H2/O2 CNMT MONITOR PANEL DW SAMPLE ISOL VALVE, that failed to open during LOS-AA-W1
- The work order package does NOT have a 50.59 review

What is the MAXIMUM time this jumper may remain installed without having a 10CFR50.59 screening?

a. 30 days

b. 60 days

c. 90 days

d. 120 days

ANSWER:
c.
REFERENCE:
CC-AA-112-1001
FUNDAMENTAL
NEW
K/A: 2.2.5 Knowledge of the process for making design or operating changes to the facility.
EXPLANATION:
IAW LS-AA-104-1000 4.2.2, A temporary alteration is exempt from performing a 50.59 review as long as it is in direct support of maintenance. Temporary alterations that support maintenance include jumpering terminals, lifting leads etc. An approved procedure must exist (CC-AA-112-1001) for tracking and controlling the 90 day period. Otherwise at a minimum a 50.59 screening must be performed. CC-AA-112-1001 step 2.5 declares: Although the “90 days from the current date” is conservative, the addition of this date will result in a “flag” in the schedule that reflects the earliest possible date that the temporary configuration change has to be removed, UNLESS the maintenance activity that it supports is completed sooner. Note, that MR90s are required to be removed when the maintenance activity is completed or within 90 days of the temporary change installation, whichever comes first. 50.59 uses terms like “90 days at power” and not just 90 days. While “90 days at power” are the absolute limits, the ability to control the limits of temporary change installation is based on just 90 days. The reason for using 90 days and not taking credit for “at power” is that the NEI guidance has defined “at power” as beginning when the reactor goes critical. The difficulty in controlling duration limits based on a “reactor criticality date” that may come earlier or later than scheduled introduces a variable that is difficult to use in establishing an easily identified removal date. Risk considerations associated with the temporary change are addressed as part of the maintenance activity being performed. Procedure WC-AA-101 governs the risk evaluation for the on-line maintenance activity. MR90 work orders should have the term ‘MR90’ in their title to further identify that it is a Maintenance Rule (a)(4) temporary change. Per Attachment 11 of CC-MW-112-1001, on monthly reviews of TCCPs, Maintenance will remove the temporary change within 90 days of the actual installation date or initiate a 50.59 review.

QUESTION# 96 Points: 1.00

What is the relationship between the Station Emergency Director and the performance of an emergency containment vent per LGA-VQ-02, Emergency Containment Vent?

The Station Emergency Director in the TSC _____ the primary containment.

a. must direct the emergency venting of

b. must be informed prior to emergency venting

c. has NO responsibilities related to emergency venting

d. must approve the release permit for emergency venting

ANSWER:
b.
REFERENCE:
LGA-VQ-02, Section B.2.a
FUNDAMENTAL
BANK
K/A: 2.3.11 Ability to control radiation releases.
EXPLANATION:
The Unit Supervisor has the authority to direct the actions of the LGAs. The Station Emergency Director is required to be informed prior to the evolution since there will be an unmonitored ground level release and the PARs determination may be affected. There is no release permit required for an emergency vent. The Emergency Director is responsible for reporting the release to outside agencies.

QUESTION# 97 Points: 1.00

Using the reference(s) attached and the following:

Unit 2 was operating at 96% power when the following occurred:

- 1900, the Unit 2 SAT trips and locks out, DGs 0, 2A, and 2B auto start
- 1901, a manual reactor scram is inserted, RPS A fails to trip, no rod motion
- 1902, manual ARI initiation is attempted, ARI fails to initiate
- 1904, SBLC is initiated; SBLC Pump 2A fails to start, SBLC Pump 2B starts
- 1907, RPS trip system A is tripped using Method 1 per LGA-NB-01, all rods insert
- 1908, the turbine trips, DG 2A closes in on to 242Y, DG 2B trips and locks out

It is now 1910 and you are reviewing the Emergency Action Levels per EP-AA-1005.

Which ONE of the following describes the event classification and notifications required to be made to off-site agencies?

a. Declare an Alert and notify off-site agencies of this classification ONLY.

b. Declare a Site Area Emergency and notify off-site agencies of this classification ONLY.

c. Declare an Unusual Event and notify off-site agencies that the EAL for an Alert was briefly exceeded, but no longer exists.

d. Declare an Alert and notify off-site agencies that the EAL for a Site Area Emergency was briefly exceeded, but no longer exists.

ANSWER:
b.
REFERENCE:
EP-AA-1005
HIGH
MODIFIED (Brunswick 2007 ILT Exam)
K/A: GENERIC 2.4.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.
Reference provided during examination: HOT EAL
EXPLANATION:
Distractor (b.) is correct: Per EP-AA-1005 MA2 is currently exceeded. However MS2 was applicable and per EP-AA-1005 section 3.2, Concerning Classification Downgrading Exelon Nuclear policy is that emergency classifications shall NOT be downgraded to a lower classification. Once declared, the event shall remain in effect until no classification is warranted or until such time as conditions warrant classification to recovery. Declare an Alert and notify off-site agencies of this classification ONLY is incorrect; you have exceeded the threshold for an Alert. Declare an Unusual Event and notify off-site agencies that the EAL for an Alert was briefly exceeded, but no longer exists is incorrect; you have exceeded the threshold for an Unusual Event and per procedure cannot downgrade classification. Declare an Alert and notify off-site agencies that the EAL for a Site Area Emergency was briefly exceeded, but no longer exists is incorrect; you have exceeded the threshold for an Alert and per procedure cannot downgrade classification.

QUESTION# 98 Points: 1.00

This question was intentionally deleted.

QUESTION# 99 Points: 1.00

You have been performing the duties of the Field Supervisor for the first 4-hours of the shift when a casualty occurs and it is necessary for you to relieve the Unit Supervisor on the affected Unit.

Which one of the following are REQUIRED to be performed prior to assuming command and control of the affected Unit during the casualty situation?

1. Review appropriate abnormal conditions and initiating events.
2. Review the current status of the EOP flowcharts.
3. Receive permission from the Shift Manager.
4. Turnover to another qualified Field Supervisor.

a. 1, 2, and 3 ONLY

b. 1, 2 and 4 ONLY

c. 1 and 3 ONLY

d. 2 and 3 ONLY

ANSWER:
a.
REFERENCE:
OP-AA-112-101, section 4.13
FUNDAMENTAL
BANK (LaSalle 2002 ILT Exam)
K/A: 2.1.5 - Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
EXPLANATION:
Distractor (a.) is the correct answer: Turnover of Control Room Command During Transient and Casualty Situations (if required) CONDUCT the transfer of emergency procedure command and control during stable periods of low activity. PERFORM a walk-down / familiarization / pass-through of the status trees / EOPs prior to taking control room command. REVIEW procedure status, relevant primary and secondary plant parameters, abnormal conditions, known radiation releases, and initiating events as appropriate prior to taking control room command. RECEIVE permission from the Shift Manager prior to completing transfer of control room command.

QUESTION# 100 Points: 1.00

Using the attached ODCM calculation and given the following:

- LOP-VQ-04, Startup and Shutdown and Operations of the Primary Containment Vent and Purge System, requires an Offsite Dose Calculation for Drywell Purge.
- Floor drain sumps are running every 2 (two) days
- Radiation monitors are 100 cpm and stable

Time now is 1200 10/22/12, what actions are required?

a. Continue the purge even if the 30 hours will be exceeded.

b. Stop the purge between 1800 and 1900 on 10/22/12.

c. Stop the purge between 1200 and 1300 on 10/22/12.

d. Stop the purge and perform a new Offsite Dose Calculation prior to 1900 10/22/12 before restarting the purge.

ANSWER:
a.
REFERENCE:
LOP-VQ-04, CY-LA-170-2004
HIGH
NEW
K/A: GENERIC 2.3.6 - Ability to approve release permits
EXPLANATION:
Distractor (a.) is the correct answer: Per LOP-VQ-04, step B.1.8 the Chem. Dept is responsible for performing a ODCM calculation prior to release. IAW CY-LA-170-2004 Attachment 1, the Shift Supervisor (Unit supervisor) is to check yes or no to the Purge being performed after it is received from the person doing the calculations. IAW LOP-VQ-04, Startup and Shutdown and Operations of the Primary Containment Vent and Purge System a "NOTE" before Limitation D.9 states that: The following step refers to a rise beyond any normal variation and that indicate a definite change in conditions. IF a purge is started within 30 hours of the sample, the purge may continue past the 30 hour limit without another sample.

Stop the purge between 1800 and 1900 on 10/22/12 is incorrect; Stopping the purge would result in having to recommence after another sample is drawn AND 1800 constitutes a count of 30 hours from the start of the purge not from the sample time, this is wrong; should be from the sample time.
Stop the purge between 1200 and 1300 on 10/22/12 is incorrect; Stopping the purge is not required as long as no changes in floor drain sumps and radiation monitors
Stop the purge and perform a new Offsite Dose Calculation prior to 1900 10/22/12 before restarting the purge is incorrect; New samples are not required given no changes in floor drain sump run times and radiation monitors have occurred and a new sample is not required based on that or time elapsed. Therefore do not need to stop the purge. The 1900 time constitutes a count of 30 hours from the start of the purge not from the sample time, this is wrong; should be from the sample time.