

RO EXAMINATION QUESTIONS

QUESTION 001

Which one of the following signals is used by the Reactor Water Level Control system when operating in the Single Element mode of control?

- a. Total Steam Flow
- b. Reactor Water Level
- c. Total Feed Water Flow
- d. Feed Regulating Valve (FRV) Position

ANSWER

b.

REFERENCE

System Description 031, Section II.D.

295002K1.03 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR WATER LEVEL CONTROL SYSTEM and the following: Reactor water level

BANK

FUNDAMENTAL

Explanation:

Single-Element control utilizes only reactor water level. Reactor water level signals are processed through a soft majority selector, compared to the reactor level setpoint and passed on to the single-element controller. The single element controller output is then sent to all of the final control elements selected in automatic. The other answers are incorrect because they are not used by RWLC while operating in single-element.

RO EXAMINATION QUESTIONS

QUESTION 002

Uni 1 is at rated condtions.

- The 1A Post LOCA H2/O2 MONITOR ISOL VLVS switch is in the SP position.
- Drywell pressure rises to 2.5 psig.

For the given conditions, the 1A Post LOCA H2/O2 monitors will be drawing a suction from the ____ (1) ____ with return flow going to the ____ (2) ____.

- (1) Drywell ONLY
(2) Suppression Chamber
- (1) Suppression Chamber ONLY
(2) Suppression Chamber
- (1) Suppression Chamber and Drywell
(2) Suppression Chamber
- (1) Suppression Chamber and Drywell
(2) Drywell

Answer

c.

REFERENCE

System Descripton 092, Containment Monitoring, page 20.

HIGH

NEW

223002K1.11 - Knowledge of the physical connections and/or cause- effect relationships between PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF and the Containment atmosphere sampling

Explanation:

If the 1A(B) POST LOCA H2/O2 MONITOR ISOL VLVS is in the SP position, the suppression pool suction valve, 1CM024A (1CM023B) and the suppression pool return, 1CM025A (1CM026B) remain open AND the drywell suction valve, 1CM022A (1CM021B) re-positions open on a PCIS signal. The suppression pool return and the drywell suction valve will not be capable of being closed until the Group II isolation signal is reset. The drywell suction can also be closed if a jumper is installed per LGA-CM-01.

RO EXAMINATION QUESTIONS

QUESTION 003

Which of the following identifies the power supply to the 1B IRM?

- a. 112X
- b. 112Y
- c. 1B RPS
- d. 24VDC Bus B

Answer

d.

REFERENCE

System Description 042, IRMs, page 17.

215003K2.01 - Knowledge of electrical power supplies to the following: IRM channels/detectors

FUNDAMENTAL

NEW

Explanation:

Per System Description 042, IRMs:

24VDC Bus B via 24/48 VDC Distribution Panel 1B (power for trip and auxiliary units) IRM:
B, D, F, H

RO EXAMINATION QUESTIONS

QUESTION 004

Unit-1 has just started a refueling outage (shutdown was 3.5 hours ago).
Unit-2 is critical with a 65°F per hour heat-up rate established.

Given this initial lineup, which one of the following combinations of failures would result in a Loss of All Off-Site AC power to both units?

- a. Unit-1 SAT and Unit-2 SAT.
- b. Unit-1 SAT and Lines 0108 and 0101.
- c. Unit-2 SAT and Lines 0112 and 0108.
- d. Unit-1 Ring Bus and Lines 0112 and 0103.

ANSWER

a.

REFERENCE

System Description 005, Figure 005-02

262001K/A: K2.01 - Knowledge of electrical power supplies to the following: Off-site sources of power

HIGH

BANK

Explanation:

With both generators off-line (UATs are unavailable) a loss of both SATs will result in a loss of off-site power to both units. B, C, and D are incorrect as they allow either the U-1 or U-2 SAT to be available to provide power.

RO EXAMINATION QUESTIONS

QUESTION 005

Unit 1 and 2 are operating at rated conditions.

The following annunciators alarm:

- 1H13-P601-F204; DIV 1 RB VENT RAD HI-HI
- 1H13-P601-E204; DIV 2 RB VENT RAD HI-HI
- 1A VR EXH VENT RAD MONITOR 1D18-K609A indicates 12 MR/HR
- 1B VR EXH VENT RAD MONITOR 1D18-K609B indicates 13 MR/HR
- 1C VR EXH VENT RAD MONITOR 1D18-K609C indicates 12 MR/HR
- 1D VR EXH VENT RAD MONITOR 1D18-K609D indicates 13 MR/HR
- Unit 1 SBT system fails to initiate.

Which of the following identifies Unit 1 Reactor Building conditions following these events?

The Unit 1 Reactor Building will

- a. slowly pressurize resulting in an unmonitored gaseous effluent release.
- b. be maintained at a slightly negative pressure to collect and process all gaseous effluent prior to its release to the environment through the SBT Vent Stack ONLY.
- c. be maintained at a slightly negative pressure to collect and process all gaseous effluent prior to its release to the environment through the Station Vent Stack ONLY.
- d. be maintained at a slightly negative pressure to collect and process all gaseous effluent prior to its release to the environment through the SBT and Station Vent Stacks.

ANSWER

b.

REFERENCE

System Description 095, Standby Gas Treatment, pages 2 and 3.

261000K3.05 - Knowledge of the effect that a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on following: Secondary containment radiation/contamination levels

HIGH

NEW

Explanation:

For the given conditions, Reactor Building Ventilation on both Units will trip and isolate, and both SBT trains will receive an initiation signal. Unit 2 SBT will maintain a negative pressure on the Unit 1 Reactor Building even though the Unit 1 SBT system failed to start.

Per System Description 095, Standby Gas Treatment,

The Standby Gas Treatment (VG) System consists of two identical processing trains (1 per unit), isolation and control dampers and interconnecting pipes.

The individual trains (of SBT) are available to each Reactor Building. Either train can produce and maintain a slightly negative pressure in the Reactor Building to collect and process all gaseous effluent prior to its release to the environment through an elevated

RO EXAMINATION QUESTIONS

release point.

The Standby Gas Treatment System performs safety-related functions as an Engineered Safety Feature (ESF) Filter System. All Standby Gas Treatment System electrical equipment is powered from the ESF Division II of its respective unit. Both VG trains will automatically start with an initiation signal from either unit.

RO EXAMINATION QUESTIONS

QUESTION 006

Units 1 and 2 have been scrammed due to a security related event.

- All Off-site power is lost.
- The 1A Diesel Generator (D/G) has been damaged and will NOT operate.
- Unit 1 RPV water level dropped to -148" and is currently +25 inches.
- Unit 2 RPV water level dropped to -25" and is currently +35 inches.
- CSCS supply to the Common and 2A Diesel Generators is lost.
- Suppression Pool Cooling has been placed in operation on BOTH units.
- ALL personnel have been restricted from entering the Power Block.

Which of the following describes the effect on the continued operation of Suppression Pool Cooling for each unit based on the given conditions?

Unit 1 Suppression Pool Cooling will remain in operation until the Common D/G ____ (1) ____.
Unit 2 Suppression Pool Cooling will remain in operation until the 2A D/G ____ (2) ____.

- a. (1) experiences component failure.
(2) trips on high cooling temperature.
- b. (1) trips on high cooling temperature.
(2) experiences component failure.
- c. (1) experiences component failure.
(2) experiences component failure.
- d. (1) trips on high cooling temperature.
(2) trips on high cooling temperature.

ANSWER

a.

REFERENCE

System Description 11, page 66.

264000K3.03 - Knowledge of the effect that a loss or malfunction of the EMERGENCY GENERATORS (DIESEL/JET) will have on following: Major loads powered from electrical buses fed by the emergency generator(s)

HIGH

NEW

Explanation:

The Common Diesel has responded to both an ECCS and undervoltage signal, so with the loss of CSCS, the diesel will continue to operate until components fail as a result of the high coolant trip being bypassed. When the Common D/G trips, SPC will be lost on Unit 1.

The 2A Diesel has responded to an undervoltage signal, but not an ECCS signal, so the diesel will continue to operate until the high coolant trip is reached. When the 2A D/G trips, SPC will be lost on Unit 2.

RO EXAMINATION QUESTIONS

QUESTION 007

Which of the following Unit 1 DC busses has a design feature which allows the bus to be cross-tied to Unit 2?

1. 112Y; Unit 1 Division 2 125 VDC
 2. 113; Unit 1 Division 3 125 VDC
 3. 121Y; Unit 1 250 VDC
-
- a. 1 ONLY
 - b. 1 and 2 ONLY
 - c. 1 and 3 ONLY
 - d. 1, 2 and 3.

ANSWER

d.

REFERENCE

System Description 006, DC Distribution, pages 23 and 26.

263000K4.02 - Knowledge of D.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Breaker interlocks, permissives, bypasses and cross ties: Plant-Specific

FUNDAMENTAL

NEW

Explanation:

ALL three of the Unit 1 DC busses listed can be cross-tied to Unit 2.

The question explores the examinee's knowledge of the ability to cross-tie different DC busses, including the Division 2 battery, the HPCS battery and the 250 VDC battery.

RO EXAMINATION QUESTIONS

QUESTION 008

Unit 1 was operating at rated conditions when a leak in the drywell occurred.

- 1B RHR is OOS.
- Drywell pressure is 15 psig.
- Suppression Chamber Spray is in operation.
- Drywell Spray is in operation.
- The 1E12-F042A was overridden CLOSED
- Reactor pressure rose from 420 psig to 550 psig.
- ADS was then initiated and reactor pressure is dropping 50 psig per minute.

Which of the following identifies the expected 1A RHR valve positions four minutes from now if no operator actions are taken with the system?

- a. 1E12-F027A, 1A RHR SP SPRAY ISOL; OPEN
1E12-F042A, 1A RHR LPCI INJ. VLV.; CLOSED
- b. 1E12-F027A, 1A RHR SP SPRAY ISOL; CLOSED
1E12-F042A, 1A RHR LPCI INJ. VLV.; OPEN
- c. 1E12-F016A and F017A, 1A RHR DW SPRAY UPSTREAM AND
DOWNSTREAM ISOLs; OPEN
1E12-F042A, 1A RHR LPCI INJ. VLV.; CLOSED
- d. 1E12-F016A and F017A, 1A RHR DW SPRAY UPSTREAM AND
DOWNSTREAM ISOLs; CLOSED
1E12-F042A, 1A RHR LPCI INJ. VLV.; OPEN

ANSWER

b.

REFERENCE

System Description 064, RHR, pages 21, 22, 23 and 30.

203000K4.10 - Knowledge of RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) design feature(s) and/or interlocks which provide for the following: Dedicated injection system during automatic system initiation (injection valve interlocks)

HIGH

NEW

Explanation:

Injection Valve 1E12-F042A interlocks affect the operation of both the SC and DW Spray valves. The 1E12-F027A Suppression Pool Spray Valve will go closed if the 1E12-F042A Injection Valve goes open with an initiation signal in place.

In the given conditions, the F042A valve was overridden closed, but the override signal was cleared when RPV pressure rose above the low pressure interlock.

When RPV pressure dropped below the low pressure interlock due to the ADS, the F042A Injection Valve will open, providing a signal to close the F027A SP Spray Valve. The F016A and F017A DW Spray Valves are not affected by the opening of the F042A .

RO EXAMINATION QUESTIONS

QUESTION 009

Assuming RHR is in a standby configuration initially, which one of the following statements is TRUE concerning RHR shutdown cooling when all of the Emergency Transfer Switches for RHR are taken to the EMERGENCY position at the Remote S/D Panel?

- a. RHR Shutdown Cooling can NOT be placed in operation from the RSD panel.
- b. Shutdown Cooling can only be lined up using the 'A' (Div. 1) RHR Heat Exchanger.
- c. There is a greater potential to drain the RPV to the suppression pool since ALL associated interlocks are bypassed.
- d. The RHR suppression pool suction valve closed signal must be present before shutdown cooling can be placed on-line.

ANSWER

d.

REFERENCE

System Description 064, Sections IV.C and IV.D

LOP-RX-01T, Revision 10

205000K5.02 - Knowledge of the operational implications of the following concepts as they apply to SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) :

Valve operation

FUNDAMENTAL

BANK

EXPLANATION

c. is a correct statement.

a. SDC can be placed in operation.

b. the "B" HX is used.

c. all interlocks are not bypassed.

RO EXAMINATION QUESTIONS

QUESTION 010

To provide an additional margin of safety, the APRM Flow Biased Simulated Thermal Power Upscale Trip and alarm setpoints are automatically adjusted in proportion to ____ (1) ____ flow rate signals. These signals are passed through a ____ (2) ____ value gate to ensure conservatism is added to the flow biased trip circuits.

- a. (1) Feedwater
(2) low
- b. (1) Feedwater
(2) high
- c. (1) Reactor Recirculation
(2) low
- d. (1) Reactor Recirculation
(2) high

ANSWER

c.

REFERENCE

System Description 044, APRMs pages 5 and 6.

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

FUNDAMENTAL

NEW

Explanation:

From System Description 044, APRMs:

To provide an additional margin of safety the thermal scram and upscale alarm setpoints of the APRM are automatically adjusted in proportion to the recirculation flow rate.

MAE Comment: The selected K/A refers to "core flow", however recirc flow is used as an input in place of core flow as it is more reliable and less likely to cause a spurious scram, thus recirc flow was used in this question.

For the APRMs and RBM, the flow signals pass through individual APRM and RBM channel LVGs. Each of these signals is representative of the outputs of two Flow Transmitters one for each recirculation loop. Within the Flow Control Trip Reference Unit the two signals are compared and the smaller signal is allowed to pass. The device performing this function is known as the Low Value Gate (LVG). By selecting the input signal representing the lower value of total flow, conservatism is added to the flow biased trip circuits.

The distracters are plausible but incorrect as they identify the Feedwater Flow and/or high value gate as part of the distracter.

RO EXAMINATION QUESTIONS

QUESTION 011

Which of the following identifies how the Security UPS will respond to the loss of the normal AC power supply?

The Security UPS will transfer to the ...

- a. DC power supply fed from MCC 112X.
- b. DC power supply fed from the TSC battery panel 0DC22E.
- c. Alternate AC power supply 132B-2, which is regulated before supplying system loads.
- d. Alternate AC power supply 132B-2 which is NOT regulated before supplying system loads.

ANSWER

b.

REFERENCE

TSC Security DG and UPS System lesson plan 012, page 18

262002K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) : A.C. electrical power

FUNDAMENTAL

BANK

EXPLANATION

The Security UPS is fed from the TSC battery. UPS operation is such that if the Normal AC power supply is lost, the DC power supply automatically takes it place. The Alternate AC power source is the last option.

RO EXAMINATION QUESTIONS

QUESTION 012

Unit 1 is operating at rated conditions.

- LIS-NB-101A, "Unit 1 Reactor Vessel Low Water Level 3 Scram Trip Logic A1 and A2 and SDC Mode Isolation Calibration" was completed last shift.
- Trip unit 1B21-N703A, "Reactor Vessel Low Water Level 3 Trip in RPS Trip Logic A1" was unknowingly damaged and left in a condition such that it will NOT change from its normal state.

What effect will the condition of trip unit 1B21-N703A have on the RPS system if RPV water level subsequently drops below the RPS scram setpoint?

- a. RPS Channel [A1] will NOT actuate, PREVENTING a FULL reactor scram.
- b. RPS Channels [B1] AND [B2] ONLY will actuate, CAUSING a FULL reactor scram.
- c. RPS Channels [A2] AND [B1 AND / OR B2] will actuate, CAUSING a FULL reactor scram.
- d. RPS Channels [A2] AND [B1 AND / OR B2] will actuate, CAUSING a reactor HALF SCRAM ONLY.

ANSWER

c.

REFERENCE

System Description 049, RPS pages 33 and 34

212000K6.03 - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR PROTECTION SYSTEM : Nuclear boiler instrumentation

HIGH

NEW

Explanation:

The A1 Low RPV water level scram instrument will not actuate, however the failure of one instrument will not cause or prevent a reactor scram.

For the given conditions, the A2 instrument will combine with the B1 and/or B2 channel instrument to cause a full reactor scram.

RPS Channel [A1] will NOT actuate, PREVENTING a FULL reactor scram.

The failure of channel A1 to actuate will not prevent a scram.

RPS Channels [B1] AND [B2] ONLY will actuate, CAUSING a FULL reactor scram.

Channel A2 will actuate, as well as B1 and B2.

RPS Channels [A2] AND [B1 AND / OR B2] will actuate, CAUSING a reactor HALF SCRAM ONLY.

The actuation of the listed RPS channels will cause a full reactor scram due to the 1 out of 2 taken twice logic.

CFR 41.7

RO EXAMINATION QUESTIONS

QUESTION 013

An ECCS condition occurred on Unit-1.

- Normal power is available, but the operator decided to load the Common DG and manually close it onto Bus 141Y.
- Later, an ECCS and Undervoltage condition occurs on Unit-2.

What indication would you expect to see for the SAT feed to 141Y and the Common DG?

SAT feed to 141Y amps will ____ (1) ____ AND Common DG amps will ____ (2) ____.

- a. (1) increase
(2) decrease and remain lower
- b. (1) increase
(2) decrease then immediately increase
- c. (1) increase
(2) decrease and then increase after a 5 second time delay
- d. (1) remain constant
(2) remain constant

ANSWER

d.

REFERENCE

DG System lesson plan 011, page 49

209001A1.07 - Ability to predict and/or monitor changes in parameters associated with operating the LOW PRESSURE CORE SPRAY SYSTEM controls including: Emergency generator loading

HIGH

BANK

Explanation:

the closure permissive for the Unit-2 breaker will NOT be met unless the Common D/G, Unit-1 Output breaker is manually tripped or the ECCS condition is reset.

RO EXAMINATION QUESTIONS

QUESTION 014

Unit 2 is in an ATWS condition.

- ALL control rods remain out.
- The Main Turbine Generator remains on line.
- SBLC Storage Tank level is 4850 gallons
- The 2A SBLC PMP, 2C41-C001A, Key 63 keylock switch is PLACED to the SYS A position per LGA-SC-201, "Unit 2 Initiation of Standby Liquid Control".
- The start sequence is CHECKED and the following abnormal indications are observed:
 - 2C41-F004A, SBLC INJ SQUIB VLV, ON light is LIT.
 - 2C41-F001B, SBLC STRG TNK 2B OUTLET VLV indicates CLOSED.

Based on the above conditions, the indicated SBLC tank level 5 minutes after all actions to establish flow are complete, is predicted to be approximately _____ gallons.

Note: The actions have NOT resulted in any changes in abnormal indications.

- a. 4850
- b. 4640
- c. 4535
- d. 4430

ANSWER

b.

REFERENCE

LGA-SC-02, "Unit 2 Initiation of Standby Liquid Control".

System Description 028, SBLC, Figure 28-01 "SBLC Simplified Drawing".

211000A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the STANDBY LIQUID CONTROL SYSTEM controls including: Tank level HIGH

NEW

Explanation:

The correct answer is based on a discharge flow of 42 gpm from one operating SBLC pump. Per LGA-SC-02, one pump is started and then a sequence of steps is verified to have occurred. In this case, the 2A squib valve did not fire, and the 2B Storage Tank outlet valve did not open, so LGA-SC-02 provides direction to secure the first pump started and start the second SBLC pump, resulting in one pump in operation.

- a. This distracter is incorrect, but plausible if the examinee does not understand that either pump can inject as long as one of the suction valves and one of the squib valves opens. Original tank level was 4850 gallons and has not changed.
- c. This distracter is incorrect, but plausible if the examinee understands one pump will be in operation and able to inject, but confuses SBLC pump output (42 gpm) with CRD flow (63 gpm).
- d. This distracter is incorrect, but plausible if the examinee believes that both SBLC pumps are placed in operation and pumping at 42 gpm.

RO EXAMINATION QUESTIONS

QUESTION 015

Unit-1 is in Mode 2 and beginning rod withdrawal for criticality.

- 1D SRM is reading approximately one decade higher than the other SRMs
- The NSO reports that relay 1C71-K13D, Non-Coincidental Neutron Monitoring Scram Relay, on panel 1H13-P611 is cycling

Based on these conditions what would be the control room operator's NEXT action?

- a. Bypass 1D SRM.
- b. Insert a half-scrum on 1A RPS.
- c. Insert a half-scrum on 1B RPS.
- d. Take the 1D SRM operate switch to STBY.

ANSWER

a.

REFERENCE

LOR-1H13-P603, "SRM INOPERATIVE OR HI".

215004A2.02 - Ability 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: SRM inop condition

HIGH

BANK

Explanation:

Bypassing the faulty SRM will remove the signal from the failed SRM to the non-coincidental neutron monitoring scram relay. This is an actual event that occurred in January 2003. This relay will initiate a reactor scram if the shorting links are removed. Since this is obviously a failure, the SRM is considered inop and must be bypassed.

RO EXAMINATION QUESTIONS

QUESTION 016

Unit 1 is operating at rated conditions.

- SRVs C and P were replaced last outage and their “B” solenoids have unknowingly failed and will NOT work as designed.
- A transient occurs and the reactor is scrammed.
- Bus 111Y is de-energized during the transient.
- Conditions have degraded to the point where an Emergency Depressurization is required, and ADS is manually initiated.

Which of the following identifies the response of the C and P SRVs if ADS is manually initiated, and what additional actions are required to be taken based on the conditions listed above?

- a. C and P SRVs will remain CLOSED and no additional actions are required.
- b. C and P SRVs will remain CLOSED and one additional SRV must be manually opened.
- c. C SRV will OPEN and P SRV will remain CLOSED and no additional actions are required.
- d. C SRV will remain CLOSED and P SRV will OPEN and no additional actions are required.

ANSWER

b.

REFERENCE

System Description 62, ADS, page 4

System Description 62, ADS, Figures 62-2 and 62-3, ADS logic diagrams

System Description 70, Main Steam, Figure 70-08, SRV Solenoid Functions

239002A2.04 - Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: ADS actuation

HIGH

NEW

Explanation:

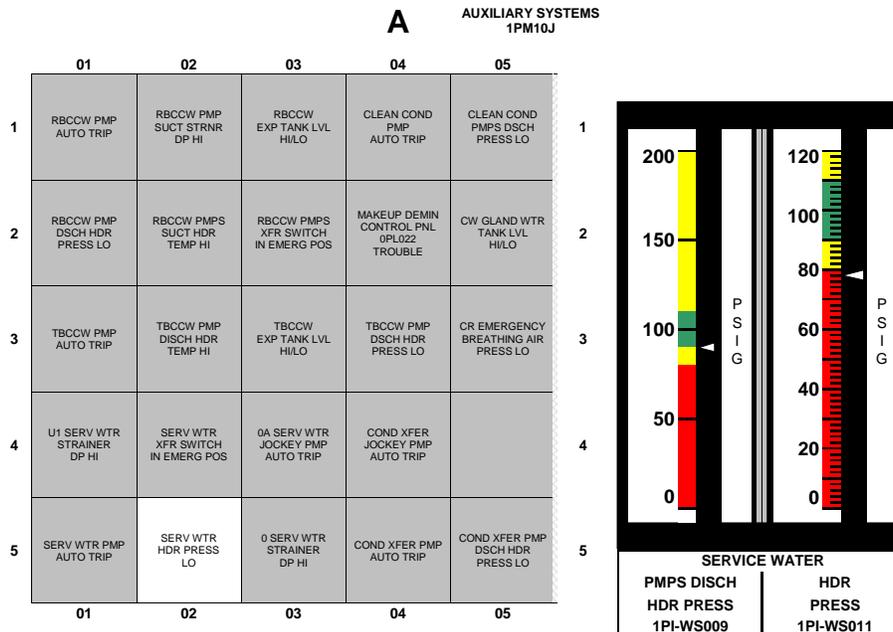
The loss of 111Y will require all ADS SRVs to be actuated via Div. 2 logic. The ADS SRVs are S, C, U, R, V, E, and D. The C SRV will not open because the Div. 2, B solenoid will not function and Div. 1 logic has lost power. P SRV will remain closed because it is not an ADS valve and did not receive any signal to be opened. One additional SRV must be manually opened because LGA-004 directs that 7 SRVs are to be verified open following the initiation of ADS, and the failure of SRV C to open will result in only six SRVs being open following the initiation of ADS.

RO EXAMINATION QUESTIONS

QUESTION 017

Unit 1 is operating at rated conditions, and Unit 2 is shutdown for a refueling outage.

- 1A Service Water pump and 0A Service Water Jockey pump are in operation.
- All other Service Water pumps are unavailable to support Unit 1.
- Service Water Header pressure is stable.
- Unit 1 Service Water Strainer dP is 6 psid.
- Annunciator and WS system indication is as shown below:



Given the above conditions, the Unit 1 Service Water Strainer ____ (1) ____ be automatically backwashing and a ____ (2) ____ is required in response to the alarm.

- (1) should
(2) SCRAM
- (1) should
(2) reduction in auxiliary Service Water loads
- (1) should NOT
(2) SCRAM
- (1) should NOT
(2) reduction in auxiliary Service Water loads

ANSWER

b.

LOA-WS-101, "Loss of Service Water", pages 3 and LOR-1PM10J-A502; SERV WTR HDR PESS LO.

400000A3.01 - Ability to monitor automatic operations of the CCWS including: Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the

RO EXAMINATION QUESTIONS

CCWS

HIGH

NEW

Explanation:

An automatic backwash of a service water strainer should occur when dP exceeds 4.5 psid. Per LOA-WS-101, Section B.3, a reduction in auxiliary service water loads should be directed in an effort to restore service water pressure above 80 psig. A reactor scram is not required before efforts are made to restore service water pressure.

The other distracters are plausible, but incorrect.

RO EXAMINATION QUESTIONS

QUESTION 018

Unit 1 was operating at rated conditions when a transient occurred, resulting in the HPCS annunciator indication shown below.

- Annunciator 1H13-P601A-108 was the last annunciator to alarm, 2 minutes ago.
- All annunciators have been acknowledged, and none of the HPCS annunciators have been reset since the transient occurred.

A

	01	02	03	04	05	06	07	08	
1	1B DG ENGINE TRIP	1B DG LOCKOUT TRIP	1B DG OVERCURRENT	1B DG CLG WTR PMP TROUBLE	HPCS PMP BKR TRIP	DRYWELL PRESS HI	DRYWELL PRESS HI	RX VESSEL WTR LVL 8 HI	1
2	1B DG ENGINE RUNNING	4KV BUS 143 BKR AUTO TRIP	1B DG ENGINE OVERSPEED	HPCS PMP BKR 2 CLOSED	HPCS SYS ACTUATED	HPCS HDR TOP CORE PLATE DP HI	HPCS PMP OVERCURRENT	RX VESSEL WTR LVL 2 LO-LO	2
3	DIV 3 HPCS 125V DC SYS TROUBLE	4KV BUS 143 MN FD BKR & 1B DG BKR LKO TRIP	HPCS PROTECTIVE RELAY PWR FAILURE	1B DG DAY TANK FILL TIME EXCESSIVE	HPCS PMP SUCT PRESS HI/LO		SUP CHAMBER LVL HI	RX VESSEL WTR LVL 2 LO-LO	3
4	HPCS SYS GND TROUBLE	4KV BUS 143/143-1 UNDERVOLTAGE	1B DG AUX FD OVERLOAD	1H31-P625 ROSEMOUNT CARD FILE TROUBLE	HPCS PMP DSCH FLOW HI	HPCS HDR PRESS HI	1B DG CLG WTR PMP ROOM SUMP LVL HI-HI	HPCS PMP CUBICLE TEMP HI	4
5	1B DG ENGINE TROUBLE	1B DG FUEL OR FUEL OIL XFER PMP FAILURE	1B DG FUEL OIL STRG/DAY TNK LVL HI/LO	HPCS DIESEL OIL STRG ROOM SUMP LVL HI-HI	HPCS PMP CUBICLE CLR FAN AUTO TRIP	HPCS MANUAL INITIATION PB ARMED	HPCS SWGR ROOM WTR TIGHT DOOR OPEN	1B DG HVAC PNL 1PL24J TROUBLE	5
	01	02	03	04	05	06	07	08	

Which of the following identifies the current alignment of the Unit 1 HPCS system based on the given annunciator indications?

The Unit 1 HPCS system was initiated ____ (1) ____, and the 1E22-F012; Unit 1 HPCS Pump Minimum Flow Bypass Stop Valve is ____ (2) ____.

- (1) manually
(2) OPEN
- (1) manually
(2) CLOSED
- (1) automatically
(2) OPEN
- (1) automatically
(2) CLOSED

ANSWER

c.

RO EXAMINATION QUESTIONS

REFERENCE

LORs 1H13-P601:

A106 and 107; DRYWELL PRESS HI

A108; RX VESSEL WTR LVL 8 HI

A205; HPCS SYS ACTUATED

A208 and A308; RX VESSEL WTR LVL 2 LO-LO

A405; HPCS PMP DSCH FLOW HI

A406; HPCS HDR PRESS HI

A506; HPCS MANUAL INITIATION PB ARMED

209002A3.06 - Ability to monitor automatic operations of the HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) including: Lights and alarms: BWR-5,6

HIGH

NEW

Explanation:

Annunciators A106 and A107; DRYWELL PRESS HI, indicate the receipt of High Drywell pressure signals which will complete the HPCS initiation logic to automatically initiate the Unit 1 HPCS system.

Annunciator A108; RX VESSEL WTR LVL 8 HI, will cause the HPCS injection valve to go closed.

Annunciator A405; HPCS PMP DSCH FLOW HI not light indicates that the signal to close the 1E22-F012; Unit 1 HPCS Pump Minimum Flow Bypass Stop Valve is not present (min flow will be open).

Annunciator A406; HPCS HDR PRESS HI, indicates High Discharge Pressure, and when combined with low flow signal due to the closing of the injection valve, will cause the 1E22-F012; Unit 1 HPCS Pump Minimum Flow Bypass Stop Valve to OPEN.

Annunciator A506, HPCS MANUAL INITIATION PB ARMED is not lit, indicating the HPCS system automatically initiated.

Annunciators A208 and 308; RX VESSEL WTR LVL 2 LO-LO are not lit, indicating that the level 2 HPCS initiation signal was not received.

Annunciator A205; HPCS SYS ACTUATED indicates that the HPCS system has actuated from either 1) Manual Initiation Pushbutton, high drywell pressure, or low reactor level. Combined with the other indicators, the only cause of initiation can be from high drywell pressure.

RO EXAMINATION QUESTIONS

QUESTION 019

Which of the following identifies the MINIMUM actions required to successfully "Inhibit ADS" and the associated ADS INHIBIT switch light indication when ADS is INHIBITED?

Place the ____ (1) ____ ADS INHIBIT switch(es) in the INHIBIT position, which will cause the ADS INHIBIT Switch light indication(s) to ____ (2) ____.

- a. (1) Div. 1 OR Div. 2
(2) ILLUMINATE
- b. (1) Div. 1 AND Div. 2
(2) ILLUMINATE
- c. (1) Div. 1 OR Div. 2
(2) EXTINGUISH
- d. (1) Div. 1 AND Div. 2
(2) EXTINGUISH

ANSWER

b.

REFERENCE

System Description 062, ADS, Figures 62-2 and 62-3.

218000A4.04 - Ability to manually operate and/or monitor in the control room: ADS inhibit:

Plant-Specific

FUNDAMENTAL

NEW

Explanation:

BOTH the Div.1 AND Div. 2 ADS INHIBIT switches must be placed in the INHIBIT position in order to prevent an automatic actuation of ADS, as either Division 1 or Division 2 logic alone can initiate ADS.

When the ADS INHIBIT is placed in the INHIBIT position, the white light above the ADS INHIBIT switch will ILLUMINATE.

RO EXAMINATION QUESTIONS

QUESTION 020

Unit 1 just scrammed from rated conditions.

- RCIC is the only injection source available and is being operated with the flow controller in MANUAL.
- RPV water level is -15 inches.
- RPV pressure is 900 psig, and due to a change in plant conditions, has just started to drop.

Based on the above conditions and with no changes made to the RCIC controls, the reactor operator will observe RCIC discharge pressure going ____ (1) ____ and reactor water level going ____ (2) ____.

- a. (1) UP
(2) UP
- b. (1) DOWN
(2) DOWN
- c. (1) UP
(2) DOWN
- d. (1) DOWN
(2) UP

ANSWER

d.

REFERENCE

System Lesson Plan 032, RCIC page 47

217000A4.05 - Ability to manually operate and/or monitor in the control room: Reactor water level

HIGH

NEW

Explanation:

In Manual control, the controller controls turbine speed as a function of the output dialed by the Operator. In this mode, the turbine speed remains at the value dialed by the operator and flow varies based on increasing or decreasing pump discharge pressure.

So, RCIC discharge pressure will go down as reactor pressure goes down, and with a constant turbine speed, RCIC flow will go up as discharge pressure goes down.

RO EXAMINATION QUESTIONS

QUESTION 021

The Common and Unit 1 Station Air Compressors (SAC) are in operation, with Unit 2 SAC in stand-by.

The Common SAC trips causing Unit 1 and Unit 2 Service Air Header pressure to drop to 95 psig.

Which of the following identifies the Main Control Room panels you must go to in order to check:

- 1) the control switch position and light indication for the running SACs AND
 - 2) the Unit 2 Instrument Air Header Pressure indication?
- a.
 - 1) 1PM09J
 - 2) 1PM10J
 - b.
 - 1) 1PM09J
 - 2) 2PM10J
 - c.
 - 1) 1PM09J AND 2PM09J
 - 2) 2PM10J
 - d.
 - 1) 1PM09J AND 2PM09J
 - 2) 1PM10J

ANSWER

c.

REFERENCE

System Description 120, Plant air, page 10

Photo of Unit 1 MCR panel 1PM09J

300000 2.2.4 Equipment Control: (multiple-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility.

HIGH

NEW

Explanation:

When the Common SAC trips and the air header pressure drops below 100 psig, the Unit 2 SAC will start, resulting in the control switch position and light indication for the running SACs to be at the 1PM09J for the Unit 1 SAC and 2PM09J for the Unit 2 SAC. Unit 2 Instrument Air Header Pressure indication is located at the 2PM10J panel.

RO EXAMINATION QUESTIONS

QUESTION 022

Unit 1 was operating at rated conditions when the following alarms on the 1H13-P603A annunciator panel were received.

Which of the following actions should be taken first, based on the alarm indication shown below?

A REACTOR CONTROL
1H13-P603

	05	06	07	08	09	10	
1	SBLC SQUIB VLV CONTINUITY LOSS	SRM INOPERATIVE OR HI	IRM HI	APRM HI	OPRM HI	RX VESSEL PRESS HI	1
2	SBLC TANK LVL HI/LO	SRM DOWNSCALE	IRM DOWNSCALE	APRM DOWNSCALE	APRM FLOW BIAS OFF NORM	CHAN A1/B1 RX VESSEL WTR LVL 1 LO-LO-LO	2
3	1A SBLC PMP AUTO TRIP	SRM SHORT PERIOD	LPRM HI	ROD OUT BLOCK	FW CONTROL RX VESSEL LVL 7 HI	FW CONTROL RX VESSEL LVL 8 TRIP	3
4	CHAN A APRM HI-HI/INOP	RBM HI/INOP	LPRM DOWNSCALE	OPRM TRIP ENABLE	FW CONTROL RX VESSEL LO LVL 4	TDRFP A/B READY LOGIC BYPASS	4
5	CHAN B APRM HI-HI/INOP	RBM DOWNSCALE		1A RPS MG SET TROUBLE	FW VLV CONT SIGNAL FAIL		5
	05	06	07	08	09	10	

- Depress RR FCV Lower pushbuttons.
- Place Reactor Mode Switch to SHUTDOWN.
- Arm and depress all RPS scram pushbuttons.
- Place MG Sets Transfer Switch in "ALT A" position.

ANSWER

d.

REFERENCE

LOR 1H13-P603-A508; 1A RPS MG SET TROUBLE.

Hardcard - RPS Quick Swap

212000 2.4.45 - Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm.

HIGH

NEW

Explanation:

The cause of the alarms is indicated by annunciator 1H13-P603-A508; 1A RPS MG SET TROUBLE. This alarm is due to the tripping of the 1A RPS MG Set, which would cause the other alarm conditions to occur. The RPS Quick Swap Hard Card is written specifically to respond to the loss of a power to an RPS bus and provides direction to restore power to the

RO EXAMINATION QUESTIONS

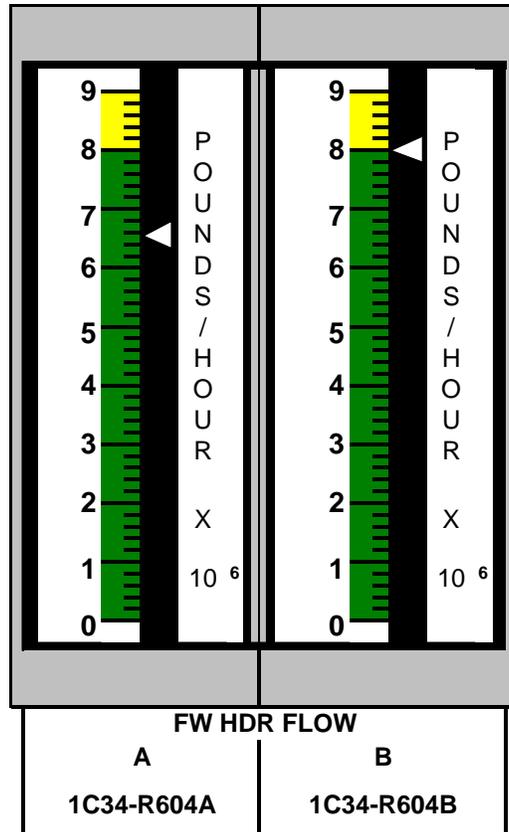
affected bus. The other distracters are plausible, but incorrect, as they are tied to the alarm indications, however taking actions directed in the procedure will not mitigate the event.

RO EXAMINATION QUESTIONS

QUESTION 023

Unit 1 is operating at rated conditions.

- RWLC is operating in the 3-element control mode.
- The Feedwater Header A and B flow indications below have remained steady for the past 2 seconds.
- The related flow signals are being inputted into the RWLC system.



Which of the following identifies how the RWLC system will respond to this condition?

- The RWLC system will transfer to Single-element control.
- The sum of the individual Feedwater Pump Discharge flow signals will be input into the RWLC system.
- The higher Feedwater Header flow signal will be used as the Feedwater flow signal input for the RWLC system and then adjusted to stabilize RPV water level.
- The lower Feedwater Header flow signal will be used as the Feedwater flow signal input for the RWLC system and then adjusted to stabilize RPV water level.

ANSWER

b.

REFERENCE

RO EXAMINATION QUESTIONS

System Description 31, Reactor Water Level Control, page 17.

259002A1.02 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR WATER LEVEL CONTROL SYSTEM controls including:
Reactor feedwater flow

HIGH

NEW

Explanation:

A deviation of 1.0 Mlb/hr between feedwater header A and B flow for 2 seconds results in an automatic transfer for the input of the three-element controller from the total feedwater header flow to the sum of the individual feedwater pump discharge flows. The A FW header flow is indicated to be 6.5 Mlb/hr and the B FW header flow is indicated to be 8 Mlb/hr. resulting in a deviation of 115 Mlb/hr.

RO EXAMINATION QUESTIONS

QUESTION 024

Which of the following identifies the normal and emergency 125V DC power supplies for the Common Diesel Generator Engine Control System?

- a. Normal: 111Y
Emergency: 111X
- b. Normal: 211Y
Emergency: 211X
- c. Normal: 111Y
Emergency: 211Y
- d. Normal: 211Y
Emergency: 111Y

ANSWER

c.

REFERENCE

1E-04412AE, Diesel Generator "0" Generator Engine Control System "DG" part 5.

263000 2.2.3 - Equipment Control: (multi-unit license) Knowledge of the design, procedural, and operational differences between units.

FUNDAMENTAL

NEW

Explanation:

Electrical drawing 1E-0-4412AE indicates that 111Y is the normal 125 VDC control power supply and 211Y is the emergency power supply.

The DC System Description and LOA-DC-101 and 201 were both reviewed to determine differences in the DC systems on the two units and no other specific differences were noted.

RO EXAMINATION QUESTIONS

QUESTION 025

Unit 1 and Unit 2 were operating at rated conditions when a lightning strike in the switchyard resulted in the trip of the Unit 2 Turbine/Generator.

- Annunciator 2PM01J-A214 4KV BUS 241X/Y OVERCURRENT is NOT LIT.
- All three phases of 241X voltage read approximately the same.
- Bus 241Y is being powered by the emergency diesel generator.
- ACB 2414 is OPEN.

Which of the following identifies the actions REQUIRED to be taken in response to this event?

- a. Synchronize and close ACB 2414 ONLY.
- b. Perform an inspection of bus 241X prior to any attempt to re-energize the bus.
- c. Synchronize and close ACB 2415 and if possible limit 241X to WS pumps required to support the fire protection system.
- d. Synchronize and close ACB 2414, secure the emergency diesel generator and then synchronize and close ACB 2415 ONLY.

ANSWER

c.

REFERENCE

LOA-AP-201, Unit 2 AC Power System Abnormal.

262001A2.01 - Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
Turbine/generator trip

HIGH

NEW

Explanation:

LOA-AP-201, Unit 2 AC Power System Abnormal section B.7 provides direction to re-energize the bus using the bus tie breaker 2415 even if 241Y is being supplied by the Common D/G. Also, discussion C.7 advises to limit loads to WS if possible, and a Caution statement before step B.7.14 provides the same information.

This question exams the examinees knowledge of breaker terminology and system lay-out.

The other distracters are plausible but incorrect, as the bus is not required to be inspected if the alarm PM01J-A214 4KV BUS 241X/Y OVERCURRENT is NOT LIT, and Unit 1, Unit Tie Breaker 1414 must be closed to energize the Unit 2 busses, and it is not normally closed.

RO EXAMINATION QUESTIONS

QUESTION 026

Unit 1 scrammed from rated conditions.

- A LOCA has occurred and ECCS systems have initiated.
- RPV pressure is 550 psig.
- Pressure switch 1E12-N413B, which monitors pressure between the 1B RHR Injection valve and downstream check valve, has failed and is stuck at RPV pressure for rated conditions.

Which of the following identifies how the 1E12-F042B; 1B RHR LPCI INJ VLV will be affected by this failure if RPV pressure continues to drop to 400 psig?

The 1E12-F042B; 1B RHR LPCI INJ VLV

- a. can only be opened remotely at the Remote Shutdown Panel (after placing the RSDP Emergency Transfer Switch in the Emergency Position).
- b. will open automatically or can be opened manually from the Main Control Room or the Remote Shutdown Panel (after placing the RSDP Emergency Transfer Switch in the Emergency Position).
- c. will NOT open automatically but can be opened manually from the Main Control Room or the Remote Shutdown Panel (after placing the RSDP Emergency Transfer Switch in the Emergency Position).
- d. will NOT open automatically and can NOT be opened manually from the Main Control Room or the Remote Shutdown Panel (after placing the RSDP Emergency Transfer Switch in the Emergency Position).

ANSWER

a.

REFERENCE

System Description 64, RHR, page 30.

1E-1-4220AL Schematic Diagram RHR

1E-1-4220BR Schematic Diagram RHR

M-2096, Sh. 3 RHR injection line low pressure monitoring

203000K6.09 - Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) : Nuclear boiler instrumentation

HIGH

NEW

Explanation:

Both RPV low pressure and injection line low pressure signals are required for the 1E12-F042B; 1B RHR LPCI INJ VLV to open automatically or be opened manually from the Main Control Room. So if the listed pressure switch fails to provide a low pressure signal, the valve can only be opened at the RSDP after placing the Emergency Transfer Switch in the Emergency Position.

The other answers are incorrect, but plausible if the examinee does not understand the permissives for the 1E12-F042B; 1B RHR LPCI INJ VLV.

RO EXAMINATION QUESTIONS

QUESTION 027

Which of the following identifies points where the CRD system physically connects to the Condensate system?

1. Condenser Hotwell Reject Line
 2. "A" Condensate Pump suction line from the Hotwell
 3. Condensate pumps discharge header
- a. 1, 2 AND 3.
 - b. 1 AND 2 ONLY.
 - c. 1 AND 3 ONLY.
 - d. 2 AND 3 ONLY.

ANSWER

b.

REFERENCE

System Description 25, Control Rod Drive Hydraulics, Fig. 25-1

P&IDs M-100, M-74 and M-58

256000K1.05 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR CONDENSATE SYSTEM and the following: CRD hydraulics system

FUNDAMENTAL

NEW

Explanation:

Per System Description 25, Control Rod Drive Hydraulics, Fig. 25-1 and P&IDs M-100, M-74 and M-58 it can be determined that CRD is physically connected to the Hotwell reject line and the A Condensate Pump Suction line.

RO EXAMINATION QUESTIONS

QUESTION 028

Which of the following identifies the power source(s) for the Unit 1 Outboard Main Steam Isolation Valve Solenoids?

- a. 111Y ONLY
- b. 1A RPS ONLY
- c. 111Y and 112Y
- d. 1A RPS and 1B RPS

ANSWER

d.

REFERENCE

1E-1-4203AA

239001K2.01 - Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids

FUNDAMENTAL

NEW

Explanation:

Per E&ID-1E-1-4203AA the Outboard MSIV solenoids are supplied by 1A and 1B RPS.

RO EXAMINATION QUESTIONS

QUESTION 029

While moving a fuel bundle through the cattle chute, the air supply to the control rod grapple is completely depressurized.

What effect will this have on refueling activities, and why?

Fuel movement

- a. must be STOPPED immediately because the fuel bundle could become dislodged with the grapple NOT air-loaded closed.
- b. can CONTINUE to the point of releasing the grapple from the fuel bundle because the air supply is required to open the grapple.
- c. must be STOPPED immediately because the refueling equipment does NOT meet the requirements of SA-AA-03001, "Exelon Nuclear Industry Safety Pocket Guide 2010, page 40, "Nuclear Fuel Handling".
- d. can CONTINUE to the point of latching onto the next fuel bundle as the grapple will spring open when the weight of the fuel bundle is removed, but an air supply is required to close the grapple onto the next fuel bundle.

ANSWER

b.

REFERENCE

System Description 30, page 4.

234000K3.03 - Knowledge of the effect that a loss or malfunction of the FUEL HANDLING EQUIPMENT will have on following: Fuel handling operations
FUNDAMENTAL

NEW

Explanation:

Per System Description 30, Fuel Handling, "The Fuel Grapple Head is designed such that the grapple cannot be opened while lifting or carrying a bundle. This is accomplished by the opposing double "J" design of the hook." So, for the given condition, the fuel bundle can be moved to the off-loaded position, however air is required to open the grapple, as described in the System Description as "At the bottom of the grapple mast is an air operated Fuel Grapple Head consisting of opposing air-operated J-hooks".

RO EXAMINATION QUESTIONS

QUESTION 030

In order to ensure adequate NPSH for the Recirculation Pumps, the Reactor Recirculation pumps

- a. downshift if Feedwater flow <20%.
- b. downshift if RPV Water Level drops to Level 3.
- c. downshift if <10.1°F dT exists between the steam dome and RR pump suction.
- d. utilize start/upshift logic that requires RR Flow Control Valves to be at a minimum position of 20%.

ANSWER

b.

REFERENCE

System Description 22, Reactor Recirculation

202001K4.02 - Knowledge of RECIRCULATION System design feature(s) and/or interlocks which provide for the following: Adequate recirculation pump NPSH

FUNDAMENTAL

NEW

Explanation

Per System Description 22, Reactor Recirculation, this design feature ensures adequate NPSH in the RR pumps.

RO EXAMINATION QUESTIONS

QUESTION 031

Which of the following identifies the design features associated with the approximately 10" long space between the top of the stacked fuel pellets and the top of the fuel rod?

The described space

1. allows Gadolinium to be added for flux shaping
 2. provides an expansion space for axial pellet swelling
 3. provides an expansion space for pressure build-up from fission gases such as Xenon
 4. houses a stainless steel spring which provides a compressive load on the fuel pellets
-
- a. 1, 2, AND 3.
 - b. 2, 3, AND 4.
 - c. 1, 2, AND 4.
 - d. 1, 3, AND 4.

ANSWER

b.

REFERENCE

System Description 021, Nuclear Fuel, page 5 and Fig. 021-02.

290002K5.02 - Knowledge of the operational implications of the following concepts as they apply to REACTOR VESSEL INTERNALS : Fission product poisons

FUNDAMENTAL

NEW

Explanation:

Per System Description 021, Nuclear Fuel, page 5, "The difference between the active fuel length (stacked Fuel Pellets) and the total length of the Fuel Rod is called the fission gas plenum. This plenum provides an expansion space for pressure buildup caused by fission gases, such as Xenon and Krypton. The plenum also provides space for axial pellet swell. The fission gas plenum is approximately 10 inches long.

A plenum spring provides a compressive load to keep Fuel Pellets in the same axial position and to allow axial thermal expansion of the Fuel Pellets.

RO EXAMINATION QUESTIONS

QUESTION 032

Which of the following identifies the effect, if any, that the loss of 111X will have on the Fire Protection system?

- a. NO effect, the Fire Protection system detectors, inverters, and panels are powered from 112X.
- b. Diesel Generator Room CO₂ pressure supply latching valves will unlatch and close and must be re-opened prior to restoring power.
- c. Diesel Generator CO₂ systems will swap to a back-up battery power supply which will support system operation for approximately 24 hours.
- d. Transformer deluge systems can NOT be actuated automatically or manually due to the loss of power to the Deluge Valve vent valves which utilize an "energize to open" solenoid.

ANSWER

c.

REFERENCE

LOA-DC-101, Unit 1 DC Power System Failure

System Description 125, Fire Protection, page

286000K6.02 - Knowledge of the effect that a loss or malfunction of the following will have on the FIRE PROTECTION SYSTEM: DC electrical distribution

FUNDAMENTAL

NEW

Explanation:

Per LOA-DC-101, Unit 1 DC Power System Failure, Note on page 54, the CO₂ panel battery back-up is capable of operating DG CO₂ systems for approximately 24 hours.

RO EXAMINATION QUESTIONS

QUESTION 033

Unit 1 is operating at rated conditions.

Annunciator 1N62-P600-B207; OFF GAS POST-TRTMT RAD HI has just alarmed.
The Off Gas Post-treat sample pump is running.

Which of the following are to be monitored in response to this alarm?

1. Off-gas Pre-treat radiation indication.
 2. Charcoal Adsorber Vault radiation indication.
 3. Off-gas Hydrogen Recombiner Temperature indication.
- a. 1, 2 and 3.
 - b. 1 and 2 ONLY.
 - c. 2 and 3 ONLY.
 - d. 1 and 3 ONLY.

ANSWER

b.

REFERENCE

LOR-1N62-P600-B207

272000A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the RADIATION MONITORING SYSTEM controls including: Lights, alarms, and indications associated with normal operations

FUNDAMENTAL

NEW

Explanation:

The annunciator response procedure directs that rad levels be checked on Pre-treat, Post-Treat, and at the Adsorbers.

The LOR associated with the Off-gas Pre-treat monitor trouble directs that sample flow be checked locally, while this is not required in response to an alarm for the Off Gas Post-treat monitor.

There is a note in the Off Gas Post Treat LOR stating that if the Off Gas Post Treat sample pump is tripped, untreated Off Gas will be monitored, and is the reason for stating that the sample pump is running in the stem.

Off-gas recombiner temperature indication is plausible, but incorrect, as a fire in the off-gas system can affect rad levels, however it would be related to a charcoal fire vs. a recombiner temperature issue.

RO EXAMINATION QUESTIONS

QUESTION 034

Unit 2 is operating at rated conditions.

- The RR Flow Control (RRFC) System is in Ganged Setpoint Mode.
- Annunciator 2H13-P602-A507; RRFC TROUBLE alarms.
 - It is determined that the normal power supply to the RRFC system has been lost and is the cause of the alarm.

Which of the following identifies the actions to be taken in response to this event?

- a. Refer to LOP-RR-07, "Operation of the Reactor Recirculation Flow Control System" to verify the RRFC system has properly transferred to the Loop Manual Mode of operation.
- b. Enter LOA-RR-201, "Unit 2 Reactor Recirculation System Abnormal", section B.7 "2A(2B) Recirculation FCV Locked-up" and verify recirculation loop jet pump flows are less than the Tech Spec mismatch.
- c. Verify the Unit 2 Reactor Recirculation Flow Control Valves are stable and refer to LOP-FW-16, "1(2) Operator Station Alarm Message Interpretation" to determine if any additional actions are required in response to the event.
- d. Refer to LOP-RR-03, "Start-up, Operation, and Shutdown of Reactor Recirc Hydraulic Power Unit", section E.2 "Transfer of Reactor Recirc Hydraulic Power Unit A/B LEAD System Status from one Subloop to the Other" to verify Back-up HPU subloops are operating properly.

ANSWER

c.

REFERENCE

System Description 023, Recirculation Flow Control, page 36.

LOR-2H13-P602-A507

202002A2.02 - Ability to (a) predict the impacts of the following on the RECIRCULATION FLOW CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of A.C.

HIGHER

NEW

Explanation:

Per System Description 023, Recirculation Flow Control, "The 1(2)H13-P634 and 1(2)H13-P619 cabinets are supplied by two independent 120Vac power sources. Each cabinet is supplied by both 120 Vac sources, 1(2)31A-2 and 1(2)32B-1. The two power sources support all the RRFC and jet pump instrumentation equipment in the cabinets with redundant power.

RO EXAMINATION QUESTIONS

QUESTION 035

The assist NSO is performing a TIP set per LOP-NR-06, Section E.4 "Automatic Operation of TIPS".

The AUTO-START pushbutton on TIP Drive Control Units 1D and 1E were depressed.

The following were observed on BOTH TIP Drive Control Units:

- LOW light illuminated.
- FWD light illuminated.
- Detector begin to move at slow speed.
- IN-SHIELD light goes out.

At this point, the Assist NSO observes that the VLV light on the 1D TIP Drive Control Unit is brightly LIT and the VLV light on the 1E TIP Drive Control Unit is dimly LIT.

Which of the following predicts the continued motion of the 1D and 1E detectors based on the given conditions?

- 1D will stop before reaching position 0001.
1E will stop before reaching position 0001.
- 1D will stop before reaching position 0001.
1E will travel to position 0001, then stop.
- 1D will travel to position 0001, then stop.
1E will stop before reaching position 0001.
- 1D will travel to position 0001, then stop.
1E will travel to position 0001, then stop.

ANSWER

c.

REFERENCE

LOP-NR-06, Revision 026

System Description 046, TIPs, page

215001A3.03 - Ability to monitor automatic operations of the TRAVERSING IN-CORE PROBE including: Valve operation: Not-BWR1

HIGHER

NEW

Explanation:

A dim light indication signifies that the ball valve has not fully opened, while bright indication signifies that the ball valve has fully opened. 1D displays bright indication which signifies the ball valve has full opened and then the detector will travel to position 0001. The 1E displays dim indication which signifies the ball valve has NOT full opened and per the note in LOP-NR-06, the forward motion of the detector will stop.

The question tests the examinees knowledge of the significance between a dim or bright "VLV" light indication when operating TIPs.

RO EXAMINATION QUESTIONS

QUESTION 036

Which of the following identifies the method directed for securing and starting a turbine lift pump per LOP-TG-01, "Turbine Trip Resetting, Shell Warming, and Chest Warming?"

- a. To secure the lift pump, open the associated breaker.
To restart the lift pump, RECLOSE the associated breaker ONLY.
- b. To secure the lift pump, open the associated breaker and after the lift pump has tripped, then next, DEPRESS the Low Suction Pressure Reset Pushbutton on 1(2)PM02J.
To restart the lift pump, RECLOSE the associated breaker.
- c. To secure the lift pump, open the associated breaker and after the lift pump has tripped, then next RECLOSE the breaker.
To restart the lift pump, DEPRESS the Low Suction Pressure Reset Pushbutton on 1(2)PM02J.
- d. To secure the lift pump, open the associated breaker and after the lift pump has tripped, then next RECLOSE the breaker.
To restart the lift pump, DEPRESS the Low Suction Pressure Reset Pushbutton locally at the main turbine.

ANSWER

c.

REFERENCE

LOP-TG-01, "Turbine Trip Resetting, Shell Warming, and Chest Warming" pages 13 and 14.
245000A4.01 - Ability to manually operate and/or monitor in the control room: Turbine lube oil pumps

FUNDAMENTAL

NEW

Explanation:

Per LOP-TG-01, "Turbine Trip Resetting, Shell Warming, and Chest Warming" step E.2.7, "Initially TURN OFF three lift pumps (or If Main Turbine continues to roll off Turning Gear, more as necessary to maintain Turbine on gear during warming) in the following order" Step E.2.8 states "After appropriate Lift pump(s) have been tripped, RECLOSE associated breaker."

NOTE above step E.2.8 states, "After appropriate Lift Pumps(s) have been tripped, reclosing the breaker will give the NSO control of restarting lift pump(s) via the LIFT PMPS LO SUCTION RESET PB at 1(2)PMO2J"

RO EXAMINATION QUESTIONS

QUESTION 037

Unit 1 is in a refueling outage and Unit 2 is operating at rated conditions.

- The Fuel Handling Supervisor called to report that refueling activities are in progress, including the removal of underwater tools from the fuel pool.
- A short time later, the three annunciators shown below alarmed and then were able to be cleared after one minute. No other alarms were received.

Which Emergency Operating Procedures (EOPs) must be entered, if any, based on the alarm indication below?

E

	01	02	03	04	05	06	07	
1	MAIN STM OTBD ISOL VLV ACCUMULATOR PRESS LO	ADS OR SRV LEAKAGE	DIV 2 ADS 1B/1C RHR DSCH PRESS PERMISSIVE	HI DRYWELL PRESS SIGNAL SEALED IN	RX VESSEL LO WTR LVL 3 CONFIRMED	DIV 2 LO-LO SETPOINT LOGIC SEALED IN	DIV 2 LO-LO SETPOINT VLVS IN TEST	1
2	DIV 1/2 ADS MANUAL INITIATION PB ARMED	DIV 2 ADS LOGIC B INITIATED	DIV 2 ADS LOGIC D INITIATED	DIV 2 RB VENT RAD HI-HI	DIV 2 FUEL POOL RAD HI-HI	1H13-P601 ROSEMOUNT CARD FILE TROUBLE	DIV 2 MSL PIPE TUNNEL DIFF TEMP BYPASS	2
3	REMOTE SHTDN XFER SWITCH IN EMER POS	FW CHECK VLV ACCUMULATOR PRESS LO	DIV 2 RX LVL LO AND/OR PRESS HI	DIV 2 RB VENT DOWNSCALE	DIV 2 FUEL POOL RAD MON DOWNSCALE	FUEL POOL VENT RAD HI	DIV 2 MSL PIPE TUNNEL AMB TEMP HI	3
4	DIV 2 RCIC EQUIP AREA DIFF/AMB TEMP HI	MSL C/D RAD MON DOWNSCALE/ INOP/HI	MSL C/D RAD MON HI-HI	ADS TEST PROCEDURE FAULTY	ADS IN TEST	DIV 2 GROUP 4 PCIS ISOL LOGIC IN TEST	DIV 2 MSL PIPE TUNNEL DIFF TEMP HI	4
5	DIV 1 CNDNR LO VAC LOGIC BYP	DIV 2 CNDNR LO VAC LOGIC BYP	DIV 2 ADS DW PRESS BYPASS TIMER INITIATED	CHAN B1/B2 MSIV ISOL TRIP	DIV 2 ADS MANUALLY INHIBITED	DIV 2 VP/WR PCIS ISOL LOGIC IN TEST	DIV 2 PCIS MANUAL ISOL SWITCH ARMED	5
	01	02	03	04	05	06	07	

- No EOPs require entry.
- LGA-002, Secondary Containment Control ONLY.
- LGA-009, Radioactivity Release Control ONLY.
- LGA-002, Secondary Containment Control AND LGA-009, Radioactivity Release Control ONLY.

ANSWER

b.

REFERENCE

LGA-002, Secondary Containment Control.

LGA-002 Lesson Plan, page 6

288000 2.4.4 - Emergency Procedures / Plan: Ability to recognize abnormal indications for

RO EXAMINATION QUESTIONS

system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

HIGH

NEW

Explanation:

The slow-flashing windows indicate that valid alarms 1H13-P601-E204; DIV 2 RB VENT RAD HI-HI and 1H13-P601E205; Div. 2 Fuel Pool Rad Hi-Hi were received, which are the alarms associated with the LGA-002 entry condition "VR/FC Exhaust Rad Levels above Max Normal".

The fact that the alarm is slow-flashing probes the examinees knowledge of a "Valid" alarm and the requirement to enter the LGA even if the condition occurred, and then cleared.

Distracters A, C, and D are incorrect in that an EOP needs to be entered, and the entry condition for LGA-009, "Off-site Release Rate above GSEP Alert Level is not met based on the given conditions.

RO EXAMINATION QUESTIONS

QUESTION 038

Unit 1 is operating at rated conditions.

- The Position Indication Probe (PIP) connector for control rod 30-31 has disconnected.

The monitoring of which of the following Control Rod 30-31 parameters will be affected based on the given conditions?

1. Control Rod position
 2. Control Rod Temperature
 3. Control Rod HCU pressure
- a. 1, 2 and 3.
 - b. 1 and 2 ONLY.
 - c. 2 and 3 ONLY.
 - d. 1 and 3 ONLY.

ANSWER

b.

REFERENCE

System Description 024, CRD Mechanical, pages 20 and 28.

E&ID 1E-1-4231AD

E&ID 1E-1-4206AA

214000K4.02 - Knowledge of the effect that a loss or malfunction of the ROD POSITION INFORMATION SYSTEM will have on following: Thermocouple

FUNDAMENTAL

NEW

Explanation:

RPIS monitors both control rod position and temperature. A thermocouple is installed in the position indicator tube at the top to monitor drive temperature. The output is fed to a recorder in the control room back-panel, which in turn provides input to 1H13-P603-A403; CRD HYD TEMP HI.

The other distracters are plausible but incorrect as RPIS is not tied to the monitoring of HCU pressure.

RO EXAMINATION QUESTIONS

QUESTION 039

Unit 2 was operating at rated conditions when the unit scrammed due to the failure of a bushing on the Unit 2 SAT.

The NSO has completed the initial action of HARDCARD - Unit 2 Immediate Actions For Reactor Scram and reports the following:

- 10 control rods remain out at position 02 AND 1 control rod remains out at position 48.
- ALL scram lights are EXTINGUISHED
- ALL scram pilot valves are open
- Level dropped to -20 inches and is currently +25 and rising.
- RPV pressure is being controlled with Bypass Valves.
- APRM Downscale lights are LIT.

Which of the following identifies actions which must be taken based on the above conditions?

- a. Unit 2 is in an ATWS condition AND control rods must be inserted per Hardcard - Unit 2 Immediate Actions for Alternate Rod Insertion on Failure to Scram, **Method 3.**
- b. Unit 2 is in an ATWS condition, AND control rods must be inserted per Hardcard - Unit 2 Immediate Actions for Alternate Rod Insertion on Failure to Scram, **Method 3 AND boron injection is required.**
- c. Unit 2 is NOT in an ATWS condition AND control rods must be inserted per Hardcard - Unit 2 Immediate Actions for Alternate Rod Insertion on Failure to Scram, **Method 3.**
- d. Unit 2 is NOT in an ATWS condition AND control rods must be inserted per Hardcard - Unit 2 Immediate Actions for Alternate Rod Insertion on Failure to Scram, **Method 1.**

ANSWER

c.

REFERENCE

LGA-001 RPV Control

Hardcard - Unit 2 Immediate Actions for Alternate Rod Insertion on Failure to Scram

295006K1.02 - Knowledge of the operational implications of the following concepts as they apply to SCRAM : Shutdown margin

HIGHER

NEW

Explanation:

Per LGA-001, RPV Control, if all rods except one are at position 02, the reactor core meets shutdown margin requirements to remain shutdown.

The control rods remaining out need to be inserted per Method 3 of the LGA-NB-01 Hardcard, and the Reactor Operators are responsible for identifying the method to be used and then gaining approval of the SRO before implementing the method. In this case, with less than 25 rods failing to scram, Method 3 is the preferred method to be used and method 1 would not apply as the scram lights extinguished indicating that RPS busses de-energized as required.

RO EXAMINATION QUESTIONS

QUESTION 040

During a loss of Shutdown Cooling, in order to prevent excessive temperature stratification, the NSO is required to ...

- a. maximize CRD flow into the RPV.
- b. minimize RT Bottom Head Drain flow.
- c. raise RPV water level above +50 inches.
- d. lower the RR Flow Control Valves position.

ANSWER

c.

REFERENCE

LOA-RH-101, Revision 14, page 9, Step B.1.12

295021K1.02 - Knowledge of the operational implications of the following concepts as they apply to LOSS OF SHUTDOWN COOLING : Thermal stratification

FUNDAMENTAL

BANK

RO EXAMINATION QUESTIONS

QUESTION 041

An ATWS has occurred:

- approximately one quarter of the control rods are inserted (140 rods did NOT insert)
- RPV water level is being maintained between -100 and -60 inches
- reactor pressure is being maintained between 900 and 1000 psig
- hot shutdown boron weight has just been injected

Under which one of the following conditions would you expect the reactor to go critical again?

- a. Opening SRVs to cooldown the reactor.
- b. Decaying of Xenon over the next seven hours.
- c. Placing RCIC in service to maintain vessel level.
- d. Placing RWCU in service to stabilize reactor pressure.

ANSWER

a.

REFERENCE

LGA-010 Lesson Plan, Sections VI.F. and VII.H.

295037K1.04 - Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM

DOWNSCALE OR UNKNOWN: Hot shutdown boron weight: Plant-Specific

HIGHER

BANK

Explanation:

Hot shutdown boron weight implies that the reactor should be subcritical at rated pressures and temperatures.

A cooldown may only be commenced if cold shutdown boron weight has been injected.

RWCU may be utilized provided F/Ds are NOT used and it does NOT remove boron inventory.

Operation of RCIC will not affect pressure as the stem states it is being maintained 900 - 1000 psig.

Xenon will be building in for the stated time period.

RO EXAMINATION QUESTIONS

QUESTION 042

Unit 1 is operating at rated conditions.

- The Main Turbine Generator trips on Generator Differential Current signal.

What turbine valves must respond properly following the receipt of the trip signal to ensure reactor pressure can be controlled automatically within normal operating parameter limits for the given conditions?

Main Turbine

- a. Bypass Valves ONLY.
- b. Stop Valves OR Control Valves ONLY.
- c. Stop Valves AND Bypass Valves ONLY.
- d. Bypass Valves AND
Stop Valves OR Control Valves.

ANSWER

d.

REFERENCE

LOA-TG-101(201), "Unit 1(2) Turbine Trip", pages 4 and 5.

295005K2.07 - Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: Reactor pressure control

FUNDAMENTAL

NEW

Explanation:

LOA-TG-101(201), "Unit 1(2) Turbine Trip" provides direction to check Turbine Bypass Valves controlling reactor pressure, and later to CHECK at least one of the following closed: All MSVs or ALL CVs."

RO EXAMINATION QUESTIONS

QUESTION 043

Which of the following design features are used to ensure the Outboard Main Steam Isolation Valves will close if the normal pneumatic supply is lost?

1. Bottle bank
 2. Actuator springs
 3. Pneumatic accumulators
 4. Emergency pressurization station
-
- a. 2 AND 3 ONLY.
 - b. 2, AND 4 ONLY.
 - c. 1, 3 AND 4 ONLY.
 - d. 1, 2, 3, AND 4.

ANSWER

a.

REFERENCE

P&ID M-81, Sh.2 and enlargements.

System Description 70, Main Steam Figure 70-10b MSIV Air Supply Fast Close

System Description 70, Main Steam, page 14

295019K2.05 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Main steam system

FUNDAMENTAL

NEW

Explanation:

1. Bottle bank - Incorrect as this is used as back-up pneumatic source for ADS SRVs.
2. Actuator springs - Correct. Four helical springs are mounted on the MSIV actuators to provide closing force, which alone will close an MSIV.
3. Pneumatic accumulators - Correct. Accumulators are used on Inboard and Outboard MSIVs, as well as SRVs.
4. Emergency pressurization station - Incorrect, as emergency pressurization stations support only the ADS SRVs.

RO EXAMINATION QUESTIONS

QUESTION 044

Unit 1 and Unit 2 are operating at rated conditions.

- The LaSalle Main Control Room was just notified by Transmission Switching Operations that voltage in the LaSalle switchyard has fallen below 353 kV due to the scram of the Braidwood Unit 1 reactor.

Which of the following actions will increase switchyard voltage?

- a. Transfer loads from the Unit SATs to the Unit UATs.
- b. Start the Division 1 and Division 2 Emergency Diesel Generators.
- c. Rotate BOTH the Unit 1 and Unit 2 "GENERATOR TERMINAL VOLTS ADJUST" controls in the CLOCKWISE direction.
- d. Take BOTH the Unit 1 and Unit 2 "GENERATOR FIELD VOLTS ADJUST" control switches to the "RAISE" position.

ANSWER

c.

REFERENCE

LOA-GRID-001, "Low Grid Voltage".

700000K2.07 - Knowledge of the interrelations between GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES and the following: Turbine/generator control.

HIGHER

NEW

Explanation:

Per LOA-GRID-001, "Low Grid Voltage", step B.1.2, "As directed by Transmission Operations, raise VARs to increase switchyard voltage." VARs are raised by raising the settings of the Unit 1 and Unit 2 Generator Voltage Adjusters.

The other distracters are plausible but incorrect.

A. Transfer loads from the Unit SATs to the Unit UATs, incorrect as this will increase load on the generators that are supplying the grid.

B. Start the Division 1 and Division 2 Emergency Diesel Generators, is incorrect as this is not allowed by procedure.

D. Take BOTH the Unit 1 and Unit 2 "GENERATOR FIELD VOLTS ADJUST" control switches to the "RAISE" position, is incorrect as the Field Volts Adjust only works in manual and the normal line-up is automatic control.

RO EXAMINATION QUESTIONS

QUESTION 045

Unit 1 and Unit 2 have just been scrammed as the result of a hostile action.

- The Outside Rounds Equipment Operator called to report that an explosion was observed near the Northeast corner of the lake, and water is flowing into the adjacent field at a high, rising rate.
- Three large fires have been reported in progress on site.
- Security has notified the Main Control Room that all intruders have been caught and the site is secure.
- It has been determined that an Alternate Supply to the Fire Protection System is required and pumper trucks have just arrived on-site.

Where is the best location for the pumper trucks to take a suction from, and why?

- a. The North Parking lot, as this is the easiest and quickest place to gain access to the lake.
- b. The Lake Screen House, as this allows suction to be taken from the Ultimate Heat Sink.
- c. Near the CW discharge flume, as this area is protected by DB40 fencing and the pumper truck(s) will be protected if additional hostile action occurs.
- d. Fire Hydrant House B07, located near the Reactor Building Missile Door 20, as this will allow connecting directly into the Fire Protection ring header, increasing NPSH for the pumper truck(s).

ANSWER

b.

REFERENCE

LOA-FP-001, "Unit 0 Fire Protection System Abnormal"

600000AK3.04 - Knowledge of the reasons for the following responses as they apply to PLANT FIRE ON SITE: Actions contained in the abnormal procedure for plant fire on site

HIGHER

NEW

Explanation:

LOA-FP-001, "Unit 0 Fire Protection System Abnormal", "Station the pumper trucks at one of the following locations:

RO EXAMINATION QUESTIONS

QUESTION 046

Which of the following identifies the reason(s) for placing the 1B Diesel Gen Control Selector switch to "LOCAL MANUAL" when abandoning the control room?

1. Defeat automatic initiation of the 1B Diesel Generator.
 2. Transfer control power from DC Bus 113 to AC Bus 143-1.
 3. Transfer manual control of the 1B Diesel Generator to the 1B DG Room.
- a. 1, 2, AND 3.
 - b. 3 ONLY.
 - c. 1 AND 3 ONLY.
 - d. 2 AND 3 ONLY.

ANSWER

b.

REFERENCE

System Description 011, EDG and Auxiliaries

295016K3.03 - Knowledge of the reasons for the following responses as they apply to

CONTROL ROOM ABANDONMENT : Disabling control room controls

FUNDAMENTAL

NEW

Explanation:

Placing the 1B Diesel Gen Control Selector switch to "LOCAL MANUAL" simply transfers control to the 1B DG room.

The other distracters are plausible but incorrect.

DC to AC power is credible as the UFSAR discusses transferring control power to a more reliable source at the RSDP. In this case, the more reliable source for DG would be DC power, however the control power is always supplied from DC for the HPCS DG.

Defeating initiation signals is credible in that the UFSAR and System Description 54, RSDP discusses defeating all interlocks, with a few exceptions, when transferring control out of the main control room.

RO EXAMINATION QUESTIONS

QUESTION 047

The reason for the Low-Low Set relief mode of operation is to....

- a. minimize containment fatigue due to SRV cycling.
- b. evenly disperse heat input into the suppression pool.
- c. minimize SRV cycling in order to prevent SRV seat damage.
- d. prolong SRV operation in the event the normal pneumatic supply to the SRVs is lost.

ANSWER

a.

REFERENCE

System Description 70, Main Steam, page 11.

295025K3.09 - Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE : Low-low set initiation: Plant-Specific

FUNDAMENTAL

NEW

Explanation:

Per System Description 70, Main Steam, Low-Low Set Relief Logic (LLS) (Figures 70-05 & 6) minimizes containment fatigue due to SRV cycling.

RO EXAMINATION QUESTIONS

QUESTION 048

The Main Control Room has been evacuated and control has been established at the Remote Shutdown Panels.

The following conditions exist on Unit 1:

- RPV pressure is 945 psig.
- RPV water level is +20 inches.
- ALL remote transfer switches are in the "Emergency" position.
- RCIC is injecting.
- SRV "K" is open.
- A loss of Bus 111Y occurs.

Which of the following predicts the status of the RCIC Turbine and SRV "K" one minute from now?

The RCIC turbine will be ____ (1) ____ and SRV "K" will be ____ (2) ____.

- a. (1) tripped
(2) open
- b. (1) tripped
(2) closed
- c. (1) running
(2) open
- d. (1) running
(2) closed

ANSWER

b.

REFERENCE

E&ID 1E-1-4201AE

E&ID 1E-1-4214AA

295004A1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : Systems necessary to assure safe plant shutdown
HIGHER

NEW

Explanation:

RCIC will trip on overspeed due to the loss of 111Y. 111Y also provides control power for SRV K when the emergency transfer switch is in emergency and power will be lost to the C solenoid, causing K SRV to go closed.

RO EXAMINATION QUESTIONS

QUESTION 049

Unit 2 has scrambled from rated conditions.

- RCIC is OOS.
- Feedwater has been isolated due to a leak in the drywell.
- Drywell pressure is 3.4 psig
- RPV water level first dropped to -70", recovered and peaked at 59.5" and has now dropped to -65".
- No manual actions have been taken with the HPCS system.
- The Assist NSO checks HPCS system status and observes the HPCS pump running with the HPCS Min Flow Valve OPEN and the HPCS Injection Valve CLOSED.
- The 1.69# AND/OR -50 indicator is LIT
- The Level 8 TRIP indicator is LIT

Which of the following identifies the action(s) required to be taken, if any, for the given conditions?

- a. No action required.
- b. Depress the "HI WTR LVL" RESET pushbutton and then take the HPCS Injection Valve control switch to OPEN.
- c. Take the HPCS Min Flow Valve control switch to CLOSE, and then take the HPCS Injection Valve control switch to OPEN.
- d. Depress the "HI DW PRESS LO WTR LVL" and "HI WTR LVL" RESET pushbuttons, and then Arm and Depress the "HPCS Manual Initiation" pushbutton.

ANSWER

b.

REFERENCE

Correct Answer: B

Depress the "HI WTR LVL" RESET pushbutton and then take the HPCS Injection Valve control switch to OPEN.

295031A1.04 - Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL : High pressure core spray: Plant-Specific

HIGHER

HIGHER

Explanation:

The only systems that could have restored level is HPCS. Since no operator actions were taken, HPCS must have operated properly in response to the initiation signals.

The injection valve has failed to automatically re-open when RPV level dropped to -50", so the proper action is to clear the Level 8 signal keeping the valve closed by depressing the reset pushbutton, and then manually complete the failed automatic action, which in this case is to take the injection valve control switch to the OPEN position.

RO EXAMINATION QUESTIONS

QUESTION 050

Unit 2 has scrammed from rated conditions.

- A leak has developed in the drywell.
 - Drywell pressure is 3.5 psig and stable.
 - Drywell Temperature is 200°F. and stable.
 - RPV water level is +35".
 - RPV pressure is 850 psig.

Which of the following statements describes the status of drywell cooling assuming no operator actions have been taken?

Drywell cooling is

- a. running in the same configuration it was before the scram.
- b. isolated and procedurally allowed to be restarted after defeating isolation signals.
- c. isolated and procedurally prohibited from being restarted due to high drywell pressure.
- d. isolated and procedurally prohibited from being restarted due to high drywell temperature.

ANSWER

b.

REFERENCE

LGA-003, Primary Containment Control

LPGP-PSTG-01S05A NEED TO INCLUDE THIS REFERENCE

295024A1.14 - Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Drywell ventilation system

HIGH

NEW

Explanation:

With drywell pressure above the Group 2 isolation setpoint, VP has isolated. Per LGA-003, Primary Containment Control, all available drywell cooling should be started, and it is OK to defeat isolation signals.

This is an RO level question as it asks the status of the VP system, not what action is required to be directed. The examinee must understand that VP will isolate when drywell pressure exceeds 1.93 psig. and identify that VP can still be operated if drywell temperature is below 212°F., however isolation signals must be defeated and is allowed per LGA direction.

RO EXAMINATION QUESTIONS

QUESTION 051

Unit 1 scrambled from rated conditions due to a spurious scram signal caused by seismic motion.

- RPV water level dropped to -20" and is now 25".
- RPV pressure is 750 psig and going down.
- One MSL indicates 1 Mlb/hr flow with ALL MSIVs closed.
- SRV H is stuck OPEN
- Drywell pressure is 8 psig.
- Suppression Chamber pressure is 3 psig.
- Suppression Pool water level is -11 feet and going down 6" per minute.

Based on the given conditions, RPV pressure is currently being discharged

- into the Suppression Pool water volume ONLY.
- into the Suppression Pool water volume AND Drywell ONLY.
- into the Drywell AND Suppression Chamber air space ONLY.
- into the Suppression Pool water volume, Drywell, AND Suppression Chamber air space.

ANSWER

b.

REFERENCE

Figure 070-01 Main Steam System Overview

LGA-004 RPV Blowdown Lesson Plan

LGA-003, Primary Containment Control Lesson Plan

System Description 70, Main Steam, page 12.

295030A2.03 - Ability to determine and/or interpret the following as they apply to LOW

SUPPRESSION POOL WATER LEVEL : Reactor pressure

HIGHER

NEW

Explanation:

Correct, as the SRV will discharge into the SP water volume and the MSL leak will go into the drywell and then through the downcomers to the SP water volume.

A. into the Suppression Pool water volume ONLY.

Incorrect as indicated flow in a MSL with ALL MSIVs closed indicates a leak into the drywell.

This distracter is plausible if the examinee attributed the MSL flow indication to the open SRV.

C. into the Drywell AND Suppression Chamber air space ONLY.

Incorrect, as the SRV will discharge into the SP water volume and the MSL leak will go into the drywell and then through the downcomers to the SP water volume. This distracter is plausible if the examinee did not know the location of the SRV T-quencher is lower than -11 feet.

D. into the Suppression Pool water volume, Drywell, AND Suppression Chamber air space.

Incorrect, as nothing is being discharged in to the SC Air Space.

RO EXAMINATION QUESTIONS

QUESTION 052

LGA-009, Radioactivity Release Control, directs operation of ventilation in areas that may be releasing radioactivity, including the Turbine Building.

Which one of the following describes the relationship between this action and the radiation levels that may exist in the Turbine Building?

- a. Results in recirculation of the Turbine Building, to limit the dispersion of the radioactivity.
- b. Results in positive pressure inside the Turbine Building, to limit the intrusion of radioactivity from the Reactor Building.
- c. Assures that any radioactivity in the Turbine Building is discharged through a ground level release point to limit the dispersion of the radioactivity.
- d. Assures that any radioactivity in the Turbine Building is discharged through an elevated release point and allows the dispersion of the radioactivity to be monitored.

ANSWER

d.

REFERENCE

LGA-009 Lesson Plan 509, Section IV

295038A2.03 - Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Radiation levels

HIGHER

NEW

Explanation:

The other answers are incorrect because:

A) Discharges at an elevated discharge, without recirculating TB air

B) TB Ventilation takes a suction from the TB, maintaining the TB at a slightly negative pressure

C) TB discharge is elevated and not at ground level

RO EXAMINATION QUESTIONS

QUESTION 053

Unit 1 is operating at rated conditions.

- Rod Line is 100%.
- RR loop flows are matched.
- The 1A RR FCV is locked up.

The 1B RR Pump trips off and coasts to zero speed.

- Power stabilizes at 54%.

What is core flow for the given conditions, using the reference provided?

Provide LOA-RR-101, Attachment A for reference.

- a. 41 M#/Hr.
- b. 43 M#/Hr.
- c. 50 M#/Hr.
- d. 54 M#/Hr.

ANSWER

a.

REFERENCE

LOA-RR-101, "Unit 1 Reactor Recirculation Abnormal", Attachment A.

295001A2.03 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Actual core flow

HIGHER

NEW

Explanation:

Using Attachment A of LOA-RR-101, the given power and rod line are used to determine that RR flow is 41M#/Hr. A marked up Att. A is included.

The other distracters are plausible but incorrect, using values that could be determined if the examinee does not pay close attention to the Power To Flow Map's different rod lines and top and bottom axis.

RO EXAMINATION QUESTIONS

QUESTION 054

The purpose of the "Critical L Path" interlock is to keep the

- a. Reactor Building Overhead crane main hook aligned with a pre-determined path when transporting the reactor head between the reactor and the reactor head pedestal.
- b. Refueling Main Hoist grapple a minimum of 2 feet away from the walls of the fuel pools in order to prevent damage to suspended fuel bundles during loading into the spent fuel racks.
- c. Refueling Bridge Main Hoist grapple aligned with the centerline of the "cattle chute" in order to prevent damage to suspended fuel bundles during transport between the reactor and the fuel pool.
- d. Reactor Building Overhead Crane from traveling over the Spent Fuel Pool during spent fuel cask movement, and to allow the cask to travel only over strengthened structural members that can support a cask drop accident.

ANSWER

d.

REFERENCE

System Description 30, Fuel Handling, page 13.

295023 2.1.28 - Conduct of Operations: Knowledge of the purpose and function of major system components and controls

FUNDAMENTAL

NEW

Explanation:

System Description 30, Fuel Handling, states:

Critical L-path:

A restricted movement mode of operation for the overhead crane is required by Technical Specifications during spent fuel cask movement. This is called the Critical L Path. Its purpose is to keep the spent fuel cask from traveling over the Spent Fuel Pool and to allow the cask to travel only over strengthened structural members that can support a cask drop.

RO EXAMINATION QUESTIONS

QUESTION 055

Unit 2 scrambled from rated conditions following the loss of the Unit 2 SAT.

- RCIC is OOS.
- FW has been isolated due to a leak outside the drywell.
- RPV water level is -65" and going down.
- RPV pressure is 900 psig and being controlled with Turbine Bypass Valves.
- The 2B Diesel Generator has failed to start.

The given conditions will require entry into

1. LGA-001, RPV Control.
 2. LOA-AP-201, "Unit 2, AC Power System Abnormal"
 3. LOA-DG-201, "DG Failure"
- a. 1, 2 AND 3.
 - b. 1 AND 2 ONLY.
 - c. 2 AND 3 ONLY.
 - d. 1 AND 3 ONLY.

ANSWER

a.

REFERENCE

1. LGA-001, RPV Control.
2. LOA-AP-201, "Unit 2, AC Power System Abnormal"
3. LOA-DG-201, "DG Failure"

295003 2.4.8 - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

HIGH

NEW

Explanation:

The conditions in the stem provide enough details for the student to discern that Bus 243 is de-energized due to the loss of the Unit 2 SAT and the failure of the 2B D/G to start. With RPV level at -65" and RCIC OOS and FW isolated, HPCS is needed to restore RPV water level. Entry into LGA-001 was met when RPV water level dropped below 12.5 inches, entry into LOA-AP-201 and LOA-DG-201 is required with Bus 243 de-energized and the 2B D/G failing to start.

RO EXAMINATION QUESTIONS

QUESTION 056

What is the significance of the 1/4-inch diameter black dot located on the label for Control Room recorder 1TR-CM037A "AVG SP TEMP"?

The black dot signifies that the recorder.....

- a. is intended for use under accident conditions.
- b. is a Technical Specification related instrument.
- c. has redundant indication available at the Remote Shutdown Panel.
- d. requires manual compensation based on environmental conditions.

ANSWER

a.

REFERENCE

LAP-1600-15, Rev. 8, "Regulatory Guide 1.97 Instruments", step D.2.

295026 2.4.3 - Emergency Procedures / Plan: Ability to identify post-accident instrumentation.

FUNDAMENTAL

NEW

Explanation:

Regulatory Guide 1.97, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident. These instruments are intended and qualified for use under accident conditions.

Distracters B, C, and D identify plausible, but incorrect reasons for the significance of the black dots.

RO EXAMINATION QUESTIONS

QUESTION 057

What is the primary concern associated with Drywell temperature exceeding 340 degrees F.?

- a. loss of core circulation.
- b. loss of rpv pressure control.
- c. failure of primary penetration seals.
- d. loss of pressure suppression capability.

ANSWER

b.

REFERENCE

LGA-003, Primary Containment Control Lesson Plan, page 23.

295028A2.02 - Ability to determine and/or interpret the following as they apply to HIGH

DRYWELL TEMPERATURE : Reactor pressure

FUNDAMENTAL

NEW

Explanation:

340 degrees F. is the maximum temperature at which the ADS solenoids are qualified, which would lead to the concern for the loss of pressure control.

A. Loss of core circulation is plausible if the RR pump motors were affected by the high DW temperature, but they are not.

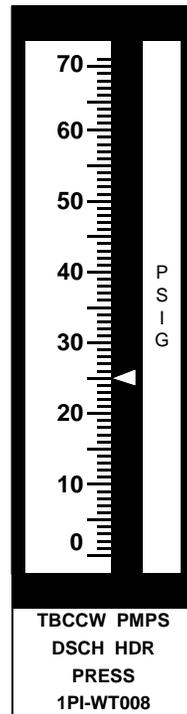
D. Loss of pressure suppression capability is plausible if vacuum breakers were affected by the high DW temperature, but they are not.

RO EXAMINATION QUESTIONS

QUESTION 058

Unit 1 is operating at rated conditions.

- The 1B TBCCW Pump is OOS.
- Annunciator 1PM10J-A304; TBCCW PMP DSC HDR PRESS LO alarms.
- Unit 1 TBCCW Discharge Header pressure is indicated below:



Which of the following action should be taken next?

- SCRAM the reactor per LGP 3-2.
- SWAP TBCCW heat exchangers.
- Commence a Unit 1 SHUTDOWN.
- Secure TBCCW flow through off-line equipment.

ANSWER

a.

REFERENCE

LOA-WT-101, "Loss of TBCCW"

295018 2.4.11 - Knowledge of abnormal condition procedures.

HIGHER

NEW

Explanation:

The TBCCW low pressure alarm comes in at 50 psig, and LOA-WT-101, "Loss of TBCCW" requires the stand-by pump to be started if TBCCW pressure is below 57 psig. The standby TBCCW pump is OOS and can not be started so the next applicable step is to scram the reactor

RO EXAMINATION QUESTIONS

per LGP-3-2.

Swapping heat exchanges is an action in LOA-WT-101 if TBCCW pressure is above 57 psig, but low.

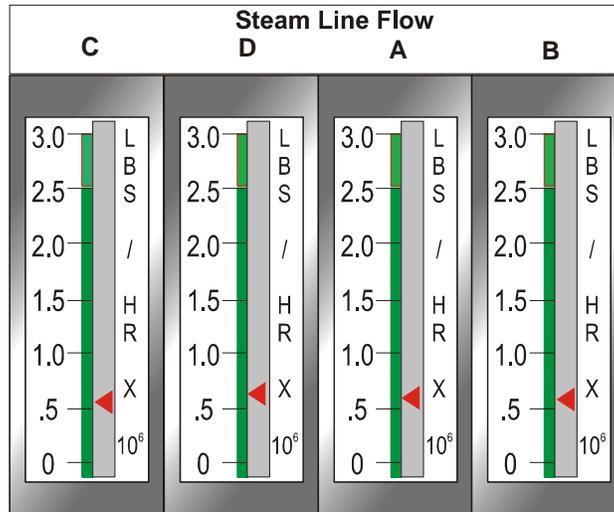
Commencing a Unit Shutdown and securing off-line loads are plausible, but incorrect.

RO EXAMINATION QUESTIONS

QUESTION 059

Unit 1 is starting up from a refueling outage.

- RPV Water Level is 36" on narrow range
- MDRFP is on-line, in manual, with feedwater header flow at 3.8 MLB/HR.
- Reactor power is 15% and steady
- Pressure is being controlled with Turbine Bypass Valves.
- Steam flow is as indicated. (Note: Lower portion of band is displayed for clarity)



Based on the information provided, which of the following annunciators will alarm first if no operator action is taken regarding the operation of the MDRFP?

- 1H13-P603 A512, RWLCS FAILURE
- 1H13-P603 A110, RX VESSEL PRESS HI
- 1H13-P603 A309, FW CONTROL RX VESSEL LVL 7 HI
- 1H13-P603 A409, FW CONTROL RX VESSEL LO LVL 4

ANSWER

c.

REFERENCE

LOA-FW-101 Reactor Level / Feedwater Pump Control Trouble

295008K1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR WATER LEVEL : Feed flow/steam flow mismatch

HIGHER

NEW

EXPLANATION

Correct Answer C: 1H13-P603 A309, FW CONTROL RX VESSEL LVL 7 HI

Explanation: Feedwater flow is greater than steam flow. Level will increase, causing a level 7 alarm.

Distracter A 1H13-P603 A512, RWLCS FAILURE

RO EXAMINATION QUESTIONS

Reason Distracter A is incorrect: RWLC will not be affected by a slow increase in RPV level before the LVL 7 alarm is received.

Distracter B 1H13-P603 A110, RX VESSEL PRESS HI

Reason Distracter B is incorrect: RPV pressure will not change due the steam flow/feewater flow mismatch.

Distracter D: 1H13-P603 A409, FW CONTROL RX VESSEL LO LVL 4

Reason Distracter D is incorrect: RPV level will rise, not go down.

RO EXAMINATION QUESTIONS

QUESTION 060

Unit 1 is operating at rated conditions.

- 1A CRD pump is in the process of being returned to service
- At 06:55, 1B CRD pump trips
- At 06:57 1H13-P601-A503; CRD HYD ACCUM TROUBLE alarms due to HCU 30-31 low accumulator pressure
- At 07:00 CRD charging water pressure drops below 940 psig
- At 07:03 1H13-P601-A503; CRD HYD ACCUM TROUBLE alarms due to HCU 46-07 low accumulator pressure

Which of the following identifies 1) the action required to be taken for the given conditions, and 2) the predicted response of control rods 30-31 and 46-07 if a scram signal is inserted?

- a. 1) An immediate scram is required.
2) Control rods 30-31 and 46-07 will be fully inserted from the driving force created primarily by reactor water pressure.
- b. 1) An immediate scram is required.
2) Control rods 30-31 and 46-07 will be fully inserted from the driving force created primarily by HCU accumulator water pressure.
- c. 1) A scram is required if CRD charging water pressure remains below 940 psig until 07:20.
2) Control rods 30-31 and 46-07 will be fully inserted from the driving force created primarily by reactor water pressure.
- d. 1) A scram is required if CRD charging water pressure remains below 940 psig until 07:20.
2) Control rods 30-31 and 46-07 will be fully inserted from the driving force created primarily by HCU accumulator water pressure.

ANSWER

c.

REFERENCE

System Description 24, CRD Mechanical, pages 6, 20, 23, 33 and 34.

System Description 24, CRD Mechanical, Figures 24-7 and 24-12.

LOR-1H13-P603-A204; CRD CHARGING WTR PRESS LO

LOR-1H13-P603-A503; CRD HYD ACCUM TROUBLE

295022 K2.07 - Knowledge of the interrelations between LOSS OF CRD PUMPS and the following: Reactor pressure (SCRAM assist): Plant-Specific
HIGHER

NEW

Explanation:

Per LOR-1H13-P603-A204; CRD CHARGING WTR PRESS LO, a reactor scram is required for the given situation, specifically:

Reactor Mode Switch in Run

Reactor Pressure is \geq 900 psig.

CRD charging water pressure is $<$ 940 psig for \geq 20 minutes

Two or more Withdrawn Control Rods' Accumulators have a Low Pressure alarms present.

RO EXAMINATION QUESTIONS

From System Description 24, CRD Mechanical, page 24, "Basically, if reactor water pressure is greater than accumulator water pressure, then reactor water will develop the driving force to scram the rod."

RO EXAMINATION QUESTIONS

QUESTION 061

What is the reason for the following note provided in LGA-001, RPV Control?

- It is okay to delay depressurization in order to restore systems, such as to reopen the MSIVs and restore the Main Condenser (except in SBO).
 - a. To limit heat addition to the primary containment.
 - b. To improve pressure control during cooldown by using BPVs.
 - c. To eliminate the need to make up for reactor inventory discharged to the suppression pool.
 - d. To prevent the need to lower suppression pool water level to remain within Tech Spec limits.

ANSWER

a.

REFERENCE

LGA-001, RPV Control Lesson Plan, page 16.

295013K3.02 - Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE : Limiting heat additions

FUNDAMENTAL

NEW

Explanation:

The LGA-001, RPV Control lesson plan includes an instructor note explaining the LGA-001 note referenced in the stem and states, "This is to remind operators that SBO is the exception. Big picture, this keeps max heat in vessel & least in the PC until can move heat from PC. Generally this is better to do, esp. if accident gets worse.

RO EXAMINATION QUESTIONS

QUESTION 062

Unit 2 just scrammed from rated conditions.

- Two control rods are NOT indicating "00" on the RCMS displays.

Which of the following identifies a means for determining if the control rods NOT indicating "00" have inserted to at least position "01"?

- a. Check the "Maintenance Display" at the AEER RCMS Panel 2H13-P659.
- b. Obtain and review a "Detailed Scram Time Report" using the Operable Demandable feature of the PPC.
- c. Utilize the Rod Control Management System On Demand Function for "RCMS Alarms and Messages".
- d. Right click the SPDS "Reactor Power Bar" and check rod position inputs for the two control rods NOT indicating "00" on the RCMS display.

ANSWER

b.

REFERENCE

LTS-1100-4, Attachment N "Instructions for Obtaining a Detailed Scram Time Report from PPC" 295015A1.08 - Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM : Process computer/SPDS/ERIS/CRIDS/GDS: Plant-Specific

FUNDAMENTAL

NEW

Explanation:

LTS-1100-4, Attachment N "Instructions for Obtaining a Detailed Scram Time Report from PPC" provides directions for checking scram times to determine if control rods have inserted to at least "01" using the PPC on demand function for "Detailed Scram Time Report".

The other distracters are plausible, but incorrect.

RO EXAMINATION QUESTIONS

QUESTION 063

Unit 1 is operating at rated conditions.

- Annunciator 1H13-P601-C408; LPCS/RCIC PMP CUBICLE TEMP HI has just alarmed.

Which indicator must be referenced to verify the alarm setpoint has been reached?

- a. 1TI-VY021, "LPCS VENT TEMPS - DUCT" located on the 1H13-P601 panel.
- b. 1TI-VY022, "LPCS VENT TEMPS - AREA" located on the 1H13-P601 panel.
- c. 1E31-R001C, "DIV 1 LD-RCIC/MSL TEMP RCDR", located on the 1H13-P632 Backpanel (ONLY).
- d. 1E31-R001C, "DIV 1 LD-RCIC/MSL TEMP RCDR" or 1E31-R002C, "DIV 2 LD-RCIC/MSL TEMP RCDR" located on the 1H13-P632/642 Backpanel.

ANSWER

b.

REFERENCE

1H13-P601-C408; LPCS/RCIC PMP CUBICLE TEMP HI

295032A2.01 - Ability to determine and/or interpret the following as they apply to HIGH

SECONDARY CONTAINMENT AREA TEMPERATURE : Area temperature

FUNDAMENTAL

NEW

Explanation:

1H13-P601-C408; LPCS/RCIC PMP CUBICLE TEMP HI directs to "Check LPCS/RCIC Pump Cubicle Temperature on panel 1H13-P601. 1TI-VY022, "LPCS VENT TEMPS - AREA" is the indicator that is intended to be checked.

RO EXAMINATION QUESTIONS

QUESTION 064

Unit 1 is in an accident condition.

- The Unit 2 SBT system is OOS.
- The Unit 1 SBT system auto-initiated in response to the event.
- Annunciator 1PM07J; SBT PRI FAN FLOW HI/LO is LIT.
- 1VG01C; U1 SBT PRIMARY FAN is running
- 1VG001; U1 SBT INLET ISOL VLV closed indication is EXTINGUISHED and open indication is LIT.
- 1VG002Y; U1 SBT FLOW CONT VLV closed indication is EXTINGUISHED and open indication is LIT.
- U1 SBT ELEC HEATING COIL 1VG01A off indication is LIT.

Based on the above conditions, which of the following identifies:

- 1) the panel location(s) the NSO can go to in order to determine if SBT flow is Hi or Lo, and
- 2) the action required to be taken first with the SBT system?

- a.
 - 1) 1PM07J - STANDBY GAS TREATMENT (ONLY)
 - 2) PLACE the 1VG003, DSCH ISOL VLV control switch in the OPEN position.
- b.
 - 1) 1PM07J - STANDBY GAS TREATMENT (ONLY)
 - 2) VERIFY 1VG002Y; U1 SBT FLOW CONT VLV is modulating to control flow.
- c.
 - 1) 1PM06J - HVAC CONTROL and 1PM07J - STANDBY GAS TREATMENT
 - 2) PLACE the 1VG003, DSCH ISOL VLV control switch in the OPEN position.
- d.
 - 1) 1PM06J - HVAC CONTROL and 1PM07J - STANDBY GAS TREATMENT
 - 2) VERIFY 1VG002Y; U1 SBT FLOW CONT VLV is modulating to control flow.

ANSWER

a.

REFERENCE

LOR 1PM07J; SBT PRI FAN FLOW HI/LO

System Description 095, SBT, page 8, 12, and 17.

295035 2.4.50 - Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

HIGHER

NEW

Explanation:

SBT flow indication is indicated on the 1PM07J panel, and the given light indications present a situation where the position of the 1VG003 should be able to be verified open, however the position is unknown and could be either due to a burned out bulb or a tripped breaker. In this case the correct action is to make sure that 1VG003 has gone open by placing the associated control switch in the open position (if auto action fails, take manual action).

1VG002Y; U1 SBT FLOW CONT VLV is full open and correctly responding to system low flow. Normally the valve would modulate to control system flow, however when it sees low output flow it will continue to open with the intent to achieve required system flow.

RO EXAMINATION QUESTIONS

The other distracters are plausible but incorrect. The Station Vent Stack flow recorder is located on the 1PM06J panel and is a credible distracter if the examinee does not recall the SBGT Vent Stack flow is monitored separate from the Station Vent Stack flow.

RO EXAMINATION QUESTIONS

QUESTION 065

Unit 1 is in a Refueling Outage.

- HPCS is running for a post-maintenance test.
- LPCS is being drained for a pump inspection.
- A RHR is running in the SDC mode of operation.
- C RHR pump discharge valve repair is in progress.

- Annunciator 1PM13J-B304; RB SE-SW EQUIP DRN SUMP TROUBLE is LIT.
 - R1438 RB SE DRN SUMP TROUBLE is indicated on the SER display.

- Annunciator 1PM13J-402; RB SOUTH FLOOR DRN SUMP TROUBLE just LIT.
 - R1437 RB S FLR DRN SUMP TROUBLE is indicated on the SER display.

Which of the following systems should be checked FIRST to determine the cause of the listed alarms?

- a. A RHR
- b. C RHR
- c. HPCS
- d. LPCS

ANSWER

c.

REFERENCE

LOP-RE-01T, "Reactor Building Equipment Drain Sumps"

M-11, General Arrangement (Excerpt provided)

M-INDEX, Sheet 3, General Arrangement (Excerpt provided)

295036A2.03 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : Cause of the high water level HIGHER

NEW

Explanation:

The SE Sump is located at 673' A-8.9 to 10, in the B/C RHR Pump Room, and pumps to the South Main Floor Drain Sump (1RF02).

The areas listed in the distracters do not provide input to the SE or South Sumps.
The other areas do not drain to the SE Sump or the South Main Floor Drain Sump

RO EXAMINATION QUESTIONS

QUESTION 066

Unit 1 is shutdown for a refueling outage.

Reactor Engineering verified the Unit 1 reactor was subcritical at 00:05 on 2/23/2010.

Which of the following identifies the earliest time and date that core alterations can begin?

- a. 08:05, 2/23/2010
- b. 12:05, 2/23/2010
- c. 00:05, 2/24/2010
- d. 12:05, 2/24/2010

ANSWER

c.

REFERENCE

LFS-100-4, "Core Alterations and Control Blade Maintenance Move Shiftly Surviellances", step E.2.1.

TRM 3.9.a Decay Time

2.1.36, Knowledge of procedures and limitations involved in core alterations.

HIGHER

NEW

Explanation:

Per "LFS-100-4, Core Alterations and Control Blade Maintenance Move Shiftly Surviellances" step E.2.1, Obtain verification from Reactor Engineering on Attachment D that the reactor has been subcritical for 24 hours, 24 hours after 00:05, 2/23/2010.

The other distracters are plausible but incorrect.

RO EXAMINATION QUESTIONS

QUESTION 067

Which of the following describes the proper method for administratively controlling the key for the Reactor Mode Switch when it is required to be LOCKED?

Place Reactor Mode Switch in the required position, and then

- a. place the key to the lock position, do NOT remove the key from the mode switch.
- b. remove the key from the Reactor Mode Switch and place in the key locker at the Center Desk area.
- c. remove the key from the Reactor Mode Switch and place in the key locker in the Shift Manager's Office.
- d. remove the key from the Reactor Mode Switch and locate the key at the Reactor Mode Switch, but NOT in the lock.

ANSWER

d.

REFERENCE

LOP-AA-03, "Reactor Mode Changes", step D.20.2.

2.1.32, Ability to explain and apply all system limits and precautions

FUNDAMENTAL

NEW

Explanation:

per LOP-AA-03, Limitation D.20.2, "The Reactor Mode Switch Key shall be located at the switch but NOT in the lock when Reactor Mode Switch is required to be LOCKED.

The other distracters are plausible but incorrect.

RO EXAMINATION QUESTIONS

QUESTION 068

Units 1 and 2 are operating at rated conditions.

Which of the following would require entry into a Technical Specification LCO?

- a. DWFDs Fill-Up Rate 1.9 gpm.
- b. Primary Containment Oxygen concentration 4.5%.
- c. Average Circulating Water inlet temperature 100.25°F.
- d. Hydrogen concentration in the Main Condenser Offgas Treatment System 3.8% by volume.

ANSWER

b.

REFERENCE

LCO 3.6.3.2

LCO 3.4.5

SR 3.7.3.1

TRM 3.7.e

2.2.42, Ability to recognize system parameters that are entry-level conditions for Technical Specifications.

FUNDAMENTAL

NEW

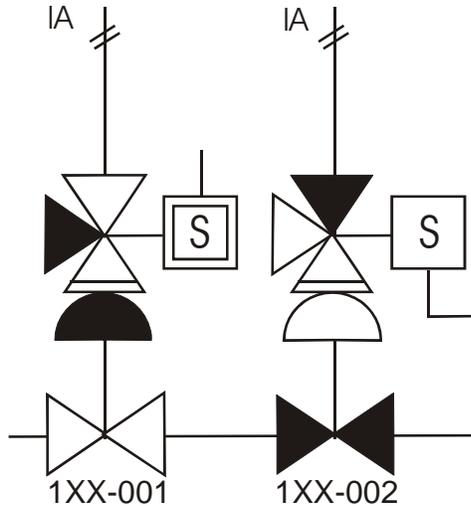
Explanation:

Per LCO 3.6.3.2 Oxygen concentration must be less than 4%.

RO EXAMINATION QUESTIONS

QUESTION 069

What will be the final positions of valves 1XX-001 and 1XX-002 if DC power is lost to the pilot solenoids?



- a. 1XX-001; OPEN
1XX-002; OPEN
- b. 1XX-001; OPEN
1XX-002; CLOSED
- c. 1XX-001; CLOSED
1XX-002; OPEN
- d. 1XX-001; CLOSED
1XX-002; CLOSED

ANSWER

d.

REFERENCE

P&ID M-101, Sh. 1, RCIC

M-54, Sh. 2 and enlargement

2.2.15 Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.

HIGHER

NEW

Explanation:

The diagram shown is actually the arrangement for the RCIC drain valves 1E51-F004 and F005. With DC power removed, 1XX-002 will have the IA supply shut off, causing the valve to fail closed and 1XX-001 will not be able to reposition the pilot valve and will remain closed.

RO EXAMINATION QUESTIONS

QUESTION 070

Unit-1 is operating at 50% power when the 1C Inboard MSIV goes CLOSED. After the plant stabilizes, reactor power is 50% and reactor pressure has increased slightly.

How do the MSL Radiation Monitor indications compare to those before the 1C MSIV closed?

Compared to the readings before the 1C MSIV closed, ...

- a. all four MSL Radiation Monitors indicate approximately the same.
- b. 1C MSL Radiation Monitor indicates lower, the other monitors indicate higher.
- c. 1C MSL Radiation Monitor indicates lower, the other monitors indicate approximately the same.
- d. 1C AND 1D MSL Radiation Monitors indicate lower, the other monitors indicate approximately the same.

ANSWER

a.

REFERENCE

System Description 52, Process Rad Monitors, page 8.

2.3.15, Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

HIGHER

BANK

Explanation:

Per System Description 52, Process Rad Monitors, "The main steam line log radiation monitor detects any gross release of fission products from the fuel. It provides control room indication of the gross gamma radiation level in the main steam tunnel.

The four detectors are gamma sensitive ion chambers with a range of 1 to 10^6 mR/hr. They are downstream of the outboard Main Steam Isolation Valves (MSIVs), in the space between the Primary Containment and Secondary Containment walls. The geometric arrangement of the detectors allow detection of significant increases in radiation level with any number of main steam lines in operation. The location of the detectors allow for the earliest practical detection of a gross fuel failure."

The other distracters are plausible but incorrect as they identify responses that could be expected if the examinee does not understand the configuration of the MSL rad monitors in relation to the MSLs.

RO EXAMINATION QUESTIONS

QUESTION 071

Unit 1 has scrammed from rated conditions.

- 5 Control rods failed to fully insert.
- Reactor power is less than 3%.
- You are assigned to perform in-plant actions to insert the 5 control rods using the SRI Test Switches
- Your current annual exposure is 0 mrem.

What is the maximum TEDE exposure you are allowed to receive for the given task, without obtaining any extensions, in accordance with the guidance of RP-AA-203, "Exposure Control and Authorization"?

- a. 2 rem
- b. 5 rem
- c. 25 rem
- d. 40 rem

ANSWER

a.

REFERENCE

RP-AA-203, "Exposure Control and Authorization" pages 3 and 4.

2.3.4, Knowledge of radiation exposure limits under normal or emergency conditions

HIGHER

NEW

Explanation:

Per RP-AA-203, "Exposure Control and Authorization" step 4.1.2, "Administrative dose control levels (ADCL) have been established for Total Dose Equivalent Limits as follows: 2000 mrem routine cumulative TEDE/yr., however step 4.2.8 allows the ADCL to be raised to 5000 mrem with written approval from the Site Vice President.

The conditions in the stem require the examinee to determine that the task being assigned is NOT an emergency condition, no extension is being pursued so the 2 rem limit applies.

RO EXAMINATION QUESTIONS

QUESTION 072

Unit 2 is in an ATWS condition.

- RPV water level dropped to -140" and is currently being controlled at -100".
- Drywell pressure is 1.5 psig.
- You are an extra NSO and have been assigned to perform all the applicable actions of "Hardcard - Unit 1 Using Main Condenser as Heat Sink in ATWS", including any actions needed to be performed outside of the main control room.

Which of the following identifies actions, if any, needing to be performed outside of the main control room for the given conditions?

- a. No actions are required to be performed outside of the main control room.
- b. Bypass isolation logic for the 1IN017; DW PNEUMATICS 100lb HDR ISOL. to restore pneumatic supply to the Drywell (ONLY).
- c. Bypass isolation logic for the 1N62-F057; OFF GAS DISCHARGE TO STACK to maintain condenser vacuum (ONLY).
- d. Bypass isolation logic for BOTH the 1IN017; DW PNEUMATICS 100lb HDR ISOL to restore pneumatic supply to the Drywell and 1N62-F057; OFF GAS DISCHARGE TO STACK to maintain condenser vacuum.

ANSWER

b.

REFERENCE

LGA-MS-01, "Hardcard - Unit 1 Using Main Condenser as Heat Sink in ATWS"

2.4.34, Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.

HIGHER

NEW

Explanation:

When RPV water level dropped to -140", IN to the drywell isolated and the isolation signals for the 1IN017 need to be bypassed.

The isolation signals for the 1N62-F057 need to be bypassed, however the 1H13-P604 panel is located in the MRC not in the plant. The distracter is credible as the P604 panel is seldom referenced and the location is not called out by the hard card.

RO EXAMINATION QUESTIONS

QUESTION 073

What LGA entry condition is aligned with an Emergency Action Level threshold?

	LGA	EAL Threshold
a.	LGA-001, "RPV Control"	RPV water level
b.	LGA-002, "Secondary Containment Control"	Differential Pressure
c.	LGA-003, "Primary Containment Control"	Suppression pool level
d.	LGA-009, "Radioactivity Release Control"	Offsite release rate

ANSWER

d.

REFERENCE

LGA-001, "RPV Control"

LGA-002, "Secondary Containment Control"

LGA-003, "Primary Containment Control"

LGA-009, "Radioactivity Release Control"

2.4.41, Knowledge of the emergency action level thresholds and classifications.

FUNDAMENTAL

NEW

Explanation:

The LGA-009 entry condition is "Off-site release rate above GSEP "Alert" level ($1.9E+07$ uCi/sec).

The distracters are LGA entry conditions, but are not aligned with EAL thresholds.

RO EXAMINATION QUESTIONS

QUESTION 074

Which of the following methods are allowed for use when verifying a Direct (continuous) communication link between the Control Room and the Refueling Platform for the performance of core alterations?

1. Dial telephones
2. Sound Powered Phones
3. Dedicated GAI-tronics PA system

- a. 1, 2, AND 3.
- b. 1 AND 2 ONLY.
- c. 2 AND 3 ONLY.
- d. 1 AND 3 ONLY.

ANSWER

a.

REFERENCE

LFS-100-4, "Core Alteration and Control Rod Blade Maintenance Move Shiftly Surveillance, Attachment A

2.1.44, Knowledge of RO duties in the control room during fuel handling such as responding to alarms from the fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

FUNDAMENTAL

NEW

Per LFS-100-4, "Core Alteration and Control Rod Blade Maintenance Move Shiftly Surveillance, Attachment A, "VERIFY operability of Direct (continuous) Communications between the Control Room and the Refueling Platform once per 12 hours. TRM TSR 3.9.b.1. The dedicated GAI-tronics PA System is the primary system but Sound Powered Phones, Dial Telephones, or Radio Communication may be used. TRM B 3.9.b Background.

RO EXAMINATION QUESTIONS

QUESTION 075

LGA-RT-101, "RPV Depressurization Using RWCU Blowdown" is in progress and the Main Condenser is NOT available to accept RWCU flow.

For the given conditions, LGA-RT-101 provides an ALARA warning for abnormally high airborne radiation levels in the ...

- a. Radwaste Control Room.
- b. Division 3 Switchgear room.
- c. vicinity of the Radwaste Tanks.
- d. RWCU Heat Exchanger rooms.

ANSWER

c.

REFERENCE

LGA RT-101, "RPV Depressurization Using RWCU Blowdown", ALARA warning. page 13.
2.3.14, Knowledge of radiation or containment hazards that may arise during normal, abnormal, or emergency conditions or activities.

FUNDAMENTAL

BANK

Explanation: With the condenser unavailable, the blowdown flow is directed to the Waste Surge Tank. The ALARA warning in LGA-RT-101 warns of abnormally high airborne radiation levels in the vicinity of the Radwaste Tanks.

Reason Distracters A/B/D are incorrect but plausible: The three distracters identify plausible, but incorrect, rad hazards the examinee might select if they do not understand where the blowdown flow is going (Waste Surge Tank in Rad Waste) when the main condenser is unavailable. Note that the Division 3 Switchgear room is a plausible distracter as drain lines to the condenser pass through the room.

SRO EXAMINATION QUESTIONS

QUESTION 076

Unit 1 is operating in Mode 3 with 1A RHR in the SDC mode of operation.

- RPV pressure is 105 psig.
- RPV level is +35".
- BOTH Reactor Recirculation pumps are OFF.
- The 1A RHR pump just tripped.
- Actions are in-progress to place the 1B RHR system in the SDC mode of operation.

When re-establishing SDC flow with the 1B RHR pump in the given conditions, significant ____ (1) ____ fluctuations may occur, and if an isolation occurs as a result, an ENS notification ____ (2) ____ required.

- a. (1) level
(2) IS
- b. (1) level
(2) IS NOT
- c. (1) pressure
(2) IS
- d. (1) pressure
(2) IS NOT

ANSWER

a.

REFERENCE

LOP-RH-07, "Shutdown Cooling System Startup, Operation, and Transfer"

295021A2.02 - Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING : RHR/shutdown cooling system flow

HIGHER

NEW

Explanation:

The given conditions in the stem create a situation in which there is no forced circulation through the core, so when re-establishing flow with the 1B RHR pump, level oscillations may occur. This is pointed out in a NOTE in LOP-RH-07, which states "With no other forced flow through the reactor, the start of an RHR pump in Shutdown Cooling Mode results in significant level fluctuations. ENS notification required if spurious isolation occurs."

The requirement to make an ENS notification for the spurious isolation is a change in that the isolations were NOT reported previously.

SRO EXAMINATION QUESTIONS

QUESTION 077

Which of the following must occur in order to prevent exceeding 10CFR100 "Reactor Site Criteria" limits in the event of a design basis fuel handling accident?

- a. VG must initiate, RB Ventilation must isolate and TB Ventilation must be manually started.
- b. VG must initiate and RB Ventilation must isolate ONLY.
- c. RB Ventilation must isolate ONLY.
- d. VG must initiate ONLY.

ANSWER

b.

REFERENCE

LOA-FH-001, "Irradiated Fuel Assembly Damage", step C.3, Rev. 12.

295023 A2.03 - Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS : Airborne contamination levels

FUNDAMENTAL

NEW

EXPLANATION

Per LOA-FH-001, "Irradiated Fuel Assembly Damage", step C.3, For the design basis event, action to evacuate all personnel from the Reactor Building and potentially contaminated areas (Auxiliary and Turbine Buildings) is mandatory. Furthermore, ensuring that the Standby Gas Treatment System initiates and the Reactor Building Ventilation system isolates is necessary to prevent exceeding 10CFR100 limits.

SRO EXAMINATION QUESTIONS

QUESTION 078

Units 1 and 2 are operating at rated conditions.

- You are the Unit 1 Unit Supervisor
- The A VC/VE train is in operation
- A fire outside the plant has resulted in heavy smoke surrounding the VC air intake.
- The Unit 1 Assist Reactor Operator reports A VC train is in its normal configuration.

Which of the following actions must be performed in response to the given conditions?

Direct an available Reactor Operator to

- a. SWAP to the B VC train per LOP-VC-01, "Control Room HVAC Operation" and immediately declare A VC Inoperable.
- b. Manually place A VC train Emergency Make-up Unit on-line per LOP-VC-01, "Control Room HVAC Operation" and promptly evaluate the operability of the A VC System.
- c. SWAP to the B VC train per LOA-VC-001, "VC Abnormal Actions for an Inoperable Control Room Envelope Boundary (CRE)" and immediately declare A VC Inoperable.
- d. Manually place A VC train Emergency Make-up Unit on-line per LOA-VC-001, "VC Abnormal Actions for an Inoperable Control Room Envelope Boundary (CRE)" and promptly evaluate the operability of the A VC System.

ANSWER

b.

REFERENCE

VC System Lesson Plan, pages 3 and 4.

LOP-VC-01, page 2, 20 and 21.

LOA-VC-001, page 3

TRM 3.3.p, Fire Protection Instrumentation

Tech Spec Basis B.2.1.a, Miscellaneous Test Requirements

600000 A2.06 - Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Need for pressurizing control room (recirculating mode).

HIGHER

NEW

Explanation:

Per the VC System Lesson Plan, "High radiation or smoke concentration in outside air automatically places the EMU in service."

In this case, the system did not automatically re-align so it should be placed in the proper configuration.

Per the Tech Spec Basis, the train must be evaluated to see if it is operable, as the failure to re-align does not automatically make the train inoperable, however an evaluation is required.

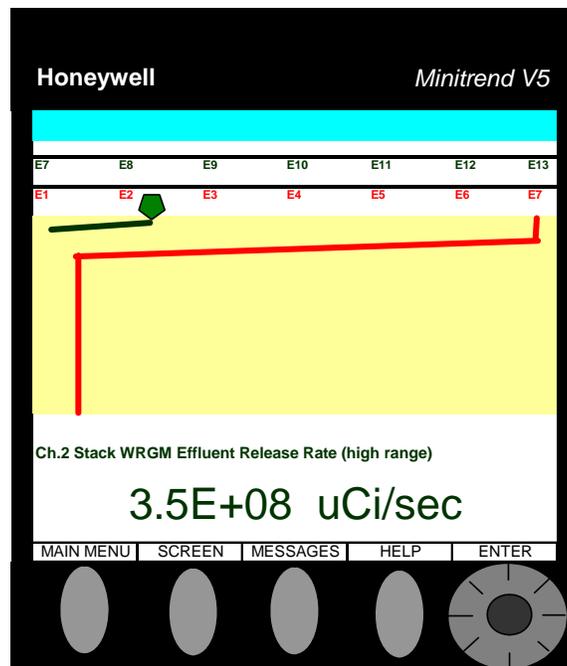
SRO EXAMINATION QUESTIONS

QUESTION 079

You are the Unit 2 Unit Supervisor

- U1 SBTG is OOS
- Unit 2 has scrammed from rated conditions
- 56 control rods have failed to insert
- Reactor power is 34%
- RPV Water level is within the required band
- A large steam leak has developed in the heater bay
- The inboard and outboard MSIVs for "A" MSL can NOT be closed
- U2 SBTG is unable to be started

Which of the following actions are required to be directed based on the instrument indication shown below?



**STACK WRGM EFF ACT
0D18-R522**

- Immediately perform a Blowdown per LGA-004, "RPV Blowdown".
- Wait until the recorder reading goes up an additional 0.4 E+08 uCi/sec, and then perform a Blowdown per LGA-004, "RPV Blowdown".
- Immediately terminate and prevent ALL RPV injection except Boron, CRD, and RCIC, and then perform a Blowdown per LGA-006, "ATWS Blowdown".
- Wait until the recorder reading goes up an additional 0.4 E+08 uCi/sec, next terminate and prevent ALL RPV injection except Boron, CRD, and RCIC, and then perform a Blowdown per LGA-006, "ATWS Blowdown".

SRO EXAMINATION QUESTIONS

ANSWER

C.

REFERENCE

LGA-001 "RPV Control"

LGA-009 "Radioactivity Release Control"

LGA-006 "ATWS Blowdown"

295038 2.1.7 - Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

HIGHER

NEW

Explanation:

The given conditions require entry into LGA-010 "Failure to Scram", LGA-009 "Radioactivity Release Control, and LGA-006 "ATWS Blowdown".

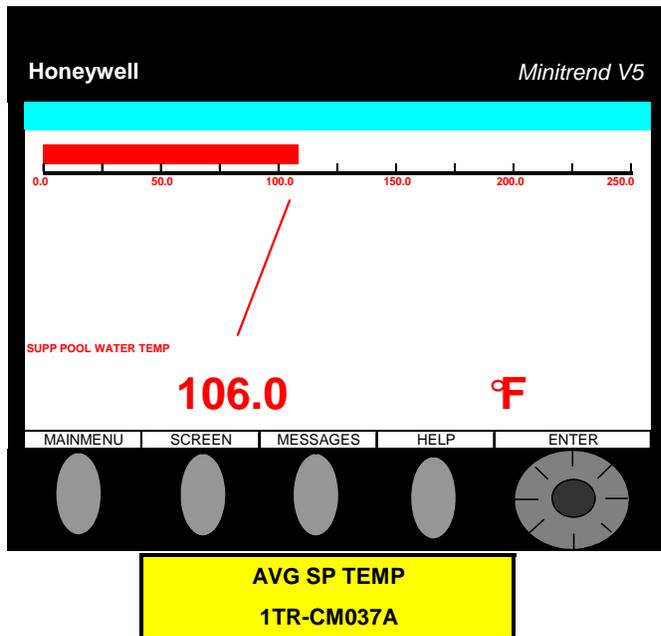
LGA-009 directs that a Blowdown be performed before Off-site release rate reaches $3.7E+8$. The Blowdown will be performed per LGA-006, which requires that all injection except Boron, CRD, and RCIC are terminated and prevented prior to performing the Blowdown.

SRO EXAMINATION QUESTIONS

QUESTION 080

Unit 1 is operating at rated conditions when an SRV spuriously opened.

- The Main Control Room actions of LOA-SRV-101, "Unit 1 Stuck Open Safety Relief Valve" were completed and did NOT close the SRV.
- Suppression Pool Temperature is rising 1 degree F. every three minutes.



Based on the recorder indication above, which of the following identifies the Main Control Room action(s) required to be directed and in the proper order?

- Direct the Unit 1 Assist NSO to start ONE loop of SP cooling ONLY.
- Direct the Unit 1 Assist NSO to start BOTH loops of SP cooling ONLY.
- Direct the Unit 1 NSO to SCRAM the Unit 1 reactor, and then direct the Unit 1 Assist NSO to start BOTH loops of SP cooling.
- Direct the Unit 1 Assist NSO to start BOTH loops of SP cooling and then immediately direct the Unit 1 NSO to SCRAM the Unit 1 reactor.

ANSWER

b.

REFERENCE

LGA-003, "Primary Containment Control"

2.2.44 - Equipment Control: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives effect plant and system conditions.

HIGHER

NEW

Explanation

SRO EXAMINATION QUESTIONS

Per direction provided in LGA-003, "Primary Containment Control", both loops of SP cooling should be started due to exceeding 105 degrees F. in the suppression pool.

Scramming the reactor is not required at this time because the temperature trend for the SP provides time to determine if SPC will lower SP temperature without approaching the 110°F. which requires a reactor scram.

The other distracters are plausible but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 081

Unit 1 is operating at rated conditions, with the 1B CW pump OOS.

- Bus 141X experiences an overcurrent trip.
- The crew responds to the event per:
 - LOA-AP-101, "Unit 1 AC Power System Abnormal" and
 - LOA-CW-101, "Unit 1 Circulating Water System Abnormal".

Which of the following technical specification actions must be taken for the given conditions?

Perform a functional test of each _____ within the next 12 hours.

- a. Safety Relief Valve
- b. Main Steam Isolation Valve
- c. Main Turbine Bypass Valve
- d. Suppression Chamber to Drywell Vacuum Breaker

ANSWER

d.

REFERENCE

LOA-AP-101, "Unit 1 AC Power System Abnormal", Section B.7, Rev. 16.

LOA-CW-101, "Unit 1 Circulating Water System Abnormal", Section B.1, Rev. 31.

LGP-2-1, "Normal Unit Shutdown", step E5.3.1, Rev. 84

Tech Spec SR 3.6.1.6.2.

2.2.40 - Equipment Control: Ability to apply technical specifications for a system.

HIGHER

NEW

Explanation:

Per LOA-AP-101 Section B.7, "Loss of Bus 141X", direction is provided to close the discharge valves of the non-running Circ Water Pumps and then enter LOA-CW-101.

Per LOA-CW-101, Section B.1, the crew is required to SCRAM the reactor and close the MSIVs and MSL drains to prevent steam from going to the condenser. This will cause SRVs to open to control reactor pressure.

Per SR 3.6.1.6.2 a functional test of each vacuum breaker is required to be performed within 12 hours after any discharge of steam to the suppression chamber from the SRVs.

This question explores the examinee's knowledge of relationship between the discharge of an SRV to the suppression pool and the requirement to cycle vacuum breakers within the next 12 hours.

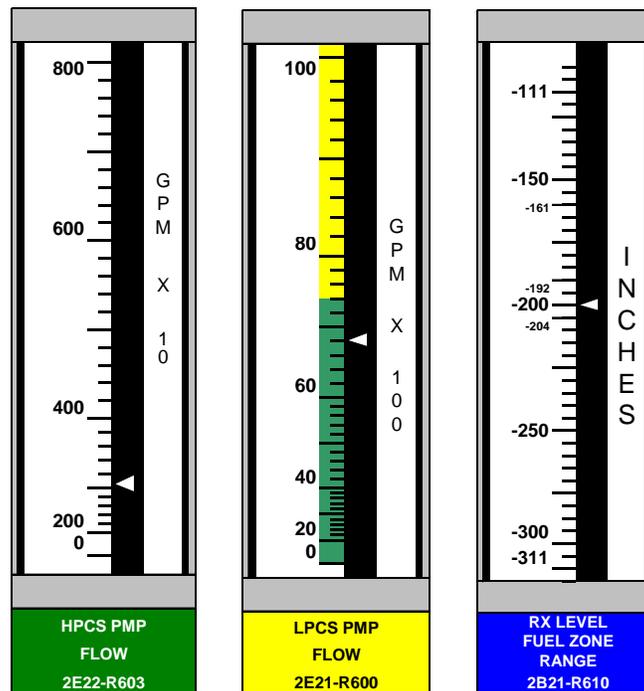
SRO EXAMINATION QUESTIONS

QUESTION 082

Unit 2 has scrammed and experienced a DBA LOCA.

- RPV pressure is 15 psig and going down slow.

Based on the following indications, determine if adequate core cooling exists, and why.



- Does NOT exist. RPV water level is too low.
- Does NOT exist. Core spray flow is too low for the indicated RPV water level.
- Does exist. RPV water level alone is high enough to ensure adequate core cooling.
- Does exist. Core spray flow and RPV water level are high enough to ensure adequate core cooling.

ANSWER

d.

REFERENCE

LGA-001, RPV Control, Rev. 10.

295031A2.04 - Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL : Adequate core cooling

HIGHER

NEW

Explanation:

Per LGA-001, RPV Control, Detail AC, Adequate Core Cooling exists for a DBA LOCA, when RPV water level is greater than or equal to -210 inch on Fuel Zone AND at least one core spray

SRO EXAMINATION QUESTIONS

system is injecting onto the core at greater than or equal to 6250 gpm, and RPV pressure is less than or equal to 20 psig.

This is an SRO question as ROs report the parameters to the SRO, and then the SRO place-keeps Figure AC to determine if adequate core cooling exists.

SRO EXAMINATION QUESTIONS

QUESTION 083

Unit 1 is operating at rated conditions with 1A VP in-service, when an inadvertent Group 2 Isolation occurs.

Drywell temperature was recorded as 95 degrees F. at the time of the isolation, 1 minute ago.

Which of the following identifies the procedure to be directed for use for bulk drywell temperature determination while recovering from the isolation signal?

- a. LGA-003, "Primary Containment Control"
- b. LOP-CX-02, "Safety Parameter Display System"
- c. LOA-PC-101, "Primary Secondary Containment Trouble"
- d. LOP-CM-04, "Primary Containment Temperature Determination"

ANSWER

d.

REFERENCE

LOP-CM-04 , "Primary Containment Temperature Determination", Rev. 13

295020A2.02 - Ability to determine and/or interpret the following as they apply to

INADVERTENT CONTAINMENT ISOLATION : Drywell/containment temperature

HIGHER

NEW

Explanation:

The spurious Group 2 isolation signal will cause the running VP Chiller and associated Chilled Water pump to trip. The VP supply fan and area cooler fans will continue running. As such, drywell temperature will continue to be monitored per the direction of LOP-CM-04, "Primary Containment Temperature Determination". Per step D.5, "If the A VP loop is on-line, the single point data is non-conservative relative to the drywell bulk average temperature." "This bias must be used when using the data from the Tracor digital display for confirmation that the Technical Specification limit of 135 degrees F. on TS 3.6.1.5 is met."

This information is also provided in LOS-AA-S101 "Unit 1 Shiftly Surveillance" step D.11., but is not listed as a distracter.

The other distracters are plausible, but incorrect.

A. is incorrect, as this determination is made when the VP supply fans are not in operation.

B. is incorrect as SPDS is used after entry into the LGAs.

C. is incorrect, as it does not address temperature determination.

SRO EXAMINATION QUESTIONS

QUESTION 084

A GSEP Alert must be declared if an off-site release rate exceeds 200 times the ODCM limit for _____ minutes or longer.

- a. 5
- b. 15
- c. 30
- d. 60

ANSWER

b.

REFERENCE

EP-AA-1005, LaSalle Annex, page LS 3-10

T.S. 5.5.4, Radioactive Effluent Controls Program

ODCM 1.5 REC and RSR Implementation, page I-1.5-1

ODCM Table 1-1

ODCM 2.6.5, Release Limits, pages II.2-10 and 11

LGA-009 Lesson Plan, page 2.

295017 2.2.22 - Equipment Control: Knowledge of limiting conditions for operations and safety limits

FUNDAMENTAL

NEW

Explanation:

The LGA-009 lesson plan states the following:

The initiating condition for the EAL is any unplanned release of gaseous or liquid radioactivity to the environment that exceeds 200 times the ODCM limit for 15 minutes or longer.

SRO EXAMINATION QUESTIONS

QUESTION 085

The reactor vessel water level Safety Limit (SL) ensures that adequate core cooling capability is maintained during ____ (1) ____ of reactor operation. Establishment of Emergency Core Cooling System ____ (2) ____ provides margin such that the SL will NOT be reached or exceeded.

- a. (1) all MODES
(2) divisional separation
- b. (1) all MODES
(2) instrumentation setpoints higher than the SL
- c. (1) MODES 1, 2, and 3 (ONLY)
(2) divisional separation
- d. (1) MODES 1, 2, and 3 (ONLY)
(2) instrumentation setpoints higher than the SL

ANSWER

b.

REFERENCE

LaSalle Safety Limits Bases B.2.1.1, page B2.1.1-2

295009 2.2.25 – Equipment Control: Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.

FUNDAMENTAL

NEW

Explanation:

The following is taken directly from the SL bases for water level:

The reactor vessel water level SL ensures that adequate core cooling capability is maintained during all MODES of reactor operation. Establishment of Emergency Core Cooling System instrumentation setpoints higher than this SL provides margin such that the SL will not be reached or exceeded.

SRO EXAMINATION QUESTIONS

QUESTION 086

Units 1 is operating at rated conditions when the Unit 1 Process Computer UPS Normal and Alternate AC power feed breakers trip.

- It has been determined it will be at least one hour before the Normal and/or Alternate Power Supplies will be restored.

Which of the following identifies the procedure to be directed in response to this event and the immediate actions, if any, required to be taken?

- LOP-CX-08, "Uninterruptible Power Supply Startup, Operation, and Shutdown"
No immediate actions required.
- LOP-CX-08, "Uninterruptible Power Supply Startup, Operation, and Shutdown"
Limit PPC operation to less than 30 minutes.
- LOA-RM-101, "Unit 1 RCMS Abnormal Operation"
Verify RCMS controllers have automatically rebooted.
- LOA-RM-101, "Unit 1 RCMS Abnormal Operation"
Manually transfer RCMS to the Alternate Power Supply.

ANSWER

a.

REFERENCE

LOP-CX-08 "Uninterruptible Power Supply Startup, Operation, and Shutdown"
262002 A2.01 - Ability to (a) predict the impacts of the following on the UNINTERRUPTIBLE POWER SUPPLY (A.C./D.C.) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Under voltage

HIGHER

NEW

Explanation:

With the normal and alternate power supplies unavailable (135X-3, and 135X-2) to the Unit 1 UPS, the undervoltage condition will cause the UPS to utilize the DC power source 121Y to supply the UPS. The output of the UPS will remain unaffected and will have no impact on RCMS.

The proper procedure to be directed is LOP-CX-08, to prepare for the restoration of normal power to the UPS, however there are no immediate actions required.

B. LOP-CX-08, "Uninterruptible Power Supply Startup, Operation, and Shutdown"

Limit PPC operation to less than 30 minutes.

Operation of the PPC is NOT limited to less than 30 minutes because the UPS is powered from the battery charger for Bus 121Y. If only the battery was supplying the UPS, PPC operation would be required to be limited to 30 minutes. This is a plausible distracter if the examinee does not understand LOP-CX-08 Limitation D.1 which discusses limiting PPC operation to 30 minutes if the 250VDC battery is the only power source to the UPS.

C. LOA-RM-101, "Unit 1 RCMS Abnormal Operation"

Verify RCMS controllers have automatically rebooted.

SRO EXAMINATION QUESTIONS

D. LOA-RM-101, "Unit 1 RCMS Abnormal Operation"

Manually transfer RCMS to the Alternate Power Supply.

These distracters are incorrect as even though the PPC UPS is the normal power supply to RCMS, there are no entry requirements into LOA-RM-101 because the PPC UPS will provide uninterrupted power to RCMS. This is a plausible distracter if the examinee does not understand the operation of a UPS.

SRO EXAMINATION QUESTIONS

QUESTION 087

Unit 2 is operating at rated conditions.

- The 2A SBLC pump is OOS.
- Annunciator 2H13-P603-B502; STANDBY LIQ TANK TEMP HI/LO just alarmed.
- An Equipment Operator is dispatched to investigate the cause of the alarm and reports that the circuit breaker to the "A" 10kW heater for the SBLC Storage Tank is tripped and will NOT reset.
- Standby Liquid Tank Temperature is 69 degrees F.

What action must be directed to mitigate the consequences of the situation, and why?

Place the Standby Liquid Tank Heater Control Switch in " B ON" to allow the "B" 40kW heater to be used to ____ (1) ____ control Standby Liquid Tank temperature to ensure the boron does NOT ____ (2) ____

- a. 1) MANUALLY
2) precipitate out in the storage tank.
- b. 1) MANUALLY
2) clog the SBLC injection sparger if injected.
- c. 1) AUTOMATICALLY
2) precipitate out in the storage tank.
- d. 1) AUTOMATICALLY
2) clog the SBLC injection sparger if injected.

ANSWER

a.

REFERENCE

System Description 028, SBLC, page 15

B 3.1.7 Standby Liquid Control (SLC) System Bases, page B 3.1.7-3 and 4.

LOR 2H13-P603-B502; STANDBY LIQ TANK TEMP HI/LO

211000A2.03 - Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. power failures
HIGHER

NEW

Explanation:

LOR 2H13-P603-B502; STANDBY LIQ TANK TEMP HI/LO provides direction to manually control SBLC Tank temperature by cycling the heater control switch to maintain proper temperature if the temperature controller is bad. It would be an SRO decision to cycle the B heater manually if the A heater was not working.

Per System Description 028, SBLC, page 15, "B ON" - "B" heater is manually energized. In "AUTO", "A" heater is controlled by Storage Tank temperature, cycles between 75-85°F.

Per B 3.1.7 Standby Liquid Control (SLC) System Bases, page B 3.1.7-3, "Maintaining a minimum specified borated solution temperature is important in ensuring that the boron remains

SRO EXAMINATION QUESTIONS

in solution and does not precipitate out in the storage tank or in the pump suction piping".

Note, the pump suction piping utilizes heat trace and is monitored by SR 3.1.7.3 and does not apply to this question.

The other distracters are plausible but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 088

Unit 2 scrambled from rated conditions 4 hours ago due to a spurious Group 1 isolation signal that will not clear.

- RPV level dropped to -25" and is now +35" and being controlled with the MDRFP.
- Drywell pressure is 1.2 psig
- 2A RHR was placed in the SDC mode of operation 30 minutes ago.
- The 2A RHR motor just tripped due to an Instantaneous Overcurrent condition.

Which of the following procedures can be directed for use to mitigate the consequences of the loss of SDC for the given conditions?

1. LGA-MS-01
 2. LGA-RH-201
 3. LOA-RH-201
 4. LOP-RT-09
- a. 1 AND 2 ONLY.
- b. 2 AND 3 ONLY.
- c. 3 AND 4 ONLY.
- d. 2, 3, AND 4 ONLY.

ANSWER

c.

REFERENCE

LGA-001, "RPV Control"

205000 2.4.6 - Emergency Procedures / Plan: Knowledge of EOP mitigation strategies.

HIGH

NEW

Explanation:

This question tests the examinees knowledge of procedures directed for use in LGA-001. Titles were purposely omitted as they are not always provided in the LGAs and require the SROs to understand what is being directed when assigning a procedure to an RO for implementation.

LOA-RH-201, "Unit 2 RHR Abnormal" is directed for use if SDC does not work and LOP-RT-09 "Reactor Water Cleanup System (RWCU) - Coolant Rejection is directed for use as an alternate pressure control system.

LGA-MS-01, "Using Main Condenser as Heat Sink in an ATWS and LGA-RH-101, "Alternate Vessel Injection Using Shutdown Cooling Return" are not directed for use in LGA-001 but appear to be tied to the given situation.

SRO EXAMINATION QUESTIONS

QUESTION 090

The 1B Diesel Generator received a spurious start signal and has been running loaded for approximately one minute.

In response to this event, a Reactor Operator must be directed to enter ____ (1) ____ and then ____ (2) ____.

- a. (1) LOP-DG-03, "Diesel Generator Shutdown"
(2) shutdown the diesel immediately to prevent excessive wear to the turbocharger gear drive.
- b. (1) LOP-DG-03, "Diesel Generator Shutdown"
(2) run the diesel for a total of 5 to 10 minutes before shutdown to allow temperatures to reach equilibrium values.
- c. (1) LOS-DG-M3, "1B(2B) Diesel Generator Operability Test"
(2) load the diesel for a total 5 to 15 minutes to allow diesel and generator temperatures to stabilize.
- d. (1) LOS-DG-M3, "1B(2B) Diesel Generator Operability Test"
(2) run the diesel for a total of 5 to 10 minutes before shutdown to allow temperatures to reach equilibrium values.

ANSWER

b.

REFERENCE

LOP-DG-03, "Diesel Generator Shutdown"

LOS-DG-M3, "1B(2B) Diesel Generator Operability Test"

264000A2.03 - 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: Operating unloaded, lightly loaded, and highly loaded.

HIGHER

NEW

Explanation:

Per LOP-DG-03, A.2:

"Shutdown of DG is normally a controlled evolution, using LOS procedures in order to document reliability of the DG. This procedure should be used in abnormal conditions, when testing DG as part of troubleshooting processes, or for initial verification of repaired equipment."

Per LOP-DG-03, D.4:

"If a spurious start occurs and DG is NOT loaded long enough to allow temperatures to reach equilibrium values, DG should be run for 5 or 10 minutes prior to shutdown.

The other distracters are plausible but incorrect as the LOP-DG-03 A.2 states that LOP-DG-03 is to be used to shutdown the DG under abnormal conditions, which a spurious start is. The immediate shutdown is not required to prevent excessive wear of the turbocharger drive, although LOS-DG-M3 step D.11 states "DG should NOT be operated below 2200 KW for an extended period of time to prevent excessive wear to turbocharger gear drive.

SRO EXAMINATION QUESTIONS

QUESTION 091

Unit 1 is operating at rated conditions.

- At 07:00 annunciator 1H13-P603-A102; SCRAM PILOT VLV AIR HDR PRESS LO alarms
- An Equipment Operator dispatched to investigate the alarm reports that a crack has developed between the Scram Air Header pressure transmitter 1C11-N052 and root stop valve 1C11-F416.
- While actions are taken to close root stop valve 1C11-F416, the full core display for control rods 30-59, 30-55, 50-51, and 30-47 are as shown below, with changes in indication at the given times.

Time:	07:00	07:01	07:02	07:03	07:04	07:05
Rod 30-59 RCMS Display						
Rod 30-55 RCMS Display						
Rod 50-51 RCMS Display						
Rod 30-47 RCMS Display						

In response to these events and indications, as the Unit 1 Control Room Supervisor, you must direct the crew to enter ____ (1) ____, and a reactor scram per LGP-3-2 ____ (2) ____ required.

- (1) LOA-RD-101, "Control Rod Drive Abnormal" ONLY
(2) IS
- (1) LOA-RD-101, "Control Rod Drive Abnormal" AND LOA-RM-101, "Unit 1 RCMS Abnormal Situations"
(2) IS
- (1) LOA-RD-101, "Control Rod Drive Abnormal" ONLY
(2) is NOT
- (1) LOA-RD-101, "Control Rod Drive Abnormal" AND LOA-RM-101, "Unit 1 RCMS Abnormal Situations"
(2) is NOT

ANSWER

a.

REFERENCE

LOA-RD-101, "Control Rod Drive Abnormal" pages 4.

LOA-RM-101, "Unit 1 RCMS Abnormal Situations", page 3.

SRO EXAMINATION QUESTIONS

General Electric RCMS Reference Manual, page 23.

201002A2.02 - Ability to (a) predict the impacts of the following on the REACTOR MANUAL CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Rod drift alarm

HIGHER

NEW

Explanation:

Per LOA-RD-101, step B.1.1, a scram is required if more than one control rod is moving at the same time. For the given conditions, control rods 50-51 and 30-47 are drifting as indicated by the RED background indication for the given rod on the full core display.

Entry is required for LOA-RD-101, but there are no entry conditions met for LOA-RM-101. The examinee must understand that the RED background indicates that a control is drifting, and the lack of position indication is expected if a rod is drifting in and do not indicate a problem with RCMS.

The other distracters are plausible but incorrect.

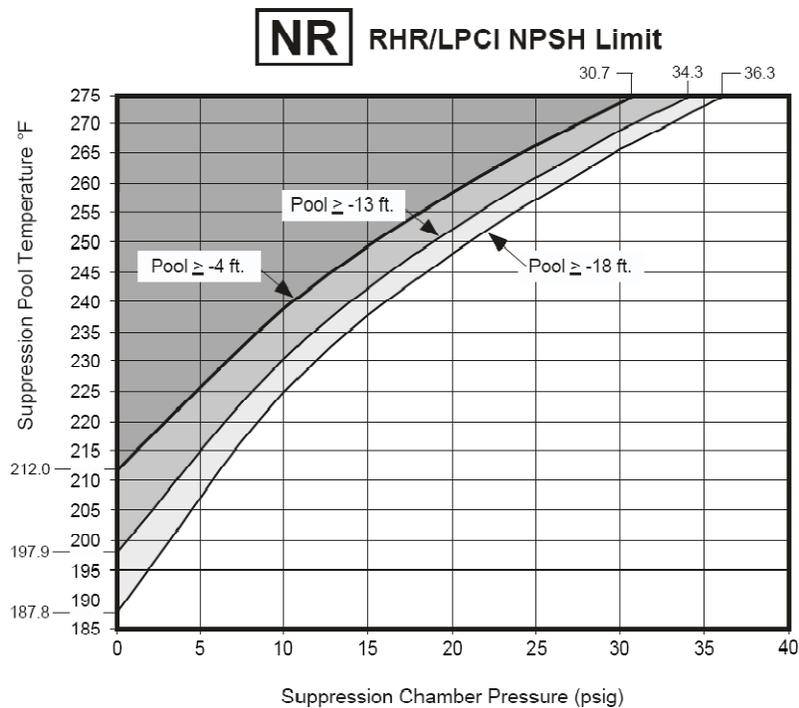
SRO EXAMINATION QUESTIONS

QUESTION 092

Given the following initial plant conditions:

- ALL RHR pumps are required to maintain adequate core cooling.
- Suppression Pool temperature is 197.5°F.
- Suppression Pool level is -12 feet.
- Suppression Chamber pressure is 2 psig.
- Drywell pressure is 7 psig.

Which one of the following identifies a parameter change that could result in damage to an RHR pump, and the direction to be provided for the use of the A and B RHR pumps?



- a. Drywell pressure increases an additional 5 psig.
Continue to inject with A and B RHR.
- b. Suppression Pool level decreases an additional 2 feet.
Continue to inject with A and B RHR.
- c. Suppression Pool temperature increases an additional 10.0°F.
Re-align A or B RHR to the SPC mode of operation.
- d. Suppression Chamber pressure increases an additional 2 psig.
Re-align A or B RHR to the SPC mode of operation.

ANSWER

b.

SRO EXAMINATION QUESTIONS

REFERENCE

LGA-003, "Primary Containment Control" note and caution, and Graph NR, RHR/LPCI NPSH Limit.

219000 2.4.20 – Equipment Control: Knowledge of the operational implications of EOP warnings, cautions, and notes.

HIGHER

NEW

Explanation:

A 2' decrease in suppression pool (SP) level will cause the RHR pumps to be operating in a condition which plots to the left of the line on the NPSH Limit Graph for SP level ≥ -18 ft which is the limiting line because SP level is NOT ≥ -13 ft. In this case, system damage could occur.

The stem states that all the RHR pumps are required to maintain adequate core cooling, so per the Finger Note in the SPC leg, "Do not use RHR pumps needed for core cooling", so to Continue to inject with A and B RHR is the proper action to take.

The other distracters are plausible but incorrect, and when graphed fall to the right of the respective line on the graph, indicating NPSH is not a concern for the given conditions.

SRO EXAMINATION QUESTIONS

QUESTION 093

Which of the following identifies why the Turbine Bypass System is required to be operable at $\geq 25\%$ reactor power?

To ensure that the ____ (1) ____ safety limit(s) is/are NOT violated during the ____ (2) ____ transient(s).

- a. (1) MCPR (only)
(2) turbine trip and feedwater controller failure maximum demand (only)
- b. (1) MCPR (only)
(2) turbine trip, feedwater controller failure maximum demand, and turbine generator load rejection
- c. (1) MCPR and Reactor Pressure
(2) turbine trip and feedwater controller failure maximum demand (only)
- d. (1) MCPR and Reactor Pressure
(2) turbine trip, feedwater controller failure maximum demand, and turbine generator load rejection

ANSWER

b.

REFERENCE

Technical Specification Bases 3.7.7

241000 2.2.38 - Equipment Control: Knowledge of conditions and limitations in the facility license.

FUNDAMENTAL

NEW

Explanation

Per T.S. Based 3.7.7:

The Main Turbine Bypass System is required to be OPERABLE at $\geq 25\%$ RTP to ensure that the fuel cladding integrity Safety Limit is not violated during the turbine trip, feedwater controller failure maximum demand, and turbine generator load rejection transients.

Note, the fuel cladding safety limit is identified as the MCPR safety limit in LaSalle tech specs.

The other distracters are plausible, but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 094

You are reviewing the shift manning schedule and identify that two of the four Reactor Operators (ROs) scheduled for the next shift have "No-solo Operation" restrictions on their license.

What action, if any, **is required** to be taken regarding shift staffing for the next shift?

- a. No action is required to be taken.
- b. Assign the ROs with "No-solo Operation" restrictions to the Unit 1 and Unit 2 Assist RO positions.
- c. Replace one of the ROs with the "No-solo Operation" restriction with an RO that does NOT have the restriction.
- d. Separate the ROs "No-solo Operation" restrictions such that only one RO with a "No-Solo Operation" restriction is assigned to each unit.

ANSWER

a.

REFERENCE

HR-AA-07-01, "NRC Licensed Operator Medical Examination"

2.1.4 Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

FUNDAMENTAL

NEW

Explanation:

Per HR-AA-07-01, "NRC Licensed Operator Medical Examination":

"A RO who is at risk of sudden incapacitation may have a "No-Solo" Operation restriction that requires another operator to be in view when the restricted operator is performing control manipulations, and someone capable of summoning assistance to be present at all other times while the restricted operator is performing licensed duties."

There is no limitation identified regarding the number of ROs with a "No-Solo" Operation restriction that can be assigned to a given shift, so no action is required to be taken regarding shift staffing.

SRO EXAMINATION QUESTIONS

QUESTION 095

Unit 1 is in an emergency condition and cannot maintain RPV water level above the Bottom of Active Fuel.

The on-shift crew has identified an innovative method to restore RPV water level above the Top of Active Fuel, however the method has NOT been previously reviewed or approved for use.

Which of the following is required, at a MINIMUM, to permit implementing the action to restore RPV water level?

- a. Approval by one licensed SRO.
- b. Approval by two licensed SROs.
- c. A completed 50.59 Safety Evaluation.
- d. Approval by one licensed SRO AND the Shift Emergency Director.

ANSWER

a.

REFERENCE

HU-AA-104-101, " Procedure Use and Adherence", Step 4.8.4, The licensee may take reasonable action that departs from a license condition or a Technical Specification in an emergency when:

1. The action is immediately needed to protect the public health and safety, and
2. No action consistent with license conditions and Technical Specifications that can provide adequate or equivalent protection is immediately apparent, and
3. As a minimum a licensed Senior Reactor Operator has approved the licensee action prior to taking the action.

2.2.5 Knowledge of the process for making design or operating changes to the facility.

SRO EXAMINATION QUESTIONS

QUESTION 096

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 _____ 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, "Emergency Containment Vent" Rev. 15, Prerequisite B.2.a
2.3.11 Ability to control radiation releases.

FUNDAMENTAL

BANK

Explanation:

Per LGA-VQ-02, Prerequisite B.2.a, the Station Director must be informed that during the performance of the procedure there may be an unmonitored ground level rad release that may affect the PARS recommendation.

D. is incorrect as there is no release permit required for an emergency vent.

SRO EXAMINATION QUESTIONS

QUESTION 097

Which of the following is a non-delegable action of the Shift Emergency Director following the classification of a Site Area Emergency?

- a. Transmit a NARS form.
- b. Authorize exposure extension.
- c. Activate the Emergency Response Organization.
- d. Initiate an Emergency Plant Announcement for the classification.

ANSWER

b.

REFERENCE

EP-AA-112-100-F-01, "Shift Emergency Director Checklist":

2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

FUNDAMENTAL

NEW

Explanation:

Per EP-AA-112-100-F-01, "Shift Emergency Director Checklist":

"The Shift Emergency Director may delegate plant announcements, call out of the ERO and actual communications with offsite agencies once review and approval of notification information has been made." The authorization of exposure extensions is not listed as a delegable duty.

The distracters are plausible but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 98

Unit 1 is in a refueling outage.

- LOP-WR-01, "Filling and Venting or Draining of the Reactor Building Closed Cooling Water System" was started at the beginning of the current shift to refill a portion of the WR system.
- Step E.1.3 states:
"As necessary, OPEN 1WR093, RBCCW Expansion Tank Level Control 1WR091 Bypass Valve (01 RB 820 C-11 RB 820' by RBCCW Tank) to maintain the expansion tank level between 24 to 42 inches".
- Step E.1.9 states:
"If 1WR093, RBCCW Expansion Tank Level Control 1WR091 Bypass Valve was used to fill expansion tank, CLOSE valve."
- Valve 1WR093 was NOT manipulated during the filling of the WR system.

The Equipment Operator performing the surveillance has requested direction on how to placekeep steps E.1.3 and E.1.9 based on the given conditions.

As the Unit Supervisor, direct the Equipment Operator performing the procedure to

- a. leave steps E.1.3 and E1.9 blank.
- b. mark steps E.1.3 and E1.9 as complete.
- c. mark steps E.1.3 and E1.9 "C/M" (Condition Met).
- d. mark steps E.1.3 and E1.9 "N/A" (Not Applicable).

ANSWER

d.

REFERENCE

HU-AA-104-101, Revision 04, page 7, step 4.4.3.

2.1.20 Ability to interpret and execute procedure steps.

HIGHER

NEW

Explanation:

Per HU-AA-104-101, Revision 04, page 7, step 4.4.3. "WHEN procedure step are not applicable due to plant conditions or the specific task being performed, "N/A" shall be applied with appropriate authorization." Use Not Applicable, "N/A" to document completion of a procedure step WHEN:

- The condition(s) are not applicable as described by the conditional step....

The other distracters are plausible, but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 099

Unit 2 has experienced a LOCA.

- The Division 1 POST-LOCA monitor is the only monitor available for use.
- Group 2 PCIS logic failed to actuate.
- The Shift Manager has requested the current Oxygen levels in the containment.

For the given conditions, the Division 1 POST-LOCA monitor must be aligned to sample the ____ (1) ____ and local action must be taken to ____ (2) ____ of the POST-LOCA monitor.

- a. (1) Drywell
(2) re-align valves per LGA-CM-01, "Emergency Operation of the POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System" to prevent erratic indication.
- b. (1) Drywell
(2) adjust system flow per LOP-CM-02, "Startup, Operation and Shutdown of POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System" to ensure accurate indication.
- c. (1) Suppression Chamber
(2) re-align valves per LGA-CM-01, "Emergency Operation of the POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System" to prevent erratic indication.
- d. (1) Suppression Chamber
(2) adjust system flow per LOP-CM-02, "Startup, Operation and Shutdown of POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System" to ensure accurate indication.

ANSWER

a.

REFERENCE

LGA-CM-01, "Emergency Operation of the POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System"

LOP-CM-01, "Startup, Operation, and Shutdown of POST-LOCA Primary Containment Atmosphere Monitoring System PCAMS"

LOP-CM-02, "Startup, Operation, and Shutdown of POST-LOCA Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System"

2.4.35 Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects.

FUNDAMENTAL

NEW

Explanation:

LGA-CM-01, "Emergency Operation of the POST-LOCA Accident Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System" provides direction to align the monitor to sample the drywell and also provides direction to realign valves locally to separate the suction paths for the monitor and the 1PL75J panel.

LOP-CM-01, "Startup, Operation, and Shutdown of POST-LOCA Primary Containment

SRO EXAMINATION QUESTIONS

Atmosphere Monitoring System PCAMS", Limitation D.4 discusses erratic operation of the POST-LOCA monitor if its suction path is not separated from Primary Containment Continuous Air Monitors.

LOP-CM-02, "Startup, Operation, and Shutdown of POST-LOCA Primary Containment Atmosphere Hydrogen and Oxygen Monitoring System", Note on page 12 discusses adjusting flow control for the 1PL75J, not the POST-LOCA monitor.

The other distracters are plausible, but incorrect.

SRO EXAMINATION QUESTIONS

QUESTION 100

Unit 1 is operating at rated conditions.

- You are the Unit 1 Unit Supervisor responsible for preparing a brief for the return to service of the 1A TDRFP min flow valve, and have identified that Independent Verification (IV) will be used when removing the C/O.

Per HU-AA-101, Human Performance Tools and Verification Practices, which one of the following correctly states the philosophy to be applied for removal of the C/O cards located in the Unit 1 Heater Bay?

- Perform the IV for the C/O cards located in the Unit 1 Heater Bay after receiving High Radiation and ALARA briefs.
- Direct that Concurrent Verification be used for the C/O cards located in the Unit 1 Heater Bay, and complete IV for the rest of the checklist.
- Request that the Shift Manager waive the IV for the C/O cards located in the Unit 1 Heater Bay, and complete IV for the rest of the checklist.
- Request that the Rad Protection Manager waive the IV for the C/O cards located in the Unit 1 Heater Bay, and complete IV for the rest of the checklist.

ANSWER

c.

REFERENCE

HU-AA-101, Revision 004, page 6, Step 4.3.1.1

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.

HIGH

BANK

Explanation:

Per HU-AA-101, Revision 004, page 6, Step 4.3.1.1, the Shift Manager may waive the verification requirements for ALARA concerns. Alternative verification techniques shall be considered.

Distracters A, B, and D are plausible, but incorrect.