

QUESTION # 001

Given:

- Unit 1 is at 28% reactor power.
- Rod bank select switch is in manual.
- The 1B RCP trips due to an overcurrent condition.

With NO operator action, a reactor trip will ____ (1) ____ AND ΔT in loops 1A, 1C, and 1D will ____ (2) ____ over the next two minutes.

____ (1) ____ ____ (2) ____

- | | |
|--------------|-------|
| A. NOT occur | rise |
| B. NOT occur | lower |
| C. occur | lower |
| D. occur | rise |

QUESTION # 002

Given:

- Unit 1 was at 100% power.
- A fire occurs in the Main Control Room.
- Unit 1 reactor is tripped.
- The crew evacuates the control room.
- The selector switch for the 1A SG Pressure Indicator at the Fire Hazards Panel (FHP), is in the FIRE position.
- The selector switch for the 1B SG Pressure Indicator at the FHP, is in the NORMAL position.

With the above conditions, the Remote Shutdown Panel (RSDP) and FHP provide ACTUAL steam generator pressure indication for which of the following SGs?

- | RSDP | FHP |
|------------------------|---------|
| A. All SGs | 1A ONLY |
| B. All SGs | 1B ONLY |
| C. 1B, 1C, and 1D ONLY | 1A ONLY |
| D. 1A, 1C, and 1D ONLY | 1B ONLY |

QUESTION # 003

Given:

Unit 2 is at 100% power, then:

- An RCS LOCA occurs and SI is initiated.
- A Loss of offsite power occurs.
- The crew is currently in 2BwEP ES-1.2, Post LOCA Cooldown and Depressurization, with the following indications:
 - RCS pressure is 1250 PSIG and stable.
 - RCS cold leg temperatures are 500°F and stable.
 - RCS hot leg temperatures are 515°F and stable.
 - Core exit thermocouples (CETCs) are 585°F and stable.
 - S/G pressures are 700 PSIG and stable.

Given the conditions above, per 2BwEP ES-1.2, Attachment B, natural circulation is...

- A. occurring.
- B. NOT occurring because CETCs are NOT dropping.
- C. NOT occurring because hot leg temperature is greater than saturation temperature for SG pressure.
- D. NOT occurring because the reactor has inadequate subcooling.

QUESTION # 004

Given:

- Unit 1 is in MODE 3.
- 1VP02CA, 1A Containment Charcoal Filter Fan, is running.
- 1VP02CB, 1B Containment Charcoal Filter Fan, is stopped (switch in NAT).

Subsequently:

- A fire occurs in the 1A containment charcoal absorber.
- The following annunciator is LIT:

(0-33-C3) CNMT CHAR FLTR UNIT TEMP HIGH

Given the conditions above, fire protection deluge to the containment charcoal filter unit has...

- A. to be manually actuated, this will cause 1VP02CA to auto trip.
- B. automatically actuated causing 1VP02CA to auto trip AND 1VP02CB to automatically start.
- C. automatically actuated causing 1VP02CA to auto trip AND 1VP02CB will NOT automatically start.
- D. to be manually actuated, 1VP02CA will NOT auto trip.

QUESTION # 005

Given:

- Unit 1 is in MODE 6 performing a core offload.
- A fuel assembly that had an initial enrichment of 3.8 wt % U-235 and has been in the core for one cycle with a total burnup of 25,289 MWD/MTU, has been moved to REGION 2 of the spent fuel pool storage racks.

In response to the conditions above, what actions per Tech Specs, if any, are required to be taken?

Reference Provided

- A. No action is required.
- B. Enter LCO 3.7.16, Spent Fuel Assembly Storage, and immediately initiate action to move the non-complying fuel assembly into a location which restores compliance.
- C. Enter LCO 3.7.16, Spent Fuel Assembly Storage, and immediately suspend movement of irradiated fuel assemblies in the spent fuel pool.
- D. Enter LCO 3.7.16, Spent Fuel Assembly Storage, and immediately initiate action to verify spent fuel pool boron concentration.

QUESTION # 006

Given:

- Unit 1 is in MODE 5 preparing for a plant heatup.
- RCS pressure is 325 psig.
- The 1D RCP has just been started (ONLY RCP running).
- The following RCS cold leg temperatures are noted:
 - Loop 1A = 74°F.
 - Loop 1B = 75°F.
 - Loop 1C = 73°F.
 - Loop 1D = 65°F.

Under these conditions, the Unit NSO will...

- A. trip the 1D RCP AND depressurize the RCS to < 200 psig within 30 minutes.
- B. trip the 1D RCP AND start another RCP.
- C. maintain 1D RCP running AND raise RCS pressure to > 350 psig.
- D. maintain 1D RCP running AND depressurize the RCS to < 200 psig within 30 minutes.

QUESTION # 007

Given:

- Unit 1 is at 28% power.
- Steam Dump Mode Select switch is in the TAVE position.
- The main turbine has JUST tripped.

With NO operator action, the steam dumps will subsequently maintain RCS temperature at...

- A. 550°F.
- B. 557°F.
- C. 560°F.
- D. 561°F.

QUESTION # 008

Per TRM Appendix L, the listed acceptance criteria for Explosive Gas Mixtures in the Waste Gas Holdup System is < _____ oxygen concentration whenever hydrogen concentration is > _____.

	<u>oxygen</u>	<u>hydrogen</u>
A.	2%	2%
B.	2%	4%
C.	4%	2%
D.	4%	4%

QUESTION # 009

Given:

- Unit 1 is in MODE 6.
- Containment atmosphere purge is in progress with 1VQ04C, Cnmt Mini Flow Purge Supply, and 1VQ05C, Cnmt Mini Flow Purge Exhaust Fans, running.
- The 1AR012J, Containment Fuel Handling Incident Monitor, alarms RED on the RM-11.

In response to this event, what AUTOMATIC actions will occur?

- A. ONLY 'A' Train mini flow purge valves close AND ONLY 1VQ04C trips.
- B. ONLY 'B' Train mini flow purge valves close AND ONLY 1VQ05C trips.
- C. ONLY 'B' Train mini flow purge valves close AND BOTH 1VQ04C and 1VQ05C trip.
- D. BOTH 'A' and 'B' Train mini flow purge valves close AND BOTH 1VQ04C and 1VQ05C trip.

QUESTION # 010

Given:

- Unit 1 is at 100% power.
- 1A D/G is fully loaded per 1BwOSR 3.8.1.2-1, 1A D/G Operability Surveillance.
- Breaker 1413 is closed (C/S in after-close).
- Breaker 1412 is closed (C/S in after-close).
- The 1A SX pump is running.

Subsequently:

- A SAT 142-1 sudden pressure condition occurs.

Given the conditions above, with NO operator action, the...

- A. 1A SX pump tripped then restarted AND the 1B SX pump auto started.
- B. 1A SX pump tripped then restarted AND the 1B SX pump did NOT start.
- C. 1A SX pump continued to run AND the 1B SX pump auto started.
- D. 1A SX pump tripped and did NOT restart AND the 1B SX pump auto started.

QUESTION # 011

Given:

- Unit 1 is at 100% power.
- An inadvertent phase A isolation signal occurs.

Given the conditions above, which of the following describes the effect, if any, on RCP seal leakoff operation?

- A. ONLY #1 seal leakoff flow rises.
- B. ONLY #2 seal leakoff flow rises.
- C. BOTH #1 and #2 seal leakoff flow rise.
- D. No change in seal leakoff flows will occur.

QUESTION # 012

Given:

- Unit 1 is at 60% power.
- VCT level is 50%.

Subsequently:

- VCT level transmitter, 1LT-112, fails to 98%.

With NO operator action over the next 30 minutes, ACTUAL VCT level will ...

- A. remain near 50% during this time period.
- B. lower to 0%. Automatic CV pump suction swapover to the RWST will NOT occur.
- C. lower to 5%. Automatic CV pump suction swapover to the RWST will occur
- D. lower to 37%. Automatic VCT makeup will maintain VCT level between 37-55%.

QUESTION # 013

Given:

- Unit 2 is in MODE 5.
- The 2A RH pump is in standby and aligned for shutdown cooling.
- The 2B RH train is in shutdown cooling.

Subsequently:

- Breaker 2422, SAT 242-2 Feed to 4KV Bus 242, tripped due to a phase A overcurrent condition.

Given the conditions above, to restore shutdown cooling, one minute later the...

- A. 2A RH pump can be manually started.
- B. 2B RH pump can be manually started.
- C. 2A RH pump did automatically start and the 2B RH pump did NOT automatically start.
- D. 2A AND 2B RH pumps have automatically started.

QUESTION# 014

Given:

- Unit 1 RCS Cooldown is in progress.
- PZR level is 52% and stable.
- 1CV121, CV Pump Discharge Flow Control Valve, is in MANUAL.
- 1A RH train is aligned for shutdown cooling and RH letdown with the following parameters:
 - 1A RH train flow is 3300 gpm and STABLE.
 - 1RH606, RH Hx Outlet Flow Control Valve, is 10% OPEN.
 - 1RH618, RH Hx Bypass Flow Control Valve, is 65% OPEN in AUTOMATIC.

Subsequently:

- A tube in the 1A RH Hx fails resulting in a 150 gpm leak.

Given the conditions above, with NO operator action, INITIALLY 1A RH pump Amps will be ...

- A. higher AND PZR level will lower.
- B. higher AND PZR level will rise.
- C. the same AND RCS pressure will lower.
- D. the same AND 1A RH train flow will remain the same.

QUESTION # 015

Given:

- A Unit 1 plant heatup is in progress in accordance with 1BwGP 100-1, Plant Heatup.
- RCS T_{cold} is 120°F.
- RCS pressure is 350 psig.
- RCS heatup rate is 25°F per hour.
- PZR is solid.
- ALL RCS Loops are operable, but only 1D RCP is running.
- The RH system is aligned for shutdown cooling.
- 1B CV Pump is Operable and providing normal charging flow.

Which one of the following describes the operational requirements associated with these conditions?

- A. BOTH SI Pumps must NOT be capable of injecting into the RCS due to RCS low temperature overpressure concerns.
- B. BOTH CV Pumps must be capable of injecting into the RCS due to RCS low temperature overpressure concerns.
- C. BOTH SI Pumps must be operable and capable of injecting into the RCS for emergency core cooling.
- D. ONLY ONE SI Pump must be operable and capable of injecting into the RCS for emergency core cooling.

QUESTION # 016

Given:

- Unit 1 is at 100% power, normal alignment.
- A slow and steady rise in PRT level has been noted over several hours.
- Alarm 1-12-A7, PRT LEVEL HIGH/LOW has just come in.

With the above conditions, the PRT level will be lowered by ...

- A. verifying 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, auto opens on high PRT level then the 1A RCDT pump auto starts.
- B. verifying 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, auto opens on high PRT level then the 1B RCDT pump auto starts.
- C. manually opening 1RY8031, PRT Drain Isol Valve, and 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, then verify auto start of the 1A RCDT pump.
- D. manually opening 1RY8031, PRT Drain Isol Valve, and 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, then verify auto start of the 1B RCDT pump.

QUESTION # 017

Given:

- Unit 1 is in MODE 6.
- The crew is filling the PRT per BwOP RY-3, Filling and Venting the Pressurizer Relief Tank.
- 1RY8030, PW to PRT CNMT ISOL Valve, is open.
- PRT level is 40% and rising.

Subsequently:

- Instrument air (IA) is isolated to containment.

In response to the conditions above, PRT level will ...

- A. REMAIN at 40% even after IA is restored to containment.
- B. REMAIN at 40% until IA is restored to containment and then continue to rise.
- C. continue to RISE until the NSO places 1RY8030 control switch to close.
- D. continue to RISE until PRT level reaches 88%, then a RCDT Pump will cycle to maintain PRT level between 59%-88%.

QUESTION #018

Given:

- Unit 1 is at 100% power.
- All systems normally aligned and operating at normal temperatures.
- 1CV121, CV Pump Flow Control Valve, is taken to manual and charging flow is adjusted to 100 gpm.

With NO additional operator action, over the next 15 minutes, the Letdown HX outlet temperature will...

- A. LOWER and then RISE to the original value.
- B. RISE and then LOWER to the original value.
- C. remain constant.
- D. RISE and then remain STABLE at the new higher temperature.

QUESTION # 019

Given:

- Unit 1 is at 50% power.
- Master PZR Pressure Controller, 1PK455A, potentiometer fails to its MAXIMUM setting of 10.

With NO operator action, this will result in PZR pressure rising until...

- A. PZR Spray Valves open.
- B. PZR Safety Valves open.
- C. 1RY455A, PZR PORV, opens.
- D. 1RY456, PZR PORV, opens.

QUESTION #020

Given:

Unit 1 is at 100% power.

Subsequently:

- 1PT-506, Turbine Impulse Pressure, has failed to 0 psig instantly.
- A reactor trip occurs.
 - Reactor Trip Breaker A (RTA) is closed.
 - Reactor Trip Breaker B (RTB) is open.
- 1D Loop T_{ave} Channel remains at 585°F.

If NO operator action is taken, the steam dumps will ...

- A. maintain T_{ave} at 550°F.
- B. maintain T_{ave} at 557°F.
- C. maintain T_{ave} at 560°F.
- D. remain CLOSED due to no arming signal being present.

QUESTION # 021

Given:

- Unit 1 is in MODE 1.
- P-7 permissive light is LIT.

Which of the following conditions on Unit 1 will cause a Unit 1 automatic reactor trip?

- A. PZR High Level.
- B. RCP BUS Underfrequency.
- C. RC Loop Low Flow on two loops.
- D. PZR High Pressure.

QUESTION # 022

Given:

- Unit 1 was at 100% power, all systems were normally aligned.
- DC Bus 112 DEENERGIZES.
- Unit 1 reactor is manually TRIPPED.
- While performing step 4 of 1BwEP-0, Reactor Trip or Safety Injection, the crew diagnoses a Main Steam line break outside of Unit 1 Containment.
- The crew manually actuates Main Steam Line Isolation at 1PM05J.

Based on the above conditions AND assuming ALL equipment functions as designed, which ONE of the following correctly describes the status of the MSIVs?

- A. The 1A and 1D MSIVs CLOSED as a result of the ACTIVE accumulator train ONLY.
The 1B and 1C MSIVs CLOSED as a result of the STANDBY accumulator train ONLY.
- B. The 1A and 1D MSIVs CLOSED as a result of activation of BOTH accumulator trains.
The 1B and 1C MSIVs remained OPEN.
- C. The 1A and 1D MSIVs remained OPEN. The 1B and 1C MSIVs CLOSED as a result of activation of BOTH accumulator trains.
- D. The 1A and 1D MSIVs CLOSED as a result of the STANDBY accumulator train ONLY.
The 1B and 1C MSIVs CLOSED as a result of the ACTIVE accumulator train ONLY.

QUESTION # 023

Given:

- Unit 1 reactor trip has occurred.
- A secondary steam leak is occurring in containment, SI has NOT actuated.
- ALL containment cooling has been lost.
- Containment temperature has risen from 96°F to 160°F over the last 15 minutes.

If this trend continues, which one of the following describes the potential effect on containment instrumentation readings?

Indicated PZR level will be ____1____ actual level due to density ____2____.

____1____

____2____

- | | |
|----------------|---|
| A. higher than | lowering in the reference leg |
| B. higher than | lowering in the variable leg |
| C. lower than | remaining constant in the variable leg |
| D. lower than | remaining constant in the reference leg |

QUESTION # 024

Given:

- Unit 2 reactor trip and SI have occurred.
- SI signal has been reset.
- 2SI8811A, Cnmt Sump 2A Isol Valve, is energized.
- 2SI8811B, Cnmt Sump 2B Isol Valve, is closed and de-energized (CANNOT be energized).

Subsequently:

- RWST Level LO-2 alarm comes in.

Given the above conditions, 2SI8811A ____1____ automatically opened and after RWST level reaches the LO-3 setpoint the NSO can start ____2____ CS pump(s) for recirculation per 2BwEP ES-1.3, "Transfer to Cold Leg Recirculation.

____1____

____2____

- | | |
|------------|-------------|
| A. has NOT | ONLY the 2A |
| B. has NOT | BOTH |
| C. has | ONLY the 2A |
| D. has | BOTH |

QUESTION # 025

Given:

- Unit 1 is at 16% power at the EOL.
- Preparations are in progress to synchronize the main generator to the grid.

Subsequently:

- 1PT-507, S/G Header Pressure, fails to 1050 psig.

In response to the 1PT-507 failure, over the next five minutes the steam dumps will throttle ___1___ and reactor power will ___2___.

___1___

___2___

- | | | |
|----|--------|-----------------|
| A. | closed | remain constant |
| B. | open | rise |
| C. | open | remain constant |
| D. | closed | lower |

QUESTION # 026

Of the following, what is the approximate power level when feed flow is transferred from FW Bypass Reg Valves (1FW510A/520A/530A and 540A) to the FW Reg Valves (1FW510/520/530 and 540) , per 1BwGP 100-3, Power Ascension?

- A. 5%.
- B. 10%.
- C. 20%.
- D. 30%.

QUESTION # 027

Given:

- Unit 1 is at 50% power.
- All systems normally aligned and stable.

Subsequently:

- The 1A AF Pump inadvertently started.

Given the above indications, with NO operator action over the next 10 minutes SG level will...

- A. rise slightly then stabilize back at normal level with Feed Reg Valve's more CLOSED.
- B. slowly rise to the P-14 setpoint.
- C. lower slightly then stabilize back at normal level with Feed Reg Valve's more OPEN.
- D. rise and then stabilize at a slightly higher than normal level.

QUESTION # 028

Given:

- A reactor trip has occurred on Unit 1.
- Bus 141 has been deenergized due to a bus fault.
- A fire has occurred in the Unit 1 AEER.
- The 1B AF pump did NOT automatically start and CANNOT be started from the MCR.
- The 1B AF pump suction pressure transmitter has failed at 16 psia.

Under these conditions, the 1B AF pump can be locally started in the Aux Building on the...

- A. 364' level at column M-16.
- B. 383' level in the 1B AF pump room.
- C. 383' level in the Unit 1 RSDP room.
- D. 426' level in the ESF switchgear room.

QUESTION # 029

Given:

- Unit 1 is at 75% power ramping to 90% power.

Subsequently:

- A loss of instrument bus 114 occurs.
- Before any crew actions, T_{ref} rose to 1.6°F above T_{ave} .

Given the conditions above, control rods will...

- automatically withdraw until T_{ave} returns to within 1°F of T_{ref} .
- NOT automatically withdraw, but can be manually withdrawn to restore T_{ave} within 1°F of T_{ref} WITHOUT PR channel N-44 rod stop being bypassed.
- NOT automatically withdraw UNTIL the PR channel N-44 rod stop is bypassed, then rods will automatically withdraw to restore T_{ave} within 1°F of T_{ref} .
- NOT automatically withdraw AND can NOT be manually withdrawn even if PR channel N-44 rod stop is bypassed. Turbine load can be adjusted to restore T_{ave} within 1°F of T_{ref} .

QUESTION # 030

Under which of the following conditions is it permissible to close 1413 breaker when paralleling the 1A DG to bus 141?

	Bus Running Voltage	Incoming DG Voltage	Synchroscope Rotation
A.	116	118	slow in the SLOW direction
B.	116	118	slow in the FAST direction
C.	118	116	slow in the FAST direction
D.	118	116	slow in the SLOW direction

QUESTION # 031

Given:

- Unit 2 is operating at 90% power with all control systems in automatic.
- NO annunciators are currently in alarm.

Subsequently:

- The following annunciator just ALARMED:

BUS 243 CONT PWR FAILURE (2-21-B1)

- NO other annunciators are LIT.

What Control Board indications would you expect to see with the above annunciator LIT?

- A. Letdown will be isolated.
- B. PZR HTR B/U GRP B indicating lights extinguished.
- C. OC WS pump breaker position indicating lights extinguished.
- D. Control Board meter 2EI-AP055, BUS 243 VOLTAGE, indication reading 0 volts.

QUESTION # 032

Given:

- Unit 1 is at 100% power.
- The 1A DG #1 air compressor is out of service.
- The 1A DG #2 air compressor started to repressurize the air receiver.

Subsequently:

- ACB 1412, SAT 142-1 Feed to 4KV Bus 141, is inadvertently tripped.

In response to this event, the 1A DG #2 air compressor ...

- A. remained running until the air receiver reached 235 psig.
- B. stopped running and restarted as soon as Bus 141 was re-energized.
- C. stopped running and restarted when the 1A DG reached 280 RPM.
- D. stopped running and restarted 70 seconds later to allow the sequencer to start the vital loads.

QUESTION # 033

Given:

- Unit 1 is at 100% power.
- 1A and 1C Diesel Generator Fuel Oil Transfer Pumps are declared INOPERABLE.

Given the conditions above, which of the following action(s) is/are required per Technical Specifications?

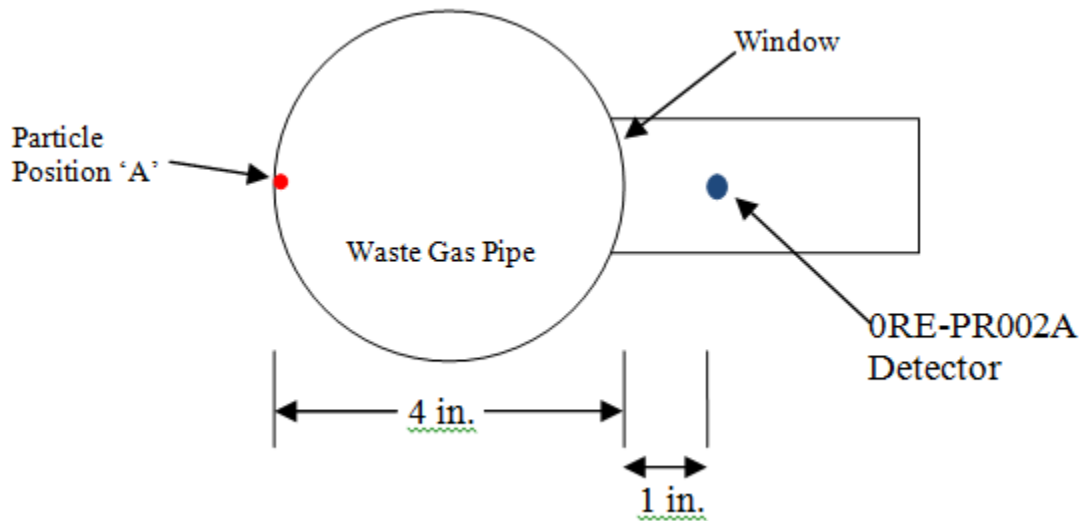
- A. No TS entry is required.
- B. Enter LCO 3.0.3.
- C. Enter LCO 3.8.1, AC Sources - Operating, ONLY.
- D. Enter LCO 3.8.9, Distribution Systems - Operating, ONLY.

QUESTION # 034

Given:

- 0RE-PR002A, Gas Decay Tank Effluent Gas Low Monitor (part of the 0PR02J), consists of a detector mounted on one side of the Waste Gas discharge pipe with a window through the pipe wall, with the pipe 4 inches in diameter (see below).
- The detector is a point detector located 1 inch from the ID of the pipe.
- The particle is considered a point source.

The 0RE-PR002A HIGH alarm setpoint is $6.06\text{E-}4 \mu\text{Ci/ml}$.



With the particle at position 'A' the 0RE-PR002A currently reads $2.20\text{E-}4 \mu\text{Ci/ml}$.

What is the FARTHEST distance the particle needs to be from the 0RE-PR002A detector to cause the HIGH alarm setpoint to be reached?

- A. 4 inches
- B. 3 inches
- C. 2 inches
- D. 1 inch

QUESTION # 035

Given:

- Unit 1 is at 50% power.
- 1SX016A, 1A and 1C RCFC SX Inlet Valve, is closed.
- 1SX027A, 1A and 1C RCFC SX Outlet Valve, is closed.
- The 1B SX pump is running.
- The 1A SX aux lube oil pump is running.

Subsequently the following occur in order:

- 1) The 1B SX pump trips.
- 2) The NSO takes the 1SX01PA, SX Pump 1A, control switch to start and releases it to NAC.
- 3) The NSO manually opens 1SX016A and then 1SX027A.
- 4) A safety injection occurs.

Given the conditions above, the 1A SX pump FIRST started when the...

- A. 1SX01PA C/S was placed in start and released to NAC.
- B. 1SX016A was opened.
- C. 1SX027A was opened.
- D. SI occurred.

QUESTION # 036

Given:

- Unit 1 at 100% power.
- 0C WS pump is OOS.

Subsequently:

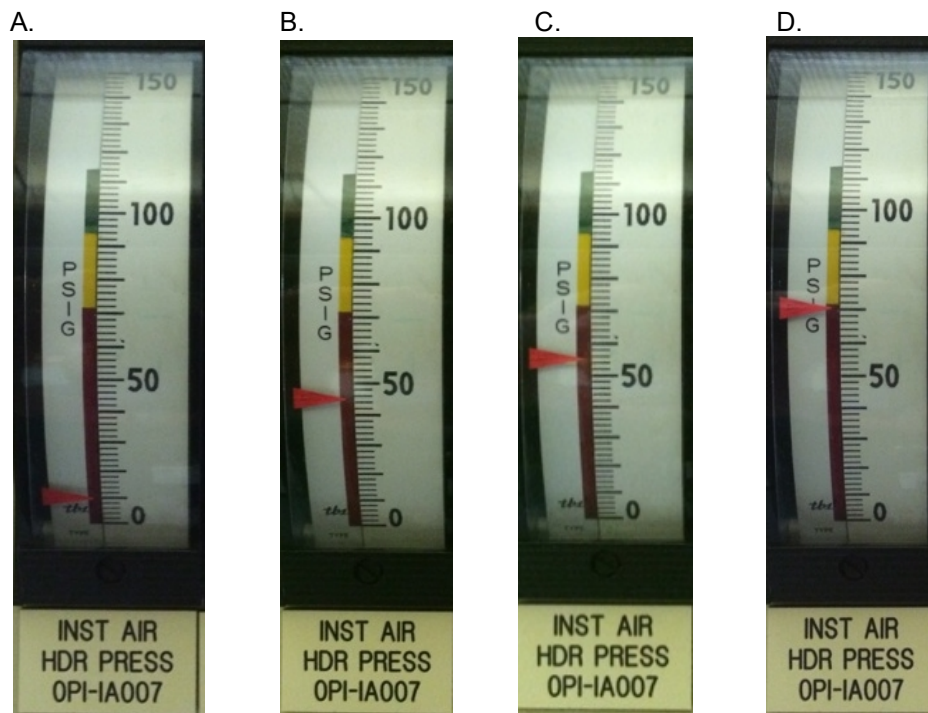
- A fault occurs on bus 143.
- 0B WS pump trips.
- Unit 1 reactor is tripped.

Given the conditions above, which of the following SACs, if any, can be locally started using fire protection for cooling per BwOP SA-1, Startup and Operation of Station Air Compressor (SAC)?

- A. U-0 SAC
- B. U-1 SAC
- C. U-2 SAC
- D. None

QUESTION # 037

Per BwOP SA-1, Start Up and Operation of the Station Air Compressor, which of the following indicates the MAXIMUM pressure that requires using a nitrogen bottle to start a service air compressor?



QUESTION # 038

Given:

- Unit 2 is in MODE 6.
- A core onload is in progress.
- 13 fuel assemblies have been installed.

Subsequently:

- An uncontrolled dilution occurs on Unit 2.
- Source range channels N31 and N32 are rising.
- The following annunciator is LIT:

SR SD FLUX HIGH (2-10-A1)

Given the conditions above, the Containment Evacuation Alarm is activated ____ (1) ____ and a ____ (2) ____ sounds in containment.

____ (1) ____

____ (2) ____

- | | |
|------------------|------|
| A. manually | bell |
| B. manually | horn |
| C. automatically | bell |
| D. automatically | horn |

QUESTION # 039

Given:

- Unit 1 is at 8% power.
- The crew is raising power per 1BwGP 100-3, Power Ascension 5% to 100%.

Subsequently at time:

1201: Bus 157 loses power.

1202: IR NI N35 fails high.

1203: A RCS LOCA occurs and RCS pressure drops to 50 psig.

1204: NSO takes the manual reactor trip switch to actuate.

Which of the following alarms would be flashing RED at 1205?

- A. RCP BUS UNDERVOLT RX TRIP (1-11-A5).
- B. IR HIGH FLUX RX TRIP (1-11-B2).
- C. PZR PRESS LOW SI/RX TRIP (1-11-C1).
- D. MANUAL RX TRIP (1-11-B1).

QUESTION # 040

Given:

- A RCS LOCA has occurred.
- 1BwEP ES-1.2, Post LOCA Cooldown and Depressurization, is in progress at step 7, "Check Intact SG Levels".
- Containment pressure is 4 psig and lowering.
- CETCs are 600°F.
- RCS pressure is 1450 psig and lowering.
- PZR level is 100%.
- ALL S/G NR levels are 15% and stable.
- Total AF flowrate is 240 gpm.
- SI has been reset.
- 1A CV pump is in standby.
- 1B CV pump is running.
- Both SI pumps are running.

Based on the conditions above, the next action the crew will take is to ...

- A. secure one SI pump to lower PZR level.
- B. raise AF flow to >500 gpm.
- C. start the 1A CV pump.
- D. secure the 1B CV pump to lower PZR level.

QUESTION # 041

Given:

- A RCS LOCA is in progress.
- Only the 1A CV and 1A RH Pumps are running.
- 1A SI pump is out of service.
- 1B ECCS train failed to actuate.
- RCS pressure is 1290 psig and stable.
- RCS temperature is 703°F.

Given the conditions above, in order to prevent fuel damage from inadequate core cooling, secondary heat sink is maintained ...

- A. to provide an alternate means of RCS pressure control.
- B. because reflux boiling provides the primary means of heat removal prior to voiding the hot legs.
- C. to ensure removal of RCS heat because the RCPs are expected to be running.
- D. because RCS pressure remains high and cooling from injection flow alone is inadequate.

QUESTION # 042

Given:

- An SI has actuated due to a RCS LOCA on Unit 1.
- ALL ECCS pumps automatically started.
- Cold leg recirculation has been established.
- SI signal has been reset.
- 1BwEP-1, Loss of Reactor or Secondary Coolant, is in progress at step 14, "Check if SI Accumulators Should be Isolated".

Given the conditions above, if a loss of offsite power occurs, the crew will...

- A. manually start the SI and then RH pumps after the sequencer starts the CV pumps.
- B. place the CV pumps in PULL OUT, then manually start the RH pumps followed by the CV and SI pumps after sequencer completion.
- C. verify the CV, RH, and SI pumps started on the sequencer.
- D. place the CV and SI pumps in PULL OUT, verify the RH pumps start on the sequencer and then manually start the CV and SI pumps.

QUESTION # 043

Given:

- Unit 1 is at 100% power.
- The 1A CV pump is out of service.
- 1SI8801B, Charging Pumps to Cold Leg Injection Isolation Valve, is closed and de-energized.
- All other equipment is normally aligned.

Given the conditions above, which of the following LCOs and/or TLCOs is Unit 1 in?

- 1) 3.5.2 ECCS – Operating
 - 2) 3.1.b Boration Flow Path – Operating
 - 3) 3.1.d Charging Pumps – Operating
- A. 1, 2, and 3.
- B. 1 ONLY.
- C. 1 and 3 ONLY.
- D. 1 and 2 ONLY.

QUESTION # 044

Given:

- Unit 2 is at 100% power.
- 2A CC pump is running.
- 2B CC pump is in standby.
- Unit 0 CC pump is aligned to Unit 1.

Subsequently:

- The 2A CC pump impeller degrades.
- CC pump discharge pressure at 2PM06J drops to 90 psig.

Given the conditions above, which one of the following describes the response of 2TK-130, Letdwn HX Out Temp Control 2CC130A, demand?

- A. Lowers and stabilizes at a lower value.
- B. Rises and stabilizes at a higher value.
- C. Rises and returns to previous value.
- D. Lowers and returns to previous value.

QUESTION # 045

Given:

- Unit 1 is at 100% power.
- Rods are in manual.
- 1PK-455A, Master PZR Pressure Controller output, is failed "AS IS."
- 1PK-455A will NOT transfer to Manual control.
- A 100 MWe load rejection occurs.

Given the conditions above, which one of the following will INITIALLY occur?

- A. OPDT trip setpoints will rise.
- B. PZR level will lower.
- C. 1RY455B, PZR Spray Valve, will throttle open.
- D. 1CV121, CV Pump Flow Control Valve, will throttle closed.

QUESTION # 046

During a SGTR, what is the bases for the automatic action initiated by 0PR16J, Blowdown After Filter Monitor?

To prevent...

- A. the spread of contamination to the main condenser.
- B. contamination from reaching the chemistry sample panel.
- C. contamination from reaching the waste water treatment system.
- D. the spread of contamination to the blowdown system.

QUESTION # 047

Given:

- Unit 1 reactor is shutdown for a refueling outage.
- An RCS cooldown is in progress.
- RCS pressure is 1100 psig.
- RCS temperature is 450°F.

Given the conditions above, the MSIVs will close and provide protection against a steamline break accident by a signal from ...

- A. low steamline pressure.
- B. high steamline negative rate.
- C. manual actuation ONLY.
- D. low pressurizer pressure.

QUESTION # 048

Given:

- Unit 1 is at 100% power.
- 2SX005, Unit 0 CC Heat Exchanger Inlet Valve, is de-energized and closed for valve operator replacement.

Subsequently:

- 1A SX pump trips on overcurrent.
- 1B SX pump can NOT be started.
- Unit 1 reactor is tripped.
- A feedwater isolation occurs.
- Both Unit 1 AF pumps have automatically started.

Given the conditions above and assuming SX can NOT be restored to Unit 1, 30 minutes later, which of the following is correct?

- A. BOTH Unit 1 AF pumps MUST be shutdown.
- B. BOTH Unit 1 AF pumps can continue to operate.
- C. 1B AF pump MUST be shutdown AND 1A AF pump can continue to operate.
- D. 1A AF pump MUST be shutdown AND 1B AF pump can continue to operate.

QUESTION # 049

Given:

- Unit 1 is at 100% power.
- A loss of offsite power occurs.

One minute after the loss of offsite power occurs and with NO operator action, SX flow to the containment chillers ___(1)___ and the in-service containment chilled water pump is ___(2)___.

- | ___(1)___ | ___(2)___ |
|-----------------------|-----------|
| A. remains in service | tripped |
| B. remains in service | running |
| C. is isolated | tripped |
| D. is isolated | running |

QUESTION # 050

Given:

- Unit 1 is in MODE 3.
- PZR pressure is at 2235 psig.
- Instrument Bus 111 is deenergized.
- PZR PORV 1RY456 is isolated due to excessive seat leakage.

Subsequently:

- A RCS pressure transient is in progress.
- PZR pressure is 2360 psig.

Given the conditions above, PZR PORV 1RY455A is currently...

- A. closed, but can be manually opened.
- B. closed, and CANNOT be manually opened.
- C. open, and will close when PZR pressure reaches 2185 psig.
- D. open, and will close when PZR pressure reaches 2315 psig.

QUESTION # 051

Given:

- Unit 1 is at 100% power.

The following annunciators alarm:

- 125V DC BATT 112 MAIN BRKR TRIP (1-22-E6).
- 125V DC DIST. PNL 112/114 VOLT LOW (1-22-E10).

Concerning the 125 VDC 112 bus, battery and battery charger, what do these alarms indicate and what is the required action, if any, concerning a reactor trip?

- A. BOTH the battery AND charger are isolated from the bus AND a reactor trip IS required.
- B. ONLY the battery is isolated from the bus AND a reactor trip IS required.
- C. ONLY the battery charger is isolated from the bus AND a reactor trip is NOT required.
- D. 480V AC feed is isolated from the battery charger AND a reactor trip is NOT required.

QUESTION # 052

Given:

- At 1155, the Unit 1 reactor tripped due to a 1A FRV failure from full power.
- The 1B CV pump was OOS for a bearing replacement.
- At 1200, SX system flooding was reported in the A SX pump room.
- The flooding has NOT affected the B SX pump room.
- FP could NOT be aligned to the 1A CV pump.

At 1210, 1BWOA PRI-8, Essential Service Water Malfunction, Attachment A, step 4.b, "Place in PULL OUT ANY vital equipment – exceeding the limits of Table A", was in progress with the following temperatures for the running ESF pumps:

- 1A CV pump: ALL bearing temps are 172°F and rising at 3°F/min,
- 1A CV pump: Gear drive oil temperature is 154°F and rising at 1.5°F/min.

Given the conditions above, if ALL trends continue, what is the EARLIEST time the 1A CV pump is REQUIRED to be tripped per 1BWOA PRI-8?

Reference Provided: 1BWOA PRI-8, Essential Service Water Malfunction Table A

- A. 1211
- B. 1221
- C. 1224
- D. 1244

QUESTION # 053

Given:

- An event has caused over-pressurization of an idle RH train
- The 1A RH pump suction relief valve is lifting.

Based upon the conditions above, operations will see a rise in level of the ...

- A. Volume Control Tank (VCT)
- B. Recycle Holdup Tanks (RHUT)
- C. Aux Building Equipment Drain Tank (WE)
- D. Aux Building Floor Drain Tank (WF)

QUESTION # 054

What is the basis for establishing ONLY one train of ECCS flow per 1BwCA-1.1, Loss of Emergency Coolant Recirculation?

- A. Depressurize the RCS to minimize subcooling.
- B. Depressurize the RCS to reduce break flow in a LOCA condition.
- C. Delay the time until RWST depletion occurs.
- D. Maintain ECCS pumps available for future use.

QUESTION # 055

Given:

- 1BwFR-H.1, Response to Loss of Heat Sink, is in progress about to perform step 7, "Reset the FW isolation (FWI) Signal."
- ALL RCPs are stopped.
- Containment pressure is 3 psig.
- 1A S/G WR level is 33%.
- 1B-1D S/G WR levels are 38%.
- CETCs are 575°F and dropping.
- PZR pressure is 2275 psig.
- 1A D/G out of service.

Based on the above conditions, RCS bleed and feed must be established if ...

- A. AT feed breaker 1412 trips open.
- B. 1A S/G WR level drops to 25%.
- C. Containment pressure rises to 5 psig.
- D. PZR pressure rises to 2335 psig due to natural circulation being established.

QUESTION # 056

Given:

- Unit 1 is at 25% power.
- Bus 156 and 157 voltage drops to 5200 VAC for 2 seconds due to a generator voltage issue.

Given the conditions above, the Unit 1 reactor has ____ (1) ____.
The reason this did/didn't occur is ____ (2) ____.

- A. (1) NOT automatically tripped.
(2) bus 156 and 157 voltage dropped low enough to strip all load breakers, but the coincidence for the reactor trip was NOT met.
- B. (1) NOT automatically tripped.
(2) bus 156 and 157 voltage did NOT drop low enough to strip all load breakers.
- C. (1) automatically tripped.
(2) to protect the reactor from DNB.
- D. (1) automatically tripped.
(2) to protect the reactor from a loss of heat sink.

QUESTION # 057

Given:

- Unit 1 is at 88% power in a normal alignment.

Subsequently the following occurs:

- Reactor power is rising.
- T_{ave} greater than T_{ref} .
- Pressurizer pressure rising.
- Pressurizer level rising.

Which of the following would initially cause the above symptoms to occur?

- A. Uncontrolled rod withdrawal.
- B. Impulse Channel 1PT-505 fails HIGH.
- C. Failed OPEN SG safety valve.
- D. Power range channel N-43 fails HIGH.

QUESTION # 058

Given:

- Unit 2 is at 70% power.
- All systems were normally aligned.
- A power ascension was in progress.
- Control rods began withdrawing in Auto as expected due to a temperature mismatch.
- Rod H-8 in group 2 of CB D did NOT move with the rest of the bank.
- The Rod Bank Select Switch was placed in Manual and the power ascension halted.
- The crew entered 2BwOA ROD-3, Dropped or Misaligned Rod.
- Rod H-8 is determined to be 8 steps below the rest of the bank.
- Repairs have been made to the rod control system and power level is acceptable for rod recovery.
- Two hours have elapsed since control rod H-8 was discovered misaligned.

In addition to manipulating the Rod Control In-Hold-Out switch, which one of the following describes the proper switch manipulations in the main control room to recover Rod H-8?

Place the Rod Bank Select Switch in ...

- A. CB-D AND disconnect the lift coils for ALL rods in the unaffected group of CB D.
- B. CB-D AND disconnect the lift coils for ALL rods in CB D EXCEPT H-8.
- C. Manual AND disconnect the lift coil for rod H-8 ONLY.
- D. CB-D, NO further switch alignment is necessary.

QUESTION # 059

Given:

- A Unit 1 reactor trip occurs.
- DRPI indication for 1 rod indicates 12 steps.
- ALL other rods' "rod at bottom" lights are lit.
- Grid frequency drops to 56 Hz for 1 second.
- 1BwEP ES-0.1, Reactor Trip Response, is in progress at step 2, "Check Shutdown Reactivity."
- RCS pressure is 2150 psig and rising.
- RCS cold leg temperature is 550°F and rising.

Given the conditions above, the crew is ...

- A. NOT required to emergency borate.
- B. required to emergency borate a MINIMUM of 1320 gallons from the boric acid storage tank.
- C. required to emergency borate a MINIMUM of 5500 gallons from the RWST.
- D. required to emergency borate a MINIMUM of 6000 gallons from the boric acid storage tank.

QUESTION # 060

Given:

- Unit 2 reactor shutdown is in progress.
- Intermediate range channel N36 is undercompensated.

Which of the following describes the effect the N36 undercompensation will have on energizing the source range channels?

- A. Both source range channels will energize when N35 lowers below the P-6 setpoint if no operator action is taken.
- B. Both source range channels will energize at a higher power level than normal, because N36 will reach the P-6 setpoint early.
- C. The source range channels will NOT automatically energize, the operator will have to take the SR Trip RESET/BLOCK switches to BLOCK.
- D. The source range channels will NOT automatically energize, the operator will have to take the SR Trip RESET/BLOCK switches to RESET.

QUESTION # 061

Given:

- Unit 1 is in a refueling outage.
- NO expected evolutions associated with RH are planned
- While taking logs during core loading, the NSO notices the following trends AFTER the initial source nucleus (initial 8-13 assemblies) have been installed.

	RCS Temp	RCS Boron	SR N31	SR N32
1100	72°F	2370 ppm	13 cps	15 cps
1300	77°F	2350 ppm	20 cps	21cps
1500	81°F	2310 ppm	32 cps	28 cps

In response to this event, the NSO will inform the Licensed Fuel Handling Supervisor that core loading...

- A. must be suspended because of the change in source range counts.
- B. must be suspended because of the change in boron concentration.
- C. must be suspended because of the change in RCS temperature.
- D. may continue.

QUESTION # 062

Given:

- Unit 2 is offloading the core to the spent fuel pool (SFP).
- 0A and 0B Inaccessible VA Filter Plenums are aligned.
- 0A and 0B Fuel Handling Building Charcoal Booster Fans are NOT running.
- 0AR055J, Fuel Handling Building (FHB) Area Radiation Monitor, indicates in RED on the RM-11.
- 0AR056J, Fuel Handling Building (FHB) Area Radiation Monitor, indicates in YELLOW on the RM-11.

Given the conditions above, the crew will...

- A. ensure that ONLY 0VA04CA, 0A Fuel Handling Building Charcoal Booster Fan, auto started to allow for any radioactive material being released to be absorbed by the charcoal filters.
- B. ensure that ONLY 0VA04CB, 0B Fuel Handling Building Charcoal Booster Fan, auto started to allow for any radioactive material being released to be absorbed by the charcoal filters.
- C. ensure the 0VA03CB and 0VA03CD, 0B and 0D Inaccessible Filter Plenum Charcoal Booster Fans, auto started to make aux building D/P more negative to minimize the spread of contamination.
- D. ensure that 0VA04CA and 0VA04CB, 0A and 0B Fuel Handling Building Charcoal Booster Fans, auto started to allow for any radioactive material being released to be absorbed by the charcoal filters.

QUESTION # 063

Given:

- A RCS LOCA had occurred on Unit 1.
- 1BwFR-C.1 "Response to Inadequate Core Cooling," is in progress at step 9, "Depressurize All Intact SGs to 90 psig."
- Containment pressure is 7 psig.
- 1A AF pump is OOS.
- 1A-D SG narrow range water levels are 35%.
- ALL SGs are intact.
- The 1A-D SG PORVs have been opened to depressurize all SGs to 90 psig.
- Current SG pressure is 350 psig and lowering.
- AF flow is 520 gpm total (130 gpm to each SG).

Subsequently:

- Before the SGs drop to 90 psig, the NSO reports that the ALL narrow range water levels have dropped to 5% and are lowering.

Given the conditions above, the crew will...

- A. continue depressurizing ALL SGs AND maintain AF flow to ALL SGs.
- B. stop depressurizing ALL the SGs AND maintain AF flow to ALL SGs until narrow range water levels are greater than 10%.
- C. stop depressurizing ALL the SGs AND maintain AF flow to only ONE SG until narrow range water level is greater than 31%.
- D. stop depressurizing only ONE SG AND maintain AF flow to that ONE SG until that narrow range water level is greater than 31%.

QUESTION # 064

Given:

- Unit 1 has experienced a transient that has resulted in a reactor trip and safety injection.
- Containment pressure is 0.2 psig and stable.
- ALL MSIVs are closed.
- The crew is implementing 1BwEP ES-0.0, Rediagnosis.
- The NSO observes the following SG indications:

	NR Level	Pressure	MSL Radiation	AF Flow
1A SG	60% and ↑	1080 psig and ↑	0.5 mr/hr	0 gpm
1B SG	0%	1080 psig and stable	0.1 mr/hr	100 gpm
1C SG	5% and ↓	700 psig and ↓	0.09 mr/hr	200 gpm
1D SG	20% and stable	900 psig and stable	0.11 mr/hr	100 gpm

Given the conditions above, which one of the following describes the status of the SGs?

- A. 1A SG is ruptured and 1B SG is faulted.
- B. 1B SG and 1D SG are both faulted.
- C. 1C SG and 1D SG are both faulted.
- D. 1A SG is ruptured and 1C SG is faulted.

QUESTION # 065

Given:

- A RCS LOCA occurred on Unit 2.
- Containment pressure is 1.9 psig and stable.
- The crew has just entered 2BwFR-Z.2, Respond to Containment Flooding.

What is the mitigating strategy of 2BwFR-Z.2?

- A. Divert RHR flow from the containment sump to the RWST to lower Containment Level.
- B. Re-align containment spray to the recirculation sump.
- C. Identify and isolate unexpected sources of water.
- D. Stop both containment spray pumps.

QUESTION # 066

With normal letdown unavailable, excess letdown is required to ...

- A. monitor RCS radiation levels.
- B. ensure an adequate water supply for RCP seal cooling.
- C. provide a means for lowering RCS activity.
- D. maintain a constant PZR level.

QUESTION # 067

Which of the following individuals is REQUIRED to request permission from the Unit NSO prior to entering the "Zone of Control" area (designated by contrasting carpet), per OP-AA-103-101, Control Room Access?

- A. Shift Manager
- B. NRC Resident Inspector
- C. Equipment Operator
- D. Shift Technical Advisor

QUESTION # 068

In accordance with BwOP PRA-1, PRA Required Actions to Maintain Equipment Availability, whenever PRA equipment is being kept "available" by utilizing operator actions, which of the following are REQUIRED?

1. Unit NSO logs the operators assigned to restore the system or component.
 2. Operators briefed on the specific steps required for restoration.
 3. Have equipment status tags (EST's) hung on components required to be kept "available".
 4. The restoration steps clearly identified in the controlling document.
 5. Operators available to perform the actions promptly.
- A. 2, 4, and 5 only.
- B. 1, 2, 3, and 5 only.
- C. 1, 2, 4, and 5 only.
- D. 2, 3, and 4 only.

QUESTION # 069 (THIS QUESTION WAS DELETED FROM THE EXAMINATION)

Given:

- Unit 1 is at 400°F during a plant heatup.
- 1C and 1D RCPs are in OPERATION.
- 1A and 1B RCPs are OOS for maintenance.
- The Control Rod Drive MG sets are running.
- Both Reactor Trip Breakers are closed for rod control cabinet testing.
- The RCS is being diluted to ECC boron concentration.

Subsequently:

- A seal leakoff problem develops with the 1C RCP and the 1C RCP is tripped.

With the above conditions, which one of the following actions must be taken per Tech Specs?

- A. Initiate action to place 1 train of RH in service immediately.
- B. Initiate action to restore one RCP immediately.
- C. Verify Shutdown Margin is within limits of the COLR within one hour.
- D. Open the Reactor Trip Breakers within one hour.

QUESTION # 070

Per BwAP 340-1, Use of Procedures for Operating Department, what symbol is used in the margin of a procedure step to indicate Acceptance Criteria (data or step that is required to be acceptable for the successful completion of the surveillance procedure)?

- A. * (star symbol)
- B. ¢ (cent symbol)
- C. @ (at symbol)
- D. ♦ (diamond symbol)

QUESTION # 071

Given:

- A system valve alignment must be performed in an area where the radiation level is 150 mrem/hour.
- The individuals current annual Total Effective Dose Equivalent (TEDE) is 900 mrem.

Of the following times, what is the LONGEST amount of time that an individual can work in this area without exceeding their Administrative Dose Control Level (ADCL)?

- A. 30 minutes.
- B. 4 hours.
- C. 6 hours.
- D. 8 hours.

QUESTION # 072

Given:

- A SGTR has occurred in the 1B SG.
- The crew is currently performing actions per 1BwEP-3, SGTR.
- 1B SG pressure is 1100 psig.
- The 1B SG PORV is closed.

In response to this event the 1B SG PORV controller will be ...

- A. verified in AUTO to ensure the ruptured SG and RCS pressures can be equalized.
- B. verified in AUTO so the ruptured S/G PORV is available to prevent challenging the S/G safeties.
- C. placed in manual to ensure the PORV is available for the upcoming RCS cooldown.
- D. placed in manual to allow controlled radioactive release to the environment.

QUESTION # 073

Per BwAP 340-1, USE OF PROCEDURES FOR OPERATING DEPARTMENT, which of the following correctly describes when an emergency procedure step on the Continuous Action Summary page, is applicable?

- A. BEFORE or AFTER performing the step in the main body of the procedure, AND it MAY apply after a transition is made to another procedure.
- B. Only after proceeding PAST the step in the main body of the procedure, BUT it will NOT apply after a transition is made to another procedure.
- C. Only after proceeding PAST the step in the main body of the procedure, AND it MAY apply after a transition is made to another procedure.
- D. BEFORE or AFTER performing the step in the main body of the procedure, BUT it will NOT apply after a transition is made to another procedure.

QUESTION # 074

Given:

- A Site Area Emergency was declared at 1411.

Given the condition above, of the following times, which one identifies the LATEST time at which the State/Local notifications of the Site Area Emergency classification can be initiated and still meet the notification requirement per EP-AA-114, Notifications?

- A. 1420
- B. 1425
- C. 1440
- D. 1510

QUESTION # 075 (**THIS QUESTION WAS DELETED FROM THE EXAMINATION**)

An NSO is responding to an accident using emergency procedures and recognizes that action must be taken which departs from a license condition/Technical Specification NOT covered by prudent operator actions. Which ONE of the following describes the action that the NSO is required to take per BwAP 340-1, "Use of Procedures for Operating Department", before taking the action?

The NSO will...

- A. immediately take appropriate actions necessary and inform the Unit Supervisor when time permits.
- B. obtain concurrence from another NSO prior to taking action.
- C. obtain approval from ONLY the Unit Supervisor prior to taking action.
- D. obtain approval from ONLY the Ops Director prior to taking action.

QUESTION # 076

Given:

- Unit 1 is at 50% power.
- Annunciator RCP SEAL LEAKOFF FLOW HIGH (1-7-B3) is in alarm.
- 1A RCP #1 seal leakoff flowrate is 6.1 gpm.
- 1A RCP #1 seal DP is >400 psid.
- 1A RCP #2 seal leakoff is 0.5 gpm
- 1A RCP #2 SEAL LEAKOFF FLOW HIGH alarm is NOT printed.
- ALL RCP seal injection flows are 10-12 gpm.
- There are no RCP instrumentation failures.

Given the conditions above, per 1BWOA RCP-1, Reactor Coolant Pump Seal Failure, the Unit 1 US will direct the crew to take which of the following actions?

- A. Continue to operate without a power restriction, monitor RCP seal operating conditions, and contact System Engineering.
- B. Reduce power to less than 50% in one hour, shutdown to MODE 3 in 2 hours and trip the 1A RCP.
- C. Initiate a unit shutdown per 1BwGP 100-4, Power Descension, and trip the 1A RCP within 8 hours.
- D. Immediately trip the reactor, trip the 1A RCP, enter 1BwEP-0, Reactor Trip or Safety Injection.

QUESTION # 077

Given:

- Unit 2 reactor power is 56%.
- Containment pressure is 3 psig and rising.
- Both manual reactor trip switches have been taken to actuate.

Subsequently:

- The following immediate action steps have been performed:
 - Verify Reactor Trip.
 - Verify Turbine Trip.
- Unit 2 reactor power is 56%.

With the above conditions, which of the following actions are required, and of the required actions, what sequence should they be performed?

1. Initiate emergency boration.
2. Verify power to 4KV ESF Busses
3. Start AF pumps
4. Manually actuate SI

A. 3, 1

B. 1, 3

C. 2, 4

D. 3, 4

QUESTION # 078

Given:

- An inadvertent SI occurs from 100% power on Unit 1.
- The crew has just entered 1BwEP ES-1.1, SI Termination.

Subsequently:

- DC control power fuse to 1CV8160, Letdown Line Containment Isolation Valve, blows.

In response to this event, the main concern for an inadvertent SI is alleviated when ____ (1) ____, and the Unit 1 US will direct the crew to perform ____ (2) ____.

- A. (1) 1A and 1B SI pumps are secured
(2) BwOP CV-15, Excess Letdown Operations
- B. (1) 1A and 1B SI pumps are secured
(2) 1BwOA ESP-2, Reestablishing CV Letdown During Abnormal Conditions
- C. (1) 1SI8801A and 1SI8801B, CV Pump to Cold Legs Injection Isolation Valves, are closed
(2) 1BwOA ESP-2, Reestablishing CV Letdown During Abnormal Conditions
- D. (1) 1SI8801A and 1SI8801B, CV Pump to Cold Legs Injection Isolation Valves, are closed
(2) BwOP CV-15, Excess Letdown Operations

QUESTION # 079

Given:

- Unit 1 is at 100% power.
- PZR Backup Heaters Group D is OOS.

Subsequently:

- The following annunciators are now LIT:

PZR HTR TRIP (1-12-A5)

PZR PRESS CONT DEV LOW HTRS ON (1-12-C1)

- PZR Variable Heaters Group C Breaker is tripped.

Given the conditions above, LCO 3.4.9 "Pressurizer" requirements for pressurizer heaters ___(1)___ met. This requirement ensures the pressurizer heaters provide subcooling to mitigate the consequence during a ___(2)___ event.

___(1)___

___(2)___

- | | | |
|----|--------|-------------------------------------|
| A. | IS | loss of offsite power (LOOP) |
| B. | IS | steam generator tube rupture (SGTR) |
| C. | IS NOT | loss of offsite power (LOOP) |
| D. | IS NOT | steam generator tube rupture (SGTR) |

QUESTION # 080

Given:

- 1BwFR-C.1, Response to Inadequate Core Cooling, is in progress at step 16, "Check if RCPs should be started".
- After the 1B RCP was started, a Phase B actuation occurred.
- Actions are in progress to restore CC flow to containment, however CC flow CANNOT currently be restored to containment.
- CETCs are 1288°F and slowly rising.
- RCS pressure is 500 psig and slowly dropping.
- ALL S/G NR levels are 45% and slowly dropping.
- ALL S/Gs are being depressurized to atmospheric pressure.
- The 1A, 1C and 1D RCPs are available for a start, if needed.

Given the conditions above, the US will direct the crew to...

- A. maintain the 1B RCP running, and restore CC flow to containment prior to continuing with 1BwFR-C.1.
- B. continue with 1BwFR-C.1, maintain the 1B RCP running, and start additional RCPs as required.
- C. continue with 1BwFR-C.1, maintain the 1B RCP running, and do NOT start additional RCPs.
- D. stop the 1B RCP, and restore CC flow to containment prior to continuing with 1BwFR-C.1.

QUESTION # 081

Given:

- Unit 1 reactor tripped from full power 30 minutes ago.
- 1BwFR-S.2, Response to Loss of Core Shutdown, has just been entered.
- IR channel N-35 and N-36 both indicate 2.0×10^{-9} amps and stable.
- Post accident neutron monitors indicate 6.0×10^4 cps and stable.
- SR channel N-31 and N-32 are both de-energized.

Given the conditions above and IAW 1BwFR-S.2, the Unit 1 US will direct the crew to...

- A. perform 1BwOA Pri-2, Emergency Boration, then verify SR detectors are energized when current is less than 5.0×10^{-11} amps.
- B. perform 1BwOA Inst-1, Nuclear Instrumentation Malfunction, AND energize the SR detectors manually.
- C. perform 1BwOA Inst-1, Nuclear Instrumentation Malfunction, AND suspend operations involving positive reactivity additions.
- D. perform 1BwOA Pri-12, Uncontrolled Dilution, AND dispatch operators to verify dilution paths isolated.

QUESTION # 082

Given:

- The spent fuel pool is full with all fuel assemblies properly stored.
- A seismic event occurs causing a major crack in the spent fuel pool.
- The crew is performing step 11, "Fill the Spent Fuel Pool", of 1BwOA Refuel-2, Refueling Cavity or Spent Fuel Pool Level Loss.
- ALL methods of providing borated water to the spent fuel pool have failed.

Given the conditions above, the US will direct the crew to FIRST fill the spent fuel pool with ____ (1) _____. Even if the spent fuel pool is completely filled with unborated water, a MAXIMUM Keff of ____ (2) ____ will occur in the spent fuel pool.

- A. (1) Fire Protection
(2) 0.95
- B. (1) Primary Water
(2) 0.95
- C. (1) Primary Water
(2) 0.99
- D. (1) Fire Protection
(2) 0.99

QUESTION # 083

Given:

- Unit 1 is in MODE 5.
- 1A and 1B RH trains are in shutdown cooling.
- PZR level is 60%.
- 1D RCP is running.
- 1A CV pump is running.
- RCS temperature is 190°F and stable.

The crew notes the following conditions:

- 1A Header pressure is 40 psig and dropping.
- RCS pressure is 350 psig and slowly rising.
- RCS temperature is 180°F and dropping.
- RH pump amps and flow are stable.

The Unit 1 US just announced the crew is entering 1BwOA SEC-4, Loss of Instrument Air.
The NEXT action the US will direct the crew to perform is to...

- A. STOP the 1D RCP AND then secure the 1A CV pump.
- B. STOP the 1A CV pump AND then secure the 1B RH pump.
- C. STOP one RH pump AND then locally throttle CC to RH heat exchanger.
- D. REDUCE demand on 1RH606 and 607, Heat Exchanger 1A and 1B Flow Control Valves.

QUESTION # 084

Given:

- Unit 1 is at 100% power.

Subsequently:

- 1A RCP ammeter indicates the following:
- NSO reports that a reactor trip RED first out light is lit.
- NSO reports that the reactor power is still 100%.
- NSO manually trips the reactor from the 1PM05J.
- NSO reports all rod bottom lights are lit.

Given the conditions above, the 1A RCP shaft ____ (1) ____.
A(n) ____ (2) ____ will be declared for this event.

Reference provided

- A. (1) sheared
(2) site area emergency
- B. (1) sheared
(2) alert
- C. (1) seized
(2) site area emergency
- D. (1) seized
(2) alert

QUESTION # 085

Given:

- Unit 2 is in MODE 6.
- RCS temperature is 100°F.
- The reactor vessel head is removed.
- Reactor vessel water level is at 424.5 ft (24.5 ft above the reactor vessel flange).
- 2A RH train is in shutdown cooling.
- 2B RH train is in OOS.

Subsequently:

- 2A RH pump amps are fluctuating between 0 to 50 amps.
- 2A RH pump flow is fluctuating between 0 to 500 gpm.
- The following annunciator is LIT:

RH PUMP 2A DSCH FLOW LOW (2-6-C1)

Given the conditions above, ____ (1) _____. The bases for having ONLY one train of RH OPERABLE per Tech Spec 3.9.5, Residual Heat Removal (RHR) and Coolant Circulation - High Water Level, is that ____ (2) _____.

- A. (1) a loss of instrument air occurred.
(2) on a loss of the RH system, with water level > 23 ft above the reactor vessel flange, this volume of water provides backup decay heat removal.
- B. (1) a loss of instrument air occurred.
(2) RH is only utilized to provide adequate mixing of boron.
- C. (1) the 2RH8701A, RC Loop 2A to RH Pump 2A Suction Isolation Valve, is failing closed.
(2) on a loss of the RH system, with water level > 23 ft above the reactor vessel flange, this volume of water provides backup decay heat removal.
- D. (1) the 2RH8701A, RC Loop 2A to RH Pump 2A Suction Isolation Valve, is failing closed.
(2) RH is only utilized to provide adequate mixing of boron.

QUESTION # 086

Given:

- An ATWS is in progress on Unit 1.
- 1BwFR-S.1, Response to Nuclear Power Generation/ATWS, is in progress at step 10, "Check for Reactivity Insertion from Uncontrolled RCS Cooldown".
- 1A S/G is faulted inside containment.
- RCS temperature is 565°F and slowly dropping.
- 1B-1D S/G pressures are 1070 psig and slowly dropping.
- The Containment Status Tree is RED.
- ALL other status tree results are YELLOW or GREEN.

Subsequently:

- The reactor was JUST tripped with the PR NIs at 0% and BOTH IR SURs at -0.4 dpm.

Given the conditions above, the US will ...

- A. perform 1BwFR-S.1 and 1BwFR-Z.1, Response to High Containment Pressure, concurrently.
- B. continue with steps 11-16 of 1BwFR-S.1, then transition to 1BwFR-Z.1, Response to High Containment Pressure.
- C. complete up to step 12, Identify Faulted SG(s), of 1BwFR-S.1, then transition to 1BwFR-Z.1, Response to High Containment Pressure.
- D. go to step 16 of 1BwFR-S.1, then transition to 1BwFR-Z.1, Response to High Containment Pressure.

QUESTION # 087

Given:

- Unit 1 is performing a plant startup from a refuel outage.
- An event occurs requiring a safety injection.
- The crew is currently performing 1BwCA-2.1, Uncontrolled Depressurization of All Steam Generators.
- Plant conditions have stabilized and the crew is preparing to continue the plant cooldown to cold shutdown conditions.

Prior to initiating the plant cooldown, per 1BwCA-2.1, the crew will contact the TSC to ...

- A. obtain appropriate cooldown method.
- B. obtain minimum PZR water level for heater operation.
- C. verify adequate shutdown margin.
- D. obtain dose projection of the steam release.

QUESTION # 088

Given:

- Unit 1 reactor was at full power.
- 1A SX pump is OOS.
- A reactor trip occurred and 1BwEP-0, Reactor Trip or SI, was entered.
- A Loss of All AC Power occurred two minutes later.
- BOTH D/Gs did NOT automatically start.
- 1BwCA-0.0, Loss of All AC Power, was entered.
- The 1A D/G was manually started at step 5, "Try to Restore Power to Any/Both Unit 1 4KV ESF Buses", of 1BwCA-0.0.
- The 1A D/G output breaker automatically closed reenergizing bus 141.
- The 1B D/G could NOT be started.

Given the conditions above, the Unit 1 US will direct the crew to...

- A. immediately transition to 1BwEP-0, then crosstie Unit 2 SX to Unit 1 SX per 1BwOA PRI-8, Essential Service Water Malfunction.
- B. remain in 1BwCA-0.0, then re-energize bus 141 loads from the 1A DG.
- C. immediately transition to 1BwEP-0, then crosstie bus 142 from bus 242 per 1BwOA ELEC-3, Loss of 4KV ESF Bus.
- D. remain in 1BwCA-0.0, then depress the emergency stop pushbutton on the 1A and 1B D/Gs.

QUESTION # 089

Given:

- Unit 1 is at 50% power.

Subsequently:

- 1IA066, IA Inside CNMT Isol Valve, fails and slowly closes.
- The crew enters 1BWOA SEC-4, Loss of Instrument Air.
- 1CV121, CV Pump Flow Control Valve, was taken to manual and throttled to reduce charging flow to 40 gpm.
- PZR pressure is 2275 psig and slowly rising.
- PZR level is 45% and slowly rising.
- VCT level is 50% and lowering.

Given the above conditions, per 1BWOA SEC-4, the US will direct the crew to ...

- A. swap CV pump suction to the suction of the RWST.
- B. immediately trip the CV pump AND trip the reactor if RCP temperatures approach RCP trip criteria.
- C. monitor PZR pressure AND trip the reactor if PZR pressure can only be controlled by the PZR PORVs.
- D. trip the reactor immediately when PZR level reaches 80% AND trip the CV pumps.

QUESTION # 090

Given:

- Unit 1 is at 8% power.
- 1LT-459, PZR level channel, is failed and its bistable is tripped per 1BWOA Inst-2, Operation with a Failed Instrument Channel.

Subsequently:

- 1LT-460, PZR level channel, fails high.

In response to this event, the Unit 1 US will direct the crew to ____ (1) ____

When operable PZR level channels are required, the Tech Spec bases ____ (2) ____

- A. (1) perform immediate actions per 1BwEP-0, Reactor Trip or Safety Injection.
(2) provide protection against water relief through the pressurizer safety valves.
- B. (1) check PZR level per 1BWOA Inst-2.
(2) provide protection against water relief through the pressurizer safety valves.
- C. (1) perform immediate actions per 1BwEP-0, Reactor Trip or Safety Injection.
(2) ensure PZR heaters remain covered with water.
- D. (1) check PZR level per 1BWOA Inst-2.
(2) ensure PZR heaters remain covered with water.

QUESTION # 091

Given:

- Unit 1 is shutdown due to high reactor coolant activity.
- A loss of all AC Power condition has occurred on Unit 1.
- The crew is currently performing step 12.g, "Isolate RCP Seals", of 1BwCA-0.0, Loss of All AC Power.
- PZR level is 10%.
- RCS pressure is 2000 psig.
- CETCs are 580°F.
- Only ESF bus 142 has been re-energized.
- 1CV8112, RCP Seal Water Return Containment Isolation Valve, is stuck open.
- SI equipment has NOT automatically actuated.

Given the conditions above:

The EO will be dispatched to close ____ (1) ____ to reduce the potential for radioactive release in the Aux. Building. The next procedure the Unit Supervisor will transition to is ____ (2) ____.

- A. (1) 1CV8384A and 1CV8384B, RCP Seal Injection Filter Isolation Valves,
(2) 1BwCA-0.1, Loss of All AC Power Recovery Without SI Required
- B. (1) 1CV8384A and 1CV8384B, RCP Seal Injection Filter Isolation Valves,
(2) 1BwCA-0.2 Loss of All AC Power Recovery With SI Required
- C. (1) 1CV8100, RCP Seal Water Return Containment Isolation Valve,
(2) 1BwCA-0.1, Loss of All AC Power Recovery Without SI Required
- D. (1) 1CV8100, RCP Seal Water Return Containment Isolation Valve,
(2) 1BwCA-0.2 Loss of All AC Power Recovery With SI Required

QUESTION # 092

Given:

- Unit 1 experienced a reactor trip.
- The STA reports a YELLOW path status tree on Containment Radiation still exists.
- The US enters 1BwFR-Z.3, Response to High Containment Radiation Level.
- The TSC has been contacted to evaluate performance of the procedure steps in 1BwFR-Z.3.
- While waiting for the TSC recommendations, the US is briefing the crew on 1BwFR-Z.3 steps as a contingency.

With the above conditions, the US will brief the crew on...

- A. BwOP VQ-6, Mini-Purge System Operation AND Manual Containment Spray actuation.
- B. BwOP VQ-6, Mini-Purge System Operation AND BwOP VQ-7, Containment Post LOCA Purge Exhaust Fan Operation.
- C. BwOP VQ-7, Containment Post LOCA Purge Exhaust Fan Operation AND BwOP VP-11, Containment Charcoal Filter System Start-Up.
- D. BwOP VP-11, Containment Charcoal Filter System Start-Up AND Manual Containment Spray actuation.

QUESTION # 093

Given:

- A SGTR has occurred in the 1C S/G.
- 1BwEP-3, Steam Generator Tube Rupture, step 17, "Depressurize RCS Using PZR PORV to Minimize Break Flow and Refill PZR", is in progress with PZR PORV 1RY455A open.
- 1C S/G NR level is 100%.
- ALL RCPs were tripped due to an inadvertent Phase B actuation just after the reactor tripped.
- The STA completed a Status Tree pass and then reported that an ORANGE path condition on the INTEGRITY status tree exists due to the RCS loop 1C cold leg temperature at 238°F.

Given the conditions above, a transition to 1BwFR-P.1, Response to Imminent PTS Condition, must occur IMMEDIATELY after...

- A. the terminate high head ECCS flow step (step 21) in 1BwEP-3 is completed.
- B. the control RCS pressure & charging flow step (step 29) in 1BwEP-3 is completed.
- C. the STA reported the ORANGE path condition.
- D. ALL steps (through step 40) in 1BwEP-3 are completed.

QUESTION # 094

Which of the following evolutions requires a Licensed Supervisor with an active SRO License to be present at the refuel cavity with NO other concurrent responsibilities?

- A. Unlatching the control rod drive shafts.
- B. Removing the reactor vessel upper internals.
- C. Withdrawing the MIDS thimble tubes.
- D. Lifting the reactor vessel head.

QUESTION # 095

Given:

- A Unit 1 reactor startup is in progress per 1BwGP 100-2, Plant Startup.
- Criticality is achieved with Control Bank C at 30 steps.
- The National Weather Service states a Tornado Watch is in effect for Will County (Braidwood Station).

Given the conditions above, the Unit 1 US will...

- A. transition to 1BwGP 100-2A1, Attachment A Contingency for Suspended Reactor Startup, then direct the crew to emergency borate AND manually insert control banks A-C.
- B. transition to 1BwGP 100-2A1, Attachment A Contingency for Suspended Reactor Startup, then direct the crew to immediately open the reactor trip breakers.
- C. transition to 1BwGP 100-2A3, Attachment C Contingency for Severe Weather During Reactor Startup, then direct the crew to insert control banks A-C.
- D. continue with 1BwGP 100-2 AND resume the startup.

QUESTION # 096

Per CC-AA-103, Configuration Change Control for Permanent Physical Plant Changes, before the Configuration Change can be implemented, Operations is responsible for ...

- A. identifying AND ensuring their specific department procedures are updated for the Configuration Change.
- B. performing an independent detailed design verification of Augmented Quality Configuration Changes.
- C. determining the need for an Operational Briefing BEFORE the Work Orders that implement the configuration change are submitted to Operations.
- D. approving the Configuration Change at the Plant Operations Review Committee (PORC).

QUESTION # 097

Given:

- Unit 1 reactor trip and SI occurred.
- 1AR020, Containment High Range Rad Monitor, reads 2000 R/hr.
- 1AR021, Containment High Range Rad Monitor, reads 1925 R/hr.
- Containment pressure is 25 psig and slowly dropping.
- 1A CS system is operating.
- 1B CS pump did NOT start.
- CETCs are 650°F and slowly dropping.

Given the conditions above, this event would be classified as a(n) ...

Reference Provided

- A. Unusual Event.
- B. Alert.
- C. Site Area Emergency.
- D. General Emergency.

QUESTION # 098

Given:

- A SGTR is in progress in the 1B S/G.
- ALL MSIVs are open.
- 1BwEP-3, Steam Generator Tube Rupture, is in progress at step 3.d., "Close Ruptured SG(s) MSIV and MSIV Bypass Valve."
- Steam dumps are open to maintain RCS temperature.

Subsequently:

- The 1B MSIV fails to close.
- The crew manually actuates Main Steamline Isolation AND ALL MSIVs remain open.

Given the conditions above, Unit 1 US will direct the crew to...

- A. CONTINUE dumping steam with the steam dumps AND transition to 1BwCA-3.1, SGTR with Loss of Reactor Coolant - Subcooled Recovery Desired.
- B. CLOSE the steam dumps AND transition to 1BwCA-3.1, SGTR with Loss of Reactor Coolant - Subcooled Recovery Desired.
- C. CLOSE the steam dumps AND transition to 1BwCA-3.2, SGTR with Loss of Reactor Coolant - Saturated Recovery Desired.
- D. CONTINUE dumping steam with the steam dumps AND transition to 1BwCA-3.2, SGTR with Loss of Reactor Coolant - Saturated Recovery Desired.

QUESTION # 099

Given:

- A SGTR has occurred on Unit 1.
- The ruptured S/G has been isolated.
- The RCS has been cooled down and depressurized.
- ECCS flow has been terminated.
- ALL RCPs are stopped.
- RVLIS head level is 100%.
- RCS pressure is 1050 psig.
- CETCs are 500°F.
- PZR level is 61%.

Given the conditions above, when RCP support conditions are established, the US will direct the crew to...

- A. start one RCP because natural circulation will NOT allow cooldown of the ruptured SG.
- B. start one RCP because pressurized thermal shock concerns will lower.
- C. NOT start an RCP because the rate of S/G tube leakage will rise.
- D. NOT start an RCP because pressurized thermal shock concerns will rise.

QUESTION #100

Given:

- An RCS LOCA has occurred on Unit 2.
- Debris has blocked the Containment Recirculation Sump screens, and the crew has implemented 2BwCA-1.3, Sump Blockage Control Room Guideline, from 2BwEP ES-1.3, Transfer to Cold Leg Recirculation.
- ALL RCPs are tripped.
- The crew is performing step 41, "Check Core Exit TCs", of 2BwCA-1.3 when the following conditions are noted:
 - CETCs are 1230°F and slowly rising.
 - ALL S/G pressures are 80 psig.
 - RVLIS Plenum is 0%.
 - RCS pressure is 10 psig.
 - RWST level is 14%.

Given the conditions above, the NEXT procedure the Unit 1 US will direct the crew to implement is...

- A. 2BwCA-1.1, Loss of Emergency Coolant Recirculation.
- B. 2BwEP ES-1.3, Transfer to Cold Leg Recirculation.
- C. 2BwFR-C.1, Response to Inadequate Core Cooling.
- D. SACRG-1, Severe Accident Control Room Guideline Initial Response.

QUESTION # 001

REFERENCE:

EF-1

ESF Setpoints

BwAR 1-BP-3.7

Steam Tables

BANK (Bank Farley 2001)

HIGHER

K/A: 002K6.02: Knowledge of the effect or a loss or malfunction on the following RCS components: RCP RO 3.6 SRO 3.8

Objective: S.RC1-06.

EXPLANATION:

A is correct. A reactor trip will not occur with reactor power less than 30%. Without rod motion or operator action, ΔT for the unaffected loops will rise because only 3 SGs will be supplying the steam that 4 SGs were. The reactor coolant coming into the core from the SG will be colder since the unaffected SGs will be taking more steam out to meet the steam demand. This was run in the simulator and a reactor trip will not occur when the RCP trips and ΔT will rise.

B is incorrect. See explanation.

C is incorrect. A reactor trip will not occur below 30% power.

D is incorrect. A reactor trip will not occur below 30% power.

QUESTION # 002

REFERENCE:

Big Note PN-3 RSDP

I1-RS-XL-01 page 10

NEW

FUNDAMENTAL

K/A: 016K4.01: Knowledge of NNIS design feature(s) and/or interlock(s) which provide for the following: Reading of NNIS channel values outside control room RO 2.8 SRO 2.9

Objective: S.RS1-06

EXPLANATION:

A is incorrect. Is a valid distracter if the examinee does not know that taking the switch at the FHP removes indication from the RSDP.

B is incorrect. Is a valid distracter if the examinee does not know that taking the switch at the FHP removes indication from the RSDP and if the switch at the FHP needs to be in normal position to have indication.

C is correct. The FHP only has indication of SG Pressure when the switch is taken to the Fire Position. When the switch is taken to the Fire Position at the FHP indication is lost at the RSDP and the MCR.

D is incorrect. Is a valid distracter if the examinee thinks the switch at the FHP needs to be in the normal position to have indication.

QUESTION # 003

REFERENCE:

2BwEP ES-1.2 page 43 and 45.

BANK (Calloway 2004)

HIGHER

K/A: 017A3.01: Ability to monitor automatic operation of the ITM system including: Indications of normal, natural, and interrupted circulation of RCS RO 3.6 SRO 3.8

Objective: S.CX1-05

EXPLANATION:

A is incorrect. Plausible if the examinee looks at RCS hot leg or cold leg temperatures, since they are both less than 570°F. No subcooling.

B is incorrect. Plausible if the examinee thinks that CETC need to be lowering for natural circulation to be occurring. CETC can be stable if natural circulation exists.

C is incorrect. Plausible if the examinee thinks SG pressures are compared to hold legs instead of Cold leg temp. Cold leg temp. is compared to SG pressure for natural circulation.

D is correct. The Unit currently has inadequate subcooling. Tsat for RCS pressure is 1250 PSIG = 570°F. Per 2BwEP ES-1.2 RCS subcooling looks at RCS pressure and compares it to CETC (average of ten highest core exit TCs). Since CETC are at 585°F, no subcooling exists since Tsat for RCS pressure is 570°F.

QUESTION # 004

REFERENCE:

BwOP VP-11

BwAR 0-32-C3

Big note VP-1.

NEW

FUNDAMENTAL

K/A: 027A4.04Ability to manually operate and/or monitor in the control room: Filter temperature RO 2.8 SRO 2.9

Objective: S.VP1-08-B

EXPLANATION:

A is correct. If a fire occurs in the containment charcoal filter, fire protection has to be manually actuated which will cause the 1VP02CA to auto trip. There is no auto start for either the 1VP02CB or 1VP02CA.

B is incorrect. Fire protection does not automatically actuate for containment charcoal filters. This is a plausible distracter since fire protection does have automatic actuations for different components in the plant.

C is incorrect. Fire protection does not automatically actuate for containment charcoal filters.

D is incorrect. 1VP02CA will auto trip when fire protection is actuated.

QUESTION # 005

REFERENCE:

LCO 3.7.16.

NEW

HIGHER

REFERENCE PROVIDED: FIGURE 3.7.16-1 of LCO 3.7.16. FIGURE ONLY

K/A: 034A2.03: Ability to (a) predict the impacts of the following malfunctions or operations on the Fuel Handling System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Mispositioned fuel element RO 3.3 SRO 4.0

Objective: S.FC1-07-B

EXPLANATION:

A is incorrect. This distracter is plausible if you look at the graph and determines that you are in the acceptable region.

B is correct. Utilizing Figure 3.7.16-1 it shows that the assembly has an unacceptable burnup domain and is not allowed to be stored in region 2. Therefore LCO 3.7.16 is required to be entered. The immediate action that is required to be taken is that action has to be taken to move the fuel assembly to a location that restores compliance.

C is incorrect. This distracter is plausible since in other fuel move LCO's this is an immediate action that needs to be taken.

D is correct. This distracter is plausible since in other fuel move LCO's this is an immediate action that needs to be taken.

QUESTION # 006

REFERENCE:

1BwGP 100-1 Precaution D.2.d

TRM 3.7.a

BwOP RC-1 Limitation E.3.b

BANK (LORT Bank)

HIGHER

K/A: 035G2.1.23: Ability to perform specific system and integrated plant procedures during all modes of plant operation. RO 4.3 SRO 4.4

Objective: S.SG1-10-B.

EXPLANATION:

A is correct. Trip the 1D RCP and depressurize the RCS to < 200 psig within 30 minutes is CORRECT per the precaution in the procedures and TLCO 3.7.a. When either the Reactor or Secondary coolant temperature in the steam generator is below 70oF, the Reactor and Secondary coolant pressure shall be <200 psig in 30 minutes. In order to lower RCS pressure to <200 psig, the 1D RCP must be secured first. Per BwOP RC-1 the RCP is required to be tripped immediately if the #1 Seal Lekoff flow differential pressure lowers to less than 200 psid. The other answers state otherwise.

B is incorrect. This is plausible if it is assumed that the RCP in the affected loop needs to be secured.

C is incorrect. This is plausible if it is assumed that pressure only needs to be raised.

D is incorrect. This is plausible if it they only address the TLCO 3.7.a and forget that when pressure goes <200 psig (differential pressure lowers to less than 200 psid) that the RCP needs to be secured.

QUESTION # 007

REFERENCE:

Big note MS-4

Steam Dumps LP I1-DU-XL-01 page 23.

BANK

HIGHER

K/A: 045K3.01: Knowledge of the effect that a loss or malfunction of the MT/G system will have on the following: Remainder of the plant. RO 2.9 SRO 3.2

Objective: S.MS1-19

EXPLANATION:

A is incorrect. This is plausible if it is assumed that temperature will lower until P-12 (Low-Low T_{ave}) is actuated at 550 °F.

B is incorrect. This is plausible if it is assumed the reactor trips, the 1B Rx Trip breaker would open and the steam dumps would maintain T_{ave} at 557 °F.

C is correct. 560 °F. is CORRECT, when the turbine trips, the steam dumps are armed on C-7(Loss of Load) and the with 1B Rx Trip breaker closed (less than 30% power reactor does not trip), the load reject controller will maintain T_{ave} at 560 °F (557 °F plus a 3°F dead band). Since power is less than 30% (P-8) no reactor trip occurs.

D is incorrect. This is plausible if it is assumed that the steam dumps don't operate and the SG PORV's are maintaining temperature at 561 °F.

QUESTION # 008

REFERENCE:

TRM Appendix L page 5

0BWOA PRI-9

NEW

FUNDAMENTAL

K/A: 071K5.04: Knowledge of the operational implication of the following concepts as they apply to the Waste Gas Disposal System: Relationship of hydrogen/oxygen concentrations to flammability. RO 2.5 SRO 3.1

Objective: S.GW1-10-A

EXPLANATION:

A is incorrect. Plausible if the examinee thinks that hydrogen and oxygen are required to be less than 2%.

B is correct. With the concentration of oxygen in the waste gas holdup system > 2% by volume but < 4% by volume, when hydrogen is > 4% by volume, restore the oxygen concentration to < 2% within 48 hours.

C is incorrect. Plausible if the examinee thinks that oxygen is required to be less than 4% when hydrogen is greater than 2%.

D is incorrect. Plausible if the examinee thinks that hydrogen and oxygen are required to be less than 4%.

QUESTION # 009

REFERENCE:

BwAR 4-1AR012J

BwAR 4-1AR011J

Big Note VP-2

NEW

FUNDAMENTAL

K/A: 072A1.01: A1.01 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ARM system controls including:

Radiation levels. RO 3.4 SRO 3.6

Objective: S.AR1-04-A-1

EXPLANATION:

A is incorrect. This is plausible if the examinee thinks the 1AR012J closes the A Train mini flow purge valves. The A Train mini flow purge valves go closed when the 1AR011J alarms (turns red).

B is incorrect. This is correct for the B Train mini flow purge valves going closed, but the second portion stating only the 1VQ05C, Cnmt Mini Flow Purge Exhaust Fans, trips is incorrect.

C is correct. When the HIGH alarm comes in. The 1AR012 on the RM-11 will turn RED for that monitor. When the 1AR012J exceeds the HIGH alarm, only the B Train mini flow purge valves go closed (1VQ003, 1VQ004B, and 1VQ005B will go closed, 1VQ001B and 1VQ002B will also get a closed signal, but the valves are abandoned in place). 1VQ04C, Cnmt Mini Flow Purge Supply, and 1VQ05C, Cnmt Mini Flow Purge Exhaust Fans, will trip when the B train mini flow purge valves go closed. 1VQ004B going closed trips the 1VQ04C, Cnmt Mini Flow Purge Supply Fan, and when 1VQ005B goes closed the 1VQ05C, Cnmt Mini Flow Purge Exhaust Fans, will trip.

D is incorrect. This is plausible if the examinee thinks the 1AR012J closes both the A and B Train mini flow purge valves.

QUESTION # 010

REFERENCE:

20E-1-4001A

Big Notes AC-7 and DG-2.

NEW

HIGHER

K/A: 075K2.03: Knowledge of bus power supplies to the following: Emergency/essential SWS pumps RO 2.6 SRO 2.7

Objective: S.SX1-15

EXPLANATION:

A is incorrect. This is a plausible distracter if the examinee does not realize that the 1A D/G kept bus 141 energized, the second portion is correct since the 1B SX pump will have auto started when the 1B D/G starts on the sequencer (see Big note DG-2).

B is incorrect. This is a plausible distracter if the examinee does not realize the 1A D/G would keep the bus energized and the 1A SX pump running, the second part is plausible since the examinee might think bus 142 is locked out since a SAT 142-1 sudden pressure has occurred. This is not correct though, there is no fault on bus 142 and the 1B D/G will start and energize the bus.

C is correct. Since the diesel generator is powering Bus 141, the 1A D/G will keep powering the bus and the 1A SX pump will keep running even though SAT 142-1 is tripped. Since SAT 142-1 is lost SAT 142-2 will be lost also, this will cause a loss of bus 142. The 1B D/G will then start and energize bus 142 and the 1B SX pump will start on the sequencer.

D is incorrect. This is plausible if the examinee does think that with the 1A D/G powering the bus, that the 1A D/G will get secured once the loss of the SAT 142-1 occurs and not restart to power the 1A SX pump. The second portion is correct since the 1B SX pump will have auto started when the 1B D/G starts.

QUESTION # 011

REFERENCE:

I1-RC-XL-02 page 21

Big Note CV-1.

BANK (Diablo Canyon 2009)

HIGHER

K/A: 003K1.08 Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: Containment isolation RO 2.7 SRO 3.0

Objective: S.RC2-08-C

EXPLANATION:

A is incorrect. This is plausible if the examinee does not realize that the No. 1 seal return line goes back to the VCT. The #1 seal leakoff flow gets isolated and pressure rises until the relief valve setpoint (150 psig), this means that flow will not rise, it will actually lower.

B is correct. When a phase A isolation signal occurs the RCP seal return lines get isolated (1CV8112 and 1CV8100) get isolated. Isolating the No. 1 seal return line causes pressure in the line to rise to the relief valve setpoint (150 psig) and the increased pressure will cause No.2 seal leakoff to rise.

C is incorrect. See explanation.

D is incorrect. This is plausible if the examinee does not realize that the RCP seal return line gets isolated on a phase A.

QUESTION # 012

REFERENCE:

I1-CV-XL-01 page 20

CV-3 Big note

BANK (LORT BANK)

HIGHER

K/A: 004K609: Knowledge of the effect of a loss or malfunction on the following CVCS components: Purpose of VCT divert valve.: RO 2.8 SRO 3.1

Objective: S.CV2-11

EXPLANATION:

A is incorrect. This is a plausible distracter if the examinee does not realize that the VCT divert valve, 1CV112A, will divert water to the RHUT.

B is correct. lower to 0%, automatic CV pump suction swap over to the RWST will NOT occur is correct with 1LT- 112 failing to 98% the 1CV112A will divert to the RHUT causing the VCT level to start to lower. Since the 1LT-112 controls RMCS, auto makeup will not occur at 37%, and the VCT level will continue to drop. When VCT reaches 5%, the auto swap over will not occur as it is a 2/2 coincidence of LT-112 and LT-185 being < 5% cannot be met and the VCT level will drop to 0%. The VCT total volume is 3000 gal, since level is 50% the total gallons of water is approximately 1500 gallons, with approximately 120 gpm going to the RCS from the VCT and letdown going to the RHUT (120gpmX30min=3600 gallons) water level will get to 0%.

C is incorrect. This would occur if the RWST swapover was 1/2 vs. 2/2 coincidence.

D is incorrect. Is plausible if examinee does not realize that 1LT-112 controls auto makeup. This is what would occur if 1LT-185 failed to 98%.

QUESTION # 013

REFERENCE:

20E-2-4001A

Big Note DG-2

NEW

HIGHER

K/A: 005K2.01: Knowledge of bus power supplies to the following: RHR pumps.
RO 3.0 SRO 3.2

Objective: S.RH1-11

EXPLANATION:

A is correct. Since Bus 242 is locked out due to an phase A overcurrent, only bus 241 is available to start the 2A RH pump. Since there is no SI in progress so the RH pumps do not receive an automatic start signal.

B is incorrect. Plausible if examinee realizes that the RH pumps will not automatically start and does not realize that bus 242 is locked out.

C is incorrect. Plausible if examinee realizes bus 242 is locked out and thinks that on a loss of power the RH pumps will sequence on, in this case only the 2A RH pump. The RH pumps get an automatic start signal when a SI signal is present.

D is incorrect. Plausible if the examinee does not realize bus 242 is locked out and thinks that on a loss of power the RH pumps will sequence on.

QUESTION# 014

REFERENCE:

I1-RH-XL-01

Big Note RH-1

NEW

HIGHER

K/A: 005K6.03: Knowledge of the effect of a loss or malfunction on the following will have on the RHRS: RHR heat exchanger. RO 2.5 SRO 2.6

Objective: S.RH1-09-A

EXPLANATION:

A is correct. 1A RH pump Amps will rise since more flow is going through the RH pump. Since 1CV121, CV Pump Discharge Flow Control Valve, is in manual PZR level will start lowering since flow is going out the RH Hx.

B is incorrect. PZR level rising is plausible if the examinee thinks that CC pressure can overcome RH pressure. This is not correct since the RH pumps will raise pressure 165 psig at 3000 gpm from suction to discharge, which will ensure that RH pressure is always higher than CC pressure (135 psig).

C is incorrect. 1A RH pump Amps remaining the same is plausible distracter since the RH train flow is kept constant with the bypass valve around the heat exchanger, 1RH618. Since the leak is in the 1A RH Hx 150 gallons will be going out the Hx and 1RH618 is going to open more to maintain 3300 gpm. Therefore total flow from the 1A RH pump will actually rise to 300 gpm.

D is incorrect. Plausible is the examinee thinks 1RH618 maintains flow at constant at 3300 gpm.

QUESTION # 015

REFERENCE:

LCO 3.4.12

BANK (Ginna 2011)

FUNDAMENTAL

K/A: 006K5.05: Knowledge of the operational implications of the following concepts as they apply to ECCS: Effects of pressure on a solid system. RO 3.4 SRO 3.8

Objective: S.EC1-15-A.

EXPLANATION:

Answer: A Explanation:

A. correct. Concern in Mode 5 is that start of an SI Pump will overpressurize RCS at low temperatures. LCO 3.4.12, Low Temperature Overpressure Protection (LTOP) System. Both SI Pumps capable of injecting into the RCS.

B. Incorrect. Only one CV pump is required to be incapable of injection per 3.4.12.

C. Incorrect. This would be true if the unit was in Mode 3, but unit is in Mode 5.

D. Incorrect. This is plausible since TRM 3.5.a allows requires one SI pump and flow path available if PZR level is <5%.

QUESTION # 016

REFERENCE:

I1-RY-XL-01 page 35

RY-4, PRT & RCDT

NEW

FUNDAMENTAL

K/A: 007A1.01: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRTS controls including: Maintaining quench tank water level within limits. RO 2.9 SRO 3.1

Objective: S.RY1-17

EXPLANATION:

A is incorrect. Plausible since at 60% Level in the RCDT 1A pump will auto start.

B is incorrect. Plausible since at 80% Level in the RCDT 1B pump will auto start.

C is incorrect. Plausible if the examinee thinks the RCDT 1A pump will start when 1RY8031 is opened.

D is correct. When 1RY8031, PRT Drain Valve, is manually opened the 1B RCDT pump will auto start.

QUESTION # 017

REFERENCE:

M-60 Sheet 6

Big Note RY-4 PRT and RCDT

20E-1-4030RY17

NEW

HIGHER

K/A: 007A4.01: Ability to manually operate and/or monitor in the control room: PRT spray supply valve. RO 2.7 SRO 2.7

Objective: S.RY1-25-C

EXPLANATION:

A is incorrect. Plausible if the examinee thinks 1RY8030 fails open on a loss of instrument air in containment. This is a plausible distractor since 1CV8146 and 1CV8147 fail open on a loss of IA in containment.

B is correct. On a loss of instrument air to containment 1RY8030, PW to PRT CNMT ISOL Valve, will fail closed. This will stop PW water going to the PRT and level will be maintained at 40%. The 1RY8030 switch will still be in the open position and when IA is restored to containment the valve will re-open and then PRT level will continue to rise.

C is incorrect. This is plausible if the examinee thinks 1RY8030 is a motor operated valve, or outside containment, and thinks 1RY8030 can be closed.

D is incorrect. Is plausible if the examinee thinks 1RY8030 fails open and thinks that the PRT level is maintained with the RCDT pump. This is plausible since the RCDT is automatically maintained by the RCDT pumps cycling on at 60% (1A RCDT pump) and 80% (1B RCDT pump).

QUESTION #018

REFERENCE:

I1-CC-XL-01 page 19 and 20

Big Note CV-1

NEW

HIGHER

K/A: 008A3.04: Ability to monitor automatic operation of the CCWS, including: Requirements on and for the CCWS for different conditions of the power plant. RO 2.9 SRO 3.2

Objective: S.CC1-10

EXPLANATION:

A is incorrect. Plausible if the examinee does not realize that charging flow has been reduced from normal and thinks that flow has actually risen, then 1CC130 would throttle to return the temperature to the original value. This would cause the RH letdown temperature to lower then rise to the original value.

B is correct. When 1CV121 is taken to manual and charging is reduced from about 130 gpm to 100 gpm there is less water flowing through the regenerative heat exchanger, this means that the temperature of the water going from the regenerative heat exchanger to the letdown heat exchanger rises. This will cause the water leaving the letdown heat exchanger to rise initially until 1CC130 can throttle open and lower the temperature of the water leaving the letdown heat exchanger to its original value.

C is incorrect. Plausible if the examinee does not understand that charging is cooling the regenerative heat exchanger.

D is incorrect. Plausible if the examinee does not realize that 1CC130 will open to return temperatures to the original value.

QUESTION # 019

REFERENCE:

I1-RY-XL-01 page 26

Big note RY-2

NEW

HIGHER

K/A: 010K4.03: Knowledge of PZR PCS design feature(s) and/or interlock(s) which provide for the following: Over pressure control. RO 3.8 SRO 4.1

Objective: S.RY1-20

EXPLANATION:

A is incorrect. Plausible if the examinee thinks that taking the pot setting ten will cause pressure demand to lower and cause spray valves to open.

B is incorrect. Plausible if the examinee thinks that 1PK-455A controller failing to 10.0 that the PZR PORV's will not operate and the PZR safety valves will be the first to open.

C is incorrect. Plausible if the examinee thinks the 1RY455A will opens first, 1RY456 actually opens first at 2335 psig and 1RY455A opens at 2345 psig.

D is correct. 1PK455A Controller Scale = 1700 - 2500 psig = 800 psig control band

To figure out the pressure for a POT setting of 10.0: $1.0 \times (800 \text{ psig}) = 800 \text{ psig}$

$1700 \text{ psig} + 800 \text{ psig} = 2500 \text{ psig}$

Therefore, heaters energize to try and raise pressure to 2500 psig, which will cause 1RY456 to open. 1RY456 will open first at 2335 psig.

QUESTION #020

REFERENCE:

Big note MS-4

Steam Dump LP I1-DU-XL-01 page 9, 15, 21

NEW

HIGHER

K/A: 012K3.03 Knowledge of the effect that a loss or malfunction of the RPS will have on the following: SDS. RO 3.1 SRO 3.3

Objective: S.MS1-19.

EXPLANATION:

A is correct. The steam dumps will remain open until actual T_{ave} reaches 550°F is correct. The arming signal is provided by 1PT-506 failing to 0 psig. The plant trip controller is used since the RTB is open. With the 1D Loop T_{ave} Channel remaining at 585°F the steam dumps will remain open until P-12 is energized by the other loops causing steam dumps to close and cycle at 550°F.

B is incorrect. This is a valid distracter since the plant trip controller is maintaining temperature, the plant trip controller will maintain temperature at 557°F, but since the loop 1D T_{ave} is failed at 585°F this is not true.

C is incorrect. This is a valid distracter if the examinee assumes that with the RTA breaker remaining closed the steam dumps would be on the load reject controller which would maintain temperature at 560°F. It is the RTB breaker that switches the steam dumps to the plant trip controller.

D is incorrect. Plausible since the Reactor Trip Breaker A (RTA) remained closed after the reactor trip. The Reactor Trip Breaker A provides an arming signal to the plant trip controller.

QUESTION # 021

REFERENCE:

NEW

FUNDAMENTAL

K/A: 012G2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm. RO 4.1 SRO 4.3

Objective: S.RP2-04

EXPLANATION:

Big Note EF-1

BwAR 1-BP-3.5

A is incorrect. Plausible if the examinee does not know that this is blocked by P-7. Also plausible if the examinee does not understand that if the light is lit P-7 is blocked.

B is incorrect. Plausible if the examinee does not know that this is blocked by P-7.

C is incorrect. Plausible if the examinee does not know that this is blocked by P-7.

D is correct. Correct since P-7 blocks the other three alarms, PZR high pressure is not blockable. Since Braidwood Station uses a dark board concept, above 30% power not alarm lights are lit, when the P-7 light is lit, that means that power is below 10%.

QUESTION # 022

REFERENCE:

I1-MS-XL-01

MS lesson plan page 35

BANK

HIGHER

K/A: 013K4.16: Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Avoidance of PTS. RO 3.8 SRO 4.2

Objective: S.MS1-07-C

EXPLANATION:

A is correct. With loss of DC 112, all MSIVs lose 1 accumulator (each MSIV has 2 accumulators), therefore they will still all close. DC 112 supplies B & C MSIV active train air solenoids and A & D MSIV standby train air solenoids. DC 111 supplies A & D MSIV active train air solenoids and B & C MSIV standby train air solenoids. Therefore on a Loss of Bus DC 112 the A & D MSIV close on the active trains and the 1B & 1C MSIV close on the standby train.

B is incorrect. Plausible if the examinee does not understand that there are two accumulators powered from separate DC busses.

C is incorrect. See explanation.

D is incorrect. See explanation.

QUESTION # 023

REFERENCE:

I1-RY-XL-01 page 20 and 21

Big Note RY-3

BANK

HIGHER

K/A: 022K3.02: Knowledge of the effect that a loss or malfunction of the CCS will have on the following: Containment instrumentation readings. RO 3.0 SRO 3.3

Objective: S.RY1-18

EXPLANATION:

A is correct. Reference leg density will lower due to exposure to the containment temperature rise, resulting in higher DP, since the variable leg density is unaffected.

B is incorrect. The reference leg density will lower, not the variable leg due to containment temperature rising.

C is incorrect. Density will not rise due to the higher temperature.

D is incorrect. Density will not rise due to the higher temperature.

QUESTION # 024

REFERENCE:

2BwGP 100-1A3

Big Note ECCS-2

ECCS ring

ECCS Lesson plan I1-EC-XL-01 page 21

2BwEP ES-1.3

NEW

HIGHER

K/A: 026A2.03: Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of automatic recirculation transfer. RO 4.1 SRO 4.4

Objective: S.EC1-07-C

EXPLANATION:

A is incorrect. Valid distracter if the examinee assumes with SI reset the 2SI8811A will not auto open with a LOW-2 RWST level, this is not correct since the SI recirc sump has to be reset for 2SI8811A to not auto open.

B is incorrect. Distracter is valid if the examinee does not understand that CS takes its own suction from the containment sump and does not get a suction from the RH pumps, the 1B CS pump requires the 2SI8811B valve to be open to get a suction from the containment sump (2CS009B and 2SI8811B are in series).

C is correct. 2SI8811A will auto open with a LO-2 RWST level and a SI signal present to the 2SI8811A. Both of these are currently present. Even though the SI signal has been reset, the 2SI8811A is designed so that SI signal remains locked in until SI Recirc Sump isolation valve reset pushbuttons on the 2PM06J to be depressed, which they have not. For the 2CS009B valve to open for the 2B CS pump to take a suction from the containment sump, the 2SI8811B is required to be open. Since the 2SI8811B is failed closed the 2CS009B cannot be open.

D is incorrect. See explanation.

QUESTION # 025

REFERENCE:

1-MS-XL-01 page 18

Big Note MS-4

BANK

HIGHER

K/A: 039K5.08:: Knowledge of the operational implications of the following concepts as they apply to the MRSS: Effect of steam removal on reactivity. RO 3.6 SRO 3.6

Objective: S.MS1-11

EXPLANATION:

A is incorrect. This is a valid distracter if the examinee does not understand that the steam dumps are in steam pressure mode maintaining pressure at 1092 psig. Also if the examinee does not understand that reactor power follows steam demand.

B is incorrect. This is a valid distracter if the examinee does not know where pressure is maintained in the steam pressure mode and thinks steam dumps will open more.

C is incorrect. See explanation.

D is correct. closed, lower is CORRECT the steam dumps are in the steam pressure mode at this point, this is because the reactor is at 16% power, the steam dumps will stay online in steam pressure mode until the turbine is synchronized to the grid. When 1PT- 507 fails to 1050 psig, the steam dumps will close in attempt to maintain main steam header pressure at 1092 psig. Since the reactor is >POAH, reactor power follows steam demand and will lower.

QUESTION # 026

REFERENCE:

LP I1-FW-XL-01 page 3

1BwGP 100-3 step 41

BANK

FUNDAMENTAL

K/A: 059A1.03: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW controls including: Power level restrictions for operation of MFW pumps and valves. RO 2.7 SRO 2.9

Objective: S.CD1-10-C

EXPLANATION:

A is incorrect. 5% is plausible since the unit 2 MFW system allows tempering flow only to the SG less than 5%.

B is incorrect. 10% is plausible since this is the max power level the startup feedwater pump can go to.

C is correct. This is the power limit 1BwGP 100-3 states as the approximate power level where feed flow is transferred from the FW Bypass valves to the Main FW Reg Valves. The lesson plan also states that the Main FW Bypass valves are designed for low power level control <20%.

D is incorrect. 30% is plausible since it corresponds to the max power level you can run with no Heater Drain pumps running.

QUESTION # 027

REFERENCE:

LP I1-FW-XL-01 page 12

Big Note FW-2

NEW

HIGHER

K/A: 061K1.02 Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: MFW System. RO 3.4 SRO 3.7

Objective: S.FW2-16

EXPLANATION:

A is correct. When the 1A AF Pump inadvertently starts the SG level will rise initially due to the added AF flow. Since the SG are level dominant though, the SG water level will return to normal level with the Feed Reg Valves more closed since the 1A AF pump is supplying added AF flow, the Feed Reg Valves can throttle closed to compensate for the added AF flow.

B is incorrect. Plausible if the examinee does not understand the SG water level system is level dominant. AF flow ties in after the FW flow is sensed, therefore if the SG were not level dominate, the SG water level will rise since feedwater flow never sensed the added AF flow being added.

C is incorrect. This is plausible if the examinee thinks the SG will shrink and water level will lower.

D is incorrect. This is plausible if the examinee thinks that water level would only rise slightly with the added AF flow and that SG levels will remain slightly higher.

QUESTION # 028

REFERENCE:

1-AF-XL-01 page 8

Big Note AF-1

BANK

FUNDAMENTAL

K/A: 061G2.1.30 Ability to locate and operate components, including local controls.

RO 4.4 SRO 4.1

Objective: S.AF1-15

EXPLANATION:

A is correct. 364' level is correct since placing the 1B AF pump switch in the "START with BYPASS" position bypasses the low suction pressure trip. The LO-2 suction pump trip occurs at 16.5 psia.

B is incorrect. The ability to locally start the pump from the pump room will not work since there is no means to bypass the low suction pressure trip from this location.

C is incorrect. The ability to locally start the pump from the pump room will not work since there is no means to bypass the low suction pressure trip from this location.

D is incorrect. Plausible since the 1A AF pump could be started from the 426' level in the ESF switchgear room.

QUESTION # 029

REFERENCE:

1BwOA Elec-2 page 19

NEW

HIGHER

K/A: 062A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Types of loads that, if de-energized, would degrade or hinder plant operation. RO 3.4 SRO 3.9

Objective: T.OA02-13

EXPLANATION:

A is incorrect. Plausible since T_{ref} is greater than 1.5°F above T_{ave} , rods would normally move in auto if instrument bus 114 was energized.

B is incorrect. Plausible if the examinee believes that only automatic withdrawal is affected by the loss of bus 114.

C is incorrect. Plausible since this would be the correct answer if instrument bus 113 was lost.

D is correct. With a loss of instrument bus 114, rods will not withdraw in auto, in manual, or when PR N-44 rod stop is bypassed when greater than 20% power.

QUESTION # 030

REFERENCE:

BwOP DG-11, Page 24

BANK (Beaver Valley 2001)

FUNDAMENTAL

K/A: 062A4.03 Ability to manually operate and/or monitor in the control room: Synchroscope, including an understanding of running and incoming voltages. RO 2.8 SRO 2.9

Objective: S.AP1-11-C

EXPLANATION:

Answer: B.

A is incorrect. Slow in the slow direction is plausible since this is done when the SAT is being restored to a bus being powered by a DG.

B is correct. Incoming voltage (DG) is required to be 0-4 Volts higher than running voltage (bus). The generator speed is adjusted so that the synchroscope is rotating slowly in the fast direction.

C is incorrect. Plausible if the examinee does not understand that the incoming voltage needs to slightly higher than the running voltage.

D is incorrect. See explanation.

QUESTION # 031

REFERENCE:

BwAR 2-21-B1

1-DC-XL-01 page 46

BANK

HIGHER

K/A: 063A3.01: Ability to monitor automatic operation of the DC electrical system, including: Meters, annunciators, dials, recorders, and indicating lights. RO 2.7 SRO 3.1

Objective: T.OA01-02

EXPLANATION:

A is incorrect. Letdown will be isolated is considered plausible because the letdown line AOVs are fed from all four of the Unit 2 DC buses. This is not the correct answer because the control power for these valves comes from a separate DC power feed from DC bus 213/211 (depending on the valve).

B is incorrect. PZR HTR B/U GRP B indicating lights extinguished is considered plausible because it is a 480 volt load with DC control power, however the B Group is powered from bus 212 and bus 244.

C is correct. When the annunciator alarms, indicating a loss of DC control power to bus 243, all 4KV breakers directly fed from or by the Bus will have their indicating lights extinguished. The 0C WS pump is fed directly from this bus, therefore will not have any indication lights since DC control power is lost.

D is incorrect. Bus 243 voltage indication reading 0 is plausible if the examinee believes the meter is DC powered. It is powered from the bus potential transformers which are AC.

QUESTION # 032

REFERENCE:

20E-1-4030DG10

NEW

HIGHER

K/A: 064K2.01: Knowledge of bus power supplies to the following: Air compressor

RO 2.7 SRO 3.1

Objective: S.DG1-02-E

EXPLANATION:

A is incorrect. Is plausible if the examinee thinks the air compressor is powered from bus 142.

B is correct. When bus 141 loses power, the 1A DG #2 air compressor will stop, the air receiver pressure will drop to provide the starting air to the DG. When the DG gets to rated speed and is powering the bus, in approximately 10 seconds, the 1A DG #2 air compressor will start when power is restored to bus 141 since air pressure will have dropped to below the 210 psig setpoint.

C is incorrect. Is plausible since both of the fuel oil transfer pumps gets a start signal at 280 rpm.

D is incorrect. Is plausible since the ATWS Mitigation System (AMS) to start the AF Pump is bypassed for 70 seconds to allow the DG sequencer to complete before it can send a start signal to the AF Pump, examinee could assume that there is a similar delay for the DG air compressor.

QUESTION # 033

REFERENCE:

LCO 3.8.1

Big Note DG-9

BANK

FUNDAMENTAL

K/A: 064G2.2.38 Knowledge of conditions and limitations in the facility license.

RO 3.6 SRO 4.5

Objective: S.DG1-10-A

EXPLANATION:

A is incorrect. This is plausible if the examinee assumes that a fuel oil transfer pump is inoperable for each DG, only one DG fuel oil transfer pump is required for each DG.

B is incorrect. This is plausible if the examinee assumes that a fuel oil transfer pump is inoperable for each DG and that two DG fuel oil transfer pumps are required for each DG.

C is correct. SR 3.8.1.6 is not met on the 1A DG (1A and 1C DG Fuel Oil Transfer Pumps both support the 1A DG).

D is incorrect. This is not correct since no AC bus electrical power distribution subsystem is inoperable.

QUESTION # 034

REFERENCE:

Big Note Radiation Protection 5

1-AR-XL-01 page 28

BwAR 3-0PR02J

NEW

HIGHER

K/A: 073K5.02 Knowledge of the operational implications as they apply to concepts as they apply to the PRM system: Radiation intensity changes with source distance. RO 2.5 SRO 3.1

Objective: S.AR1-02 (also covered in Generic Radworker)

EXPLANATION:

A is incorrect. Not correct since $I_1 \times (D_1)^2 = I_2 \times (D_2)^2$ $2.20E-4 \times (5)^2 = I_2 \times (4)^2$ therefore I_2 is $3.4E-4$, which is not greater than $6.06E-4$.

B is correct. $1 \times (D_1)^2 = I_2 \times (D_2)^2$ $2.20E-4 \times (5)^2 = 6.06E-4 \times (D_2)^2$ therefore D_2 is 3 inches

C is incorrect. This is plausible if the examinee does not account for 1 inch that the point detector located from the ID of the pipe. $1 \times (D_1)^2 = I_2 \times (D_2)^2$ $2.20E-4 \times (4)^2 = I_2 \times (2)^2$ therefore I_2 is $8.8E-4$. Which would be the nearest the particle can travel by the 0RE-PR002A detector to first cause the alarm and would be correct if the examinee assumes 4 inches to the detector instead of 5 inches.

D is incorrect. 1 inch is plausible if the examinee thinks that, $I_1 \times (D_1) = I_2 \times (D_2)$

2.20E-

QUESTION # 035

REFERENCE:

20E-1-4030SX01

Big Note SX-1

NEW

HIGHER

K/A: 076K4.02: Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: Automatic start features associated with SWS pump controls. RO 2.9 SRO 3.2

Objective: S.SX1-06

EXPLANATION:

A is incorrect. Plausible if the examinee thinks the SX pumps automatically start on low discharge pressure, like CC pumps. There are no low discharge pressure auto starts on the SX pumps. The only auto start signals are SI and UV.

B is incorrect. The starting interlock for a manual 1A SX pump start is not met when the switch is momentarily taken to start. To manually start the 1A SX pump the 1SX16A and 1SX27A are required to be open.

C is incorrect. This is plausible if the examinee thinks that when 1SX016A and 1SX027A are open the 1A SX pump will then auto start. The 1A SX pump will not auto start, since the only auto start for the 1A SX pump is a SI or an UV.

D is correct. On a SI signal the 1A SX pump will start regardless if 1SX016A and 1SX027A are open or not.

QUESTION # 036

REFERENCE:

1-SA-XL-01, page 31 and 52

Big Note SA/IA-2

NEW

HIGHER

K/A: 078K1.04 Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Cooling water to compressor. RO 2.6 SRO 2.9

Objective: S.SA1-05

EXPLANATION:

A is incorrect. The U-0 sac is powered from bus 143 therefore has no power to be started.

B is correct. With no WS available (0A WS no power, powered from bus 143, 0C WS pump OOS) fire protection can only be aligned to the U-1 SAC and the U-0 SAC. Since the U-0 SAC is powered from bus 143 it cannot be started. That leaves only the U-1 SAC to be started with fire protection for cooling.

C is incorrect. U-2 SAC is not able to be cooled by FP.

D is incorrect. This is plausible if the examinee does not realize that FP can be used to cool the U-1 SAC. This is plausible since the U-2 SAC is unable to be cooled by fire protection.

QUESTION # 037

REFERENCE:

BwOP SA-1 page 14 and 20

NEW

FUNDAMENTAL

K/A: 078A4.01 Ability to manually operate and/or monitor in the control room: Pressure gauges. RO 3.1 SRO 3.1

Objective: S.SA1-11

EXPLANATION:

A is incorrect. See explanation. Plausible if the examinee thinks it is any pressure less than 40#.

B is correct. A nitrogen bottle is required if < 50 psig air pressure is present at the 0PM01J (the gauge displayed is the gauge from the 0PM01J).

C is incorrect. See explanation. Plausible since 60# is the required pressure that the reactor needs to be tripped at per 1BWOA SEC-4.

D is incorrect. See explanation. Plausible since it is just at the edge of the red band for the gauge.

QUESTION # 038

REFERENCE:

BwAR 2-10-A1

20E-2-4030NR03

NEW

FUNDAMENTAL

K/A: 103A2.04: Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Containment evacuation (including recognition of the alarm). RO 3.5 SRO 3.6

Objective: T.GP06-05

EXPLANATION:

A is incorrect. The sound in containment is a horn not a bell.

B is correct. The SR SD FLUX HIGH alarm comes in when the SR rise by a factor of 5. The action that is required for this is to manually actuate the Containment Evacuation Alarm using the Containment Evacuation Switch on 2PM06J. The sound in containment is a horn.

C is incorrect. The Containment Evacuation Alarm use to automatically actuate from the SR SD FLUX HIGH alarm, which is not true anymore.

D is incorrect. See explanation.

QUESTION # 039

REFERENCE:

BwAR 1-11-B2

BwAR 1-11-A5

Big Note EF-1.

NEW

HIGHER

K/A: 007EA2.05EA2.05 Ability to determine or interpret the following as they apply to a reactor trip: Reactor trip first-out indication. RO 3.4 SRO 3.9

Objective: S.NI2-04-A

EXPLANATION:

A is incorrect. When bus 157 loses power, the 1A RCP will trip, but since power is below P8 (30%) the reactor will not trip..

B is correct. When bus 157 loses power, the 1A RCP will trip, but since power is below P8 (30%) the reactor will not trip. When IR NI N35 fails high it will cause a reactor trip and the red-first out light will be IR HIGH FLUX RX TRIP, this is because the reactor is less than 10% power, therefore the IR High Flux Trip is not blocked, IR High Flux Trip is allowed to be blocked above 10% (P-10). A LOCA is plausible if the examinee thinks the red-first out light will only be lit if a SI occurs, because reactor power is below P7 (10%) LO-pressure SI is blocked. When the crew manually trips the reactor the reactor would have already had a red-first out from N35 failing high.

C is incorrect. A LOCA is plausible if the examinee thinks the red-first out light will only be lit if a SI occurs, because reactor power is below P7 (10%) LO-pressure SI is blocked.

D is incorrect. When the crew manually trips the reactor the reactor would have already had a red-first out from N35 failing high.

QUESTION # 040

REFERENCE:

1BwEP ES-1.2 on Operator Action Summary page

NEW

HIGHER

K/A: 008AA2.30 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: Inadequate core cooling. RO 4.3 SRO 4.7

Objective: T.EP02-01

EXPLANATION:

A is incorrect. This is plausible since PZR level is 100%, but subcooling is inadequate.

B is incorrect. This is plausible since SG water level is 15% and AF flow is less than 500 gpm. These flow and inventory conditions would not be adequate if containment was adverse, but since containment is less than 5 psig and not adverse, AF flowrate is okay as is.

C is correct. Since subcooling is inadequate, (this can be looked up using the steam tables, at 600°F saturated pressure is approx. 1540 psia). Per the Operator action summary (OAS) page if RCS subcooling is inadequate it tells you to start and align ECCS pumps as necessary. Since the 1A CV pump is not running, you would start the pump.

D is incorrect. This is plausible since the Operator action summary states that if RCS subcooling is inadequate it to start and align ECCS pumps as necessary. It is not correct since the RH pumps are already secured and they will not be restarted until RCS pressure drops to less than 325#. This is also plausible since you are not allowed to secure the RH pumps until RCS pressure is stable (they could have been secured earlier in the procedure when RCS pressure was stable), since RCS pressure is above shutoff head this would not help to restore subcooling.

QUESTION # 041

REFERENCE:

WOG E-1 Loss of Reactor or Secondary Coolant (Background BwEP-1) page 7.

BANK (DC Cook 2008)

HIGHER

K/A: 009EK2.03 Knowledge of the interrelations between the small break LOCA and the following: S/Gs. RO 3.0 SRO 3.3

Objective: T.EP02B-01

EXPLANATION:

A is incorrect. RCS pressure is being maintained by the mass/energy balance of break flow and injection flow.

B is incorrect. The primary means of heat removal is the break/SI flow. The SGs are just providing a secondary heat removal function. Per the background document reflux boiling is occurring with partially filled hot legs.

C is incorrect. SBLOCA analysis assumes that the RCPs are tripped.

D is correct. Mass loss out the break is not sufficient to lower RCS pressure to a point where energy loss through the break along with injection flow is sufficient to address all decay heat removal requirements. The SG will aid in removing some of the excess decay heat.

QUESTION # 042

REFERENCE:

1BwEP-1 page 24

NEW

HIGHER

K/A: 011G2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes. RO 3.8 SRO 4.3

Objective: T.EP02-01

EXPLANATION:

A is incorrect. Plausible if the examinee does not remember the caution and thinks that since SI has been reset the RH and SI pumps have to be manually started.

B is correct. Per the Caution in 1BwEP-1 the CV pumps should be placed in PULL OUT, then after sequencer completion, ECCS pumps should be restarted in the following order: RH pumps, CV pumps, SI pumps. This is done to ensure the CV and SI pumps have a suction source of water, which is provided by RH when aligned for cold leg recirculation.

C is incorrect. Plausible if the student thinks the sequencer will start all of the pumps and does not remember the caution.

D is incorrect. Plausible if the student remembers the caution, but does not realize that SI is reset and the SI and RH pumps won't auto start.

QUESTION # 043

REFERENCE:

TS 3.5.2, 3.1.b, and 3.1.d

NEW

FUNDAMENTAL

K/A: 022G2.2.22 Knowledge of limiting conditions for operations and safety limits.

RO 4.0 SRO 4.7

Objective: S.CV2-12-A

EXPLANATION:

A is incorrect. Plausible if the examinee thinks that with the 1SI8801B breaker open and the 1A CV pump OOS there is no flowpath from the RWST.

B is incorrect. Plausible if the examinee does not know that 3.1.d requires two CV pumps.

C is correct. Since one CV pump is out of service LCO/TLCO 3.5.2 and 3.1.d are entered.

With 1SI8801B breaker open, the valve will not open, but since it is in parallel with 1SI8801A, there is still a flowpath from the RWST and a flowpath from the Boric Acid Storage Tank (BAST) 3.1.b does not apply.

D is incorrect. See explanation.

QUESTION # 044

REFERENCE:

20E-2-4030CC01

20E-2-4030CC11

Big Note CC-1

BANK

HIGHER

K/A: 026AA1.06 Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: Control of flow rates to components cooled by the CCWS

RO 2.9 SRO 2.9

Objective: S.CC1-07

EXPLANATION:

A is incorrect. This is plausible if the examinee does not understand how the demand on the 2TK-130 works, they could assume that lower demand means lowering temperatures.

B is correct. As the 2A CC pump impeller degrades, discharge header pressure will drop causing reduced CCW flow to the letdown system components cooled by CC. Since discharge header pressure does not reach the setpoint to start the standby pump (85 psig for 4 seconds), the lower flow condition will remain. The 2TK-130 demand will then rise and then stabilize at a higher value to make up for the reduced flow.

C is incorrect. This is plausible if the examinee does not realize that with the degraded impeller the 2TK-130 will not return to original flow.

D is incorrect. See explanation.

QUESTION # 045

REFERENCE:

1-RY-XL-01 page 30-31

Big Note RY-2

NEW

HIGHER

K/A: 027AK1.02: Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Expansion of liquids as temperature increases. RO 2.8 SRO 3.1

Objective: S.RY1-21-E

EXPLANATION:

A is incorrect. Plausible if the student thinks pressure rising will cause the OPDT setpoint to rise. OPDT doesn't use pressure input to calculate the trip setpoint (OTDT does use pressure as an input), since T_{ave} went up so the setpoints will actually lower.

B is incorrect. Plausible if the student does not understand that with a load reject T_{ave} will initially go up and PZR level will rise.

C is incorrect. This is plausible since this is what would occur if the master PZR pressure controller was in auto and worked as designed.

D is correct. Since a 100 MWe load reject occurs, T_{ave} will go up and PZR level will rise. Since 1PK-455A, the master PZR Pressure controller, is failed as is it will sense that PZR level is rising and cause 1CV121 to throttle close to lower PZR level.

QUESTION # 046

REFERENCE:

1-AR-XL-01 page 28

Big note RW-4 SG Blowdown

BANK

FUNDAMENTAL

K/A: 038EK3.04 Knowledge of the reasons for the following responses as they apply to the SGTR: Automatic actions provided by each PRM. RO 3.9 SRO 4.1

Objective: S.AR1-04-B-04

EXPLANATION:

A is correct. The 0PR16J, Blowdown After Filter Monitor, isolates 0WX119A, CST Inlet Header Isolation from Blowdown Demin 0A Valve, and opens 0WX058A, Blowdown Monitor Tank 0A Inlet Valve, to prevent the spread of contamination to the main condenser. Normally blowdown is aligned back to the main condenser.

B is incorrect. 1PS179A, Steam Generator Blowdown Sample Isolation Valve, gets its closed signal from the 1PR008J, not the 0PR16J, which prevents contamination from reaching chemistry's sample panel.

C is incorrect. The 0PR05J, Turb Building Fire and Oil Sump, gives a signal to 0OD030 to stop sending water to the waste water treatment system, not the 0PR16J.

D is incorrect. Blowdown is not stopped by 0PR16J, Blowdown After Filter Monitor, flow will still go through the blowdown system and go to the blowdown monitor tanks.

QUESTION # 047

REFERENCE:

1-MS-XL-01 page 10

Big Note MS-1

BANK

FUNDAMENTAL

K/A: 040AK2.01 Knowledge of the interrelations between the Steam Line Rupture and the following: Valves. RO 2.6 SRO 2.5

Objective: S.MS1-07-D

EXPLANATION:

A is incorrect. Low steamline pressure is wrong since this blocked below 1930 psig (P-11).

B is correct. High steamline pressure rate is CORRECT. As part of a normal cooldown/depressurization, when PZR press is <1930 psig P-11 actuates and the operators block the low steam line pressure SI signal which enables the steamline rate SI.

C is incorrect. Manual only is wrong, because the steam line rate signal is still active.

D is incorrect. Low PZR pressure is wrong since this also blocked when P-11 lights.

QUESTION # 048

REFERENCE:

1-AF-XL-01 page 12

BANK

HIGHERank Question (2014 NRC exam question 48)

K/A: 054AA1.03: Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): AFW auxiliaries, including oil cooling water supply. RO 3.5 SRO 3.7

Objective: S.AF1-04

EXPLANATION:

A is incorrect. Plausible if the examinee does not understand that the 1B AF pump has its own shaft driven SX booster pump.

B is incorrect. Plausible if the examinee thinks both AF pumps have their own shaft driven booster pump or different cooling supply than SX.

C is incorrect. Plausible if the examinee thinks that the 1A AF pump is the one with the shaft driven booster pump.

D is correct. Neither Unit 1 SX pumps available and the SX cross tie breaker closed, no SX flow is available to cool the 1A AF pump. The 1B AF pump can run without a SX pump running because it has its own shaft driven SX booster pump. Per IER L1-11-4 Braidwood response for a loss of all AC associated with the operation of the Diesel Driven AF pump (DDAF), worst case scenario the 1B AF pump can run for 1 hour (conservative estimate) before the potential exists for pump and engine overheating.

QUESTION # 049

REFERENCE:

M-42-3

20E-1-4030SX15

WO03

Big note WO-2

MODIFIED

FUNDAMENTAL

K/A: 056AA1.12 Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: Reactor building cooling unit. RO 3.2 SRO 3.3

Objective: S.VP1-13-B

EXPLANATION:

A is incorrect. Plausible if the examinee assumes the valves only change positions on an SI for the SX flow. The containment chilled water pump is plausible if the examinee does not know what power supply is supplying the containment chilled water pump.

B is incorrect. See explanation.

C is incorrect. See explanation.

D is correct. On a loss of offsite power bus 141 and 142 become de-energized until the DG restarts. The 1SX112/114 will become de-energized and fail closed and 1SX147 will fail open, even when power is restored to the bus the 1SX112/114 will remain closed and the 1SX147 will remain open until either an operator opens it or a SI occurs. Bus 143/144 auto swapped over and did not lose power during a LOOP, therefore the containment chilled water pumps will remain running.

QUESTION # 050

REFERENCE:

1BWOA ELEC-2 page 10

BANK

FUNDAMENTAL

K/A: 057G2.4.11 Knowledge of abnormal condition procedures. RO 4.0 SRO 4.2

Objective: T.OA02-03

EXPLANATION:

A is correct. 1BWOA ELEC-2, Table A. 1RY455A open setpoint of 2345 psig is exceeded, but it will not open in AUTO as stated in the table, but can be manually opened. 1BWOA Elec-2 procedure lists all of the impacts of all 4 of the instrument busses. There are 4 tables in 1BWOA Elec-2 that state the impacts of a loss of each of the instrument busses. The students routinely study these in 1BWOA Elec-2 to know the impacts of the loss of instrument bus.

B is incorrect. Plausible if the examinee thinks that 1RY455A is not able to be opened manually with the loss of instrument bus 111.

C is incorrect. Plausible if the examinee thinks that 1RY455A is open and with the loss of instrument bus 111 that 1RY455A will not open until the PZR PORV 2185 psig interlock is met.

D is incorrect. Plausible if the examinee thinks that 1RY455A is open and will function as designed.

QUESTION # 051

REFERENCE:

BwAR 1-22-E6

BwAR 1-22-E10

Big Note DC-1

1BwOA Elec-1

BANK

HIGHER

K/A: 058AK1.01: Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation. RO 2.8 SRO 3.1

Objective: T.OA01-09

EXPLANATION:

Answer: A.

A is correct. 125V DC BATT 112 MAIN BRKR is brkr AF-2 which isolates BOTH the battery and charger from the bus, thereby de-energizing the bus and requiring a reactor trip due to loss of feedwater.

B is incorrect. Plausible if the examinee does not understand the the 125V DC BATT 112 MAIN BRKR is brkr AF-2 the examinee might think that only the battery is isolated from the bus, not the charger.

C is incorrect. Plausible if the examinee does not understand the the 125V DC BATT 112 MAIN BRKR is brkr AF-2 the examinee might think that only the battery charger is isolated from the bus, not the battery.

D is incorrect. Plausible if the examinee only thinks this alarm comes in when 480V AC feed is isolated to the charger.

QUESTION # 0522

REFERENCE:

1BwOA PRI-8, Essential Service Water Malfunction. Page 15 and 29

NEW

HIGHER

K/A: 062AA2.06 Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The length of time after the loss of SWS flow to a component before that component may be damaged. RO 2.8 SRO 3.1

Objective: T.OA18-02

EXPLANATION:

A is incorrect. Bearing temperatures for the 1A CV Pump are 172° and rising 3°F/min and if the examinee reads that the bearing temperature limit is 175° the temperature would be exceeded in 1 minute. $1210 + 1 = 1211$

B is correct. Table A provides limits for the 1A CV Pump of 205° for the bearings and 175° for the gear drive oil. Bearing temperatures for the 1A CV Pump are 172° and rising 3°F/min thus will exceed 205° in 11 minutes $1210 + 11 = 1221$ See explanation.

C is incorrect. Gear Drive temperatures for the 1A CV Pump are 154° and rising 1.5°F/min thus will exceed 175° in 14 minutes. $1210 + 14 = 1224$

D is incorrect. If the examinee thinks the Gear Drive temperatures for the 1A CV Pump limit is 205° and rising 1.5°F/min thus will exceed 205° in 34 minutes. $1210 + 34 = 1244$

QUESTION # 053

REFERENCE:

LP Liquid Radwaste System page. (I1-WX-XL-01)

LP RH System (I1-RH-XL-01) page 11.

NEW

FUNDAMENTAL

K/A: E04EK1.1: Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment): Components, capacity, and function of emergency systems. RO 3.5 SRO 3.9

Objective: T.CA2-03

EXPLANATION:

A is incorrect. Plausible since there are other reliefs that lift to the VCT such as the letdown line and seal return lines reliefs.

B is correct. From WOG background document for CA-1.2, the RH suction path is the dominant probability of LOCA outside containment from the simultaneous failure of two MOVs. If the 1A RH pump relief valve is lifting the water would be going to the Recycle Holdup Tanks (RHUT). All of the ECCS pump relief valves go to the RHUT.

C is incorrect. Plausible since the ECCS pump casing drains go to the Aux Building Equipment Drain Tank, which the examinee could mistake that the 1A RH pump relief goes here.

D is incorrect. Plausible since the ESF pump leak detection sumps go to the Aux Building Floor Drain Tank, which the examinee could mistake that the 1A RH pump relief goes here.

QUESTION # 054

REFERENCE:

WOG background document for 1BwCA-1.1 page 46

1-CA-XL-02 page 6.

NEW

FUNDAMENTAL

K/A: E11EK3: Knowledge of the reasons for the following responses as they apply to the (Loss of Emergency Coolant Recirculation): EK3.2 Normal, abnormal and emergency operating procedures associated with (Loss of Emergency Coolant Recirculation).

RO 3.5 SRO 4.0

Objective: T.CA2-03

EXPLANATION:

A is incorrect. Plausible since this is the one of the basis in 1BwCA-1.1, just not the reason for securing one train of ECCS.

B is incorrect. Plausible if the examinee thinks this is one way to conserve inventory.

C is correct. Per the background, the basis for establishing ONLY one train of ECCS flow is to establish core cooling while at the same time conserving RWST inventory since ECCS cannot be aligned in the recirculation mode.

D is incorrect. Plausible if the examinee thinks that with no emergency coolant recirculation that one train of ECCS pumps must be available for when ECCS is restored.

QUESTION # 055

REFERENCE:

1BwFR-H.1 on Operator Action Summary page

BANK

FUNDAMENTAL

K/A: E05EK2.1 Knowledge of the interrelations between the (Loss of Secondary Heat Sink) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

RO 3.7 SRO 3.9

Objective: T.FR03-02

EXPLANATION:

A is incorrect. The loss of bus 141 would only make the 1A CV pump unavailable, not the 1B CV pump.

B is incorrect. 1A SG WR level <25% with 3 psig in cntmt would be only 1 SG < 27% (not 3).

C is correct. 1BwFR-H.1 OAS, with the 1A/1B/1D SG levels < 43% when cntmt becomes adverse (> 5 psig) the OAS establishing RCS bleed and feed (steps 14-17).

D is incorrect. PZR pressure > 2335 psig is not due to loss of heat sink so it's incorrect, this is specifically addressed in the NOTE above step 3 in 1BwFR-H.1.

QUESTION # 056

REFERENCE:

BwAR 1-11-A5

Big Note EF-1

NEW

FUNDAMENTAL

K/A: 077AK3.01 Knowledge of the reasons for the following responses as they apply to Generator Voltage and Electric Grid Disturbances: Reactor and turbine trip criteria.

RO 3.9 SRO 4.2

Objective: S.RC2-08-A

EXPLANATION:

A is incorrect. Plausible if the examinee thinks that bus 156 and 157 voltage dropped low enough to strip all load breakers, but the coincidence for the reactor trip was not met. The examinee could believe this trip does not come in until P-8 (30% power)

B is incorrect. Plausible if the examinee thinks that bus 156 and 157 voltage did NOT drop low enough to strip all load breakers.

C is correct. The reactor is tripped since 2/4 RCP buses are below 5268 volts for 0.7 seconds (above P-7 (10% power)). The reason the reactor is tripped is since the RCP might not have enough flow and this protects the core from DNB.

D is incorrect. Plausible if the examinee thinks that the RCPs are running and that the loss of the CD/CB pumps and HD pumps caused a loss of heat sink. Also the AF pumps auto start with 2/4 RCP buses below 5268 volts for 0.7 seconds.

QUESTION # 057

REFERENCE:

BwAR 1-14-E2

BANK

HIGHER

K/A: 001AK1.03 Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal: Relationship of reactivity and reactor power to rod movement. RO 4.5 SRO 4.7

Objective: S.RD1-20

EXPLANATION:

A is correct. Correct, a constant addition of positive reactivity will raise reactor power, T_{ave} , PZR pressure, and PZR level will increase due to increasing T_{ave} . This would cause Auct T_{ave} High to come in which states the probable cause would be a Rod Control System Malfunction. B is incorrect. Plausible since Pimp failing high will cause rods to withdraw, raising T_{ave} , PZR pressure and level. But since T_{ave} is greater than T_{ref} this would not be true. T_{ref} would fail high above T_{ave} if P_{imp} failed high.

C is incorrect. Although a rise in steam flow will raise reactor power, this would cause T_{ave} to lower and PZR pressure and level to lower.

D is incorrect. This is plausible since PR N-43 failing high would cause T_{ave} to be above T_{ref} . But since PR failing high, the rods will insert causing lowering T_{ave} , pressure and level.

QUESTION # 058

REFERENCE:

2BwOA Rod-3 page 17

BANK

FUNDAMENTAL

K/A: 005AK2. Knowledge of the interrelations between the Inoperable / Stuck Control Rod and the following: Breakers, relays, disconnects, and control room switches. RO 2.5 SRO 2.6

Objective: T.OA34-03

EXPLANATION:

A is incorrect. This would not realign the rods. This would still allow the unaffected rods in the unaffected group to be withdrawn.

B is correct. 2BwOA ROD-3 directs realigning rod to bank by disconnecting lift coils for all other rods in affected bank and placing rod bank select switch to affected bank. This accounts for all of the switches that have to be operated in the MCR before recovering the rod. This allows for only the dropped rod to be withdrawn, and the unaffected rods will not be withdrawn with the lift coils disconnected.

C is incorrect. Correct for realigning bank to rod, but 2BwOA ROD-3 directs rod to bank realignment. Re-aligning bank to rod would have a much bigger reactivity impact and would not recover Rod H-8.

D is incorrect. Would not realign rod, would cause all the rods to withdraw.

QUESTION # 059

REFERENCE:

1BwEP ES-0.1, page 5

NEW

HIGHER

K/A: 024G2.1.20: Emergency Boration: Ability to interpret and execute procedure steps.

RO 4.5 SRO 4.7

Objective: T.EP01-06-C

EXPLANATION:

A is incorrect. This is plausible if the examinee does not realize the RCPs are tripped. Also plausible since on a loss of offsite power Braidwood station does not automatically trip the reactor. Only if the Rx trip occurs then a loss of offsite power do you lose the RCPs.

B is incorrect. 1BwEP ES-0.1 step 2.a RNO states that "if two or more rods are not fully inserted, then emergency borate 1320 gal for each rod not fully inserted". Since only one rod is not fully inserted the boration of 1320 gallons is not required.

C is incorrect. 1BwEP ES-0.1 step 2.a RNO states that "if two or more rods are not fully inserted, then emergency borate 5500 gal from the RWST for each rod not fully inserted". Since only one rod is not fully inserted the boration of 5500 gal is not required. Plausible since the loss of power occurred.

D is correct since all RCPs are tripped since grid frequency dropped to 56 Hz for 1 second, the RCPs will trip when 2/4 bus frequency dropped to below 57 Hz for > 0.4 seconds. The crew is required to initiate 6000 gal emergency boration when the RCPs are tripped. This step is on the continuous action summary.

QUESTION # 060

REFERENCE:

1-NI-XL-01 page 22

Big Note NI-3 and EF-1.

BANK (Diablo Canyon 2012 NRC exam)

HIGHER

K/A: 032AA1.01 Ability to operate and / or monitor the following as they apply to the Loss of Source Range Nuclear Instrumentation: Manual restoration of power. RO 3.1 SRO 3.4

Objective: S.NI1-07-D

EXPLANATION:

A is incorrect. N36 will not lower below the P-6 setpoint; both channels are required to be below P-6 to energize the source ranges.

B is incorrect. Both channels are required to be below P-6 and in this case, N36 will not lower to less than P-6. This would be correct if channel N36 was overcompensated.

C is incorrect. The switches are taken to BLOCK to de-energize the source ranges, they would not do anything to energize the source range channels.

D is correct. Since IR channel N36 is undercompensated channel N36 will not drop below 5.0E-11. If both N35 and N36 do not drop below 5.0E-11 the source range channels will NOT automatically energize, the operator will have to take the SR Trip RESET/BLOCK switches to RESET to manually energize the SR detectors.

QUESTION # 061

REFERENCE:

1BwGP 100-6 page 7

BANK

HIGHER

K/A: 036AK1.02: Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents: SDM. RO 3.4 SRO 3.8

Objective: T.GP06-05

EXPLANATION:

A is incorrect. Count rate of ALL responding nuclear monitoring channels did not rise by a factor of 2.

B is correct. Boron changed by greater than 20 ppm, SDM has been reduced. An UNEXPECTED change in RCS boron concentration of greater than 20 ppm, as determined from 2 successive samples, or RCS temperature changes by +10oF from the baseline values. Since RCS boron concentration changed greater than 20 ppm, the core loading must be suspended.

C is incorrect. Would affect SDM, but the temperature change was only 9oF RCS temperature did not rise by +10oF from the baseline value.

D is incorrect. Plausible if the examinee thinks that since the SFP is still above the tech spec requirement that no action is required.

QUESTION # 062

REFERENCE

BwAR 4-0AR055J

1-VA-XL-01 page 2 and 26

NEW

FUNDAMENTAL

K/A: 061AK3.02 Knowledge of the reasons for the following responses as they apply to the Area Radiation Monitoring (ARM) System Alarms: Guidance contained in alarm response for ARM system. RO 3.4 SRO 3.6

Objective: S.AR1-04-A-01

EXPLANATION:

A is correct. 0VA04CA, 0A Fuel Handling Building Charcoal Booster Fan, will start since the 0AR055J, Fuel Handling Building (FHB) Area Radiation Monitor, has alarmed in RED (ALARM Setpoint) on the RM-11. This is to allow for any radioactive material being released to be absorbed through the charcoal filters. This is one of the purposes of Aux Building Ventilation.

B is incorrect. Plausible if the examinee thinks that the 0AR039J FHB rad monitor alarmed, which has the interlock to prevent the SFP bridge crane from upward motion.

C is incorrect. Plausible if the examinee thinks there are automatic actions of the 0AR055J is to start the inaccessible filter plenum charcoal booster fans.

D is incorrect. Plausible if the examinee thinks that the 0VA04CB, 0B Fuel Handling Building Charcoal Booster Fan, has also started since the 0AR056J, Fuel Handling Building (FHB) Area Radiation Monitor, alarms in YELLOW (ALERT SETPOINT), the auto actions to start the fan does not occur until the RED (ALARM) setpoint. Both fans will not start even if both ARs were in alarm, only one fan starts.

QUESTION # 063

REFERENCE:

1BwFR-C.1 page 16

NEW

FUNDAMENTAL

K/A: 074EK2.03 Knowledge of the interrelations between the following Inadequate Core

Cooling: AFW pump. RO 4.0 SRO 4.0

Objective: T.FR2-03

EXPLANATION:

A is correct. There is a note before step 9 that states "partial uncover of SG tubes is acceptable in the following step". So when the water level in all SGs drop to 5% the crew will continue depressurizing all SGs.

B is incorrect. Plausible if the examinee thinks containment is not adverse and that all SG water levels have to be maintained between 10-50% while depressurizing.

C is incorrect. Plausible if the examinee thinks that all SG water levels have to be maintained between 31-50% while depressurizing.

D is incorrect. Plausible if the examinee thinks that one SG has to maintain water level between 31-50% while depressurizing.

QUESTION # 064

REFERENCE:

1BwEP ES-0.0 page 2 and 3.

BANK

HIGHER

K/A: E01EA1. Ability to operate and / or monitor the following as they apply to the (Reactor Trip or Safety Injection/Radiagnosis)": EA1.2 Operating behavior characteristics of the facility. RO 3.3 SRO 3.6

Objective: T.EP01-06-B

EXPLANATION:

A is incorrect. 1A SG is ruptured as stated, but the 1B SG is not faulted because its pressure is at what's expected and stable.

B is incorrect. Neither of these SGs are faulted. 1B SG is not faulted because its pressure is at what's expected and stable. The 1D SG is not faulted because its pressure is where it's expected and stable.

C is incorrect. 1C SG is faulted as stated, but the 1D is not faulted because its pressure is where it's expected and stable.

D is correct. 1A SG indicates it is ruptured because there is higher Rad Monitor indication than the other SG's and the SG level is rising even though there is no AF flow to the SG. 1C SG is faulted because its level is lowering even though there is AF flow to the SG and the SG pressure is the lowest of all SG's and continues to lower.

QUESTION # 065

REFERENCE:

2BwFR-Z.2 page 2

BANK

FUNDAMENTAL

K/A: E15EA2. Ability to determine and interpret the following as they apply to the (Containment Flooding): EA2.2 Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. RO 2.9 SRO 3.3

Objective: T.FR05-04-B

EXPLANATION:

A is incorrect. Water is not pumped out of containment using the RHR pumps.

B is incorrect. Re-aligning CS to the recirc sump is not correct, plausible if the examinee thought this would stop inputting water into CNMT.

C is correct. Containment design basis flood level takes into account the entire water contents of the RCS, RWST, Spray add tanks, and SI accumulators. SX, CC, FP, PW, and WM may be major contributors to exceeding "flood" level and causing a loss of equipment required for long term cooling. Per 2BwFR-Z.2 the expected actions is to identify and isolate unexpected sources of water.

D is incorrect. The CS pumps are not stopped due to high level.

QUESTION # 066

REFERENCE:

1-CV-XL-01 page 35

BANK

FUNDAMENTAL

K/A: 2.1.27 Knowledge of system purpose and/or function. RO 3.9 SRO 4.0

Objective: S.CV1-04-I

EXPLANATION:

A is incorrect. This is plausible since it would be done by normal letdown. Excess letdown does not provide a flowpath through the rad skids.

B is incorrect. This is would be done by CVCS makeup so excess letdown is not required to maintain an adequate water supply for RCP seal cooling. This is plausible since excess letdown does provide water back to the VCT.

C is incorrect. This is plausible since it would be done by normal letdown. Excess letdown bypasses the CV demins.

D is correct. The purpose of excess letdown is to help keep pressurizer level stable on a loss of normal charging and letdown.

QUESTION # 067

REFERENCE:

OP-AA-103-101 page 2

BANK

FUNDAMENTAL

K/A: 2.1.13 Knowledge of facility requirements for controlling vital/controlled access.

RO 2.5 SRO 3.2

Objective: T.AM31-03

EXPLANATION:

A is incorrect. See explanation.

B is incorrect. See explanation.

C is correct. OP-AA-103-101 states that "In order to enter the zone of control, permission must be granted by the Reactor Operator (Control Room Operator). The Shift Manager, Unit Supervisor (Control Room Supervisor), STA, and Regulatory Personnel are not required to obtain permission.

D is incorrect. See explanation.

QUESTION # 068

REFERENCE:

BwOP PRA-1 page 5

NEW

FUNDAMENTAL

K/A: 2.2.18 Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc. RO 2.6 SRO 3.9

Objective: 3E.AM-133

EXPLANATION:

A is incorrect. The NSO is required to log the operator assigned to restore the equipment or component.

B is incorrect. Option 3 (hang EST's) is not correct, since this is not required to be done per BwOP PRA-1..

C is correct. BwOP PRA-1, PRA Required Actions to Maintain Equipment Availability, whenever PRA equipment is being kept "available" by utilizing operator actions, the following are required:

- * The operator(s) designated the responsibility for performing actions to restore a system or component will be logged by name in the unit log.

- * The operator(s) responsible of this restoration will be briefed on the specific steps for restoration in the controlling approved document. This will occur prior to performing the evolution or surveillance.

- * The controlling document will have the restoration steps clearly identified to restore the system or component, these actions will be performed promptly without delay.

- * The operator will understand that in the event his/her actions are required to restore the system or component, these actions will be performed promptly and without delay.

D is incorrect. Option 3 (hang EST's) is not correct, since this is not required to be done per BwOP PRA-1.

QUESTION # 069

REFERENCE:

TS LCO 3.4.5

BANK (Braidwood NRC 2009)

HIGHER

K/A: 2.2.40 Ability to apply Technical Specifications for a system. RO 3.4 SRO 4.7

Objective: S.RC2-11-B

EXPLANATION:

A is incorrect. See explanation above. Placing RH loop in operation would be correct if unit was in Mode 4 with no loops in operation.

B is incorrect. Initiate action to restore one loop is required action for LCO 3.4.5 cond. B (no loops in operation).

C is incorrect. Verify SDM is one hour action for TS 3.1.4, 3.1.5 and 3.1.6.

D is correct. Per T.S. 3.4.5, RCS Loops Mode 3, two operable RCS loops shall be in operation when Rod Control system is capable of rod withdrawal. Tripping the 1C RCP would drop the number of operational loops to one. LCO 3.4.5 Condition A requires placing rod control in a condition incapable of rod withdrawal. Opening the reactor trip breakers would satisfy the condition.

QUESTION # 070

REFERENCE:

BwAP 340-1 page 4

MODIFIED

FUNDAMENTAL

K/A: 2.2.12 Knowledge of surveillance procedures. RO 3.7 SRO 4.1

Objective: T.AM04-23

EXPLANATION:

A is incorrect. * means a commitment.

B is correct. ϕ means acceptance criteria for surv. successful completion.

C is incorrect. @ means admin acceptance criteria (not required for successful surv. completion but does require corrective action).

D is incorrect. ? (diamond symbol) is used to designate a continuous action summary step.

QUESTION # 071

REFERENCE:

RP-AA-203 page 3

BANK

HIGHER

K/A: 2.3.7 Ability to comply with radiation work permit requirements during normal or abnormal conditions. RO 3.5 SRO 3.6

Objective: T.AM-46-02

EXPLANATION:

A is incorrect. Plausible if the examinee thinks the Administrative Dose Control Level is 1000 mrem.

B is incorrect. Plausible if the examinee thinks the Administrative Dose Control Level is 1500 mrem.

C is correct. $6 \text{ hours} \times 150 \text{ mrem/hour} = 900 \text{ mrem} + 900 \text{ mrem} = 1800 \text{ mrem}$. This is under the Administrative Dose Control Level of 2000 mrem.

D is incorrect. Plausible if the examinee thinks the Administrative Dose Control Level is 5000 mrem, which is the federal limit.

QUESTION # 072

REFERENCE:

BwEP-3 background document (BD-EP-3) EOP step 3 on page 12

1BwEP-3 step 3a, on page 4

NEW

FUNDAMENTAL

K/A: 2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. RO 3.4 SRO 3.8

Objective: T.EP04-08

EXPLANATION:

A is incorrect. RCS and ruptured SG pressures are equalized by cooling down and depressurizing the RCS.

B is correct. The PORV on the ruptured steam generator should remain available to limit steam generator pressure unless it fails open. This will minimize any challenges to the code safety valve.

C is incorrect. The ruptured SG PORV is not used for the RCS cooldown.

D is incorrect. The SG PORV controller in manual by itself will not minimize radioactive release, more concerned about the SG safeties opening.

QUESTION # 073

REFERENCE:

BwAP 340-1 page 10

BANK

FUNDAMENTAL

K/A: 2.4.17 Knowledge of EOP terms and definitions. RO 3.9 SRO 4.3

Objective: T.AM04-28

EXPLANATION:

Choice A is incorrect, see explanation above also it is plausible because the OAS (vs. CAS) page list procedure steps that are applicable prior to performing it in the procedure main body.

Choice B is incorrect, see explanation.

Choice C is correct, BwAP 340-1 states that a step on the CAS page becomes applicable AFTER proceeding past that step in the main body. A CAS step then remains applicable until it is superseded by alternate guidance or stated to be inapplicable. It generally remains applicable throughout its associated procedure unless otherwise stated, and may apply after transition to another procedure if the actions are not inappropriate for the other procedure.

Choice D is incorrect, see explanation.

QUESTION # 074

REFERENCE:

EP-AA-114, Notifications page 2

NEW

HIGHER

K/A: 2.4.29 Knowledge of the emergency plan. RO 3.1 SRO 4.4

Objective: T.ZP1-35

EXPLANATION:

A is incorrect. Plausible if the examinee thinks the time is 10 minutes, which corresponds to when Everbridge must be activated (ERO Duty Team Notification).

B is correct. Candidate must know that the Nuclear Accident Reporting System (NARS) is a telecommunication network and form used to transmit information to appropriate state and local agencies. This notification must be initiated within 15 minutes of the declaration of an emergency.

C is incorrect. Plausible if the examinee thinks the time is 30 minutes.

D is incorrect. Plausible if the examinee thinks the time is 60 minutes, which corresponds to when the NRC must be notified (ENS).

QUESTION # 075

REFERENCE:

BwAP 340-1

BANK (Watts Bar 2008)

FUNDAMENTAL

K/A: 2.4.13 Knowledge of crew roles and responsibilities during EOP usage. RO 4.0 SRO 4.6

Objective: T.AM04-15

EXPLANATION:

A is incorrect. Plausible, since Prudent Operator Actions do allow the RO to take manual compensatory actions which are within the guidelines of an existing procedure.

B is incorrect. Plausible if the candidate confuses the actions required by a PEER CHECK.

C is correct. The operator must stop actions long enough to get approval from the SRO. The SRO would have to address the situation. Per BwAP 340-1 the licensee may take reasonable actions that departs from a license condition or a technical specification in an emergency when as a minimum a licensed SRO has approved the licensee action prior to taking the action.

D is incorrect. Plausible, since under normal circumstances the operator would stop and the SRO would discuss with upper management permission to deviate from the procedures.

QUESTION # 076

REFERENCE:

1BwOA RCP-1 page 13

BwAR 1-7-B3

BANK

HIGHER

SRO

K/A: 003G2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. RO 4.2 SRO 4.0

Objective: T.OA27-05

EXPLANATION:

A is incorrect. Plausible if leakage was <6 gpm.

B is incorrect. Plausible if one of the as this is done in 1BwOA SEC-8 to reduce power to 50%.

C is correct. RCP SEAL LEAKOFF FLOW HIGH will send you into 1BwOA RCP-1. With 1A RCP #1 Seal leakoff flow < 8 gpm, the sum of the #1 & #2 seal leakoff flows is < 8 gpm, so they will maintain at least 9 gpm seal injection flow to the 1A RCP, and initiate a unit shutdown per 1BwGP 100-4, Power Descension, and trip the 1A RCP within 8 hours.

D is incorrect. Plausible if the 1A RCP #1 Seal leakoff flow > 8 gpm, 1BwOA RCP-1 directs actions to trip the reactor, trip RCP, and close 1CV8141A. All of the distracters are partially correct if 1A RCP #1 Seal leakoff flow was less than 8 gpm.

QUESTION # 077

REFERENCE:

2BwFR-S.1 pages 2-4

2BwEP-0 page 3

NEW

HIGHER

SRO

K/A: 004G2.4.1 Knowledge of EOP entry conditions and immediate action steps.

RO 4.6 SRO 4.8

Objective: T.FR01-02

EXPLANATION:

A is correct. Initially the crew is required to enter 2BwEP-0. It is the immediate action of the RO to inform the SRO that the reactor has not tripped. The SRO then will tell the crew to perform immediate actions of an ATWS (2BwFR-S.1). 2BwFR-S.1 is entered since the reactor power is above 5%. Since the first two immediate actions (Verify reactor trip and verify turbine trip) are complete, the next priority for the crew is to start the AF pump and open 2CV8104, emergency boration valve, and start the boric acid pump to start emergency borating the core.

B is incorrect. Plausible since these are both correct actions to take, just not in the right priority/order.

C is incorrect. This would be correct if the examinee thinks they are still in 2BwEP-0 and do not understand the crew is in 2BwFR-S.1.

D is incorrect. This is plausible since AF pumps are required to be started and SI should have actuated since containment pressure is at 4 psig. In 2BwFR-S.1 SI actuation is undesirable since it will cause a FWI signal, which could challenge SG inventory.

QUESTION # 078

REFERENCE:

1BwEP ES-1.1 page 5 and 10

NEW

HIGHER

SRO

K/A: 006A2.13 Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Inadvertent SIS actuation

RO 3.9 SRO 4.2

Objective: T.EP02-09

EXPLANATION:

A is incorrect. See explanation.

B is incorrect. See explanation.

C is incorrect. See explanation.

D is correct. The main concern for an inadvertent SI is that the PZR is filled with water approaching a RCS solid condition and the PZR PORVs are lifting, with pressure being well above 1500 psig securing the SI pumps will not alleviate the situation, isolating 1SI8801A and 1SI8801B will stop high head safety injection flow from further filling the PZR. Per 1BwEP ES-1.1 step 13, check if letdown can be established, it has you restore letdown per 1BwOA ESP-2, since 1CV8160 is failed closed normal letdown cannot be established the RNO for step 13 of 1BwEP ES-1.1 has you establish excess letdown utilizing BwOP CV-15.

QUESTION # 079

REFERENCE:

1-RY-XL-01

Big Note RY-1

LCO 3.4.9

LCO 3.4.9 bases

NEW

FUNDAMENTAL

SRO

K/A: 010A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Heater failures.

RO 3.3 SRO 3.6

Objective: S.RY1-26-D

EXPLANATION:

A is correct. Two groups of PZR heaters are still OPERABLE with the capacity of each group >150 KW and capable of being powered from redundant ESF power supplies, the A and B PZR heaters are still available. The bases states that the PZR heaters provide the capability to maintain subcooling in the long term during loss of offsite power.

B is incorrect. Plausible if the examinee believes that the basis for PZR heaters is to help with a SGTR to help maintain PZR pressure control to equalize RCS pressure while cooling down with a SGTR.

C is incorrect. Plausible if the examinee does not understand that two PZR heaters are still available and the Tech Spec is met.

D is incorrect. See explanation.

QUESTION # 080

REFERENCE:

1BwFR-C.1 page 27; 1BwFR-C.1 Bases step 31

BANK

HIGHER

SRO

K/A: 103A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Phase A and B isolation

RO 3.5 SRO 3.8

Objective: T.FR02-01

EXPLANATION:

A is incorrect. Plausible if the examinee assumes only one RCP can be run to failure.

B is correct. In 1BwFR-C.1, Response to Inadequate Core Cooling, the concept is that a damaged RCP takes lower priority to a damaged core. As long as SG water levels are above 31% and CETC are greater than 1200 °F additional RCPs will be started to provide cooling to the core. There is a note before step 16 stating that "Normal conditions are desired but NOT required for starting RCPs."

C is incorrect. Plausible if the examinee assumes only one RCP can be run to failure.

D is incorrect. Plausible if the examinee thinks that the RCP needs to be secured since a phase B occurred.

QUESTION # 081

REFERENCE:

1BwFR-S.2 on page 3

Big note NI-2

NEW

HIGHER

SRO

K/A: 015G2.4.8 Knowledge of how abnormal operating procedures are used in conjunction with EOPs. RO 3.8 SRO 4.5

Objective: T.FR01-02

EXPLANATION:

A is correct. 1BwFR-S.2 is entered if IR SUR is stable and SR NI's are not energized.

1BwFR-S.2 has the crew monitor IR Nis and post accident neutron monitors and if they indicate stable, it has the crew emergency borate until power is less than 5.0×10^{-11} amps then verify SR detectors are energized.

B is incorrect. Plausible if the examinee thinks SR NIs should be energized or if they think the procedure just requires the plant to be less than P-10 (10%).

C is incorrect. Plausible if the examinee thinks one of the SR NIs have failed, there are actions in tech specs for suspending operations involving positive reactivity for the spent fuel pool, not actions per 1BwFR-S.2.

D is incorrect. Plausible if the examinee assumes that power is not lowering since there might be a dilution occurring, 1BwFR-S.1, ATWS, has you check dilution paths. 1BwFR-S.2 does not have you do this.

QUESTION # 082

REFERENCE:

1BWOA Refuel-2 page 14

LCO 3.7.15 and Bases page 2 and 3.

BANK

FUNDAMENTAL

SRO

K/A: 033A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Inadequate SDM. RO 3.0 SRO 3.5

Objective: S.FC1-07-D

EXPLANATION:

A is incorrect. Plausible since the second part of the answer is correct. Fire protection is incorrect since PW or demin water should be utilized first.

B is correct. TS 3.7.15 basis states that the spent fuel assembly storage racks will maintain Keff less than or equal to 0.95. 1BWOA Refuel-2, Refueling Cavity or Spent Fuel Pool Level Loss, requires that the spent fuel pool be filled by PW or demin water, if demin water fails the procedure calls out to utilize fire protection.

C is incorrect. Plausible since 0.99 Keff is the reactivity requirement when in MODES 3 through 5.

D is incorrect. See explanation.

QUESTION # 083

REFERENCE:

1BWOA SEC-4 page 3 and 4

MODIFIED

HIGHER

SRO

K/A: 079G2.4.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. RO 4.2 SRO 4.2

Objective: T.OA39-03.

EXPLANATION:

A is incorrect. This is a valid distracter since RCP would be secured at step 2a if RCS pressure was less than 200 PSIG.

B is incorrect. This is a valid distracter if RCS pressure greater than 400# and the RCS is solid and if there was erratic flow or amp indications on the RH pump.

C is correct. Per 1BWOA SEC-4 since RCS pressure is less than 400 psig and the PZR is not solid, the main concern is RCS temperatures are dropping. RCS temperature dropping is alleviated by securing an RH pump and throttling CC flow to the RH Heat exchanger. See explanation.

D is incorrect. Plausible to stop the cooldown, but on a loss of instrument air the valves fail open.

QUESTION # 084

REFERENCE:

EP-AA-1001 on page BW 3-13

1-RC-XL-02 page 20 and 21

Simulator

NEW

HIGHER

SRO

Reference provided: EP-AA-1001 Matrix

K/A: 015/017AA2.01 Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Cause of RCP failure

RO 3.0 SRO 3.5

Objective: S.RC2-09-E

EXPLANATION:

A is incorrect. Plausible because amps are abnormal, but amps would be lower than normal operating amps if the pump shaft sheared.

B is incorrect. Plausible if the examinee believes that a SAE is to be declared. MS1 for a SAE would be declared if the manual reactor trip was also not successful from the main control board.

C is incorrect. See explanation.

D is correct. Since the shaft is seized, amps will higher for the operating pump. The plant would automatically trip since 2/3 detectors on 1/4 loops will <90% flow since the 1A RCP is seized. The EAL that is declared is an MA2 (Alert) since the automatic reactor trip was not successful and a manual trip was successful. See explanation.

QUESTION # 085

REFERENCE:

LCO 3.9.5

LCO 3.9.5 bases page 2

Big note RH-1

NEW

FUNDAMENTAL

SRO

K/A: 025AA2.01 Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Proper amperage of running LPI/decay heat removal/RHR pump(s). RO 2.7 SRO 2.9

Objective: S.RH1-12-D

EXPLANATION:

A is incorrect. This is plausible since RH control valves are operated by air, but on a loss of instrument air the RH control valves will fail open and RH low flow alarm would not be in.

B is incorrect. Plausible since the RH system is utilized to mix boron and since Unit 2 is still in MODE 6 there is still fuel in the core and decay heat.

C is correct. With 2RH8701A failing closed the RH pump will have erratic amps and flow will be lowering. The bases for LCO 3.9.5 states that on a loss of the RH system decay heat removal from the core occurs by natural convection to the heat sink provided by the water above the core.

D is incorrect. See explanation.

QUESTION # 086

REFERENCE:

1BwFR-S.1 page 7

CAS page (last page)

BwAP 340-1 page 12 and 14.

BANK

HIGHER

SRO

K/A: 029G2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

RO 4.4 SRO 4.7

Objective: T.FR01-07

EXPLANATION:

A is incorrect. Plausible if the examinee since it is an red path, not allowed though per BwAP 340-1.

B is incorrect. Plausible if the examinee does not understand that after step 7 with the PR < 5% the required actions of the procedure are complete.

C is incorrect. Plausible since there is faulted SG occurring in the stem, not correct though since step 7 has you transition out to step 16 once the reactor is tripped and PR is <5%.

D is correct. 1BwFR-S.1, step 7, Check if Reactor is Subcritical (Continuous Action) PR < 5% and IR SUR is negative the US will transition to step 16 and then transition to 1BwFR-Z.1 since it is red path.

QUESTION # 087

REFERENCE:

1BwCA-2.1 page 39

NEW

FUNDAMENTAL

SRO

K/A: WE12G2.4.9 Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies. RO 3.8 SRO 4.2

Objective: T.CA3-05

EXPLANATION:

A is incorrect. Plausible, this is done in 1BwEP-3. The only cooling ability at this point would be RH, since four SGs have already cooled the plant down.

B is incorrect. Plausible, this is done in 1BwEP ES-1.2, Post LOCA Cooldown and Depressurization, since the RCS is intact in 1BwCA-2.1 this is not as big of a concern as SDM.

C is correct. Step in 1BwCA-2.1 to consult the TSC to verify SDM. This is done since with an uncontrolled depressurization of all SGs, there would be concern for SDM since the core is cooled so rapidly.

D is incorrect. Plausible, this is done in 1BwEP-1 for a LOCA. Since this is 4 faulted SGs with no SGTR, this is not a concern in 1BwCA-2.1.

QUESTION # 088

REFERENCE:

1BwCA-0.0 page 6

BANK

HIGHER

SRO

K/A: 055G2.4.6 Knowledge of EOP mitigation strategies. RO 3.7 SRO 4.7

Objective: T.CA1-10

EXPLANATION:

A is incorrect. Plausible since the 1A DG is powering bus 141. The crew would also transition back to 1BwEP-0 if the 1A SX pump was running. This would be correct if the crew was not already in 1BwCA-0-0.

B is incorrect. Plausible since the 1A DG is powering bus 141. This would be the action taken if bus 241 was powering bus 141, not the 1A DG.

C is incorrect. Plausible since the 1A DG is powering bus 141. The crew would also transition back to 1BwEP-0 if the 1A SX pump was running.

D is correct. Remaining in 1BwCA-0.0 in this case is correct since NEITHER ESF bus is supported. Even though Bus 141 is re-energized, there is no SX cooling for the 1A DG since the 1A SX pump is OOS. Therefore, the 1A DG would not remain running. The ESF bus that cannot be energized (Bus 142), the affected DG emergency stop pushbutton is depressed (1A DG). The ESF bus that cannot be LOADED to SUPPORT continued DG operation (1A SX pump is OOS), the affected DG (1A DG) emergency stop pushbutton is depressed. Therefore, any answer that refers to a transition to 1BwEP-0 is incorrect.

QUESTION # 089

REFERENCE:

1BwOA Sec-4 page 13

NEW

HIGHER

SRO

K/A: 065AA2.06 Ability to determine and interpret the following as they apply to the Loss of Instrument Air: When to trip reactor if instrument air pressure is decreasing. RO 2.2 SRO 2.7

Objective: T.OA39-05

EXPLANATION:

A is incorrect. This would be correct if VCT level could not be maintained. Since IA is still available outside containment this is not an issue. Auto VCT makeup would still occur.

B is incorrect. This is plausible since PZR level is rising, but this is not correct since the CV pump is not tripped until PZR level reaches 80%.

C is correct. Since PZR pressure is 2275 psig and rising and with no instrument air available, PZR sprays will not be able to lower pressure. This means that PZR pressure will be maintained by the PZR PORVs. Per 1BwOA Sec-4 if you are unable to maintain PZR pressure less than 2335# using PZR heaters or sprays it has the crew trip the reactor.

D is incorrect. This plausible since the CV pump would be stopped when PZR level reaches 80%, and the reactor would not be tripped until RCP lower radial bearing or seal outlet exceeded their max temperatures.

QUESTION # 090

REFERENCE:

3.3.1 page 17

3.3.1 Bases page 22

Big Note EF-1 ESF Setpoints

NEW

FUNDAMENTAL

SRO

K/A: 028G2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. RO 3.2 SRO 4.2

Objective: S.RY1-26-D

EXPLANATION:

A is incorrect. Plausible since the reactor will trip on a 2 of 3 coincidence for high PZR level, but this is not correct since the reactor high PZR level trip is blocked below P-7 (10%).

B is correct. Reactor is below P-7 (10%) so the reactor will not trip on high PZR level. 1BwOA Inst-2 will be entered for the failed instrument. The bases for Tech Spec 3.3.1 is to provide protection against water relief through the pressurizer safety valves.

C is incorrect. Plausible since the PZR level system will secure the heaters if PZR level gets low, this is not the bases for Tech Spec 3.3.1 though.

D is incorrect. See explanation.

QUESTION # 091

REFERENCE:

1BwCA-0.0 page 16 and 18

Background Document for 1BwCA-0.0 page 86

NEW

FUNDAMENTAL

SRO

K/A: 076G2.4.35 Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects. RO 4.2 SRO 4.1

Objective: T.CA1-05

EXPLANATION:

A is incorrect. Plausible if the examinee believes that isolating the 1CV8384A and 1CV8384B will limit the release of radioactivity into the aux building, isolating the 1CV8384A and 1CV8384B just establishes conditions to restart a CV pump. 1BwCA-0.1 is plausible since no SI equipment is running, but is incorrect due to PZR level being below 14%.

B is incorrect. See explanation.

C is incorrect. See explanation.

D is correct. From the background document, "isolating the seal return line prevents seal leakage from filling the VCT (via seal return relief valve outside containment) and subsequent transfer to other auxiliary building holdup tanks (via VCT relief valve) with the potential for radioactive release within the auxiliary building." Isolating 1CV8100 or 1CV8112 isolates the seal return line, but since bus 141 is de-energized and 1CV8112 is stuck open, 1CV8100 is required to be locally isolated. The unit supervisor will implement 1BwCA-0.2 since PZR level is less than 14% (it's 10%), the recovery procedure is 1BwCA-0.2 per step 13.b RNO.

QUESTION # 092

REFERENCE:

1BwFR-Z.3 page 2

NEW

FUNDAMENTAL

SRO

K/A: W/E16EA2.1 Ability to determine and interpret the following as they apply to the (High Containment Radiation: Facility conditions and selection of appropriate procedures during abnormal and emergency operations. RO 2.9 SRO 3.3

Objective: T.FR05-04-C

EXPLANATION:

A is incorrect. Plausible since containment spray is utilized to help scrub iodine from containment. But containment spray is never actuated unless containment pressure is >20 psig.

B is incorrect. Plausible since BwOP VQ-6 would purge CNMT, but is not correct since 1BwFR-Z.3 does not direct this. Mini-purge also does not have all of the filters that the Post-LOCA Purge.

C is correct. Per 1BwFR-Z.3, the crew is required to determine if CNMT Atmosphere Filtration System should be placed in service by starting CNMT Charcoal Filter fans per BwOP VP-11. 1BwFR-Z.3 also has you evaluate use of the CNMT Post LOCA Purge System, which would be started by BwOP VQ-7

D is incorrect. See explanation.

QUESTION # 093

REFERENCE:

1BwEP-3 step 6 Caution 1 (page 9

1BwEP-3 background document page 20.

BANK

HIGHER

SRO

K/A: W/E08EA2.1 Ability to determine and interpret the following as they apply to the (Pressurized Thermal Shock: Facility conditions and selection of appropriate procedures during abnormal and emergency operations. RO 3.4 SRO 4.2

Objective: T.EP04-08

EXPLANATION:

A is incorrect. Plausible if the examinee assumes that when high head ECCS flow is terminated you are allowed to transition to 1BwFR-P.1.

B is correct. Since the RCPs are secured when the rapid cooldown of the RCS occurs it gives a Caution in 1BwEP-3 that states that PTS concern may occur, but that operators should remain in 1BwEP-3 until step 29 is complete (RCS and S/G pressure are equalized). The bases also say If the RCS is being cooled down on natural circulation during a steam generator tube rupture event, reverse flow through the ruptured loop during the cooldown or when the pressurizer PORV is opened to depressurize the RCS is possible and could cause the SI flow path in the ruptured loop to change. This change in the SI flow path could result in an indicated cold leg temperature (due to the location of the cold leg RTD) that drops to the point that the symptoms for FR-P.1 would occur. This false indication would only be seen in the ruptured loop since it is essentially stagnant while the other loops are circulating by natural circulation. This caution is for the STA and the RO would never be assigned to monitor this. This is a SRO job to monitor this caution.

C is incorrect. Plausible if the examinee does not understand that 1BwEP-3 actions cause this condition and transition is not required until step 29 is complete (RCS and S/G pressure are equalized).

D is incorrect. Plausible if the examinee assumes that 1BwEP-3 takes priority over 1BwFR-P.1, which is only true until step 29 is complete.

QUESTION # 094

REFERENCE:

1BwGP 100-6, Refueling Outage, page 17 and 20

OU-AP-200, Administrative Controls during Fuel Handling Activities For Byron and Braidwood, page 6

NEW

FUNDAMENTAL

SRO

K/A: 2.1.36 Knowledge of procedures and limitations involved in core alterations.

RO 3.0 SRO 4.1

Objective: T.GP06-05

EXPLANATION:

A is correct. Per OU-AP-200 the Licensed Supervisor with an active SRO License must be present at the refuel cavity with no other concurrent responsibilities whenever a core alteration is in progress. Per 1BwGP 100-6 it states that unlatching the control rod drift shaft is considered to be a core alteration.

B is incorrect. 1BwGP 100-6 specifically states movement of the upper internals is NOT considered to be a core alteration.

C is incorrect. Withdrawing the MIDS thimble tubes is not a core alteration, is plausible since it is performed in 1BwGP 100-6.

D is incorrect. 1BwGP 100-6 specifically states that lifting of the reactor vessel head does not constitute a core alteration.

QUESTION # 095

REFERENCE:

1BwGP 100-2 page 26

1BwGP 100-2A1 page 1

NEW

HIGHER

SRO

K/A: 2.1.43 Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.

RO 4.1 SRO 4.3

Objective: T.GP02-01

EXPLANATION:

A is correct. The US is required to enter 1BwGP 100-2A1, Attachment A Contingency for Suspended Reactor Startup, then direct the crew to emergency borate AND insert control banks A-C since criticality was achieved with the control banks below the low-low insertion setpoint of control bank C at 47 steps. See explanation.

B is incorrect. Plausible since enter the crew is required to enter 1BwGP 100-2A1, Attachment A Contingency for Suspended Reactor Startup. It is incorrect since in Attachment A it does not say to immediately open the reactor trip breakers.

C is incorrect. Plausible since a Tornado Watch is in effect, a Tornado WARNING is required to go into 1BwGP 100-2A3. Even if the crew went into 1BwGP 100-2A3, a Tornado Warning is required before the crew inserts control banks A-C.

D is incorrect. Plausible if the examinee realized a Tornado Warning is not in effect and does not understand that the reactor went critical below the low-low insertion setpoint.

QUESTION # 096

REFERENCE:

CC-AA-103 page 7

NEW

FUNDAMENTAL

SRO

K/A: 2.2.5 Knowledge of the process for making design or operating changes to the facility.

RO 2.2 SRO 3.2

Objective: 7E.AM-003-A

EXPLANATION:

A is correct. CC-AA-103, Configuration Change Control for Permanent Physical Plant Changes, section 3.9 Operations is responsible for identifying AND ensuring specific operating procedures are updated for the Configuration Change.

B is incorrect. This is the Design Reviewer's responsibility per CC-AA-103 section 3.7.

C is incorrect. This is the Design Engineering Manager's responsibility per CC-AA-103 section 3.6.3.

D is incorrect. The Plant Manager is responsible for approving Configuration Change at the Plant Operations Review Committee (PORC). (CC-AA-103 section 3.11)

QUESTION # 097

REFERENCE:

EP-AA-1001 page BW 3-12

Supplied Reference: EP-AA-1001, Pages BW 3-10 through BW 3-28

NEW

HIGHER

SRO

K/A: 2.3.5 Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

RO 2.9 SRO 2.9

Objective: T.ZP1-15

EXPLANATION:

A is incorrect. Plausible since an Unusual Event would be declared (RU2) with any area monitor rise by a factor of 1000.

B is incorrect. Plausible if the examinee uses 1AR021 radiation instead of 1AR020, this would only cause the RCS to be lost and not the fuel cladding.

C is correct. The 1AR020 reading 2000R/hr indicates that a loss of the RC system occurred since it is greater than 25 R/hr and a loss of the Fuel Clad has occurred since it is greater than 1950 R/hr. That means there is a loss of two barriers and FS1 and SAE would be declared.

D is incorrect. Plausible if no CS system started with containment pressure >20#. Since one train of CS did start, containment is not lost or potentially lost.

QUESTION # 098

REFERENCE:

1BwEP-3 page 6

NEW

HIGHER

SRO

K/A: 2.3.11 Ability to control radiation releases. RO 3.8 SRO 4.3

Objective: T.EP04-06

EXPLANATION:

A is incorrect. Plausible since the step has the crew dump steam from any intact SG(s) that are isolated from all ruptured SG(s), since no intact SG are isolated from the ruptured SG this is incorrect.

B is correct. In 1BwEP-3 if the MSIVs fail to go closed, the steam dumps are isolated to minimize the release of radioactivity from the SG, 1BwCA-3.1 is entered after the steam dumps are closed since the ruptured SG cannot be isolated from at least one intact SG. Additional valves are also isolated, the Main FW pump turbine HP stop valves, MS RHTR S/U purge control valves, MS RHTR Shutoff Valves, Gland steam isolation and bypass valves, SJAE isolation valves.

C is incorrect. Plausible since the cooldown is necessary to and this is a strategy in 1BwCA-3.2, but is incorrect since 1BwCA-3.2 is only entered from 1BwCA-3.1.

D is incorrect. Plausible since the cooldown is necessary to and this is a strategy in 1BwCA-3.2, but is incorrect since 1BwCA-3.2 is only entered from 1BwCA-3.1.

QUESTION # 099

REFERENCE:

BwEP-3 page 46

BwEP-3 background document (BD-EP-3) EOP step 37 on page 88.

BANK

HIGHER

SRO

K/A: 2.4.18 Knowledge of the specific bases for EOPs. RO 3.3 SRO 4.0

Objective: T.EP04-09

EXPLANATION:

A is incorrect. From the given information, natural circulation conditions are currently present.

B is correct. From the background document, it is desirable to start an RCP "to provide normal pressurizer spray and to ensure homogeneous fluid temperatures and boron concentrations. In addition to minimizing pressurized thermal shock and boron dilution concerns, this also aids in cooling the ruptured SG."

C is incorrect. Not starting an RCP is incorrect, plausible if the examinee thinks starting an RCP will result in more SG tube leakage.

D is incorrect. See explanation.

QUESTION #100

REFERENCE:

2BwCA-1.3 step 41.a RNO page 35

BANK

HIGHER

SRO

K/A: 2.4.16 Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines. RO 3.5 SRO 4.4

Objective: T.CA2A-03

EXPLANATION:

A is incorrect. Plausible since a loss of emergency coolant recirculation has occurred since the recirculation sump screens are blocked.

B is incorrect. Plausible since the crew was in 2BwEP ES-1.3, Transfer to Cold Leg Recirculation when the debris clogged the sump screens.

C is incorrect. Plausible since there is a red path for core cooling since CETC are greater than 1200°F. There is a NOTE in the beginning of 2BwCA-1.3 that states that Braidwood Status Trees should be monitored for information only. BwFRs should NOT be implemented.

D is correct. Since CETC's are greater than 1200°F and rising, the operator is directed to GO TO SACRG-1 at this point in the procedure because all other methods have been attempted to lower CETC temperature.

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Answer Key

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