22 **ID: Q23208** **Points: 1.00**

Given references:

EOP-6 is implemented for a tube rupture and RCS pressure is currently 1000 PSIA.

Which one of the following RCS temperatures will come closest to producing a 25°F RCS subcooled margin?

A. 519°F

B. 541°F

C. 544°F

D. 569°F

Answer: A

Answer Explanation:

A. Correct - Per Table 2 of the Steam Tables saturation temperature for 1000 PSIA is 544°F. 544°F minus 25°F = 519°F.

B. Incorrect - Value is based on candidate subtracting 25 PSIA from 1000 PSIA and taking the saturation temperature for 975 PSIA.

C. Incorrect - Value is the saturation temperature for 1000 PSIA.

D. Incorrect – Value is based on candidate erroneously adding 25°F to the saturation temperature for 1000 PSIA instead of subtracting.

Question 22 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.1
CFR:	41.8 / 41.10 / 45.3
KA Number:	EPE: 038 Steam Generator Tube Rupture (SGTR) EK1 Knowledge of the operational implications of the following concepts as they apply to the SGTR: • EK1.01 Use of steam tables
Bank, new or modified?	Bank question
References provided to candidate	Steam Tables
References:	
Cross Reference Number:	
User-Defined ID:	Q23208
Comments:	

23 **ID: Q50830** **Points: 1.00**

At 30% power which of the below listed indications would provide the first indication of a small (approximately 5 GPD) Steam Generator tube leak?

A. N-16 Rad Monitor

B. S/G Blowdown RMSs

C. Condenser Off-gas RMS (RI-1572A - D)

D. Main Steam Effluent Radiation monitor

Answer: C

Answer Explanation:

A. Incorrect - The N-16 RMS is the second most sensitive of the installed instrumentation but does not provide reliable indication of leakrate when reactor power is less than 40%.

B. Incorrect - B/D RMS is the third most sensitive of the installed instrumentation in detecting a small S/G tube leak of 8 GPD or greater per Chemistry sensitivity estimates.

C. Correct - Condenser Off-gas RMS is the most sensitive of installed instrumentation in detecting a small S/G tube leak per Chemistry sensitivity estimates.

D. Incorrect - Main Steam Effluent RMS is the fourth most sensitive of the installed instrumentation per Chemistry sensitivity estimates, but does not provide reliable indication of leakrate when reactor power is less than 50%.

Question 23 Info	
Cognitive Level	1.00
Tier/Group	2/2
RO Importance:	2.6
CFR:	41.2 to 41.9 / 45.7 to 45.8
KA Number:	SYSTEM: 055 Condenser Air Removal System (CARS) K1 Knowledge of the physical connections and/or cause effect relationships between the CARS and the following systems: • K1.06 PRM system
Bank, new or modified?	New question
References provided to candidate	None
References:	Lesson Plan # LOI-077-1-2
Cross Reference Number:	LOR 203-6-S-08
User-Defined ID:	Q50830
Comments:	

24 **ID: Q24549** **Points: 1.00**

11 and 13 Condensate Booster Pumps are in operation with Unit-1 at 80% power when 11 Condensate Booster Pump trips.

Which ONE of the following is the correct response?

A. Verify the backup Condensate Booster pump starts, SGFP suction pressure is adequate and S/G level is being maintained at "0" inches.

B. Attempt to restart the tripped pump; if unable to restart then, trip the reactor and implement EOP-0.

C. Reduce power as necessary to maintain Condensate header flow less than 8500 GPM.

D. Verify the backup Condensate Booster pump starts, bypass Condensate Precoats and Demineralizers, adjust SGFP Bias potentiometers to approximately 4.5, and monitor S/G levels for trends.

Answer: A

Answer Explanation:

A. Correct - Per AOP-3G.

B. Incorrect - AOP-3G contains provision for tripping the reactor if only one Condensate Booster Pump is running if power is >70%.

C. Incorrect - Valid if power is <70% with only one Condensate Booster Pump in operation.

D. Incorrect - Lowering bias setting would reduce SGFP speed complicating the loss of the Condensate Booster Pump. This is plausible because the CBP will auto start – bypassing precoats is a required action later in the procedure – only adjusting the SGFP bias down is incorrect – would want to increase bias setting.

Question 24 Info	
Cognitive Level	1.00
Tier/Group	2/2
RO Importance:	3.7
CFR:	41.10 / 43.5 / 45.13
KA Number:	SYSTEM: 056 Condensate System 2.4.6 Knowledge of EOP mitigation strategies.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-3G
Cross Reference Number:	
User-Defined ID:	Q24549
Comments:	

25 **ID: Q50852** **Points: 1.00**

Given the following:

- Unit 2 is at 100% power
- Pressurizer Level instrumentation is selected to Channel X
- Pressurizer Pressure instrumentation is selected to Channel X
- Reactor Reg is selected to Channel X
- 120 VAC bus 2Y02 has been de-energized

Which is a required operator action for this condition?

A. Shift Pressurizer Pressure and Level instrumentation to Channel Y and shift PZR HTR LO LVL CUTOFF SEL switch to the Y position.

B. Shift Letdown Controller, 2-PIC-201, to MANUAL and control Letdown backpressure at 440 to 480 PSIG.

C. Verify LETDOWN THROTTLE VLV CONTROLLER, 2-HIC-110, in MANUAL until RCS loop 22 instruments have been isolated to RRS Channel X.

D. Place VCT OUT, 2-CVC-501-MOV in OPEN, place CHG PP SUCT, 2-CVC-504-MOV in CLOSE, and adjust turbine load as necessary to maintain Tcold on program.

Answer: C

Answer Explanation:

A. Incorrect - This would be the correct response to a loss of 2Y01 with the pressure and level instruments aligned this way. If this step is chosen, the student would be shifting to failed instrumentation.

B. Incorrect - The letdown controller is not affected by a loss of 2Y02, but it is de-energized on a loss of 2Y09.

C. Correct - Per AOP-7J.

D. Incorrect - This step is applicable to a loss of 2Y10. Charging pump suction does not shift to the RWT automatically on a loss of 2Y02.

Question 25 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.5
CFR:	41.7 / 45.5 / 45.6
KA Number:	APE: 057 Loss of Vital AC Electrical Instrument Bus AA1. Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: • AA1.06 Manual control of components for which automatic control is lost
Bank, new or modified?	New question
References provided to candidate	None
References:	AOP-7J
Cross Reference Number:	
User-Defined ID:	Q50852
Comments:	

26 **ID: Q50851** **Points: 1.00**

Given references:

Unit 2 has been shutdown due to excessive RCS leakage. Initial plant conditions were:

- RCS pressure - 2250 PSIA
- Pressurizer level - 160" and stable
- One charging pump running
- Letdown flow - 30 GPM
- PORV block valves 2-RC-403-MOV and 2-RC-405-MOV are shut.
- Acoustic monitors for PORV-402 and RV-200 indicate .12

After fifteen (15) minutes, the crew has depressurized the RCS to 1800 PSIA with the following plant conditions:

- Pressurizer level - 160" and stable
- One charging pump running
- Letdown flow - 32 GPM
- PORV block valves 2-RC-403-MOV and 2-RC-405-MOV are shut.
- Acoustic monitors for PORV-402 and RV-200 indicate .09

Based on the information provided the initial & final leakrates are:

A. 2 GPM, 0.4 GPM

B. 6 GPM, 4 GPM

C. 8 GPM, 6 GPM.

D. 8 GPM, 2 GPM.

Answer: C

Answer Explanation:

A. Incorrect – Plausible if calculation based on difference between letdown flow rates and dividing the difference by the square root of the difference between 2250 PSIA and 1800 PSIA.

B. Plausible based on candidate math error where final leakrate is calculated first.

C. Correct – Charging (44 GPM) minus letdown (30 GPM) minus CBO (6 GPM) = 8 GPM initial leakrate. Charging (44 GPM) minus letdown (32 GPM) minus CBO (6 GPM) = 6 GPM final leakrate.

D. Incorrect – Plausible based on calculation of initial leakrate and use of letdown difference as final value.

Question 26 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.1
CFR:	41.8 / 41.10 / 45.3
KA Number:	APE: 008 Pressurizer (PZR) Vapor Space Accident (Relief Valve Stuck Open) AK1. Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: • AK1.02 Change in leak rate with change in pressure
Bank, new or modified?	New question
References provided to candidate	AOP-2A, Attachment 1, Estimate gross leak rate
References:	AOP-2A, 1C06-ALM Window E-22
Cross Reference Number:	
User-Defined ID:	Q50851
Comments:	

27 **ID: Q50651** **Points: 1.00**

Unit-1 is at 100% power when annunciator D-45, REACTOR TRIP BUS U/V RELAY TRIP, alarms. 1C15 instrumentation indicates 4/4 bus undervoltage relays have tripped, the Reactor Trip pushbuttons at 1C05 have been depressed and all the Reactor Trip Circuit Breakers are shut.

Which of the following actions should be taken?

A. Open the 12A and 13A 480V bus feeder breakers ONLY.

B. Depress the Reactor Trip pushbuttons at 1C15 ONLY.

C. Open the 12A and 13A feeder breakers and their bus tie breakers.

D. First, Depress the Reactor Trip pushbuttons at 1C15, then open the 12A and 13A feeder breakers and their bus tie breakers.

Answer: C

Answer Explanation:

A. Incorrect - Per EOP-0, the bus tie breakers must also be opened.

B. Incorrect - EOP-0 does not reference/require pushing both sets of Reactor Trip pushbuttons.

C. Correct - Per EOP-0.

D. Incorrect - EOP-0 does not reference/require pushing both sets of Reactor Trip pushbuttons.

Question 27 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	4.5
CFR:	41.7 / 45.5 / 45.6
KA Number:	EPE: 029 Anticipated Transient Without Scram (ATWS) EA1 Ability to operate and monitor the following as they apply to a ATWS: • EA1.08 Reactor trip switch pushbutton
Bank, new or modified?	Modified
References provided to candidate	None
References:	EOP-0
Cross Reference Number:	LOR-020590407-001
User-Defined ID:	Q50651
Comments:	

28 **ID: Q34432** **Points: 1.00**

Which of the following accurately describes how Fire Main System Pressure is maintained during Diesel Fire Pump operation?

A. Diesel Fire Pump is a centrifugal pump with a max discharge of 125 PSIG.

B. Diesel Fire Pump Engine has a Governor that receives input from pump discharge pressure, limiting pressure to 125 PSIG.

C. Diesel Fire Pump's impeller has movable suction vanes that straighten as flow demand goes up.

D. Diesel Fire Pump discharge RV operates to limit Fire Main pressure.

Answer: D

Answer Explanation:

A. Incorrect - Diesel Fire Pump is capable of 150 PSIG discharge pressure.

B. Incorrect - Diesel Fire Pump governor maintains a constant speed. Discharge pressure is controlled by discharge RV.

C. Incorrect - Diesel Fire Pump has fixed vane impeller. Candidate may assume pump construction is similar to EHC Pumps, Domestic Water Pumps or Plant Service Water Pumps

D. Correct - Per SD-013, 0-RV-6226 operates to maintain fire main pressure < 146 PSIG.

Question 28 Info	
Cognitive Level	1.00
Tier/Group	2/2
RO Importance:	3.0
CFR:	41.7
KA Number:	SYSTEM: 086 Fire Protection System (FPS) K4 Knowledge of design feature(s) and/or interlock(s) which provide for the following: • K4.02 Maintenance of fire header pressure
Bank, new or modified?	Bank question
References provided to candidate	None
References:	S/D-13
Cross Reference Number:	FASW-FIREMAIN-03-1M
User-Defined ID:	Q34432
Comments:	

29 **ID: Q50870** **Points: 1.00**

Which of the statements below correctly summarizes the administrative requirements regarding who can temporarily relieve the RO and what has to be completed for turnover?

A. The Shift Manager, PWS (if an SRO or RO) may relieve the RO. Prior to leaving the surveillance area, the RO shall verify the relieving individual has completed the RO Shift Turnover Checklist to ensure cognizance of plant conditions and the status of vital safety parameters and equipment.

B. The PWS (if an SRO or RO) may relieve the RO. Prior to leaving the surveillance area, the RO shall verbally brief the relieving individual on the status of the plant and any special conditions which may require attention during the RO's brief absence

C. The PWS (if an SRO or RO) may relieve the RO. Prior to leaving the surveillance area, the RO shall verify the relieving individual has completed the RO Shift Turnover Checklist to ensure cognizance of plant conditions and the status of vital safety parameters and equipment.

D. The Shift Manager or PWS (if an SRO or RO) may relieve the RO. Prior to leaving the surveillance area, the RO shall verbally brief the relieving individual on the status of the plant and any special conditions which may require attention during the RO's brief absence.

Answer: B

Answer Explanation:

A. Incorrect - RO is not responsible for ensuring his relief has completed the RO Turnover Checklist. The Shift Manager can relieve the CRS, but cannot relieve the RO.

B. Correct - as specified in NO-1-200.

C. Incorrect – RO checklist does not have to be completed.

D. Incorrect – The Shift Manager can relieve the CRS, but cannot relieve the RO.

Question 29 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.7
CFR:	41.10 / 45.13
KA Number:	2.1.3 Knowledge of shift or short-term relief turnover practices.
Bank, new or modified?	New question
References provided to candidate	None
References:	NO-1-200, Control of Shift Activities
Cross Reference Number:	
User-Defined ID:	Q50870
Comments:	

30 **ID: Q24951** **Points: 1.00**

Which description accurately describes the PAMS touch screen functions on the Control Room panels?

A. Each panel touch screen can display only its designated Technical Specification functions.

B. Each panel touch screen is capable of displaying any of the monitored PAMS functions.

C. Each panel touch screen is capable of displaying only its designated Technical Specification functions and any alarming PAMS functions.

D. Each panel touch screen is capable of displaying any of the monitored PAMS functions and can also be used to bypass any failed PAMS instrumentation.

Answer: B

Answer Explanation:

A. Incorrect - Touch screen displays are fully interchangeable. Plausible because each screen is dedicated per STP-O-63 for PAMS operability.

B. Correct - Per system design.

C. Incorrect - Touch screen displays are fully interchangeable. Plausible because each screen is dedicated per STP-O-63 for PAMS operability

D. Incorrect - Bypassing must be accomplished at the 2C144B or 2C182B cabinets. The screens on 2C144B and 2C182B are exactly like the screens on the control room panels, but the bypass function is not enabled in the control room.

Question 30 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.7
CFR:	41.6 / 45.4
KA Number:	2.4.3 Ability to identify post-accident instrumentation.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	CCNPP-PAMS-0003-03
Cross Reference Number:	114-1-03
User-Defined ID:	Q24951
Comments:	

31 **ID: Q42267** **Points: 1.00**

Unit 1 has experienced a Loss of Coolant Accident and implemented EOP-5. Significant core damage occurred, and the plant has reached the point where it is lining up to go on shutdown cooling (SDC).

The Auxiliary Building Operator (ABO) was sent to the -15 foot level of the Auxiliary Building to commence the requisite valve line-ups twenty minutes ago, and has not been heard from. Repeated attempts to contact him by radio are unsuccessful. The oldest, qualified ABO is selected to conduct a search and recovery of the lost individual under an emergency work permit (EWP). Health Physics estimates that the average dose rate once exiting the elevator on the -10 of the Aux Building, through the -15 foot hallway, is 100 REM per hour. Based on this dose rate, what is the maximum time the searcher can remain on the -10/-15 foot AB before exceeding the CCNPP lifesaving limit?

A. 3 minutes

B. 6 minutes

C. 10 minutes

D. 15 minutes

Answer: D

Answer Explanation:

A. Incorrect – Candidate assumes the limit is 5 REM.

B. Incorrect – The allowed dose for plant-saving is 10 REM. 100REM/60 min / 10 REM = 6 minutes.

C. Incorrect - Candidate could just divide the 100 REM dose by the 10 REM limit for plant saving actions.

D. Correct - The allowed dose for Lifesaving operations at CCNPP is 25 REM. 100 REM/60 min / 25 REM = 15 minutes.

Question 31 Info	
Cognitive Level	2.00
Tier/Group	Generic
RO Importance:	3.4
CFR:	41.12 / 43.4 / 45.10
KA Number:	2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	ERPIP 8.31
Cross Reference Number:	
User-Defined ID:	Q50890
Comments:	

32 **ID: Q25936** **Points: 1.00**

A Unit-1 reactor startup is in progress. The reactor is **NOT** critical with the regulating group CEAs at the Upper Bound CEA Position on the ECC form.

Which one of the following actions must be taken?

A. Maintain all regulating CEAs at the upper bound position and dilute the RCS to criticality.

B. Insert all Regulating CEAs to the lower bound position and recalculate the ECC.

C. Maintain all CEAs at the upper bound position and notify Reactor Engineering.

D. Insert regulating CEAs to the ZPDIL position and notify Reactor Engineering.

Answer: D

Answer Explanation:

A. Incorrect - OP-2 has no procedural allowance for dilution to criticality. Plausible because this method is used for reactor startup, using PSTP-2, following refueling of the reactor.

B. Incorrect - CEAs are not required to be inserted to the lower bound.

C. Incorrect – These actions are not supported by OP-2.

D. Correct - Per OP-2, Unit-1, Step 6.7.F.5.

Question 32 Info	
Cognitive Level	2.00
Tier/Group	Generic
RO Importance:	4.5
CFR:	41.5 / 41.10 / 43.5 / 43.6 / 45.1
KA Number:	2.2.1 Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OP-2 Unit-1, Step 6.7.F.5
Cross Reference Number:	LOR-206-11
User-Defined ID:	Q25936
Comments:	

33 **ID: Q51132** **Points: 1.00**

After completing OI-26B, Section 6.4 "Transferring a 120V Vital AC Bus from its Inverter to the Inverter Backup Bus", what key indication is used to ensure the Inverter Backup bus is successfully supplying a Vital AC Instrument Bus?

A. The INVERTER BACKUP BUS voltage indicates 120 (+/- 4) VAC as read on 1(2)Y11.

B. Associated VITAL AC INST BUS VOLTS indicate 120 (+/- 4) VAC as read on 1C24A.

C. "INVERTER B/U BUS INSERV" alarm annunciates on 1 (2)C19.

D. Associated VITAL BUS TRANSFER SWITCH POSITION lights on 1C24A change from INVERTER being lit to BACKUP BUS being lit.

Answer: B

Answer Explanation:

A. Incorrect - No voltage indication is available on the inverter backup bus for the vital bus it is carrying.

B. Correct - Per OI-26B, the indications specified is on 1C24A.

C. Incorrect - This indication is not specified in the OI for verifying the proper shift to the backup bus.

D. Incorrect - This indication is available, but it does not ensure the vital bus is at the correct voltage.

Question 33 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	3.7
CFR:	43.5 / 45.13
KA Number:	APE: 058 Loss of DC Power AA1. Ability to operate and / or monitor the following as they apply to the Loss of DC Power: • AA1.01 Cross-tie of the affected dc bus with the alternate supply
Bank, new or modified?	New question
References provided to candidate	None
References:	OI-26B
Cross Reference Number:	
User-Defined ID:	Q51132
Comments:	

34 **ID: Q51170** **Points: 1.00**

Given the following:

- Unit-2 is operating at 100% power.
- Following completion of shift turnover at 1830, the 2B DG is declared out of service due to problems with the fuel oil transfer pump.
- You are removing the 2B DG from service.

What offsite organization is required to be notified per OI-21B, 2B DIESEL GENERATOR?

A. The Nuclear Regulatory Commission (NRC)

B. Southern Maryland Electric Co-operative (SMECO)

C. System Operator – Transmission Systems Operation (SO – TSO)

D. The Nuclear Safety Review Board (NSRB)

Answer: C

Answer Explanation:

A. Incorrect - The NRC is not required to be notified of DG unavailability.

B. Incorrect - SMECO is not required to be notified of DG unavailability. This choice is plausible because CCNPP makes notifications to SMECO with respect to using the SMECO feed as an emergency power source.

C. Correct - As specified in Unit-2, OI-21B, Sect 6.10.

D. Incorrect - The NSRB is not required to be notified of DG unavailability. Candidate may think safety related equipment unavailability requires review by the NSRB.

Question 34 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	2.6
CFR:	41.10 / 43.5 / 45.13
KA Number:	2.2.17 Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, and coordination with the transmission system operator.
Bank, new or modified?	New question
References provided to candidate	None
References:	OI-21B, Section 6.10
Cross Reference Number:	
User-Defined ID:	Q51170
Comments:	

35 **ID: Q18107** **Points: 1.00**

A Loss of Offsite Power has occurred with the 1B DG failing to start. Assuming no electrical buses are tied, which of the following is correct?

A. 11 and 13 Pressurizer Heater Backup Banks are available from 1C43 only.

B. 11 and 13 Pressurizer Heater Backup Banks are available from 1C06 and 1C43.

C. Only 11 Pressurizer Heater Backup Bank is available and only from 1C43.

D. Only 13 Pressurizer Heater Backup Bank is available and only from 1C43.

Answer: C

Answer Explanation:

A. Incorrect - 13 Pressurizer Heater Backup Bank is deenergized with the loss of 14 4KV Bus.

B. Incorrect - 13 Pressurizer Heater Backup Bank is deenergized with the loss of 14 4KV Bus.

C. Correct - 11 Pressurizer Heater Backup Bank remains available but must be operated from 1C43 due to the loss of 1Y10.

D. Incorrect - 13 Pressurizer Heater Backup Bank is deenergized with the loss of 14 4KV Bus.

Question 35 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.5
CFR:	43.5 / 45.13
KA Number:	APE: 056 Loss of Offsite Power AA2. Ability to determine and interpret the following as they apply to the Loss of Offsite Power: • AA2.73 PZR heater on/off
Bank, new or modified?	Bank question
References provided to candidate	None
References:	1E-75 sht. 24
Cross Reference Number:	CRO-62-1-6-44
User-Defined ID:	Q18107
Comments:	

36 **ID: Q14389** **Points: 1.00**

Given the following conditions:

- Plant is in Mode 5, RCS Heatup in progress
- RCS pressure is 275 PSIA
- SG secondary temperature locally is 170°F
- RCS temperature is 160°F
- PZR level is 160 inches
- 12A RCP is tagged out for adjustment of proximeter probes
- 11A RCP has been running for 3 minutes

What action should be taken if 11B RCP fails to start?

A. Continue heatup and raise RCS pressure to satisfy NPSH for one RCP operating.

B. Start the 12B RCP immediately.

C. Attempt to restart the 11B RCP in 30 minutes.

D. Stop 11A RCP and re-initiate Shutdown Cooling.

Answer: D

Answer Explanation:

A. Incorrect - OP-1 one requires RCPs be operated, in pairs of pumps in the same loop, for NPSH requirements at the given pressure and temperature.

B. Incorrect - OP-1 one requires RCPs be operated, in pairs of pumps in the same loop, for NPSH requirements at the given pressure and temperature.

C. Incorrect - OP-1 contains no guidance for attempting restart of an RCP. The remaining RCP should **NOT** be operated at reduced NPSH.

D. Correct - Action is specified by OP-1 if two pumps/same loop cannot be placed in operation.

Question 36 Info	
Cognitive Level	3.00
Tier/Group	2/1
RO Importance:	2.6
CFR:	41.7 / 45.5
KA Number:	SYSTEM: 003 Reactor Coolant Pump System (RCPS) K6 Knowledge of the effect of a loss or malfunction on the following will have on the RCPS: • K6.14 Starting requirements
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OP-1 Step 6.3.Q, OI-1A
Cross Reference Number:	
User-Defined ID:	Q14389
Comments:	

37 **ID: Q14376** **Points: 1.00**

Prior to shifting a running Reactor Coolant Pump power supply to the opposite unit, which interlock for the RCP is satisfied by its "normal" breaker being closed?

A. Adequate CCW flow.

B. Adequate oil lift pressure.

C. Synchronizing stick in place.

D. Unit service 12/22 bus energized.

Answer: B

Answer Explanation:

A. Incorrect - The CCW flow interlock must be made up to shift RCPs to their backup power supplies.

B. Correct - Per Drawing # 61075 the "normal" breaker being shut bypasses the contact for the oil lift pump discharge press switch only.

C. Incorrect - The synchronizing stick interlock must be made up to shift RCPs to their backup power supplies.

D. Incorrect - The procedure for shifting RCPs to their backup power supplies requires 12 & 22 13KV Services Busses be energized as a prerequisite. The RCP "Normal" breakers are not interlocked with the RCP Service Busses.

Question 37 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	4.6
CFR:	41.10 / 45.12
KA Number:	2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OI-1A, Dwg # 61075
Cross Reference Number:	
User-Defined ID:	Q14376
Comments:	

38 **ID: Q14353** **Points: 1.00**

Which statement represents the **initial** response of the Pressurizer to control RCS pressure following a 1°F rise in RCS average temperature?

A. Steam bubble compresses and steam condenses to liquid to limit the pressure rise.

B. Steam bubble expands and liquid flashes to steam to limit the pressure rise.

C. Heaters energize to heat incoming cold water to maintain system pressure.

D. Pressurizer spray valves close to maintain RCS pressure.

Answer: A

Answer Explanation:

A. Correct - Steam bubble compresses raising pressure which raises saturation temperature for the Pressurizer condensing some of the steam bubble.

B. Incorrect - RCS temperature rises cause RCS expansion which results in an insurge compressing the Pressurizer bubble.

C. Incorrect - A 1°F RCS temperature change would not cause an insurge of sufficient volume to energize the heaters.

D. Incorrect - Pressurizer spray valves would, if anything, modulate open to control a rise in Pressurizer pressure.

Question 38 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.1
CFR:	41.5 / 45.5
KA Number:	SYSTEM: 010 Pressurizer Pressure Control System (PZR PCS) A1 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: • A1.06 RCS heatup and cooldown effect on pressure
Bank, new or modified?	Bank question
References provided to candidate	None
References:	LOI-064A1-0
Cross Reference Number:	
User-Defined ID:	Q14353
Comments:	

39 **ID: Q20195** **Points: 1.00**

Which condition is required to enable the S/G Pressure Trip if it were bypassed using the LOW S/G Pressure Bypass keyswitch?

A. Both 11 and 12 S/G pressure > 767 PSIA (785 PSIA Tech Spec) are required

B. Both 11 and 12 S/G pressures > 703 PSIA (685 PSIA Tech Spec) are required.

C. Either 11 or 12 S/G pressure > 767 PSIA (785 PSIA Tech Spec) are sufficient.

D. Either 11 or 12 S/G pressure > 703 PSIA (685 PSIA Tech Spec) are sufficient.

Answer: C

Answer Explanation:

A. Incorrect - Right setpoint ... wrong logic. Low pressure Trip is enabled from **either** S/G.

B. Incorrect - 685 PSIA is the T.S. minimum S/G Low Pressure Trip Setpoint.

C. Correct - Per 1C05-ALM, 1C08-ALM

D. Incorrect - 685 PSIA is the T.S. minimum S/G Low Pressure Trip Setpoint.

Question 39 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.3
CFR:	41.7 / 45.7
KA Number:	SYSTEM: 012 Reactor Protection System (RPS) K6 Knowledge of the effect of a loss or malfunction of the following will have on the RPS: K6.10 Permissive circuits
Bank, new or modified?	Bank question
References provided to candidate	None
References:	1C05-ALM, 1C08-ALM
Cross Reference Number:	CRO-59-1-5-74
User-Defined ID:	Q20195
Comments:	

40 **ID: Q51131** **Points: 1.00**

Why is the operating CEDM Cooling Fan secured when RCS temperature is less than 300°F?

A. Prevents exceeding RCS cooldown rates.

B. Lessens the spread of airborne contamination to support containment entry.

C. Reduces the heat load on the Component Cooling System.

D. To prevent condensation in the CEDM coils.

Answer: D

Answer Explanation:

A. Incorrect - The CEDM Ventilation system will not affect the RCS Cooldown rate with RCPs in operation.

B. Incorrect - Spread of airborne contamination would only be a concern if shroud hatches were open.

C. Incorrect - Statement is true but this is not the concern associated with securing the CEDM Fans at 300°F.

D. Correct - Per OP-5 precaution P.

Question 40 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	2.8
CFR:	41.7
KA Number:	SYSTEM: 022 Containment Cooling System (CCS) K4 Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: • K4.04 Cooling of control rod drive motors
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD-60A, OI-5C, OP-5
Cross Reference Number:	CRO-134-1-5-28
User-Defined ID:	Q51131
Comments:	

41 **ID: Q51130** **Points: 1.00**

What signal automatically starts #23 Iodine Removal Unit and where are it's disconnects normally operated from?

A. Containment Radiation Signal, 27 and 45 foot Switchgear Rooms.

B. Containment Radiation Signal, key switches on 2C10.

C. Safety Injection Actuation Signal, key switches on 2C10.

D. Safety Injection Actuation Signal, Cable Spreading Room.

Answer: C

Answer Explanation:

A. Incorrect - Per LD-58A, CRS secures the Hydrogen Purge System, does not start IRUs. Charging Pump and Component Cooling Pump disconnects are operated from the switchgear rooms and are also 480 volt loads.

B. Incorrect - Per LD-58A, CRS secures the Hydrogen Purge System, does not start IRUs.

C. Correct - Per LD-58A, SIAS starts the IRUs. Per OI-5B, the disconnects are operated by keyswitches located on 2C10.

D. Incorrect - The disconnects are not located in the Cable Spreading Rooms.

Question 41 Info	
Cognitive Level	1.00
Tier/Group	2/2
RO Importance:	2.8
CFR:	41.7 / 45.5 to 45.8
KA Number:	027 Containment Iodine Removal System (CIRS) A4 Ability to manually operate and/or monitor in the control room: • A4.02 Remote operation and handling of iodine filters
Bank, new or modified?	Bank question
References provided to candidate	None
References:	LD-58A, OI-5B
Cross Reference Number:	
User-Defined ID:	Q51130
Comments:	

42 **ID: Q20381** **Points: 1.00**

Unit-2 is in Mode 1 at 100% power when a loss of Component Cooling occurs.

Which condition would require a Reactor trip?

A. RCP Seal Cavity temperature of 200°F.

B. RCP Controlled Bleed-off temperature of 200°F.

C. Upper Thrust Bearing temperature of 185°F.

D. Lower Guide Bearing temperature of 190°F.

Answer: B

Answer Explanation:

A. Incorrect - There is no trip criteria associated with RCP Seal Cavity temperature.

B. Correct - Per AOP-7C and OI-1A

C. Incorrect - Upper Thrust Bearing trip criteria is 195°F per AOP-7C and OI-1A.

D. Incorrect - Lower Guide Bearing trip criteria is 195°F per AOP-7C and OI-1A.

Question 42 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	4.6
CFR:	41.10 / 43.5 / 45.13
KA Number:	2.4.1 Knowledge of EOP entry conditions and immediate action steps.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-7C
Cross Reference Number:	CRO-113-5-5-19
User-Defined ID:	Q20381
Comments:	

43 **ID: Q51210** **Points: 1.00**

Given the Component Cooling system in a normal lineup, what supplies emergency power to the Unit-2 Component Cooling Pumps?

A. 21 Component Cooling Pump - 2A DG
22 Component Cooling Pump - 2B DG
23 Component Cooling Pump - 2A DG

B. 21 Component Cooling Pump - 2A DG
22 Component Cooling Pump - 2B DG
23 Component Cooling Pump - 2B DG

C. 21 Component Cooling Pump - 2B DG
22 Component Cooling Pump - 2A DG
23 Component Cooling Pump - 2B DG

D. 21 Component Cooling Pump - 2B DG
22 Component Cooling Pump - 2A DG
23 Component Cooling Pump - 2A DG

Answer: B

Answer Explanation:

A. Incorrect - Lineups are possible but they are not the normal operating lineups specified in OI-16.

B. Correct - Normal operating lineup specified in OI-16.

C. Incorrect - Lineups are possible but they are not the normal operating lineups specified in OI-16.

D. Incorrect - Lineups are possible but they are not the normal operating lineups specified in OI-16.

Question 43 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	3.0
CFR:	41.7
KA Number:	SYSTEM: 008 Component Cooling Water System (CCWS) K2 Knowledge of bus power supplies to the following: • K2.02 CCW pump, including emergency backup
Bank, new or modified?	Modified question
References provided to candidate	None
References:	OI-16
Cross Reference Number:	CRO-113-5-5-03
User-Defined ID:	Q51210
Comments:	

44 **ID: Q20402** **Points: 1.00**

Which combination of ESFAS signals is required to automatically initiate Containment Spray flow?

A. SIAS and CIS.

B. CSAS and CVCIS.

C. CSAS and SGIS.

D. SIAS and CSAS.

Answer: D

Answer Explanation:

A. Incorrect - SIAS starts the Containment Spray pump, CIS does not open the Containment Spray header isolation.

B. Incorrect - CSAS opens the Containment Spray header isolation only, CVCIS does not start the Containment Spray Pumps.

C. Incorrect - CSAS opens the Containment Spray header isolations but SGIS does not start the Containment Spray Pumps.

D. Correct - Per LD-58A the Containment Spray pumps start on SIAS, the Containment Spray Header isolations open on CSAS.

Question 44 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	4.2
CFR:	41.2 to 41.9 / 45.7 / 45.8
KA Number:	SYSTEM: 026 Containment Spray System (CSS) K1 Knowledge of the physical connections and/or cause effect relationships between the CSS and the following systems: • K1.01 ECCS
Bank, new or modified?	Bank question
References provided to candidate	None
References:	LD-58A, EOP Attachments
Cross Reference Number:	CRO-7-1-5-22A
User-Defined ID:	Q20402
Comments:	

45 **ID: Q17833** **Points: 1.00**

During power operation a LOCA occurred and generated SIAS, CSAS and RAS signals. What purpose will the shutdown cooling heat exchangers be providing when this occurs?

A. Provides cooling of Containment Spray.

B. Provides a Shutdown Cooling flowpath.

C. Provides High Pressure Safety Injection cooling.

D. Provides Low Pressure Safety Injection cooling.

Answer: A

Answer Explanation:

A. Correct - RAS realigns CCW flow to the SDC HX to cool Containment Spray Pump discharge flow.

B. Incorrect - Use of the Shutdown Cooling Heat Exchangers as part of the Shutdown Cooling flowpath requires manual re-alignment of the LPSI Pumps.

C. Incorrect - High Pressure Safety Injection flow does not pass through the Shutdown Cooling Heat Exchanger.

D. Incorrect - Low Pressure Safety Injection Pumps (LPSI Pps) are secured automatically upon receipt of RAS. Use of the Shutdown Cooling Heat Exchangers in support of Low Pressure Safety Injection cooling (Shutdown Cooling) requires manual re-alignment of the LPSI Pump flowpaths and starting the LPSI Pumps.

Question 45 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.6
CFR:	41.7 / 43.5 / 45.12
KA Number:	SYSTEM: 026 Containment Spray System (CSS) 2.2.37 Ability to determine operability and/or availability of safety related equipment.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	UFSAR, SD-52/61
Cross Reference Number:	CRO-113-5-5-09
User-Defined ID:	Q17833
Comments:	

46 **ID: Q16704** **Points: 1.00**

Given the following conditions:

- Unit-1 Reactor has tripped
- 1-PI-1013A thru D indicate 890 PSIA (11 S/G pressure)
- 1-PI-1023A thru D indicate 750 PSIA (12 S/G pressure)
- 1-LI-1114C & 1-LR-1114D indicate -180 inches (11 S/G level)
- 1-LI-1124C & 1-LR-1124D indicate -210 inches (12 S/G level)

What is the present status of the Auxiliary Feedwater system?

A. AFAS block signal to 11 S/G with no AFAS signal present;
AFAS signal to 12 S/G, restoring S/G level.

B. AFAS signal to 11 S/G, restoring S/G level;
AFAS signal to 12 S/G, AFAS block signal isolating flow.

C. AFAS signal to 11 S/G, restoring S/G level;
AFAS signal to 12 S/G, restoring S/G level.

D. AFAS signal to 11 S/G, AFAS block signal isolating flow;
AFAS signal to 12 S/G, AFAS block signal isolating flow.

Answer: B

Answer Explanation:

A. Incorrect - 12 SG press is less than 11 SG by 140 PSIA. AFAS Block is present to 12 S/G therefore no flow.

B. Correct - AFAS to both with S/G level < -170 inches. AFAS block to 12 based on 140 PSID.

C. Incorrect - 12 SG press is less than 11 SG by 140 PSIA. AFAS Block is present to 12 S/G therefore no flow.

D. Incorrect - An AFAS Block signal cannot be present for both S/Gs at the same time.

Question 46 Info	
Cognitive Level	3.00
Tier/Group	2/1
RO Importance:	3.5
CFR:	41.7
KA Number:	SYSTEM: 061 Auxiliary / Emergency Feedwater System K4 Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following: • K4.14 AFW automatic isolation
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OI-32, 1C04-ALM, LD-58A
Cross Reference Number:	CRO-34-1-3-25
User-Defined ID:	Q16704
Comments:	

47 **ID: Q20008** **Points: 1.00**

What is the continuous power rating for the 1B Diesel Generator?

A. 2300 KW

B. 2500 KW

C. 3000 KW

D. 3300 KW

Answer: C

Answer Explanation:

A. Incorrect - This is the OI limit when the 1B Diesel Generator is carrying the bus, by itself, with no SIAS present (OI-21B, Sect 6.4.A.4).

B. Incorrect - This was the original rating of the Diesel Generator prior to engine upgrade modification.

C. Correct - Per OI-21B, 6.4.A.3

D. Incorrect - This is the limit, stated in OI-21B, for use during accident conditions.

Question 47 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	3.4
CFR:	41.5 / 45.5
KA Number:	SYSTEM: 062 AC Electrical Distribution System A1 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system controls including: • A1.01 Significance of D/G load limits
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OI-21B
Cross Reference Number:	
User-Defined ID:	Q20008
Comments:	

48 **ID: Q15971** **Points: 1.00**

The 1A Diesel Generator (DG) is running under load for periodic testing and is paralleled to 4KV Bus 11 via 4KV Bus 17. What is the 1A DG response to a Loss of Offsite Power?

A. The DG output breaker, 152-1703, will remain closed maintaining power to all required loads, but bus tie breaker 152-1701 will open, de-energizing 4KV Bus 11.

B. The DG output breaker, 152-1703, will remain closed. The 1A DG will try to pick up the required loads.

C. The DG output breaker, 152-1703, immediately trips open and remains open until 152-1703 is manually closed by the operator.

D. The DG output breaker, 152-1703, will trip open and automatically reclose to 4KV Bus 17 if no faults exist and the 4KV normal and alternate feeder breakers are open.

Answer: D

Answer Explanation:

A. Incorrect - The DG will supply 11 4KV bus after the UV signal.

B. Incorrect - The DG will not trip on overcurrent, MCC 124 and lighting transformer breakers are tripped to ensure load remains w/in design.

C. Incorrect - No operator action is required, the output breaker will automatically close.

D. Correct - Correct per DWG 9300B and LP LOI-024CC-1-2, slide 140.

Question 48 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	2.6
CFR:	41.5 / 43.5 / 45.3 / 45.13
KA Number:	SYSTEM: 064 Emergency Diesel Generator (ED/G) System A2 Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: • A2.18 Consequences of premature opening of breaker under load
Bank, new or modified?	Bank question
References provided to candidate	None
References:	OI-21A, LD-58A, 15664-0252, sh. 5, LOI-024C-1-2
Cross Reference Number:	LOI-024C-1-2
User-Defined ID:	Q15971
Comments:	

49 **ID: Q50930** **Points: 1.00**

A severe fire exists in the Control Room and the Shift Manager has determined a Control Room Evacuation is necessary. You are implementing the appropriate procedure on Unit-1.

Which statement best describes the procedural direction for tripping the Reactor?

A. Trip the Reactor by manually tripping the Main Turbine at the Front Standard.

B. Trip the Reactor by de-energizing the CEDM MG Sets.

C. Trip the Reactor by depressing one set of manual Reactor Trip Buttons at 1C05 or 1C15.

D. Trip the Reactor by manually opening the Reactor Trip Circuit Breakers in the Cable Spreading Room.

Answer: C

Answer Explanation:

A. Incorrect - Per the AOP-9A Basis doc, this action is taken to minimize the possibility of an overcooling transient.

B. Incorrect - Per the AOP-9A Basis doc, this action is taken to provide an additional method of ensuring power is removed to the CEDMs and to reduce the noise levels in the Switchgear Rooms.

C. Correct - This action is directed by AOP-9A, Step IV.B.

D. Incorrect - This action is NOT directed by AOP-9A.

Question 49 Info	
Cognitive Level	1.00
Tier/Group	1/2
RO Importance:	3.7
CFR:	41.7 / 45.7
KA Number:	APE: 068 Control Room Evacuation AK2. Knowledge of the interrelations between the Control Room Evacuation and the following: • AK2.02 Reactor trip system
Bank, new or modified?	Modified question
References provided to candidate	None
References:	AOP-9A, AOP-9A Basis Doc.
Cross Reference Number:	LOR-202-9A-06
User-Defined ID:	Q50930
Comments:	

50 **ID: Q51121** **Points: 1.00**

Given References:

The following conditions exist:

- Unit 2 RCS level is 43 feet
- RCS temperature is 120°F
- The reactor was shut down at 0200 on 12/09 after an extended period of full power operation
- It is now 2300 on 12/10
- A loss of shutdown cooling has just occurred

Approximately how long will it take to reach saturation temperature?

A. 14 minutes.

B. 16 minutes.

C. 61 minutes.

D. 70 minutes.

Answer: B

Answer Explanation:

A. Incorrect - From Attachment 8, time to boil is about 14 minutes, but the time after shutdown factor is not included.

B. Correct - 1.20 is the multiplier for the table in hours, 13.5 x 1.20 = 16.2 minutes.

C. Incorrect - 13.5 minutes time to boil, x 4.57 multiplier = 61 minutes if the applicant enters the table with 45 days instead of hours.

D. Incorrect - If attachment 12 is used, this answer may be selected.

Question 50 Info	
Cognitive Level	3.00
Tier/Group	2/1
RO Importance:	3.4
CFR:	41.5 / 41.7
KA Number:	SYSTEM: 005 Residual Heat Removal System (RHRS) K5 Knowledge of the operational implications of the following concepts as they apply the RHRS: • K5.02 Need for adequate subcooling
Bank, new or modified?	Modified question
References provided to candidate	AOP-3B, Att 8 through 12
References:	AOP-3B
Cross Reference Number:	LOR-202-3B-05
User-Defined ID:	Q51121
Comments:	

51 **ID: Q50931** **Points: 1.00**

The minimum volume of water in each Pretreated Water Storage Tank required by the Technical Requirements Manual for fire fighting is:

A. 500,000 gallons

B. 300,000 gallons

C. 200,000 gallons

D. 150,000 gallons

Answer: B

Answer Explanation:

A. Incorrect - Total volume of one tank.

B. Correct - Per TRM 15.7.5.

C. Incorrect - Volume of water available for other functions due to suction standpipe.

D. Incorrect - Volume required for an operable CST per Technical Specifications.

Question 51 Info	
Cognitive Level	1.00
Tier/Group	1/2
RO Importance:	3.9
CFR:	41.7 / 41.10 / 43.2 / 43.3 / 45.3
KA Number:	APE: 067 Plant Fire On Site 2.2.42 Ability to recognize system parameters that are entry-level conditions for Technical Specifications.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	TRM 15.7.5
Cross Reference Number:	POSE-WWDI-16
User-Defined ID:	Q50931
Comments:	CCNPP has determined this question is appropriate for inclusion on the RO test based on expected level of knowledge and validation.

52 **ID: Q50932** **Points: 1.00**

Which of the following, by itself, is an actual loss of Containment integrity?

A. 2-SRW-1582-CV, 21 CAC EMER DISCH, is open.

B. 2-SRW-1581-CV, 21 CAC NORM INLET is shut.

C. 2-EAD-5463-MOV, CNTMT NORM SUMP DRN, is open.

D. 2-SI-4144-MOV, CNTMT SUMP OUTLET ISOL, is open.

Answer: D

Answer Explanation:

A. Incorrect - Containment Cooler SRW isolation valves get ESFAS signals. As long as the valves are operable, containment integrity is maintained.

B. Incorrect - Containment Cooler SRW isolation valves get ESFAS signals. As long as the valves are operable, containment integrity is maintained.

C. Incorrect - The normal containment sump valves get an ESFAS signal which will automatically shut the valves, so containment integrity is maintained.

D. Correct - Per STP-O-55-2, Att. 2, 2-SI-4144 must be shut.

Question 52 Info	
Cognitive Level	2.00
Tier/Group	1/2
RO Importance:	2.8
CFR:	41.7 / 45.5 / 45.6
KA Number:	APE: 069 Loss of Containment Integrity AA1. Ability to operate and / or monitor the following as they apply to the Loss of Containment Integrity: • AA1.03 Fluid systems penetrating containment
Bank, new or modified?	New question
References provided to candidate	None
References:	STP-0-55-2
Cross Reference Number:	204-1-03
User-Defined ID:	Q50932
Comments:	

53 **ID: Q50933** **Points: 1.00**

Using provided reference (Liquid Waste Discharge Permit):

Unit 1 is at 100% power with 12A Waterbox removed from service for cleaning. Unit 2 is at 100% power. A discharge of 12 RCWMT is in progress per the attached permit.

Which of the following would require termination of the release per CP-601?

A. Loss of 23 Circulating Water Pump.

B. Loss of 11 Circulating Water Pump.

C. Any event that results in an ERPIP classification above Unusual Event.

D. Release flow rate lowers to from 120 GPM to 100 GPM.

Answer: B

Answer Explanation:

A. Incorrect - The permit only takes credit for Unit 1 CWPs for dilution flowrate.

B. Correct - The dilution flowrate is less than required by the permit.

C. Incorrect - There is no guidance in the ERPIP that specifically requires stopping a release. This might be a prudent action, but is not required by CP-601.

D. Incorrect - Release flowrate listed on the permit is only a maximum.

Question 53 Info	
Cognitive Level	2.00
Tier/Group	1/2
RO Importance:	2.9
CFR:	43.5 / 45.13
KA Number:	APE: 059 Accidental Liquid Radwaste Release AA2. Ability to determine and interpret the following as they apply to the Accidental Liquid Radwaste Release: • AA2.02 The permit for liquid radioactive-waste release
Bank, new or modified?	New question
References provided to candidate	Liquid Waste Permit
References:	CP-601
Cross Reference Number:	
User-Defined ID:	Q50933
Comments:	

54 **ID: Q50934** **Points: 1.00**

Unit-2 is in a refueling outage and you are performing the duties of the RCRO.

Which of the below listed is a responsibility of the RCRO?

A. Provide alternate core locations for fuel assemblies that cannot be inserted due to interference with other assemblies.

B. Verify direct voice communications between the Control Room and personnel on refueling stations are established within 1 hour prior to Core Alterations.

C. Provide Core Alteration progress updates to the Outage Control Center once per shift.

D. Provide guidance as necessary on corrective actions for fuel assembly or CEA hang-ups.

Answer: B

Answer Explanation:

A. Incorrect - This activity is the responsibility of the NFM-SE on shift.

B. Correct - This activity is an RCRO responsibility per Attachment FH-305-11, Core Alterations Restart Checklist.

C. Incorrect - This activity is not required by the Fuel handling procedures. This activity would be a distraction to the RCRO. Updates, to the OCC, are normally provided by Nuclear Fuel management personnel.

D. Incorrect - This activity is NOT an RCRO responsibility. This is an FHS responsibility per Attachment FH-305-12, Instructions for the FHS during Refueling.

Question 54 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.9
CFR:	41.10 / 43.7 / 45.12
KA Number:	2.1.44 Knowledge of RO duties in the control room during fuel handling, such as responding to alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.
Bank, new or modified?	New question
References provided to candidate	None
References:	FH-305 rev.12, Attachments 10, 11 & 13
Cross Reference Number:	
User-Defined ID:	Q50934
Comments:	

55 **ID: Q50950** **Points: 1.00**

A transient causing a reactor trip has occurred. In addition to the alarms associated with a non-complicated reactor trip, the following are also annunciated on 1C03 and 1C05:

- SGFP(S) SUCT PRESS LO
- 11 and 12 SGFPT TRIP
- 11 and 12 MSIV HYD SYS
- 12 STM LINE RUPTURE
- SGIS A and SGIS B BLOCK PERMITTED
- AFW STATUS PANEL
- SG PRESS LO CH PRE-TRIP
- CNTMT PRESS HI CH PRE-TRIP

Which are correct actions, in EOP-0, for the given conditions?

A. Verify SGIS, initiate AFAS to feed 11 and 12 S/Gs and secure the condensate pumps.

B. Verify AFAS Actuation, verify AFAS Block to 12 S/G and secure the Feed and Condensate systems.

C. Verify SGIS, verify AFAS Block to 12 S/G, initiate AFW to feed 11 S/G.

D. Verify AFAS Block to 11 S/G, secure the condensate pumps and verify AFAS actuation.

Answer: C

Answer Explanation:

A. Incorrect - An ESDE is described by the alarms, there is no reason to secure condensate, but the student may think there is a condensate/feed rupture. Containment pressure pretrips indicate a large leak into containment, not in the turbine building.

B. Incorrect -These actions are also consistent with a feed/condensate system rupture.

C. Correct - Per EOP-0 and actions expected with an ESDE inside containment.

D. Incorrect - The alarms indicate the failed S/G is 12, not 11.

Question 55 Info	
Cognitive Level	3.00
Tier/Group	1/1
RO Importance:	4.1
CFR:	41.10 / 43.5 / 45.3 / 45.12
KA Number:	APE: 040 Steam Line Rupture 2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm.
Bank, new or modified?	New question
References provided to candidate	None
References:	EOP-0, Alarm Response Manual for 1C03
Cross Reference Number:	
User-Defined ID:	Q50950
Comments:	

56 **ID: Q50970** **Points: 1.00**

Unit-2 is within 48 hours of a scheduled shutdown to commence a refueling outage. Plant Chemistry requests RCS Hydrogen concentration be adjusted to 15 cc/kg for shutdown.

How is RCS Hydrogen concentration lowered to approximately 15 cc/kg?

A. Lower VCT pressure by 10 PSIG, momentarily start idle Chg Pps, repeat sequence until desired VCT pressure is obtained.

B. Lower the Pressurizer Pressure controller setpoint and energize all Pressurizer Heaters to maximize Pressurizer Spray flow.

C. Open Reactor Vessel Vent SVs for the duration specified by Plant Chemistry; maintain RCDT/QT parameters in spec.

D. Open Pressurizer Vent SVs for the duration specified by Plant Chemistry; maintain RCDT/QT parameters in spec.

Answer: A

Answer Explanation:

A. Correct - This is the method specified by OI-2A for conduct of degas operations 48 hours prior to shutdown of the reactor.

B. Incorrect - This outlines the basic methodology for equalizing boron concentration between the Pressurizer and the Reactor Coolant System.

C. Incorrect - Procedure for use of Reactor Vessel Vent SVs covers venting of the RCS after an accident. Procedure is not used for degas of RCS during power operation.

D. Incorrect - Procedure for use of Pressurizer Vent SVs to degas the RCS requires the Unit be in Modes 3, 4 or 5.

Question 56 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	2.5
CFR:	41.7 / 45.6
KA Number:	SYSTEM 004 Chemical and Volume Control System K5 Knowledge of the operational implications of the following concepts as they apply to the CVCS: • K5.14 Reduction process of gas concentration in RCS: vent accumulated non-condensable gases from PZR bubble space, depressurized during cooldown or by alternately heating and cooling (spray) within allowed pressure band (drive more gas out of solution)
Bank, new or modified?	New question
References provided to candidate	None
References:	OP-5, OI-2A, OI-1G
Cross Reference Number:	
User-Defined ID:	Q50970
Comments:	

57 **ID: Q50990** **Points: 1.00**

Given the following:

- An overcooling event caused RCS pressure to lower to 1525 PSIA and RCS temperature to lower to 486°F before the overcooling event was terminated
- RCS pressure is now 2250 PSIA and RCS temperature is 515°F and stable
- Pressurizer level rose to approximately 255 inches and all charging pumps have been secured
- It has been 35 minutes since the initial transient began

How will the plant respond to resetting SIAS in this condition?

A. RCS pressure will continue to rise until the Pressurizer heaters are secured and RCS temperature will be stabilized with the ADVs.

B. RCS pressure will be maintained by Pressurizer heaters and spray at 2250 PSIA and RCS temperature will be stabilized by TBVs when condenser vacuum is restored.

C. RCS pressure will lower causing an additional SIAS due to the large volume of subcooled water added to the Pressurizer.

D. RCS pressure will lower until 11 and 13 Pressurizer Backup heaters have been reset. RCS temperature can be maintained with ADVs or TBVs.

Answer: C

Answer Explanation:

A. Incorrect - There is not enough energy in the heaters to overcome the cooler water added by the charging pumps, so RCS pressure will lower.

B. Incorrect - There is not enough energy in the heaters to overcome the cooler water added by the charging pumps, so RCS pressure will lower.

C. Correct - This is a description of the January 2004 event at Calvert Cliffs which included a second SIAS. There is not enough energy in the heaters to overcome the cooler water added by the charging pumps, so RCS pressure will lower.

D. Incorrect - Even with all heaters energized, RCS pressure will continue to lower.

Question 57 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.7
CFR:	41.2 to 41.9 / 45.7 to 45.8
KA Number:	SYSTEM 013 Engineered Safety Features Actuation System (ESFAS) K1 Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: • K1.18 Premature reset of ESF actuation
Bank, new or modified?	New question
References provided to candidate	None
References:	
Cross Reference Number:	LOI-348-1-9
User-Defined ID:	Q50990
Comments:	

58 **ID: Q50992** **Points: 1.00**

Given the following:

- Unit-1 has tripped due to a Loss of Offsite Power.
- 11 and 14 4KV busses are energized from the Diesel Generators.
- Pressurizer level lowers to 80 inches due to the reactor trip.
- RCS pressure and temperature are stable at 2250 PSIA and 532°F

How will Pressurizer level respond with **no operator action**?

A. Pressurizer level will lower approximately 3 inches per minute.

B. Pressurizer level will rise approximately 6 inches per minute.

C. Pressurizer level will stabilize at approximately 80 inches.

D. Pressurizer level will lower approximately 1 inch every 3 minutes.

Answer: D

Answer Explanation:

A. Incorrect - candidate may divide 6 GPM into 18 gal/inch and come up with 3 inches per minute instead of 1 inch every 3 minutes.

B. Incorrect - candidate may think three charging pumps start automatically.

C. Incorrect - candidate may forget RCP Bleedoff flow.

D. Correct - assuming 6 GPM RCP Bleedoff flow with a Pressurizer volume of approximately 18 gallons/inch.

Question 58 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.2
CFR:	41.7 / 45.5 / 45.6
KA Number:	APE: 022 Loss of Reactor Coolant Makeup AA1. Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Makeup: • AA1.03 PZR level trend
Bank, new or modified?	Modified question
References provided to candidate	None
References:	AOP-2A
Cross Reference Number:	LOI-041-1
User-Defined ID:	Q50992
Comments:	

59 **ID: Q50993** **Points: 1.00**

Unit-2 is at 100% power when the Turbine Building Operator reports the condensate system has ruptured downstream of the Condensate Booster Pumps.

What affect will this event have on the plant with no operator action, and what action should the operators take?

A. With no operator action, RCS temperature and pressure will rise, causing a TM/LP reactor trip.
The crew should trip the reactor, verify Reactivity Control, secure the feed and condensate systems, start an AFW pump, and then continue with EOP-0.

B. With no operator action, RCS temperature and pressure will rise, causing a TM/LP reactor trip.
The crew should trip the reactor, implement EOP-0 and, during Core and RCS Heat Removal, manually initiate SGIS, trip the operating condensate pumps and start an AFW pump.

C. With no operator action, the reactor will trip on low steam generator level.
The crew should manually initiate SGIS, trip the reactor, verify Reactivity Control, start an AFW pump, and then continue with EOP-0.

D. With no operator action, the reactor will trip on low steam generator level.
The crew should trip the reactor, verify Reactivity Control, secure the feed and condensate systems, start an AFW pump, and then continue with EOP-0.

Answer: D

Answer Explanation:

A. Incorrect - The reactor will trip on low steam generator level due to the loss of feed to the S/Gs.

B. Incorrect - The reactor will trip on low steam generator level due to the loss of feed to the S/Gs. AOP-3G for a condensate or feed system rupture directs the operators to trip the reactor, verify Reactivity Control, trip both SGFPs, secure HTR DRN PPs, Condensate and Condensate Booster pumps, shut main feed MOVs, start an AFW pump and then continue with EOP-0.

C. Incorrect - AOP-3G for a condensate or feed system rupture directs the operators to trip the reactor, verify Reactivity Control, trip both SGFPs, secure HTR DRN PPs, Condensate and Condensate Booster pumps, shut main feed MOVs, start an AFW pump and then continue with EOP-0.

D. Correct - The reactor will trip on low steam generator level due to the loss of feed to the S/Gs. AOP-3G for a condensate or feed system rupture directs the operators to trip the reactor, verify Reactivity Control, trip both SGFPs, secure HTR DRN PPs, Condensate and Condensate Booster pumps, shut main feed MOVs, start an AFW pump and then continue with EOP-0.

Question 59 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.1
CFR:	41.5 / 43.5 / 45.3 / 45.13
KA Number:	SYSTEM: 059 Main Feedwater (MFW) System A2 Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: • A2.05 Rupture in MFW suction or discharge line
Bank, new or modified?	Modified question
References provided to candidate	None
References:	AOP-3G
Cross Reference Number:	LOI-202-3G
User-Defined ID:	Q50993
Comments:	

60 **ID: Q51010** **Points: 1.00**

Quench Tank Pressure and level are at normal operating values when the Quench Tank RV, RC-242-RV, fails open.

What is the effect of the Quench Tank RV failing open on containment parameters?

A. There is no effect on containment parameters.

B. Containment pressure, observed on 1C10, rises slightly.

C. Containment temperature and humidity, observed on 1C10, rise slightly.

D. CNTMT NORMAL SUMP LVL HI alarm annunciates.

Answer: A

Answer Explanation:

A. Correct - The Quench Tank RV lifts at 35 PSI and discharges to the Waste Gas Header. The Quench Tank Rupture Disc does not rupture until 100 PSI. Normal Quench Tank Pressure is less than 10 PSI.

B. Incorrect - The discharge from the Quench Tank RV is contained by the Waste Gas Header.

C. Incorrect - The discharge from the Quench Tank RV is contained by the Waste Gas Header.

D. Incorrect - The discharge from the Quench Tank RV is contained by the Waste Gas Header.

Question 60 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.3
CFR:	41.7 / 45.6
KA Number:	SYSTEM: 007 Pressurizer Relief Tank/Quench Tank System (PRTS) K3 Knowledge of the effect that a loss or malfunction of the PRTS will have on the following: • K3.01 Containment
Bank, new or modified?	New question
References provided to candidate	None
References:	ARMs for 1C06 and 1C10
Cross Reference Number:	
User-Defined ID:	Q51010
Comments:	

61 **ID: Q51011** **Points: 1.00**

When implementing CCNPP Emergency Operating Procedures which of the below indications is provided with compensated values for a harsh containment environment?

A. Pressurizer level

B. Steam Generator pressure

C. Hi Range Containment Radiation Monitors

D. Pressurizer Water temperature

Answer: A

Answer Explanation:

A. Correct - Per EOP-4 and EOP-5.

B. Incorrect - Compensated values are not provided for this parameter.

C. Incorrect - Compensated values are not provided for this parameter.

D. Incorrect - Compensated values are not provided for this parameter.

Question 61 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	2.9
CFR:	41.7 / 45.6
KA Number:	SYSTEM: 022 Containment Cooling System (CCS) K3 Knowledge of the effect that a loss or malfunction of the CCS will have on the following: • K3.01 Containment equipment subject to damage by high or low temperature, humidity, and pressure
Bank, new or modified?	New question
References provided to candidate	None
References:	EOP-4 and EOP-5
Cross Reference Number:	
User-Defined ID:	Q51011
Comments:	

62 **ID: Q15852** **Points: 1.00**

On panel 1C19 the U-1 4KV ESF FDR BKR TRIP alarm has annunciated. Which of the following is a possible cause?

A. Breaker 252-1101, 13KV/4KV Feeder to U-4000-13, has tripped.

B. Breaker 152-1414, 4KV Bus #14 Feeder from U-4000-21, has tripped.

C. Breaker 152-1104, #11 LPSI Pump breaker, has tripped.

D. Breaker 52-1112, U-440-11A Low Side Feeder Breaker, has tripped.

Answer: B

Answer Explanation:

A. Incorrect - This breaker does not feed a safety related bus and is not listed as a possible cause for the U-1 4KV ESF FDR BKR TRIP alarm.

B. Correct - 1C19-ALM, Window R-03, lists this breaker as a possible cause for the U-1 4KV ESF FDR BKR TRIP alarm.

C. Incorrect - This breaker does not feed a safety related bus and is not listed as a possible cause for the U-1 4KV ESF FDR BKR TRIP alarm.

D. Incorrect - This breaker feeds a 480V safety related bus and is **not** listed as a possible cause for the U-1 4KV ESF FDR BKR TRIP alarm.

Question 62 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.3
CFR:	41.7 / 45.5 to 45.8
KA Number:	SYSTEM: 062 AC Electrical Distribution System A4 Ability to manually operate and/or monitor in the control room: • A4.01 All breakers (including available switchyard
Bank, new or modified?	Bank question
References provided to candidate	None
References:	1C19-ALM
Cross Reference Number:	
User-Defined ID:	Q15852
Comments:	

63 **ID: Q51012** **Points: 1.00**

The CAC Service Water inlet isolations on 1(2)C13 indicate _____ upon receipt of a SIAS and _____ upon receipt of an RAS.

A. Open on SIAS, throttled on RAS.

B. Throttled on SIAS, shut on RAS.

C. Throttled on SIAS, open on RAS.

D. Shut on SIAS, open on RAS.

Answer: C

Answer Explanation:

A. Incorrect - Per LD-58A, the CAC SRW inlet isolations go to the throttled position on SIAS and the open position on RAS.

B. Incorrect - Per LD-58A, the CAC SRW inlet isolations go to the throttled position on SIAS and the open position on RAS.

C. Correct - Per LD-58A, the CAC SRW inlet isolations go to the throttled position on SIAS and the open position on RAS.

D. Incorrect - Per LD-58A, the CAC SRW inlet isolations go to the throttled position on SIAS and the open position on RAS.

Question 63 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	2.6
CFR:	41.7 / 45.5 to 45.8
KA Number:	SYSTEM: 076 Service Water System (SWS) A4 Ability to manually operate and/or monitor in the control room: • A4.02 SWS valves
Bank, new or modified?	New question
References provided to candidate	None
References:	1/2-LD-58A
Cross Reference Number:	CRO-113-3-5-10
User-Defined ID:	Q51012
Comments:	

64 **ID: Q51013** **Points: 1.00**

A 125V DC GROUND DETECTED alarm is received. It has been determined that a ground exists on 21 DC Bus.

What effect does this have on plant operations and what actions should be taken?

A. 21 DC Bus is automatically de-energized. AOP-7J is implemented for the loss of 21 DC Bus.

B. 21 DC Bus is manually de-energized. AOP-7J is implemented for the loss of 21 DC Bus.

C. The breaker associated with the grounded load will trip on ground fault. Operators must identify the failed instrument or equipment and take action as necessary.

D. 21 DC Bus is in jeopardy of being lost. Troubleshooting should be performed to identify and isolate the ground.

Answer: D

Answer Explanation:

A. Incorrect - 21 DC bus would not be deenergized by the presence of a single ground.

B. Incorrect - The inverters are not deenergized. The DC Bus would have to be deenergized for the inverters to be deenergized.

C. Incorrect - DC loads are supplied by fused disconnects. There are no breakers to trip.

D. Correct - CCNPP employs an ungrounded 125 VDC System. On an ungrounded system, the presence of a second ground could jeopardize the bus.

Question 64 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	2.5
CFR:	41.5 / 43.5 / 45.3 / 45.13
KA Number:	SYSTEM: 063 DC Electrical Distribution System A2 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: • A2.01 Grounds
Bank, new or modified?	New question
References provided to candidate	None
References:	1C33-ALM, T-20, Ungrounded Electrical Systems Lesson Plan.
Cross Reference Number:	GROUND TRAINING PPT, REV 2
User-Defined ID:	Q51013
Comments:	

65 **ID: Q25299** **Points: 1.00**

During AOP-9A, CONTROL ROOM EVACUATION AND SAFE SHUTDOWN DUE TO A SEVERE CONTROL ROOM FIRE, why are two (2) containment air coolers started?

A. To cool the RCP bays to prevent seal degradation and a possible LOCA.

B. To aid in maintaining the containment pressure below the SIAS actuation setpoint.

C. To support equipment operability and personnel habitability upon containment entry.

D. To reduce the humidity within the containment and keep the WRNIs operable.

Answer: C

Answer Explanation:

A. Incorrect – Per AOP-9A Basis Doc, 11 and 12 CACs are started to enhance equipment operability and personnel habitability.

B. Incorrect - Per AOP-9A Basis Doc, 11 and 12 CACs are started to enhance equipment operability and personnel habitability.

C. Correct – Per AOP-9A Basis Doc, 11 and 12 CACs are started to enhance equipment operability and personnel habitability.

D. Incorrect - Per AOP-9A Basis Doc, 11 and 12 CACs are started to enhance equipment operability and personnel habitability.

Question 65 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	3.6
CFR:	41.2 to 41.9 / 45.7 / 45.8
KA Number:	SYSTEM: 103 Containment System K1 Knowledge of the physical connections and/or cause effect relationships between the containment system and the following systems: • K1.01 CCS
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-9A and AOP-9A Basis Doc
Cross Reference Number:	
User-Defined ID:	Q25299
Comments:	

66 **ID: Q25078** **Points: 1.00**

Why must the handswitch for Containment Instrument Air Isolation, IA-2085-CV, be placed in "OPEN" and immediately released when restoring Instrument Air to containment?

A. If held in "OPEN", the solenoid valve will remain energized and overheat causing the CV to fail in the shut position.

B. The CV will **NOT** open until the handswitch spring-returns to the "AUTO" position energizing the time delay relay.

C. If held in "OPEN" for greater than six seconds the time delay is locked in and the CV will **NOT** shut in "AUTO".

D. The handswitch spring-returns to "AUTO" allowing the valve to shut if downstream pressure lowers to 75 PSIG.

Answer: D

Answer Explanation:

A. Incorrect - Overheating of the relay is not a concern.

B. Incorrect - The CV will open as soon as the handswitch is taken to the "OPEN" position.

C. Incorrect - Momentarily placing the handswitch in open does not bypass the time delay associated with the handswitch.

D. Correct - Per AOP-7D, by immediately releasing handswitch 1-HS-2085, it can be determined if the leak is in Containment. If the valve reshuts, there is a leak in Containment.

Question 66 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.1
CFR:	41.7 / 45.5
KA Number:	SYSTEM: 078 Instrument Air System (IAS) A3 Ability to monitor automatic operation of the IAS, including: • A3.01 Air pressure
Bank, new or modified?	Bank question
References provided to candidate	None
References:	Dwg 61082 - Sh 0007, AOP-7D
Cross Reference Number:	202-7-02
User-Defined ID:	Q25078
Comments:	

67 **ID: Q51031** **Points: 1.00**

Which of the following provides train separation for the Unit-2 Service Water (SRW) system?

A. Two separate SRW headers in both the turbine building and the auxiliary building.

B. Suction and discharge valves for 23 SRW Pump are administratively controlled by locking them in the desired position.

C. Spoolpieces are removed and blind flanges are installed to separate 21 and 22 SRW subsystems when required.

D. The time delay associated with the SIAS automatic start of 23 SRW PP when it is aligned to either 21 or 24 4KV bus.

Answer: B

Answer Explanation:

A. Incorrect - U-2 Turbine Building SRW loads are supplied from a common header fed from both 21 & 22 SRW subsystems. The Turbine is isolated on a SIAS signal.

B. Correct - 21 & 22 subsystems can be cross-connected, by manipulation of manual valves, at 23 SRW Pump suction and discharge.

C. Incorrect - 21 and 22 SRW subsystems can be cross-connected at 23 SRW Pump. Plausible: The statement is true – but not sufficient – the cross tie at the 23 SRW pump obviates the separation provided by spool pieces

D. Incorrect - This feature prevents 2 pump operation on one header and provides redundancy should the normal pump fail to start.

Question 67 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	2.8
CFR:	41.7
KA Number:	SYSTEM: 076 Service Water System (SWS) K4 Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: • K4.06 Service water train separation
Bank, new or modified?	New question
References provided to candidate	None
References:	OI-15
Cross Reference Number:	CRO-113-3-5-19
User-Defined ID:	Q51031
Comments:	

68 **ID: Q51032** **Points: 1.00**

Reactor power is 1%. The Reactor Operator depresses both Reactor trip push buttons on 1C05.

What is the **final** status of CEDS, what is the **initial** response of the primary and secondary systems and what actions should be taken?

A. All 8 Reactor Trip Circuit Breakers open.
All CEAs insert, Tcold lowers, Pressurizer Level lowers and Steam Generator Pressure rises.
Implement EOP-0, Post Trip Immediate Actions.

B. All 8 Reactor Trip Circuit Breakers open.
All CEAs insert, Tcold lowers, Pressurizer Level lowers and Steam Generator Pressure lowers.
Implement AOP-7E, Main Turbine Malfunctions, for Turbine Trip.

C. Only 4 Reactor Trip Circuit Breakers open.
All CEAs insert, Tcold is unchanged, Pressurizer Level is unchanged and Steam Generator Pressure is unchanged.
Implement EOP-0, Post Trip Immediate Actions.

D. Only 4 Reactor Trip Circuit Breakers open;
All CEAs insert, Tcold is unchanged, Pressurizer Level is unchanged and Steam Generator Pressure is unchanged;
Implement AOP-7E, Main Turbine Malfunctions, for Turbine Trip.

Answer: C

Answer Explanation:

A. Incorrect - Initially, 4 TCBs will open causing CEAs to insert. A loss of load trip is not enabled, so RPS will not open the remaining 4 TCBs.

B. Incorrect - Initially, 4 TCBs will open causing CEAs to insert. A loss of load trip is not enabled, so RPS will not open the remaining 4 TCBs. AOP-7E for Turbine Trip is entered when Rx power is low and the turbine trips, but not the reactor. The candidate may confuse the given condition with the turbine tripping w/o the reactor trip.

C. Correct - Initially, 4 TCBs will open causing CEAs to insert. A loss of load trip is not enabled, so RPS will not open the remaining 4 TCBs. At 1% no change of primary or secondary parameters is expected.

D. Incorrect - AOP-7E for Turbine Trip is entered when Rx power is low and the turbine trips, but not the reactor. The candidate may confuse the given condition with the turbine tripping w/o the reactor trip.

Question 68 Info	
Cognitive Level	3.00
Tier/Group	2/2
RO Importance:	4.1
CFR:	41.5 / 43.5 / 45.3 / 45.13
KA Number:	SYSTEM: 001 Control Rod Drive System A2 Ability to (a) predict the impacts of the following malfunction or operations on the CRDS- and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: • A2.07 Effect of reactor trip on primary and secondary parameters and systems
Bank, new or modified?	New question
References provided to candidate	None
References:	SD-055, LOI-58-1-2
Cross Reference Number:	
User-Defined ID:	Q51032
Comments:	

69 **ID: Q51033** **Points: 1.00**

12 RCWMT is being discharged at 120 GPM per an approved permit when the LIQUID WASTE DISCH high alarm is received at 1C22. 0-MWS-2201-CV and 0-MWS-2202-CV fail to shut.

Which is the correct initial operator response?

A. Shut the Liquid Waste RMS Outlet Valve, 0-MWS-528 and allow the RCWMT Pump being used for the discharge to continue running.

B. Stop the pump that was being used for the discharge and shut the Liquid Waste RMS Outlet Valve, 0-MWS-528.

C. Secure the discharge by isolating Instrument Air to 0-MWS-2201-CV and 0-MWS-2202-CV.

D. Place the Operation Selector Switch for 0-RI-2201 to the Level Cal position and flush 0-RI-2201 with DI water.

Answer: B

Answer Explanation:

A. Incorrect - 1C22-ALM specifies these actions for high background radiation levels.

B. Correct - 1C22-ALM specifies implementation of AOP-6B, Accidental Liquid Waste Release if the RMS alarms high with a Liquid Waste Discharge.

C. Incorrect - Not an action specified by the ARM.

D. Incorrect - Not an action specified by the ARM or the AOP. Plausible because this is the correct response to a highly contaminated liquid waste radiation monitor.

Question 69 Info	
Cognitive Level	1.00
Tier/Group	2/2
RO Importance:	3.6
CFR:	41.7 / 45.5
KA Number:	SYSTEM: 068 Liquid Radwaste System (LRS) A3 Ability to monitor automatic operation of the Liquid Radwaste System including: • A3.02 Automatic isolation
Bank, new or modified?	New question
References provided to candidate	None
References:	
Cross Reference Number:	1C22-ALM, OI-17C-4, AOP-6B
User-Defined ID:	Q51033
Comments:	

70 **ID: Q17947** **Points: 1.00**

Whose permission is required for TEDE-ALARA dose to exceed 4000 mrem/yr for Operations personnel?

A. GS-RP, GS-SO. M-NO, PGM and VP-CCNPP.

B. GS-RP, GS-SO, M-NO and PGM.

C. GS-RP, GS-SO and M-NO.

D. GS-RP, M-NO and VP-CCNPP.

Answer: A

Answer Explanation:

A. Correct - These permissions are required to exceed 4000 mrem/yr all Dose (not to exceed regulatory limit) as specified in administrative procedure RP-1-100, Radiation Protection.

B. Incorrect - These permissions are required to exceed 3000 mrem/yr all Dose, as specified in administrative procedure RP-1-100, Radiation Protection.

C. Incorrect - These permissions are required to exceed 2000 mrem/yr all Dose, as specified in administrative procedure RP-1-100, Radiation Protection.

D. Incorrect – This distracter omits GS-SO & PGM permissions.

Question 70 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.2
CFR:	41.12 / 43.4 / 45.10
KA Number:	2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	RP-1-100, Radiation Protection
Cross Reference Number:	CRO-218-1-0-13
User-Defined ID:	Q17947
Comments:	

71 **ID: Q51051** **Points: 1.00**

How is a leak in the Waste Gas System prevented from reaching the environment unmonitored?

A. The Auxiliary Building Exhaust Fans are secured per AOP-6C, Accidental Gaseous Waste Release.

B. Roughing filters are installed in the Waste Processing Exhaust Ventilation System.

C. The Auxiliary Building Ventilation System maintains a negative pressure in the Auxiliary Building.

D. The Waste Processing Ventilation RMS isolates the Waste Processing Area Ventilation System.

Answer: C

Answer Explanation:

A. Incorrect - AOP-6C does not secure the Auxiliary Building Exhaust Fans. Securing the Auxiliary Building Exhaust Fans would prevent a negative pressure from existing in the Auxiliary Building.

B. Incorrect - Roughing filters are designed for removal of particulate material.

C. Correct - as described in SD-32.

D. Incorrect - The Waste Processing Ventilation RMS provides alarm function only.

Question 71 Info	
Cognitive Level	2.00
Tier/Group	2/2
RO Importance:	2.7
CFR:	41.7 / 45.6
KA Number:	SYSTEM: 071 Waste Gas Disposal System (WGDS) K3 Knowledge of the effect that a loss or malfunction of the Waste Gas Disposal System will have on the following: • K3.04 Ventilation system
Bank, new or modified?	New question
References provided to candidate	None
References:	SD-32, AOP-6C
Cross Reference Number:	
User-Defined ID:	Q51051
Comments:	

72 **ID: Q51050** **Points: 1.00**

Spent Fuel Pool Level is 65.5 feet and slowly lowering. The appropriate procedure has been implemented.

Which of the following lists the SFP make-up sources in order of preference?

A. Borated water from the RWT, Borated water from the CVCS system, Demineralized Water.

B. Borated water from the RWT, Demineralized Water, Fire Main.

C. Borated water from the RWT, Demineralized Water, Plant Service Water.

D. Borated water from the RWT, Demineralized Water, Condensate.

Answer: B

Answer Explanation:

A. Incorrect - No direct flowpath from CVCS System to the SFP Cooling System.

B. Correct - Per AOP-6F

C. Incorrect - PSW is not listed as a make-up source in the AOP.

D. Incorrect - Condensate is not listed as a make-up source in the AOP.

Question 72 Info	
Cognitive Level	2.00
Tier/Group	2/2
RO Importance:	2.7
CFR:	41.5 / 45.5
KA Number:	SYSTEM: 033 Spent Fuel Pool Cooling System (SFPCS) A1 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Spent Fuel Pool Cooling System operating the controls including: • A1.01 Spent fuel pool water level
Bank, new or modified?	New question
References provided to candidate	None
References:	AOP-6F
Cross Reference Number:	
User-Defined ID:	Q51050
Comments:	

73 **ID: Q20605** **Points: 1.00**

Which radiation monitor detects noble gas releases from the Atmospheric Dump Valves?

A. Wide Range Noble Gas Monitor (RIC-5415)

B. Main Steam Line Radiation Monitor (RE-5421)

C. S/G Blowdown Tank Area Radiation Monitor (RI-7012)

D. Condenser Off-Gas Radiation Monitor (RE-1752A-D)

Answer: B

Answer Explanation:

A. Incorrect - Wide Range Noble Gas Monitor (RIC-5415) monitors Main Vent stack.

B. Correct - Main Steam Line Radiation Monitor (RE-5421, 22)--correct per OM-98 sh. 2.

C. Incorrect – S/G Blowdown Tank Area Radiation Monitor (RI-7012) measures dose rates near the Atmospheric Dump Valve enclosures. It does not detect noble gases.

D. Incorrect - Condenser Off-Gas Radiation Monitor (RE-1752A-D) incorrect, these monitor the CAR suctions.

Question 73 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.8
CFR:	41.11 / 43.4 / 45.10
KA Number:	2.3.11 Ability to control radiation releases.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD-077/079, OM-98 sh2
Cross Reference Number:	
User-Defined ID:	Q20605
Comments:	

74 **ID: Q19570** **Points: 1.00**

Given the following:

- Unit 1 tripped from 100% due to a Turbine trip.
- EOP-1 has been implemented
- Abnormal conditions noted in EOP-0 were two stuck CEAs and 11 Charging Pump tripped
- A loss of 14 4KV Bus occurs

What is the appropriate action?

A. Implement EOP-8 due to **NOT** meeting reactivity control and the loss of 14 4KV bus.

B. Implement EOP-2 for the loss of power.

C. Continue with EOP-1 and implement AOP-7I for the loss of 14 4 KV bus.

D. Implement EOP-8 due to **NOT** meeting Vital Auxiliaries.

Answer: C

Answer Explanation:

A. Incorrect - Boration is in progress with 13 charging pump.

B. Incorrect - EOP-2 deals with Natural Circulation. The RCPs would remain in service.

C. Correct - Basis NO-1-201 Calvert Cliffs Operating Manual Parallel Actions and boration initiated via 13 charging pump in EOPs.

D. Incorrect - VA is met only one 4k bus is required.

Question 74 Info	
Cognitive Level	2.00
Tier/Group	Generic
RO Importance:	3.7
CFR:	41.10 / 43.5 / 45.13
KA Number:	2.4.5 Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions.
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	NO-1-201
Cross Reference Number:	LOR-022010602-001
User-Defined ID:	Q19570
Comments:	

75 **ID: Q51133** **Points: 1.00**

A discharge of 12 WGDT is in progress when the Waste Gas Discharge RMS, 0-RE-2191, loses electrical power.

What effect does this have on the discharge, and what operator actions are required?

A. Discharge valves 0-WGS-2191 and 0-WGS-2192 remain open, dispatch an operator to shut the Waste Gas Discharge Valves locally.

B. Discharge valves 0-WGS-2191 and 0-WGS-2192 remain open, dispatch an operator to shut Waste Gas Discharge Header Flow Control Valve, 0-WGS-2191-PCV.

C. Discharge valves 0-WGS-2191 and 0-WGS-2192 shut, contact Radiation Protection to take surveys of the WGDTs and to evacuate the area.

D. Discharge valves 0-WGS-2191 and 0-WGS-2192 shut, dispatch an operator to shut Waste Gas Discharge Header Flow Control Valve, 0-WGS-2191-PCV.

Answer: D

Answer Explanation:

A. Incorrect - De-energizing the RMS will cause the discharge valves to shut.

B. Incorrect - De-energizing the RMS will cause the discharge valves to shut. No need to shut the CVs locally.

C. Incorrect - The actions are not directed by any procedure, radiation levels in the area should not change.

D. Correct - De-energizing the RMS will cause the discharge valves to shut, per AOP-6C, for this condition, the first step is to verify The CVs and the PCV are shut.

Question 75 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.6
CFR:	41.7 / 45.6
KA Number:	SYSTEM: 073 Process Radiation Monitoring (PRM) System K3 Knowledge of the effect that a loss or malfunction of the PRM system will have on the following: • K3.01 Radioactive effluent releases
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD 077/079
Cross Reference Number:	
User-Defined ID:	Q51133
Comments:	