

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

Applicant Information

Name:

Date:

Facility/Unit: LaSalle County Station U1/U2

Region: I II III IV

Reactor Type: W CE BW GE

Start Time:

Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

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

Applicant's Signature

Results

Examination Value 75 Points

Applicant's Score _____ Points

Applicant's Grade _____ Percent

General Guidelines

1. Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate to ask them before starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).
4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

Part B: Written Examination Guidelines

1. After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve an overall grade of 80.00 percent or greater, with 70.00 percent or greater on the SRO-only items, if applicable. If you only take the SRO portion of the exam (as a retake or with an upgrade waiver of the RO exam), you must achieve an overall grade of 80.00 percent or better to pass. SRO-upgrade applicants who do take the RO portion of the exam and score below 80.00 percent on that part of the exam can still pass overall, but may require remediation. Grades will not be rounded up to achieve a passing score. Every question is worth one point.
3. For an initial examination, the nominal time limit for completing the examination is 8 hours for the combined RO/SRO exam. Notify the proctor if you need more time.
4. You may bring pens, pencils, and calculators into the examination room; however, programmable memories must be erased. Use dark pencil to facilitate machine grading.
5. Print your name in the blank provided on the examination cover sheet and on the answer sheet.
6. Mark your answers on the answer sheet provided. If you are recording your answers on a machine-gradable form that offers more than four answer choices (e.g., "a" through "e"), be careful to mark the correct column. Use your

examination pages for scrap paper. The examination will be retained by the facility licensee.

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

When answering a question, do not make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Similarly, you should assume that no operator actions have been taken, unless the stem of the question or the answer choices specifically state otherwise. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the actual plant.

8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
9. When you complete the examination, sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination, and bring it together with your answer sheet to the exam proctor.
10. After turning in your examination, leave the examination area as defined by the proctor or NRC examiner (this classroom & the hall in front of this classroom). If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?

QUESTION 001

Which of the following identifies the level instruments that input into RWLC?

1. Upset
 2. Wide Range
 3. Narrow Range
- a. 1, 2, and 3
 - b. 3 ONLY
 - c. 1 and 3 ONLY
 - d. 2 and 3 ONLY

QUESTION 002

Unit 1 is at rated conditions.

- 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) ____.

- a. (1) Drywell ONLY
(2) Suppression Chamber
- b. (1) Suppression Chamber ONLY
(2) Suppression Chamber
- c. (1) Suppression Chamber and Drywell
(2) Suppression Chamber
- d. (1) Suppression Chamber and Drywell
(2) Drywell

QUESTION 003

Unit 1 is in Mode 2 with the shorting links INSTALLED.

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

- a. Full scram and Off-gas isolation.
- b. 1/2 scram and Off-gas isolation.
- c. Off-gas isolation ONLY.
- d. 1/2 scram ONLY.

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.

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.

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.

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.

8. 09-1 NRC EXAM 8

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

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.

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

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.

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.

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)_____.

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

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

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

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.

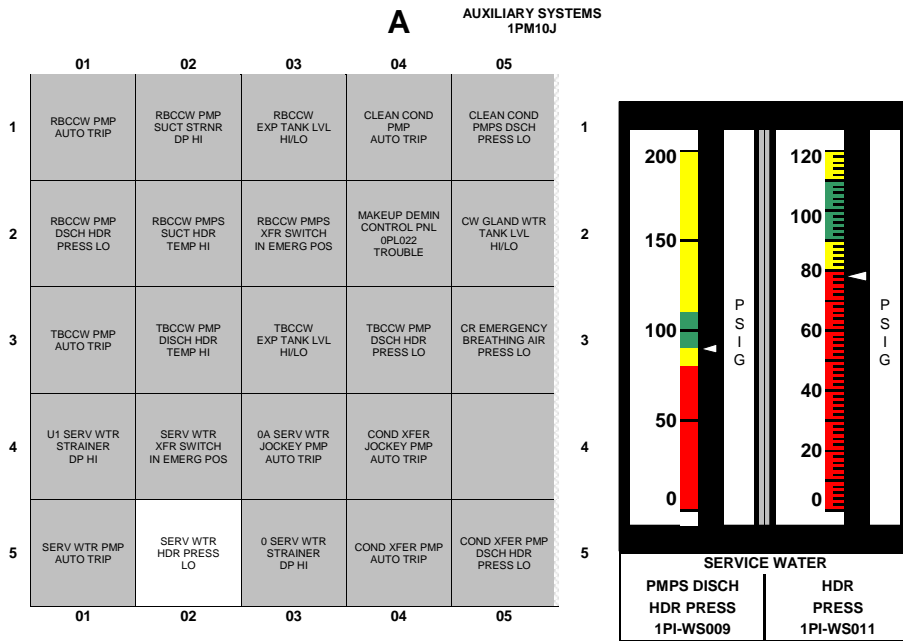
Which of the following identifies the response of the C and P SRVs if ADS is manually initiated, and what additional actions are required to be taken based on the conditions listed above?

- 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.

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

QUESTION 018

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

- Annunciator 1H13-P601-A108 was the last annunciator to alarm, 2 minutes ago.
- All annunciators have been confirmed and 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

QUESTION 019

Unit 1 scrambled from rated conditions.

- The panel 1H13-P601-E alarms are as shown below.
- Annunciators 1H13-P601-E103 and 1H13-P601-E503 just alarmed.

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 CNDSR LO VAC LOGIC BYP | DIV 2 CNDSR 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/W/R PCIS ISOL LOGIC IN TEST | DIV 2 PCIS MANUAL ISOL SWITCH ARMED | 5 |
| | 01 | 02 | 03 | 04 | 05 | 06 | 07 | |

Which of the following identifies the status of annunciators 1H13-P601-E202 and 1H13-P601-E203 in 12 minutes if plant parameters remain stable?

- 1H13-P601-E202 will be LIT ONLY.
- 1H13-P601-E203 will be LIT ONLY.
- BOTH 1H13-P601-E202 and 1H13-P601-E203 will be LIT.
- BOTH 1H13-P601-E202 and 1H13-P601-E203 will be EXTINGUISHED.

QUESTION 020

Unit 1 scrammed from rated conditions 30 minutes ago.

- 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 ____ (1) ____ and reactor water level ____ (2) ____.

- (1) stay the same
(2) stay the same
- (1) lowering
(2) lowering
- (1) rising
(2) lowering
- (1) lowering
(2) rising

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 SAC(s) AND 2) the Unit 2 Instrument Air Header Pressure indication?

- 1) 1PM09J ONLY
2) 1PM10J OR 2PM10J
- 1) 1PM09J ONLY
2) 2PM10J ONLY
- 1) 1PM09J AND 2PM09J
2) 1PM10J OR 2PM10J
- 1) 1PM09J AND 2PM09J
2) 2PM10J ONLY

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

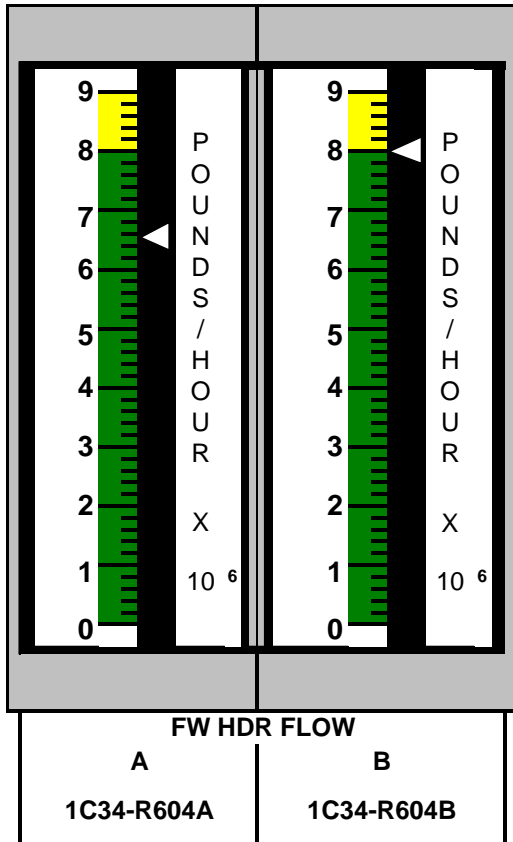
| | 05 | 06 | 07 | 08 | 09 | 10 | |
|---|--------------------------------|-----------------------|----------------|-----------------------|-------------------------------|---|---|
| 1 | SBLC SQUIB VLV CONTINUITY LOSS | SRM INOPERATIVE OR HI | IRM HI | APRM HI | OPRM HI | RX VESSEL PRESS HI | 1 |
| 2 | 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.

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.

QUESTION 024

Both Units are at rated power.

- Bus 111Y de-energized.
- An earthquake results in a dual unit scram and a complete loss of off-site power on BOTH units.

How will the 0 Diesel Generator respond to this event?

The 0 Diesel Generator will . . .

- remain in stand-by.
- automatically start using normal control power and then load onto Unit 2.
- automatically start using emergency/alternate control power and then load onto Unit 2.
- automatically start using emergency/alternate control power and then run unloaded.

Question 025. 09-1 NRC EXAM 25

Unit 1 is at rated conditions and in a normal electrical line-up.

- The Main Turbine/Generator trips.
- The fast transfer of the 4160 KV bus FAILS.

Which of the following identifies 1) component(s) which would be de-energized and 2) the action required to re-energize the affected bus?

- 1) 1B CW pump
2) Synchronize and close ACB 1425
- 1) 1A and 1C CD pumps
2) Synchronize and close ACB 1415
- 1) 1B and 1D CD pumps
2) Synchronize and close ACB 1425
- 1) 1A and 1C CW pumps
2) Synchronize and close ACB 1415

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).

27. 09-1 NRC EXAM 27

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.

QUESTION 028

Unit 1 is in Mode 4.

- Inboard and Outboard MSIVs are closed, with their control switches in the closed position.
- The 1A RPS MG set tripped and cannot be restored.
- The Alternate RPS power supply is unavailable.
- The Shift Manager has directed that the MSIVs be re-opened.

Based solely on available power to the MSIV solenoids, which of the following identifies which MSIVs, if any, that can be opened with ONLY the 1B RPS power supply available?

- a. None.
- b. Inboard ONLY.
- c. Outboard ONLY.
- d. BOTH Inboard and Outboard.

QUESTION 029

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

What affect 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.

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%.

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

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.

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.

QUESTION 34

Unit 2 is operating at rated conditions.

- The RR Flow Control (RRFC) System is in Ganged Setpoint Mode.
- Annunciator 2H13-P602-A507; RRFCS 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.

QUESTION 035

Unit 1 is operating at rated conditions with a TIP trace in progress.

- TIP A is at the top of the core position when a LOCA occurs.
- Drywell pressure quickly rises to 5 psig.

At what point does the TIP Ball Valve close?

The TIP Ball Valve closes . . .

- a. immediately.
- b. when the TIP stops withdrawing at the indexer position.
- c. when the TIP stops withdrawing at the in-shield position.
- d. when the TIP stops withdrawing at the core bottom limit position.

QUESTION 036

Unit 1 is operating at rated conditions.

- MSOP discharge pressure dropped to 170 psig, and bearing supply header pressure dropped to 12 psig.
- Both parameters have been restored to normal.

Which of the following pumps would have running indication in the Main Control Room for the given conditions?

- a. TGOP, EBOP, and AOP.
- b. TGOP and EBOP ONLY.
- c. TGOP and AOP ONLY.
- d. TGOP ONLY.

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 CNDSR LO VAC LOGIC BYP | DIV 2 CNDSR 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 VPW/R 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.

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.

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 inches 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**.

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.

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.

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.

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.

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.

QUESTION 045

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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.

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.

48. 09-1 NRC EXAM 48

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

QUESTION 049

Unit 2 has scrammed 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.

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.

QUESTION 051

Unit 1 scrammed 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 . . .

- a. into the Suppression Pool water volume ONLY.
- b. into the Suppression Pool water volume AND Drywell ONLY.
- c. into the Drywell AND Suppression Chamber air space ONLY.
- d. into the Suppression Pool water volume, Drywell, AND Suppression Chamber air space.

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.

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?

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

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

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.

QUESTION 055

Unit 2 scrammed 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.

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.

QUESTION 057

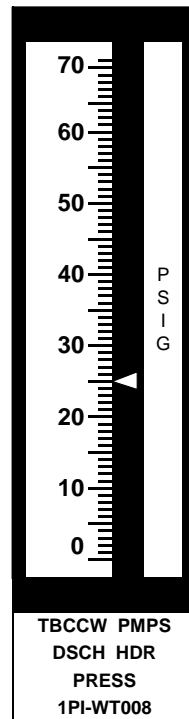
What is the primary concern associated with Drywell temperature exceeding 340°F?

- a. Loss of core circulation.
- b. Loss of RPV pressure control.
- c. Failure of primary penetration seals.
- d. Loss of pressure suppression capability.

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, and going down slowly:



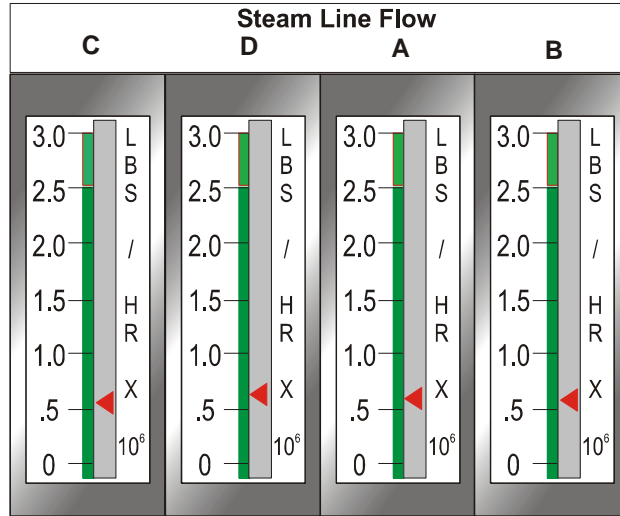
Which of the following action should be taken next?

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

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

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.

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.

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.

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?

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

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.

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

66. 09-1 NRC EXAM 66

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

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.

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 degrees F.
- d. Hydrogen concentration in the Main Condenser Offgas Treatment System 3.8% by volume.

QUESTION 069

What is the expected status of the HPCS and RBCCW system vent and drain valves if Mechanical Checklists were performed as written?

| | <u>VENT VALVES</u> | <u>DRAIN VALVES</u> |
|----|--------------------|---------------------|
| a. | OPEN | OPEN |
| b. | OPEN | CLOSED |
| c. | CLOSED | OPEN |
| d. | CLOSED | CLOSED |

70. 09-1 NRC EXAM 70

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.

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

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.

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 |

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 (with an open communication line established)
 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 ONLY.

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.

| | |
|--|--|
| <p>U.S. Nuclear Regulatory Commission</p> <p>Site-Specific SRO Written Examination</p> | |
| <p>Applicant Information</p> | |
| <p>Name: _____</p> | |
| <p>Date: _____</p> | <p>Facility/Unit: _____</p> |
| <p>Region: I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/></p> | <p>Rx Type: W <input type="checkbox"/> CE <input type="checkbox"/> BW <input type="checkbox"/> GE <input type="checkbox"/></p> |
| <p>Start Time: _____</p> | <p>Finish Time: _____</p> |
| <p>Instructions</p> <p>Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.</p> | |
| <p>Applicant Certification</p> <p>All work done on this examination is my own. I have neither given nor received aid.</p> <p>_____</p> <p style="text-align: right;">Applicant's Signature</p> | |
| <p>Results</p> | |
| <p>RO/SRO-Only/Total Examination Values ____ / ____ / ____ Points</p> | |
| <p>Applicant's Scores ____ / ____ / ____ Points</p> | |
| <p>Applicant's Grade ____ / ____ / ____ Percent</p> | |

QUESTION 076

Unit 1 is in Mode 4.

- The 1A RHR loop is the SDC mode of operation.
- 1A and 1B RR pumps are secured.
- The Unit 1 Assist RO reports SDC flow is indicating 5800 gpm.

Based on the above, the Unit Supervisor must direct the Unit 1 Assist RO to ____ (1) ____ in order to prevent ____ (2) ____ .

- (1) raise flow per LOA-RH-101, "Unit 1 RHR Abnormal".
(2) temperature stratification
- (1) lower flow per LOA-RH-101, "Unit 1 RHR Abnormal".
(2) damage to in-core instrumentation
- (1) raise flow per LOP-RH-07, "Shutdown Cooling System Startup, Operation and Transfer"
(2) temperature stratification
- (1) lower flow per LOP-RH-07, "Shutdown Cooling System Startup, Operation and Transfer"
(2) damage to in-core instrumentation

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?

- VG must initiate, RB Ventilation must isolate and TB Ventilation must be manually started.
- VG must initiate and RB Ventilation must isolate ONLY.
- RB Ventilation must isolate ONLY.
- VG must initiate ONLY.

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 . . .

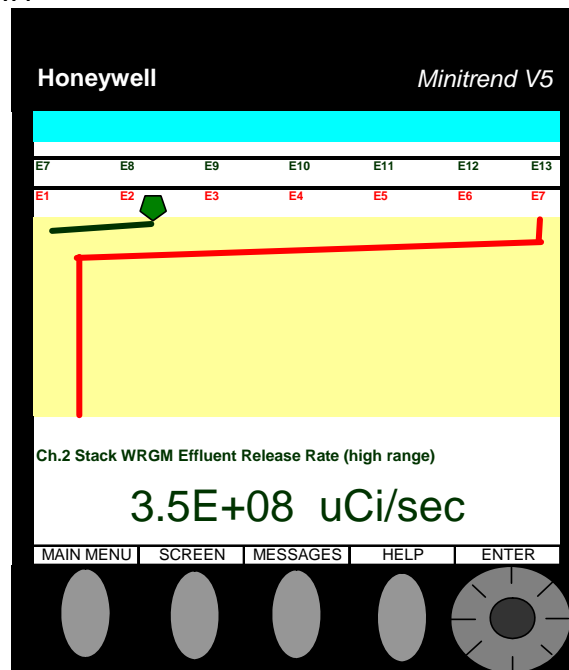
- a. SWAP to the B VC train per LOP-VC-01, "Control Room HVAC Operation" and immediately declare A VC Inoperable.
- b. Manually place A VC train Emergency Make-up Unit on-line per LOP-VC-01, "Control Room HVAC Operation" and promptly evaluate the operability of the A VC System.
- c. SWAP to the B VC 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.

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?



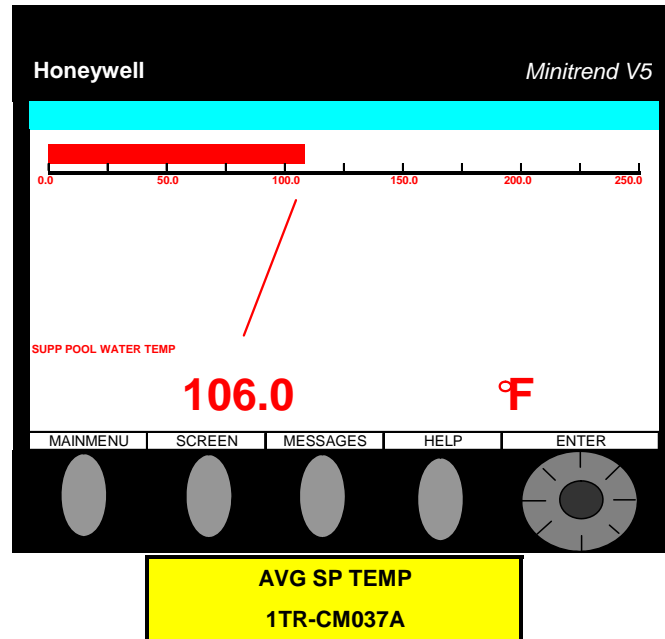
**STACK WRGM EFF ACT
0D18-R522**

- 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".

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 $1/3^{\circ}\text{F}$ per minute.



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.

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.

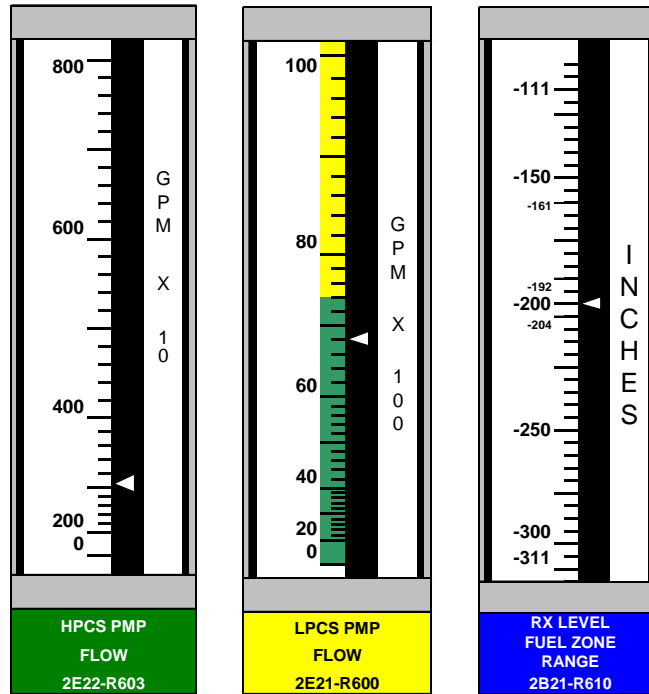
- a. Safety Relief Valve
- b. Main Steam Isolation Valve
- c. Main Turbine Bypass Valve
- d. Suppression Chamber to Drywell Vacuum Breaker

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.

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°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"

QUESTION 084

LaSalle Station is in an accident condition.

- An offsite release rate of $5.7 \text{ E}+09 \text{ uCi/sec}$ is in progress.
- A Controlled Direct Containment Vent was started at 0845 and was stopped at 0915.
- The off site dose assessment is 1.5R TEDE.
- A loss of the 'Fuel' AND 'RCS' Fission Product Barriers has occurred.

Which of the following identifies the Protective Action Recommendations, if any, that are required to be made based on the given conditions?

EP-AA-111-F-05, "LaSalle Plant Based PAR Flowchart" provided.

- a. No PARs required.
- b. Shelter 2 Mile Radius & 5 miles Downwind.
- c. Evacuate 2 Mile Radius & 5 miles Downwind.
- d. Evacuate 5 Mile Radius & 10 miles Downwind.

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

QUESTION 086

Unit 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 actions, if any, required to be taken?

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

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.

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.

QUESTION 089

Unit 2 is in Mode 5.

- You are the Unit 2 Control Room Supervisor
- Fuel movements are scheduled to begin, for the first time in the outage, later this shift.
- Non-Spiral off-loading is being utilized.
- 24/48VDC Bus A is de-energized.
- The Fuel Handling Supervisor has called you to request permission to commence fuel movements.
- The only item remaining to be checked is the operability of required nuclear instrumentation.

Based on the given conditions, fuel movements ____ (1) ____ as ____ (2) ____.

NOTE: Technical Specification 3.3.1.2 SRM Instrumentation provided.

- a. (1) can begin
(2) the required number of SRMs and their locations meet LCO requirements.
- b. (1) can NOT begin
(2) the required number of SRMs will NOT meet LCO requirements (ONLY).
- c. (1) can NOT begin
(2) the location of operable SRMs will NOT meet LCO requirements (ONLY).
- d. (1) can NOT begin
(2) the required number AND location of operable SRMs will NOT meet LCO requirements.

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.

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.

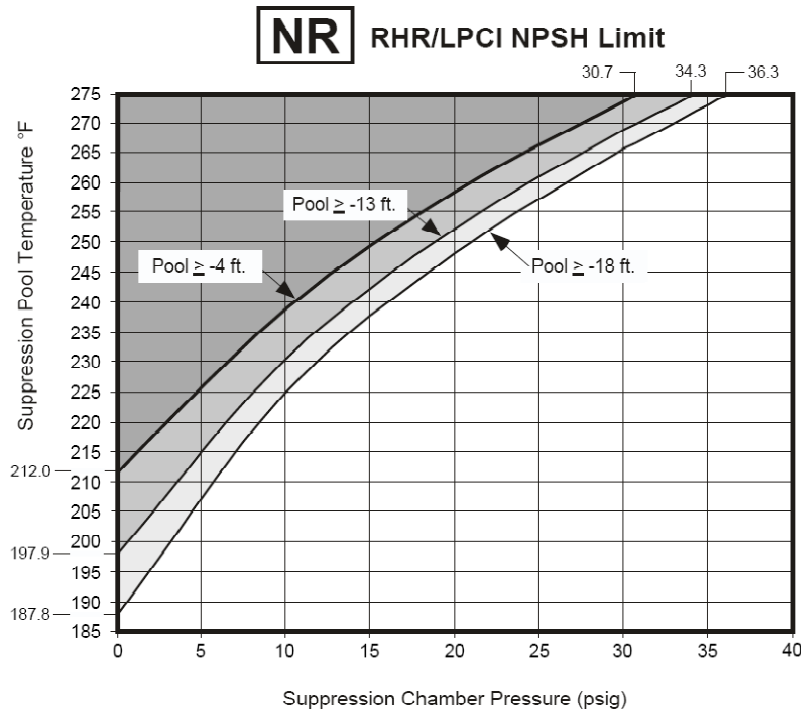
- (1) LOA-RD-101, "Control Rod Drive Abnormal" ONLY
(2) IS
- (1) LOA-RD-101, "Control Rod Drive Abnormal" AND LOA-RM-101, "Unit 1 RCMS Abnormal Situations"
(2) IS
- (1) LOA-RD-101, "Control Rod Drive Abnormal" ONLY
(2) is NOT
- (1) LOA-RD-101, "Control Rod Drive Abnormal" AND LOA-RM-101, "Unit 1 RCMS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

QUESTION 092

Given the following initial plant conditions:

- RPV water level is -195" on Fuel Zone indicators.
- RPV pressure is 125 psig.
- 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.

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

QUESTION 094

You are reviewing the shift manning schedule and identify that two of the four Reactor Operators (RO) 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.

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?

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

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.

- must direct the emergency venting of
- must be informed prior to emergency venting
- has NO responsibilities related to emergency venting
- must approve the release permit for emergency venting

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.

QUESTION 098

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).

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.

- (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.
- (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.
- (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.
- (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.

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?

- a. Perform the IV for the C/O cards located in the Unit 1 Heater Bay after receiving High Radiation and ALARA briefs.
- b. 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.
- c. 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.
- d. 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.

QUESTION 001

System Description 031, Reactor Water Level Control, page 12.

259002K1.03 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR WATER LEVEL CONTROL SYSTEM and the following: Reactor water level

MEMORY
BANK

Explanation:

Per System Description 031, the RWLC system uses input from the 3 narrow range indicators and also the Upset level indicator.

The other distracters are plausible but incorrect.

QUESTION 002

System Description 092, Containment Monitoring, page 20.

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

HIGHER
NEW

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.

QUESTION 003

System Description 042, IRMs, page 17.

System Description 052, Process Rad Monitors

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 |
|--|-----------------|

Per System Description 052, Process Rad Monitors, page 31:

| | |
|--|--------------------------|
| Off Gas Pretreatment Linear and Post Treatment Channel A Off Gas Pretreatment Linear and Post Treatment Channel AA. | +24 VDC Dist Panel 1(2)A |
| Off Gas Post Treatment Channel B Off Gas Post Treatment Channel BB. | +24 VDC Dist Panel 1(2)B |

The loss of power will de-energize IRMs B, D, F, and H, resulting in a half scram condition.

The Off-gas Pre-treatment monitor is powered from 24VDC Bus A, and the Post Treatment Channel A is also powered from 24VDC Bus A, thus a complete isolation of Off-gas will NOT occur.

QUESTION 004

System Description 005, Figure 005-02

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

HIGHER

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.

QUESTION 005

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

HIGHER

NEW

Explanation:

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

QUESTION 006

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)

HIGHER

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.

QUESTION 007

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 examinees knowledge of the ability to cross-tie different DC busses, including the Division 2 battery, the HPCS battery and the 250 VDC battery.

QUESTION 008

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)

HIGHER

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 .

QUESTION 009

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.

QUESTION 010

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.

QUESTION 011

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

262002K/A: K6.01 - 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.

QUESTION 012

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

HIGHER

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.

QUESTION 013

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

HIGHER

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.

QUESTION 014

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

HIGHER

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.

4850

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.

4535

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).

$4850 - (5 \times 63) = 4535$.

4430

This distracter is incorrect, but plausible if the examinee believes that both SBLC pumps are placed in operation and pumping at 42 gpm.

QUESTION 015

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

HIGHER

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.

QUESTION 016

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

HIGHER

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.

A. C and P SRVs will remain CLOSED and no additional actions are required.

Incorrect as one additional SRV must be opened.

C. C SRV will OPEN and P SRV will remain CLOSED and no additional actions are required.

Incorrect as C SRV will not open.

D. C SRV will remain CLOSED and P SRV will OPEN and no additional actions are required.

Incorrect as P SRV will not open.

QUESTION 017

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 CCWS

HIGHER

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.

QUESTION 018

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

HIGHER

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.

QUESTION 019

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

218000A4.02 - Ability to manually operate and/or monitor in the control room: ADS logic initiation

HIGHER

NEW

Explanation:

Each channel of the ADS logic requires the following to occur for the logic to initiate:

RPV water Level 1 signal

DW high pressure signal or 598 second bypass timer timed out

ECCS pump discharge pressure established

Channels A and B also require the following:
118 second timer timed out
Level 3 confirmatory signal

For the given conditions, alarm windows E105; RX VESSEL LO WTR LVL 3 CONFIRMED is LIT. With the Level 3 confirmatory signal, Channel B AND Channel D will initiate after the 598 second (approximately 10 minutes) timer times out, causing alarm 1H13-P601-E203 to be LIT.

The other distracters are plausible but incorrect.

QUESTION 020

System Lesson Plan 032, RCIC page 47

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

HIGHER

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.

The other distracters are plausible but incorrect.

QUESTION 021

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.

HIGHER

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 ONLY.

The other distracters are plausible but incorrect as the examinee must understand that the stand-by SAC will auto start when pressure drops below 100 psig (previous LaSalle system design required the local start of a stand-by SAC) and also understand that U-2 Instrument Air Header pressure is only located on the 2PM10J panel.

It is plausible that the examinee might believe U-2 IA pressure is indicated on the 1PM10J as Unit 2 IA pressure can be maintained with the U-2 SAC off-line and the Common and U-1 SAC in operation.

QUESTION 022

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.

HIGHER

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 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.

QUESTION 023

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

HIGHER

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 1.5 Mlb/hr.

QUESTION 024

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.

HIGHER

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.

For the given conditions, the 0 Diesel Generator will start using the emergency power supply and then load the U-2 Div. 1 busses because 211Y remains energized. The U-1 Div. 1 busses will not energize due to the loss of 111Y which supplies control power for the U-1 components.

The other distracters are plausible but incorrect.

QUESTION 025

LOA-AP-101, "Unit 1 AC Power System Abnormal," step B.7.6

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

HIGHER

NEW

Explanation:

On a turbine trip, Bus 141X is the only 4160V bus that must fast-transfer to remain energized. In this case the fast transfer failed, so the examinee must understand this will result in the 1A and 1C CW pumps de-energizing, and LOA-AP-101 directs the closure of ACB 1415 to restore power to bus 141X.

The other distracters are plausible but incorrect.

QUESTION 026

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

HIGHER

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.

QUESTION 027

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.

QUESTION 028

1E-1-4203AA

System Description 70, Main Steam page 15.

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. Per System Description 70, "one or both of the pilot solenoids are energized to open the MSIVs."

Although PCIS logic is affected by the loss of 1A RPS, the Division 2 pilot solenoid will energize allowing the MSIVs to be opened.

The other distracters are plausible but incorrect.

QUESTION 029

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 can not 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".

A. must be STOPPED immediately because the fuel bundle could become dislodged with the grapple NOT air-loaded closed, is incorrect as the J-hooks will remain closed due to the weight of the fuel bundle and the fuel bundle will not be dislodged.

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", is incorrect as the procedure does not provide any stop work criteria.

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, is incorrect as an air supply is required to open the J-hooks of the grapple.

QUESTION 030

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.

A. downshift if Feedwater flow <20% is incorrect as this feature is designed to prevent cavitation in the flow control valve.

C. downshift if <10.1°F DT exists between the steam dome and RR pump suction is incorrect as this interlock prevents cavitation in the jet pumps.

D. utilize start/upshift logic that requires RR Flow Control Valves to be at a minimum position of 20% is incorrect as this design feature helps to prevent FCV binding problems experienced on upshifts. Also with the FCV at its minimum position during an RR pump upshift, the stresses applied to RR pump and motor is minimized.

QUESTION 031

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.

The other distracters are plausible but incorrect.

QUESTION 032

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.

The other distracters are plausible but incorrect.

A. NO effect, the Fire Protection system detectors, inverters, and panels are powered from 112X is incorrect, as the loss of 111X will cause the DG CO₂ systems to swap to a back-up battery.

B. Diesel Generator Room CO₂ pressure supply latching valves will unlatch and close and must be re-opened prior to restoring power, is incorrect as a Warning on page 54 of LOA-DC-101 provides direction that "DG Room and Alterex CO₂ pressure supply latching valves must be closed to prevent inadvertent CO₂ actuation on power

restoration.

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, is incorrect as the vent valves can be manually operated.

QUESTION 033

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.

QUESTION 034

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.

This configuration allows continuous operation upon loss of any power supply unit or power supply source."

When a power supply is lost, a minor alarm is initiated and will cause annunciator 2H13-P602-A507 to alarm. The actions directed in response to this alarm is to check the FCVs stable and refer to LOP-FW-16 to determine the cause of the alarm and identify any required actions.

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. Incorrect due to the fact that Mode of operation will not be transferred.

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.

Incorrect in that there is no direction or need to enter LOA-RR-201.

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.

Incorrect due to the fact that there is no effect on the subloops for the given conditions.

QUESTION 035

LOP-NR-06, Revision 026, Step E.6.1.3 and E.6.1.4

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

FUNDAMENTAL

BANK

Explanation:

Per LOP-NR-06, Revision 026, Step E.6.1.3, RETURN remaining TIPs to IN-Shield position.

Step E.6.1.4, Check all TIP ball valves close and VALVE OPEN lights on Drive Control Units go dim.

QUESTION 036

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:

The AOP will auto-start when MSOP discharge pressure drops below 190 psig.

The TGOP will auto-start when MSOP discharge pressure drops below 190 psig and also when bearing supply header pressure drops to 15 psig.

The other distracters are plausible but incorrect because the EBOP will not be running. In order for the EBOP to auto-start, MSOP discharge pressure must drop to 180 psig AND bearing supply header pressure drop to 10 psig.

QUESTION 037

LGA-002, Secondary Containment Control.

LGA-002 Lesson Plan, page 6

288000 2.4.4 - Emergency Procedures / Plan: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

HIGHER

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.

QUESTION 038

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.

QUESTION 039

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.

QUESTION 040

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****Explanation:**

Raising reactor water level above +50 inches promotes natural circulation. Circulation will decrease temperature stratification.

Increasing reactor water level to a range of 220 to 260 inches enhances vessel metal temperature monitoring as a positive demonstration that stratification is not occurring. Additionally, this aids natural circulation, which starts to occur at 50 inches (bottom of skirt).

Distracters A, B, and D are incorrect as they will decrease or prevent natural circulation.

QUESTION 041

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.

QUESTION 042

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."

QUESTION 043

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.

QUESTION 044

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.

FUNDAMENTAL

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.

QUESTION 045

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

600000K3.04 - 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:

"Option 2 (Best if the dike has failed) at LSH to allow suction from the UHS....."

QUESTION 046

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.

QUESTION 047

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.

QUESTION 048

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.

QUESTION 049

Strategies for Successful Transient Mitigation, page 4.

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

NEW

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.

QUESTION 050

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
HIGHER
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 Degrees F., however isolation signals must be defeated and is allowed per LGA direction.

The distracters are plausible, but incorrect.

QUESTION 051

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.

QUESTION 052

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

BANK

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

QUESTION 053

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.

QUESTION 054

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.

The other distracters are plausible but incorrect.

QUESTION 055

LGA-001, RPV Control.

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

LOA-DG-201, "DG Failure"

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

HIGHER

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.

QUESTION 056

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.

QUESTION 057

LGA-003, Primary Containment Control Lesson Plan, page 23.
295028 A2.02 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE : Reactor pressure

FUNDAMENTAL

NEW

Explanation:

340°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.

QUESTION 058

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 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.

QUESTION 059

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
BANK

Explanation

Distracter A 1H13-P603 A512, RWLCS FAILURE

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.

QUESTION 060

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

295022K2.07 - 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 ≥ 900 psig.

CRD charging water pressure is <940 psig for ≥ 20 minutes

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

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."

QUESTION 061

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.

QUESTION 062

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.

QUESTION 063

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.

The other distracters are plausible but incorrect.

QUESTION 064

LOR 1PM07J; SBTG PRI FAN FLOW HI/LO

System Description 095, SBTG, 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:

SBTG 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 SBTG 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.

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 SBTG Vent Stack flow is monitored separate from the Station Vent Stack flow.

QUESTION 065

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

QUESTION 066

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.

QUESTION 067

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.

QUESTION 068

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%.

- A. Per LCO 3.4.5, DWFDs fill-up rate must be less than 5 gpm and it is.
C. Average Circulating Water inlet temperature 100.25 degrees F. is less than 101.25 as listed in SR 3.7.3.1
D. Hydrogen concentration in the Main Condenser Offgas Treatment System 3.8% by volume is incorrect, as it is less than 4% as listed in TRM 3.7.e Condition A.

QUESTION 069

LOP-HP-01M, rev 17.

LOP-WR-01M, rev 15.

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:

System vent and drain valves are restored to the closed positions per LOP-HP-01M and LOP-WR-01M.

The other distracters are plausible but incorrect, as systems such as Feedwater and Heater Drain require vent valves to be placed in the open position.

QUESTION 070

System Description 52, Process Rad Monitors, page 8.

UFSAR 7.7.14.5 Main Steamline Radiation Monitoring Subsystem

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.

QUESTION 071

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.

QUESTION 072

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

NW

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.

QUESTION 073

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.

QUESTION 074

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

Explanation:

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.

QUESTION 075

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:

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.

QUESTION 076

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

LOA-RH-101, "Unit 1 RHR Abnormal".

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:

Flow is raised per LOP-RH-07 because the given conditions do not require entry into LOA-RH-101.

Per LOP-RH-07 step C.17.2, Shutdown cooling is required to be greater than 6000 gpm to prevent stratification if level is less than +50 inches on shutdown range and no RR pumps are in operation.

The other distracters are plausible but incorrect.

QUESTION 077

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

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

FUNDAMENTAL

NEW

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.

QUESTION 078

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

600000A2.06 - 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.

The other distracters are plausible but incorrect.

QUESTION 079

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 judgements 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.

QUESTION 080

LGA-003, "Primary Containment Control"

295026 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:

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.

QUESTION 081

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.

295006 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 examinees 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.

The distracters are plausible but incorrect.

QUESTION 082

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 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 placekeeps Figure AC to determine if adequate core cooling exists.

QUESTION 083

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.

QUESTION 084

EP-AA-111-F-05, "LaSalle Plant Based PAR Flowchart".

295017 2.4.44 Knowledge of emergency plan protective action recommendations.

FUNDAMENTAL

NEW

Explanation:

With an offsite release rate of $5.7 \text{ E}+09$ uCi/sec in progress, a General Emergency must be declared.

With the duration of the Controlled Direct Containment Vent less than 1 hour AND the offsite dose assessment greater the 1R TEDE, "Yes" is the answer to the second decision block. When answered "Yes" the proper action to take is to "Shelter 2 Mile Radius & 5 miles Downwind".

The other distracters are plausible but incorrect for the following reasons:

A. No PARs required. Incorrect as an offsite release of $5.7 \text{ E}+09$ uCi/sec in progress requires that and General Emergency be declared.

C. Evacuate 2 Mile Radius & 5 miles Downwind. Incorrect, but plausible in that the Containment Fission Product barrier is considered lost when a controlled direct containment vent is initiated, but if the examinee does not know this, they would answer "No" to this decision block.

D. Evacuate 5 Mile Radius & 10 miles Downwind. Incorrect, but plausible in that if the examinee believes all three fission product barriers has been lost.

QUESTION 085

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.

QUESTION 086

LOP-CX-08 "Uninterruptible Power Supply Startup, Operation, and Shutdown"
262002A2.01 - Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE 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.

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.

QUESTION 087

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 degrees 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 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.

QUESTION 088

LGA-001, "RPV Control"

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

HIGHER

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.

QUESTION 089

T.S. 3.3.1.2 SRM Instrumentation

System Description 041, SRMs, page 7.

System Description 041, Figure 41-08.

215004 2.2.36 - Equipment Control: Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.

HIGHER

NEW

Explanation:

SRMs are located in the core in the following quadrants: A B
D C

SRMs A and C are energized from 24/48VDC Bus A and are inoperable.

No matter what quadrant is picked, the requirement for an operable SRM in the adjacent quadrant can not be met. In addition, information in the stem identifies that a non-spiral offloading is being utilized resulting in 2 SRMs being required to be operable, rather than just one if a spiral offloading was being used.

The other distracters are plausible but incorrect.

QUESTION 090

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."

QUESTION 091

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

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

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.

QUESTION 092

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 \geq 18 ft which is the limiting line because SP level is NOT \geq 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.

QUESTION 093

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.

QUESTION 094

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

Explanation:

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

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.

QUESTION 095

HU-AA-104-101, " Procedure Use and Adherence", Step 4.8.4

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

FUNDAMENTAL

BANK

Explanation:

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.

QUESTION 096

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.

QUESTION 097

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.

QUESTION 098

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.

QUESTION 099

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 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.

QUESTION 100

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.

HIGHER

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.

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