QUESTION #: 001

The Unit 1 Reactor was operating at 55% power when the following occurred:

- 1P-1B RCP's shaft sheared just above the No. 3 seal. The sheared shaft does not adversely affect RCP seal or pump alignment.
- Unit 1 Reactor tripped.
- Immediately following the Reactor Trip, the 1A02 Unit 1 Non-Vital Train B 4160V bus was de-energized.

Based on these occurrences how will RCS flow in the 1B Loop respond?

a. Initially decrease to zero, then reverses to a flow rate equal to that of a normally shutdown RCP loop.

b. Initially decrease to zero, then reverses to a flow rate greater than that of a normally shutdown RCP loop.

c. Initially decrease to zero, then reverses to a flow rate less than that of a normally shutdown RCP loop.

d. Initially decrease to zero, but then increases in normal direction as natural circulation begins.

ANSWER
b.
REFERENCE
Reactor Coolant Pumps Lesson Plan, PBN LP0125
NEW
HIGHER
Proposed references to be provided to applicants during examination: none
K/A: 000007A1.04 The ability to operate and/or monitor the following as they apply to a reactor trip: RCP operation and flow rates.
EXPLANATION
a. The sheared shaft will prevent the anti-rotation device from keeping the pump impeller stationary. An unaffected RCP anti-rotation device will limit flow to a lower value. Thus distractor A is incorrect.
b. Is correct.
c. Is incorrect because flow through the rotating pump impeller will be higher than in a normally shutdown RCP loop.
d. Is incorrect because the 1A RCP remains running. Bus 1A02 Bkr #14 feeds the 1B RCP thus forced flow will be present.

QUESTION #: 002

The following Unit 1 plant conditions exist:

- Reactor Power is 90%
- Containment Area Radiation Monitor count rate is rising
- RCS Pressure is rapidly lowering
- Pressurizer level is slowly rising
- Condenser Steam Dump Mode Selector Switch is in MANUAL (Pressure Mode)
- Condenser Steam Dump hand controller 1HC-484 is in AUTO and set at 990 psig

Based on the information provided, the SRO decides to trip the reactor. Assume no other manual operator actions are taken:

1) What event is occurring?
2) What RCS temperature will the steam dumps try to maintain?

a. a. 1) A Pressurizer Liquid space leak is occurring
2) 545°F

b. b. 1) A Pressurizer Vapor space leak is occurring
2) 545°F

c. c. 1) A Pressurizer Liquid space leak is occurring
2) 547°F

d. d. 1) A Pressurizer Vapor space leak is occurring
2) 547°F.

ANSWER
b.
REFERENCE
None provided
NEW
HIGHER
Proposed references to be provided to applicants during examination: Steam Tables
K/A: 000008A1.03 Ability to operate and/or monitor the following as they apply to the Pressurizer Vapor Space Accident: Turbine bypass in manual control to maintain header pressure.
EXPLANATION
A vapor space LOCA is in progress based on the containment rad monitors, increasing pressurizer level / lowering charging flow, and slowly lowering RCS pressure. RCS temp corresponding to 990 psig (1005 psia) is approximately 545°F. Therefore distractor B is the correct answer.
a. incorrect a pzr vapor space LOCA is indicated
b. Correct
c. incorrect a Pzr vapor space LOCA is indicated and RCS temp would go to 545°F
d. incorrect RCS temp would go to 545°F

QUESTION #: 003

During execution of the Emergency Operating Procedures, RCP Trip Criteria has been established to mitigate the consequences of a . . .

a. Small Break LOCA by limiting RCS inventory loss that could occur if the RCPs were tripped later in the event.

b. Steam Generator Tube Rupture by limiting the amount of the RCS transferred to the ruptured Steam Generator.

c. Rod Ejection Event by increasing the void fraction within the core.

d. Large Break LOCA by limiting the heat input into the RCS.

ANSWER
a.
REFERENCE
WOG ERG Background Doc. For RCP Trip/Restart
EOP-0 Foldout Page
Lesson Plan - Loss of Coolant Accidents LP0435
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 000009 2.4.6 Small Break LOCA - Knowledge of EOP mitigation strategies.
EXPLANATION:
RCP trip criteria ensures that the RCPs are tripped at a point in time which will limit the inventory lost and prevent exceeding the design peak clad temperature if the RCPs trip at a certain point later in the SBLOCA event.
a. correct answer.
b., c., d.: incorrect based on explanation above.

QUESTION #: 004

A Large Break LOCA has occurred on Unit 2. After the reactor trip the following plant conditions exist:

- RCS Pressure is 50 psig and lowering
- Containment Pressure is 35 psig and rising
- The operating crew has completed the required actions in EOP-0 (including Attachment A, Automatic Action Verification), and is transitioning to EOP-1.3

Based on the information provided, select the answer that lists the current combined flow from both trains of any operating pumps from highest flowrate to lowest flowrate.

a. RCPs, Containment Spray Pumps, RHR Pumps, SI Pumps

b. RCPs, RHR Pumps, Containment Spray Pumps, SI Pumps

c. RHR Pumps, SI Pumps, Containment Spray Pumps, RCPs

d. Containment Spray Pumps, RHR Pumps, SI Pumps, RCPs

ANSWER
c.
REFERENCE
Containment Spray System Lesson Plan LP0064
RHR System Lesson Plan LP0069
SI System Lesson Plan LP0066
EOP-0, Foldout Page RCP Trip Criteria
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000011K2.02 Large Break LOCA - Knowledge of the interrelations between the Large Break LOCA and the following: Pumps.
EXPLANATION
RHR Pump flow rate is 1560gpm @ 122psid (each) (in this case should be slightly higher)
Containment Spray Pump normal flow rate is approximately 1200 gpm (one secured in Att A)
Safety Injection Pump normal flow rate is approximately 950 gpm (each)
RCP flow rate will be 0 gpm because they will have been tripped.
Based on the above, distractor c. is the correct answer.

QUESTION #: 005

Unit 1 was operating at 100% reactor power when a failure in the 1P-1A, RCP thermal barrier heat exchanger caused high flow rates into the Component Cooling (CC) Water return header.

How will the CC System respond to the thermal barrier heat exchanger failure? The high flow switch will isolate . . .

a. the thermal barrier heat exchanger; the RCP may remain running with continued monitoring of RCP seal parameters.

b. all CC system flow from the 1P-1A RCP which will require a reactor trip and the RCP to be shutdown immediately.

c. the thermal barrier heat exchanger and actuate the 1P-1A RCP Cooling Water Flow High Alarm on C-03; the RCP may remain running with continued monitoring of RCP seal parameters.

d. CC system flow from the thermal barrier heat exchanger and the lower oil cooler which will require the RCP to be shutdown when bearing temperatures exceed their limits.

ANSWER
a.
REFERENCE
CCW System Lesson Plan
ARP 1C03 1D 1-4, RCP Cooling Water Flow Low
Print 110E018 Sh. 2 (CC flow path to/from RCP)
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 000015/17K3.02 RCP Malfunctions – Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions: CCW lineup and flow paths to the RCP Oil Coolers.
EXPLANATION
High flow will only isolate the thermal barrier heat exchanger and with seal injection available the RCP may continue to operate. Therefore, distractors b. and d. are incorrect because they suggest shutting down the RCP. Distractor c. is incorrect because there is no High Flow Alarm on C-03 there are only low flow alarms.

QUESTION #: 006

Given the following plant conditions on Unit 1:

- The reactor was at full power with the plant in a normal lineup
- 1LT-112, VCT level transmitter, developed an erroneous signal with constant output corresponding to a VCT level of 80%

Actual VCT level will start to drop immediately and will continue to drop until the VCT… (Assume NO operator action.)

a. is empty. No auto swap over to the RWST will occur. The charging pumps will likely become gas bound.

b. level reaches 4%. At this point, an automatic swap over to the RWST will occur. After a period of a few minutes, RCS temperature will start to drop.

c. level reaches 17%, then auto makeup will raise VCT level until the VCT level reaches 78%.

d. level reaches 17%, then auto makeup will raise VCT level until the VCT level reaches 28%.

ANSWER
a.
REFERENCE
Reactor Makeup System Lesson Plan LP0082
CVCS Lesson Plan LP0079
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000022A2.03 Loss of Reactor Coolant Makeup – Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: Failure of flow control valve or controller.
EXPLANATION
Automatic VCT level control uses LT-112. If the auto makeup system thinks level is constant at 80% level, it will not makeup to the VCT. The auto swapover to the RWST requires LT-112 and LT-141 at 4% VCT level. No automatic swap-over will occur.

QUESTION #: 007

Unit 1 has recently been shutdown and is currently in MODE 4 at 300°F and 300 psig:

- RHR cooling is established and a cooldown rate of 25°F/Hr has been initiated using 1HX-11A, Residual Heat Removal Heat Exchanger.
- The 1P-1B RCP is running.
- The RCS is solid with PCV-135, Letdown Line Backpressure CV, maintaining RCS pressure.

If 1RH-624, HX-11A RHR HX Outlet FCV, were to have its instrument air supply line rupture, what alarm would the operator be expected to address first for this malfunction?

a. RHR Low Flow

b. RHR High Flow

c. P-1B RCP No. 1 Seal (P Low

d. Low Temperature Overpressure

ANSWER
c.
REFERENCE
OP-7A, Placing RHR System in Operation
ARB 1C04 1C 4-11, 1P-1A RCP No. 1 Seal (P Low
ARB 1C04 1C 3-5, Low Temperature Overpressure
110E018-1, RHR System Print
TRM 2.2, Figure 2, RCS Pressure-Temp Limits for Cooldown
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000025 2.4.45 Loss of RHR System – Ability to prioritize and interpret the significance of each annunciator or alarm.
EXPLANATION
1RH-624 fail open which causes max cooling of the RCS. At solid plant conditions the cooldown will decrease RCS pressure which will lower #1 Seal (P to a point where the RCP may need to be tripped. Therefore this alarm needs to be addressed first. The low flow alarm won't come in because flow control valve 1RH-626 should maintain flow control. There is no high flow alarm. LTOP won't alarm below 420 psig.

QUESTION #: 008

The 1P-11A, Component Cooling (CC) Water Pump just tripped while in a normal system alignment with flow through the Component Cooling Heat Exchanger, 1HX-12A.

- CC System pressure has dropped to 32 psig and is continuing to drop.
- CC System surge tank level is stable.

Based on the information provided, what actions should the operator be taking next?

The Operator should . . .

a. manually start the 1P-11B, Component Cooling Water Pump to restore CC System pressure and advise the SRO to enter Tech Spec Action Condition 3.7.7.A, One CC Pump INOPERABLE.

b. manually start the 1P-11B, Component Cooling Water Pump to restore the CC System pressure and advise the SRO to enter Tech Spec 3.0.3 because two CC Pumps are INOPERABLE.

c. wait for the automatic start of the standby CC pump. Then the Operator should advise the SRO to enter Tech Spec Action Condition 3.7.7.A, One CC Pump INOPERABLE.

d. wait for the automatic start of the standby CC pump. If the automatic start does not occur the Operator should then advise the SRO to enter Tech Spec 3.0.3 because two CC Pumps are INOPERABLE.

ANSWER
a.
REFERENCE
Tech Spec 3.7.7 CC Water System
Tech Spec Bases 3.7.7 CC Water System
Print 110E0118 Sh. #3
AOP-9B CCW Malfunction
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000026 2.2.37 Loss of Component Cooling Water – Ability to determine operability and/or availability of safety related equipment.
EXPLANATION
Distractor a. is the correct answer. The 1A CC pump is Inop because it tripped. The 1B CC pump is not inop even though it didn't auto start when it should have at 35 psig. No information was provided in the stem which would prevent the manual start of the 1B CC pump. Distractors c. & d. are not correct because the Operator should attempt to start the 1B CC pump before a loss of all CC flow is declared, at which point a Rx trip would be required because the RCP oil coolers would have lost cooling flow

QUESTION # 009

A Main Steam Line Break occurs, which results in a Reactor trip and automatic Safety Injection. Sixty seconds after the trip, a loss of offsite power occurs.

What means of RCS pressure control will be available immediately following the loss of offsite power?

a. Pressurizer Safety valves ONLY

b. PORVs and Pressurizer Safety valves

c. Pressurizer Spray Valves, PORVs and Pressurizer Safety valves

d. Auxiliary charging, Pressurizer Spray valves, PORVs and Pressurizer Safety valves

ANSWER
b.
REFERENCE
LP0078 Pressurizer
DBD-06 Instrument and Service Air System
BANK 051.01.LP0078.001 - 03
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000027A1.01 Ability to operate and/or monitor the following as they apply to the Pressurizer Pressure Control Malfunctions: PZR heaters, sprays, and PORVs
EXPLANATION

a. Incorrect, Safety valves would be the only means sometime after losing IA to containment. Eventually IA decays away to the point where the PORVs will not operate.
b. Correct, Safety Valves are mechanical and are available. PORVs are available for some period of time post CI, until the IA header decays away.
c. Incorrect, with loss of power you have no RCPs thus no spray.
d. Incorrect. See c. above.

QUESTION # 010

Unit 1 was at 100% power when a loss of offsite power (LOOP) and a steam generator tube rupture (SGTR) occurred. The crew is responding per EOP 3, Unit 1 Steam Generator Tube Rupture.

- The RCS cooldown to target temperature has just been completed.
- Preparations are being made to depressurize the RCS to refill the pressurizer.
- The reactor operator noted that the ruptured SG level is trending higher.

Which of the following actions are required?

a. Depressurize the RCS and refill the pressurizer using maximum normal spray flow.

b. Transition to ECA-3.1 UNIT 1, SGTR With Loss of Reactor Coolant, Subcooled Recovery Desired.

c. Depressurize the RCS and refill the pressurizer using Auxiliary Spray.

d. Depressurize the RCS and refill the pressurizer using pressurizer PORVs.

ANSWER
d.
REFERENCE
EOP-3 Unit 1, Steam Generator Tube Rupture
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A 000038K1.03 Knowledge of the operational implications of the following concepts as they apply to the SGTR: Natural circulation
EXPLANATION:

a. Incorrect because PZR spray is not available without RCPs.
b. Incorrect – this would be the result of an improper transition to step 24 RNO of EOP-3 due to a loss of subcooling or PORV stuck open.
c. Incorrect – this would be an improper transition to step 29 of EOP-3 due to a loss of PORV flow at step 27.
d. Correct Response

QUESTION # 011

Unit 1 was at 50% power when the reactor was tripped due to large unisolable faults on both main steam lines outside containment. The SRO is directing the actions of ECA-2.1 Uncontrolled Depressurization of Both Steam Generators. The following plant conditions exist:

- Level in both Steam Generators is approximately 20% NR and lowering
- AFW Flow is currently 100 gpm per SG
- RCS cooldown rate is currently 140 ºF/hour

Which of the following describes the procedurally required feed flow for this situation and the reason for the flow rate requirement?

a. Maintain 100 gpm AFW flow per SG until level is greater than 29% in at least one SG. This ensures that the SG water level will remain above the tubes which will allow for maximum heat transfer. RCS thermal stress is not a concern in this event.

b. Reduce AFW flow to 50 gpm per SG until RCS cooldown rate is less than 100ºF/hour. This minimizes the thermal stress associated with the cooldown rate while also ensuring that the SG tubes remain wet.

c. Maintain 100 gpm AFW flow per SG until RCS cooldown rate is less than 100ºF/hour. This minimizes the thermal stress associated with the cooldown rate while also ensuring that the SG tubes remain wet.

d. Reduce AFW flow to 50 gpm per SG until level is greater than 29% in at least one SG. This ensures that the SG water level will remain above the tubes which will allow for maximum heat transfer and addresses RCS thermal stress concerns.

ANSWER
b.
REFERENCE
ECA-2.1, Uncontrolled Depressurization of Both Steam Generators.
BG-ECA-2.1, Uncontrolled Depressurization of Both Steam Generators.
PBN LP0465, LOCA and Faulted SG Contingencies Lesson Plan
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A 000040W/E12 2.2 Knowledge of the interrelations between the Uncontrolled Depressurization of all Steam Generators and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility
EXPLANATION

a. Incorrect because step 5.b RNO requires feed flow to be reduced to 50 gpm to minimize additional cooldown resulting from the addition of Feedwater. 20% NR is below the top of the SG tubes and keeping them covered is not the priority at this time.
b. Correct Response. 50 gpm addresses the cooldown concern of step 5.b RNO while also addressing the step 5.a RNO concern for ensuring the SG tubes do not dry out.
c. Incorrect because step 5.b RNO requires feed flow to be reduced to 50 gpm to minimize additional cooldown resulting from the addition of Feedwater.

d. Incorrect – 20% NR is below the top of the SG tubes and keeping them covered is not the priority at this time. Plausible if examinee confuses “level will remain above the tubes” with “keeping the tubes wet” as a factor in 50 gpm flow requirement.

QUESTION # 012

Unit 1 was at power when a loss of all Main Feedwater occurred. Auxiliary Feedwater (AFW) also failed and the crew transitioned to CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink.

- During implementation of CSP-H.1, the crew was procedurally required to repeat steps in order to depressurize a steam generator (SG) to less than 350 psig.

Which of the following explains why this was required?

a. The condensate that was initially injected into the SG flashed to steam.

b. In order to minimize the risk of causing tube creep rupture in the hot, dry SG.

c. In order to minimize the risk of causing pressurized thermal shock in the hot, dry SG.

d. The depressurization was limited to prevent a cooldown greater than 100ºF per hour.

ANSWER
a.
REFERENCE
CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink.
BG-CSP-H.1, Response to Loss of Secondary Heat Sink
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A 000054K1.02 Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater (MFW): Effects of feedwater introduction on dry S/G
EXPLANATION:
a. Correct Response.
b. Incorrect – depressurizing the SG would not be done if a condensate pump could not be aligned to minimize the risk of causing tube creep rupture in the hot, dry SG.
c. Incorrect – thermal shock would be a concern when feeding a hot, dry SG.
d. Incorrect – cooldown rates of greater than 100ºF per hour are allowed in CSP-H.1.

QUESTION # 013

Unit 1 was at 100% power when a loss of all AC Power occurred, and ECA-0.0 Unit 1, Loss of All AC Power, was entered.

Once the initial actions are performed, which of the following DC loads, if any, must be shed?

a. Unit 2 Non-Nuclear Room Lighting.

b. Switchgear Room Lighting.

c. PBX Telephone System.

d. No DC Loads need to be shed.

ANSWER
d.
REFERENCE
ECA-0.0 Unit 1, Loss of All AC Power.
DD-ECA-0.0 Unit 1, Loss of All AC Power
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: none
K/A 000055A1.04 Ability to operate and/or monitor the following as they apply to a Station Blackout: Reduction of loads on the battery
EXPLANATION:
a. Incorrect because this is listed in ECA-0.0, Appendix J as being available.
b. Incorrect because this is listed in ECA-0.0, Appendix J as being available.
c. Incorrect because this is listed in ECA-0.0, Appendix J as being available.
d. Correct Response – PBNPS is a 1 hour coping plant.

QUESTION # 014

Unit 1 was recovering from a Steam Generator Tube Rupture (SGTR) and loss of offsite power (LOOP) when offsite power was restored.

- EOP-3.1 Unit 1, Post-Steam Generator Tube Rupture Cooldown Using Backfill, is in progress.
- The TSC suggests starting the reactor coolant pump (RCP) in the ruptured loop to enhance the recovery process.

What is your response?

a. Agree with starting the RCP.
   RCP operation is preferred during backfill to ensure homogeneous fluid temperatures.

b. Disagree with starting the RCP.
   RCP operation in the ruptured loop may result in an inadvertent criticality.

c. Agree with starting the RCP.
   RCP operation is preferred during backfill to ensure homogeneous boron concentration.

d. Disagree with starting the RCP.
   RCP operation may result in RCP seal damage.

ANSWER
b.
REFERENCE
EOP-3.1 Unit 1, Post-Steam Generator Tube Rupture Cooldown Using Backfill.
BG-EOP-3.1 Unit 1, Post-Steam Generator Tube Rupture Cooldown Using Backfill
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A 000056K3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power
EXPLANATION:
a. Incorrect because a caution in EOP-3.1 specifically warns of the situation described above, though the statement is true for starting an RCP in the intact loop.
b. Correct Response.
c. Incorrect because a caution in EOP-3.1 specifically warns of the situation described above, though the statement is true for starting an RCP in the intact loop..
d. Incorrect because the stem does not imply that seal cooling was lost

QUESTION # 015

Both White Instrument Buses 1Y-03/1Y-103 experienced ground faults and de-energized.

If both Yellow Instrument Buses 1Y-04/1Y-104 experience similar failures and also de-energize, what would be the status of the two Unit 1 Subcooling Margin Monitors on 1C20 ASIP Panel?

They would both . . .

a. remain functional with good data output but each would lose one channel of input data.

b. remain functional with good data output but each would lose two channels of input data.

c. become unreliable; their data output would be suspect.

d. become unavailable; no output would be provided.

REFERENCE
0-SOP-Y-001 120V Vital Instrument Inverters
1-SOP-Y-103 (1Y-104), White (Yellow) 120V Vital Instrument Panel
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000057 2.1.19 Loss of Vital AC Instrument Bus – Ability to use plant computer to obtain and evaluate parametric information on system or component status.
EXPLANATION
Instrument Buses 1Y-03(White) and 1Y-04(Yellow) provide the temperature data to the subcooling monitor so with no temperature data, subcooling could not be determined.
a. is incorrect because two channels of input data would be lost.
b. is incorrect because the subcooling monitor would not be functional.
c. is incorrect because it implies through would be an output but with no temperature data no output would be available.
d. is correct.

QUESTION # 016

When energizing Battery Charger D-07, what is the order in which charger breakers should be closed and the reason for this specific order?

a. DC Breaker should be closed before the AC Breaker to prevent voltage surges from damaging charger components.

b. DC Breaker should be closed before the AC Breaker to prevent charging currents from tripping the DC Breaker.

c. AC Breaker should be closed before the DC Breaker to prevent voltage surges from damaging charger components.

d. AC Breaker should be closed before the DC Breaker to prevent charging currents from tripping the DC Breaker.

ANSWER
d.
REFERENCE
0-SOP-DC-001, Precaution 3.13
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 000058K1.01 Knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation.
EXPLANATION
The AC Breaker should be closed before the DC Breaker to energize the charger before the DC output breaker is closed to avoid tripping the DC output breaker on overcurrent.
a. is incorrect the AC Input Breaker should be closed first to prevent the DC Output Breaker from tripping on over current.
b. is incorrect the AC Input Breaker should be closed first to prevent the DC Output Breaker from tripping on over current.
c. is incorrect the AC Input Breaker should be closed first to prevent the DC Output Breaker from tripping on over current.
d. Correct

QUESTION #: 017

An unisolable LOCA outside containment has occurred.

Given the following plant conditions:

- The control room operators entered EOP-0, Reactor Trip or SI, then transitioned to ECA-1.2, LOCA Outside Containment.
- The Unit Supervisor has now entered ECA-1.1, Loss of Emergency Coolant Recirculation, because RCS pressure was still decreasing after all attempts to isolate the leak had failed.
- All plant equipment has operated as designed for this event.
- The Unit Supervisor is at the ECA-1.1 step to "Verify Containment Accident Cooling Units Running". The step checks if they are running and aligned properly. If not, it starts them.
- The Unit Supervisor notes that containment conditions are normal.

Which one of the following actions should the operators take?

a. Exit ECA-1.1, Loss of Emergency Coolant Recirculation. The Unit Supervisor should direct the actions in the higher priority procedure ECA-1.2, LOCA Outside Containment.

b. The crew should hold at the step in effect until the Technical Support Center (TSC) can assess the impact of performing the step under these conditions.

c. The Unit Supervisor should direct performance of the step.

d. The Unit Supervisor may exercise discretion and bypass this step based on having normal containment conditions.

ANSWER
c.
REFERENCE
ECA-1.1, Loss of Emergency Coolant Recirculation
ECA-1.2 LOCA Outside Containment
NP 1.1.4, Use and Adherence of Procedures
OM 3.7 AOP and EOP Procedure Sets Use and Adherence
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: W/E04 3.4 Knowledge of the reasons for the following responses as they apply to the LOCA Outside Containment: RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.
EXPLANATION
While in the Emergency Procedures the steps are to be performed as written unless there will be an adverse impact on the health and safety of the public. In this case the health and safety of the public will not be impacted if the steps are performed.
a. is incorrect if the leak can't be isolated in ECA-1.2, the procedure sends you to ECA-1.1 because you will eventually run out of RWST water.

b. is incorrect because the steps should be performed.
c. Correct
d. is incorrect because the steps should be performed.

QUESTION #: 018

Given the following plant conditions on Unit 1:

- A reactor trip and SI have occurred from full power
- RCS Pressure is 500 psig and lowering
- S/G pressures are 900 psig and steady
- Only 50 gpm of AFW flow can be established to each S/G
- The SRO has just entered CSP-H.1, Response to Loss of Secondary Heat Sink from step 6 of EOP-0, Reactor Trip or Safety Injection

Based on this information, what should the crew's next actions be?

a. Return to EOP-0, Reactor Trip or Safety Injection.

b. Implement RCS Bleed and Feed steps.

c. Determine why total AFW flow is only at 100 gpm to the S/Gs.

d. Align Feedwater and Condensate to inject into the S/Gs.

ANSWER
a.
REFERENCE
CSP-H.1, Response to Loss of Secondary Heat Sink
EOP-0, Reactor Trip or Safety Injection
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: W/E05 2.2 Loss of Secondary Heat Sink / Ability to determine and interpret the following as they apply to the Loss of Secondary Heat Sink: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.
EXPLANATION
Since a heat sink is not required CSP-H.1 sends you back to the procedure and step in effect at step 1. Therefore, the crew should return to EOP-0.
a. Correct
b. is incorrect RCS Bleed and Feed is not required because of the LOCA occurring.
c. is incorrect AFW is not required since the LOCA is acting as the heat sink.
d. is incorrect Feedwater and Condensate is not required because of the LOCA.

QUESTION #: 019

Unit 1 was operating at 100% power with all systems in their normal alignment except for Rod Control, which was in MANUAL, when the following plant conditions were noted:

- Reactor Power dropped to 98% and is now stable.
- Pressurizer Pressure dropped to 2225 psig and is now slowly rising.
- RCS Tavg dropped but is now stable.
- Steam flow dropped but is now stable.
- All systems are in their normal full power alignment and are working correctly
- Containment pressure and radiation levels are normal.

Of the choices below which is the most likely cause of these plant conditions?

a. A small steam line leak is occurring in the turbine building.

b. A single control rod dropped into the core.

c. A turbine control valve has drifted closed.

d. The Non-Regenerative Heat Exchanger CCW temperature control valve has failed open.

ANSWER
b.
REFERENCE
AOP-6A, Dropped Rod
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000003A1.06 Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: RCS pressure and temperature.
EXPLANATION
With rod control in MANUAL, a dropped control rod will lower RCS pressure and temperature. The lower RCS temperature will cause steam flow to lower slightly and stabilize with Turbine Control in “Impulse-out.”
a. is incorrect if a steam line leak were occurring reactor power would not have dropped.
b. Correct
c. is incorrect if a turbine control valve had drifted closed RCS temp would have increased.
d. is incorrect if the letdown heat exchanger CCW temperature control valve fails open letdown temp decreases and a dilution will occur so RCS temp would have increased.

QUESTION #: 020

The following conditions exist on Unit 1:

- The Unit is in Mode 6, Refueling, with core offload in progress.
- A containment purge supply (1W-2A) and exhaust fan (1W-6A) is in operation.
- During refueling operations an assembly scheduled for replacement is dropped and seriously damaged.
- A Containment Ventilation Isolation signal is actuated, closing supply and exhaust isolation valves 1CV-3212 and 1CV-3244.

Which of the following statements correctly describes the radiation monitor operation for producing the CVI signal??

(1RE-211 Containment Air Particulate Monitor)
(1RE-212 Containment Noble Gas Monitor)
(1RE-305 Containment Purge Exhaust Low Range Gas Monitor)

a. 1RE-211 in high alarm could have caused the actuation

b. 1RE-212 in high alarm could have caused the actuation

c. Both 1RE-211 and 1RE-212 in high alarm are required to cause the actuation

d. Both 1RE-212 and 1RE-305 in high alarm are required to cause the actuation

ANSWER
b.
REFERENCE
Containment Ventilation Systems Lesson Plan, LP0057
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000036K2.02 Fuel Handling Accident – Knowledge of the interrelations between the Fuel Handling Incidents and the following: Radiation monitoring equipment (portable and installed).
EXPLANATION
The containment ventilation isolation (CVI) signal only requires one rad monitor to go into high alarm to actuate a CVI. Therefore, only 1RE-212 is required to cause an actuation. 1RE-211 does not cause the CVI and both 1RE-212 and 1RE-305 are not required. That is, they will independently cause a CVI. Therefore only distractor b. is correct.

QUESTION #: 021

Unit 1 reactor power is 75% and steady. The following stable plant conditions currently exist:

- A 17 gpm Steam Generator Tube Leak is occurring
- Pressurizer Level is 37% and steady
- Letdown flow rate is 40 gpm
- Charging flow is 44 gpm
- RCP seal return flow is 1.5 gpm per pump
- Affected Steam Generator Level is 64% and stable
- RCP Seal Injection supply flow is 8 gpm per pump

Based on the information provided above which of the following statements is correct?

a. Charging flow is high for these conditions.

b. Steam Generator Level is low for these conditions

c. RCP seal return flow is high for these conditions

d. Pressurizer Level is low for these conditions

ANSWER
d.
REFERENCE
PZR Level Control Lesson Plan LP0078
CVCS Lesson Plan LP0079
Steam Generator Lesson Plan LP0492
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000037A1.11 Ability to operate and/or monitor the following as they apply to the Steam Generator Tube Leak: PZR level indicator.
EXPLANATION
At 75% reactor power pressurizer level should be 39.35% assuming program level is 45.8% at 100% power. 37% pressurizer level corresponds to 66% reactor power. Therefore pressurizer level is lower than it should be.

a. is incorrect because charging flow is higher than normal due to the 17 gpm leak.
b. is incorrect SG level is on program at 64% plausible because applicants may think with a leak SG levels should be higher. Leak is too small to observe on SG.
c. is incorrect slightly lower than design of 3 per pump but well within acceptable limits.
d. Correct

QUESTION #: 022

Unit 1 is coming out of a refueling outage holding at 28% power for chemistry concerns.

- 1P-25A Condensate Pump is running.
- 1P-28A Steam Generator Main Feedwater Pump is running.
- 1P-30A Circulating Water Pump is running.

Assuming no operator actions, what will occur if the 1P-30A motor feeder breaker trips due to a ground fault?

a. The turbine will trip and cause a reactor trip.

b. Neither the turbine nor reactor will trip.

c. The reactor will trip but not cause a turbine trip.

d. The turbine will trip but not cause a reactor trip.

ANSWER
a.
REFERENCE
Westinghouse 883D195 sht 12 Logic NIS Permissives and Blocks
Westinghouse 883D195 sht 3A Logic Turbine Trip
STPT 3.1 P6, P7, P8, P9 and P10
BANK (PBNP 2002)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000051A2.02 Loss of Condense Vacuum – Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: Conditions requiring reactor and/or turbine trip.
EXPLANATION
When the 1P30A breaker opens, there will be no running Circ Water Pumps. With no CW Pumps running, condenser vacuum will degrade resulting in a Turbine Trip at 20 – 22" Hg. The normal P-9 block of Reactor Trip from Turbine Trip when <49% power will be lost (no CW pump breaker closed and also vacuum <22" Hg). Therefore a Reactor Trip will also occur.

a. Correct answer. P-9 logic (sheet 12) tells turbine trip (sheet 3A) that the condenser is not available so the reactor will trip even though we are below P-9 power (49%).
b. Incorrect because the turbine will trip on low vacuum causing a reactor trip.
c. Incorrect, backwards from what would normally happen at low power
d. Incorrect for conditions. This would be correct if we had not lost the condenser.

QUESTION #: 023

Control Room Monitor RE-101 just went into high alarm. As the Reactor Operator you have pulled RMSASRB CI RE-101 for the Control Room Monitor.

The Operator Response section will have you…

a. verify the Control Room ventilation system has aligned to Mode 2, Accident Condition 100% recirculation.

b. verify the Control Room ventilation system has aligned to Mode 3, Accident condition 25% filtered air return.

c. verify the Control Room ventilation system has aligned to Mode 4, Accident condition 25% filtered outside air.

d. check RE-235, Control Room Monitor, because it must reach its high alarm setpoint before any Control Room ventilation actuation occurs.

ANSWER
c.
REFERENCE
M-144 sheet 2 Control Room Ventilation
RMSASRB CI RE101 Control Room Monitor
LP0359 Control Room Ventilation
0-SOP-VNCR-002 Control and Computer Room Ventilation Normal Operation
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: N/A
K/A: 000061K3.02 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.
EXPLANATION
The Control Room ventilation system transfers to Mode 4 when either RE-101 or RE-235 go into high alarm.
a. is incorrect because control room vent system transfers to Mode 4 not Mode 2.
b. is incorrect because control room vent system transfers to Mode 4 not Mode 3.
c. Correct
d. is incorrect because either rad monitor will cause the transfer.

QUESTION # 024

The control room has been evacuated due to a carbon dioxide leak causing levels greater than allowable limits for habitability. Prior to evacuation, all control room actions were taken in accordance with AOP-10, Control Room Inaccessibility.

- The 1P-29 Turbine Driven AFW Pump tripped on overspeed and cannot be restarted.
- The Unit 1 AFW Pump Operator has locally started the P-38A Motor Driven AFW Pump

Which of the following additional actions should the Unit 1 AFW Pump Operator take, and what is the basis for these actions?

a. Feed the Unit 1A steam generator only; due to the limited capacity of one motor driven AFW pump.

b. Feed the Unit 1B steam generator only; due to the limited capacity of one motor driven AFW pump.

c. Feed the Unit 1A S/G and Unit 2A S/G; due to all atmospheric steam dump controllers being set at 1005 psig thus requiring both steam generators to be fed.

d. Feed the Unit 1A S/G and Unit 1B S/G; due to all atmospheric steam dump controllers being set at 1005 psig thus requiring both steam generators to be fed.

ANSWER
a.
REFERENCE
AOP-10
BG AOP-10
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000068K3.07 Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Maintenance of S/G level, using AFW flow control valves
EXPLANATION
a. Is correct.
b. Is incorrect because P-38A is used to feed the Unit 1 A S/G only
c. Is incorrect because only the 1A S/G needs to be fed with a motor driven AFW pump. Unit 2 has its turbine driven AFW pump.
d. Is incorrect because only one S/G is fed with a motor driven AFW pump

QUESTION # 25

Operators are responding to a degraded core cooling event on Unit 2.

- Core Exit Thermocouples are reading 850°F and rising.
- The SRO has transitioned to CSP-C.2, Response to Degraded Core Cooling.
- The crew has reached the point in the procedure to attempt to inject SI accumulators.

The most effective way to reduce RCS pressure to cause them to inject is to ___(1)___, and the cooldown rate should be ___(2)_____ for this procedure?

	(1)	(2)
a.	Open Both Pressurizer PORVs	at the maximum rate achievable
b.	Open Both Pressurizer PORVs and Establish Aux Spray	at 100°F per hour rate
c.	Depressurize All intact S/Gs to 200 psig and Establish Aux Spray	at the maximum rate achievable
d.	Depressurize All intact S/Gs to 200 psig	at 100°F per hour rate

ANSWER
d.
REFERENCE
BG-CSP-C.1, Background Doc for CSP-C.1
BG-CSP-C.2, background Doc for CSP-C.2
CSP-C.1, Response to Inadequate Core Cooling
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 000074 2.4.31 Knowledge of annunciators alarms and indications, and use of the response instructions.
EXPLANATION:
The most effective way to depressurize the primary system is to rapidly depressurize the secondary system. Since we are only in a degraded core cooling condition greater than 700°F but less than 1200°F, the cooldown rate of 100°F/Hr should be adhered to. In an inadequate core cooling condition greater than 1200°F the maximum cooldown rate is correct.
a. Is incorrect because you don't use PZR PORVs or the max C/D rate.
b. Is incorrect because you don't use PZR PORVs.
c. Is incorrect because you don't use Aux Spray.
d. Is correct

QUESTION # 26

Unit 2 has entered AOP-8A, High Reactor Coolant Activity, due to higher than normal activity in reactor coolant sample results. It has been determined that a reactor shutdown is required.

Which of the following states the basis for initiating a plant cooldown to less than 500°F?

a. Saturation pressure of the RCS is below the setpoint of the S/G Atmospheric Dumps.

b. Reduces the amount of time required to cool down and depressurize the RCS.

c. Reduces the diffusion of fission products from the fuel to the primary coolant.

d. Increases efficiency of the purification system.

ANSWER
a.
REFERENCE
AOP-8A U2
BG AOP-8AEXPLANATION
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 000076 A2.02 Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Corrective actions required for high fission product activity in RCS
EXPLANATION
a. Is correct per reference source.

QUESTION # 27

Given the following conditions:

- A Main Steam Line Break has occurred in the Turbine Building.
- Both MSIVs on the affected unit failed to close.
- The crew has just transitioned to CSP- P.1, Response to Imminent Pressurized Thermal Shock Condition.

If the RCS begins to repressurize once the Steam Generators completely depressurize what part of the RCS pressure boundary is most at risk to brittle fracture and why?

a. The Pressurizer Nozzle welds because they are in the area subject to the greatest cyclic temperature stresses.

b. Reactor Pressure Vessel Bottom Head welds because they will experience the lowest temperature due to SI flow.

c. Reactor Pressure Vessel Upper Head penetrations because they are the area where the maximum residual tensile stresses are found in the RCS.

d. Reactor Pressure Vessel Beltline region because it is subjected to significant neutron irradiation.

ANSWER
d.
REFERENCE
UFSAR Section 4.4, Tests and Inspections
CSP- P.1, Response to Imminent Pressurized Thermal Shock Condition
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: W/E08 1.1 Knowledge of the operational implications of the following concepts as they apply to Pressurized Thermal Shock: Components, capacity, and function of emergency systems.
EXPLANATION
The material surveillance program uses the mechanical properties of the low alloy ferritic material used in the construction of the RPV. The samples tested to determine the RTNDT are stored in the beltline region because the neutron embrittlement is what lowers the nil ductility transition temperature.

a. is incorrect because the beltline area is the area most susceptible to brittle fracture due to neutrons.
b. is incorrect because the beltline area is the area most susceptible to brittle fracture due to neutrons.
c. is incorrect because the beltline area is the area most susceptible to brittle fracture due to neutrons.
d. Correct

QUESTION # 028

A plant trip from 100% RTP occurred due to a shaft seizure on P-1A Reactor Coolant Pump (RCP).

During the first 30 seconds after the plant trip, and assuming that no operator actions are taken, the heat transferred to the 'A' Steam Generator will be _____ the heat transferred to the 'A' Steam Generator if the RCP had tripped due to a loss of power.

a. zero percent of

b. significantly less than

c. about the same as

d. significantly more than

ANSWER
b.
REFERENCE
FSAR section 14.1.8 “Loss of Reactor Coolant Flow”
FSAR figures 14.1.8-2 and 14.1.8.4
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A 003K3.02 Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: S/G
EXPLANATION

a. Incorrect – heat will be transferred to the steam generator as long as the RCS temperature remains greater than the S/G saturation temperature.
b. Correct answer – with a shaft seizure (locked rotor) loop flow decreases almost immediately then reverses to approximately 15% of rated loop flow; whereas on a loss power flow coasts down over 30 seconds or more to a reverse flow of approximately 15%. The amount of heat transferred is directly proportional to the loop flow rate.
c. Incorrect – see b
d. Incorrect – see b

QUESTION # 029

Per OP 4B, 'Reactor Coolant Pump Operation,' select the acceptable condition(s) below for starting a Reactor Coolant Pump.

a. The RCS is solid, LTOP is in service, and RCS pressure is 250 psig.

b. The RCS Cold Leg temperature is 200°F and the associated Steam Generator is at 240?F.

c. The RCP Lift Pump has been running for 60 seconds, the amber RCP Lift Pressure light is illuminated.

d. The Reactor Coolant Pump was started, run for one minute then stopped. 15 minutes has elapsed since the pump was shutdown.

ANSWER
b.
REFERENCE
OP 4B, Reactor Coolant Pump Operation; Rev 52
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 003K6.14 Knowledge of the effect of a loss or malfunction on the following will have on the RCPS: Starting Requirements
EXPLANATION

a. Incorrect – With RCS solid and LTOP in service, RCS pressure is required to be 275 – 325 psig.
b. Correct – No Reactor Coolant Pump shall be started with any RCS Cold Leg temperature less than or equal to LTOP enabling temperature unless the secondary side water temperature of each Steam Generator (SG) is less than or equal to 50°F above each of the RCS Cold Leg temperatures.
c. Incorrect – Lift pump must be running for at least 2 minutes.
d. Incorrect – After any period of running or after any attempt to start where the motor has failed to achieve full speed before it is stopped, a restart should not be made until the motor has been allowed to cool by standing idle for a period of not less than 30 minutes.

QUESTION # 030

When degassing the Reactor Coolant System during cooldown from Hot Standby to Cold Shutdown, the pressurizer gas space is vented through the _____.

a. Reactor Coolant Gas Vent System to the PRT.

b. Pressurizer PORVs to the PRT

c. Primary Sample System to the VCT

d. Letdown Gas Stripper and the Cryogenic Noble Gas Removal System to the VCT

ANSWER
c.
REFERENCE
OP 5D Part 3, Preparation For Chemically Degassing The Reactor Coolant System
OP 5D Part 4, Degassing The RCS Using The PZR And Letdown Gas Stripper
OP 5D Part 5, Degassing The RCS Using The VCT/PZR
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A SF2.004.K5.14 Knowledge of the operational implications of the following concepts as they apply to the CVCS: 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)
EXPLANATION
a. Incorrect – Plausible flow path but not utilized for degas operations.
b. Incorrect – Plausible flow path but not utilized for degas operations.
c. Correct – correct flow path per the referenced procedures.
d. Incorrect – There is no flow path to the Letdown Gas Stripper from the Pressurizer, but is plausible since Letdown Gas Stripper can be used to degas primary coolant in conjunction with Pressurizer degassing.

QUESTION #: 031

QUESTION
Following a plant heatup, it is necessary to adjust the boron concentration of the RHR system.

Which one of the following describes the RHR system lineup to perform the boron concentration adjustment?

a. Suction from the RWST, discharge through the RHR recirculation valves back to the RWST.

b. Suction from the BAST, discharge through CVCS letdown.

c. Suction from the Spent Fuel Pool (SFP), discharge back to the SFP.

d. Suction from the RWST, discharge through the SI pump recirculation valves back to the RWST.

*ANSWER
d.
*REFERENCE
LPO069, Rev 5, p 16, EO 1.3.6
OP-7B, 'Removing 'A' Train RHR from Operation – note prior to step 5.1.19
110E017 sheet 1 and 2
110E018 sheet 1
BANK
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 005 K5.09 Knowledge of the operational implications of the following concepts as they apply the RHRS: Dilution and boration considerations
EXPLANATION
a. Incorrect, possible flowpath but doesn't borate all required piping.
b. Incorrect, no direct suction from this path, plausible because a CVCS/RHR letdown connection exists.
c. Incorrect. Not a boration flowpath but plausible because P-33 is used to pressurize RHR common suction header and has a connection to the SFP.
d. Correct. Per OP-7B.

QUESTION #: 032

1P-10A RHR Pump is operating in the shut down cooling mode with the following stable plant conditions:

- RCS temperature is 300°F
- RCS pressure is 300 psig
- PZR level is 70%.

Which of the following states the effect, if any, that 1PT-420, RC Loop A Pressure, failing high would have on the pressurizer heaters?

The pressurizer . . .

a. variable heaters will energize due to a 5% rise in pressurizer level.

b. back-up heaters will energize due to low pressurizer pressure.

c. variable heaters will energize due to a 5% decrease in pressurizer Level

d. back-up and variable heaters will not be affected by this failure.

ANSWER
d.
REFERENCE
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 005 A4.03 Ability to manually operate and/or monitor in the control room: RHR temperature, PZR heaters and flow, and nitrogen.
EXPLANATION:
1PT-420 failing high will open the 1RC-430 PORV since LTOP will be established in the stated conditions. However, this will not cause the energization of PZR heaters. There are plausible effects on PZR heaters if the examinee considers that the PORV opening will result in insurge of 5% (but variable heaters do not energize for that) and that the PZR will eventually lower to heater cutoff if no operator action, no SI (is blocked) and charging being controlled in manual at this point (but this does not affect variable heaters).
D Is correct

QUESTION #: 033

Given the following:

- A large break LOCA has occurred on Unit 2.
- 480 volt Safeguards Bus 2B04 is locked out.
- The crew is performing actions of EOP 1, "Loss of Reactor or Secondary Coolant."
- Conditions are met to isolate the SI Accumulators.

To isolate the accumulators you dispatch an operator to energize . . .

a. both SI Accumulator outlet valves from safeguards power and manually close both accumulator outlet valves from the control room.

b. one of the SI Accumulator outlet valves from safeguards power and then manually close that accumulator outlet valve. The other accumulator is vented to containment.

c. both SI Accumulator outlet valves via B08/B09 Alternate Shutdown Load Center, then manually close both accumulator outlet valves. Both accumulators must be vented to containment.

d. one of the SI Accumulator outlet valves from safeguards power and the other from B08/09 Alternate Shutdown Load Center, then manually close both accumulator outlet valves.

ANSWER
b.
REFERENCE
EOP-1 Loss of Reactor or Secondary Coolant Step 23
OI 100 Unit1 Adjusting SI Accumulator Level and Pressure
Lesson Plan LP0066, Safety Injection System
BANK (PBNP 2009)
HIGHER
Proposed references to be provided to applicants during examination: None
EXPLANATION:
a. Incorrect. The B accumulator MOV will not be able to be energized due to 2B04 lockout.
b. Correct. One accumulator can be isolated and the other must be vented to containment.
c. Incorrect. Accumulators do not have any back-up power supplies and would not be vented once isolated.
d. Incorrect. Plausible because safeguards power can operate the 'A' isolation valve but accumulators do not have any back-up power supplies.

K/A: 006 K2.02 Knowledge of the bus power supplies to the following: Valve operators for accumulators.

QUESTION # 034

Which of the following describes the adverse effects of NOT maintaining the Pressurizer Relief Tank (PRT) within its design level band?

a. If the level is too low, there would be insufficient water volume to absorb and condense a design discharge of PZR safety leading to possible over temperature and overpressure of the PRT.

b. If the level is too high, the tank will overflow to the RCDT causing possible false indications of RCS leakage.

c. If the level is too low the radioactive gases that leak from the top of the PZR would not be adequately scrubbed, thus causing subsequent elevated gaseous activity levels inside containment.

d. If the level is too high, the sparger pipe will be too far underwater rendering the cooling affect of makeup water ineffective.

ANSWER
a.
REFERENCE
DBD -09 Reactor Coolant System
BANK (INPO 27292 Ginna 2004
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
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
EXPLANATION

a. Correct, per the DBD a minimum volume of water (600 cu. Ft.) below a certain temperature (120 ºF) is needed to prevent over pressurization leading to rupture disc failure following a design discharge to the PRT.
b. Incorrect, no overflow. Rupture disc designed to protect against over pressure.
c. Incorrect, the design of the PRT system does not consider scrubbing activity levels. This is a similar reason why we maintain S/G level for a tube rupture.
d. Incorrect, too much water over the sparger is not true; it is based on the volume and temperature of the quench volume.

QUESTION # 035

Unit 2 is at full power and is lowering the Pressurizer Relief Tank (PRT) level per OP 4C, 'Pressurizer Relief Tank Operation Unit 2'.

Prior to opening 2RC-596, 'T-2 PRT Drain to T-16 RCDT', the PAB Auxiliary Operator will be directed to _____.

a. bypass the RCDT to allow the PRT to drain directly to Sump 'A'

b. align the RCDT Pumps/valves and monitor tank level for proper response

c. align the RCDT to allow the PRT to drain directly to T-19, Waste Holdup Tank

d. monitor RCDT level which eventually will have to be drained, as it is sized for several PRT volumes

ANSWER
b.
REFERENCE
OP 4C Unit 2 PRT Operation
TLB-3 PRT level
TLB-14 RCDT level
LP0057 RCDT
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 007 2.1.20 Pressurizer Relief / QuenchTank: Ability to interpret and execute procedure steps.
Explanation:

a. Incorrect, the RCDT can be aligned to bypass the pumps to the -19 ft sump.
b. Correct, the AO will be sent out to manually align the system to maintain proper level 30-60%.
c. Incorrect, the RCDT can be aligned to drain to the -19 ft sump without using the RCDT pumps.
d. Incorrect, the AO will be sent to check levels, however the PRT (280 gal per %) is very large compared to the RCDT (3.5 gal per %).

QUESTION # 036

Given the following plant conditions:

- Unit 2 is at Full Power.
- 2P-11B CCW pump is running
- 2P-11A CCW pump is in standby.
- A breaker malfunction occurs which results in 0 volts indicated on 2B04.

Assuming no operator action taken unless specified in the response, what is the effect of this transient and what procedure(s) will be used to correct this situation?
(AOP-9B, "Component Cooling Water Malfunction")
(AOP-18B, "Train "B" Equipment Operations")

a. 2P-11A will start on low pressure and 2P-11B will automatically restart when power is restored to the buses, only AOP-9B should be entered.

b. 2P-11A will start on the UV on 2B04 and the breaker for 2P-11B will trip open and remain that way until reset by operators, only AOP-18B should be entered.

c. 2P-11A will start on low pressure and 2P-11B will automatically restart when power is restored to the buses, both AOP-9B and AOP-18B should be entered

d. Operators will manually start 2P-11A. The breaker for 2P-11B will trip open and remain that way until reset by operators, both AOP-9B and AOP-18B should be entered.

ANSWER
c.
REFERENCE
LP0084 CCW
883D195 Logic Sheet 5 480 vac scheme
AOP-9B Unit 2
AOP-18B Unit 2
BANK (051.06.LP0084.004 – 11 - modified distractor d.)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 008A1.03 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCWS controls including: CCW pressure
EXPLANATION
a. Incorrect, 2P-11A will start on low pressure, 2P-11B will re-start when power restored and AOP-9B would have to be entered. Still need to use AOP-18B.
b. Incorrect, 2P-11A will start on low pressure not UV, 2P-11B will re-start when power restored and AOP-18B would have to be entered. Still need to use AOP-9B.
c. Correct, 2P-11A will start on low pressure, 2P-11B will re-start when power restored and AOP-9B/AOP-18B would have to be used.
d. Incorrect, Auto start of 2P-11A will occur and the breaker trip is an UV with an SI. AOP-9B/AOP-18B would have to be used.

QUESTION # 037

Given the following plant conditions:

- Unit 1 had been operating for an extended period of time when a steam generator tube leak occurred on the 'A' steam generator.
- The pressurizer has emptied, RCS pressure and S/G pressure is 800 psig.
- The steam in the pressurizer steam space is being heated by the residual heat in the pressurizer metal. The temperature of the steam in the steam space is 650°F.
- Operators have succeeded in reducing RCS pressure to slightly less than 800 psig.
- The pressurizer begins to refill with back-flow from the 'A' S/G.
- RCS temperature is approximately 520°F.

As the pressurizer fills with water from the RCS, what will be the condition of the steam and water entering the pressurizer? What are the effects of pressurizer sprays under these conditions?

a. The steam in the pressurizer will be superheated, The water entering the pressurizer is saturated. Pressurizer sprays will not reduce pressurizer pressure until the steam bubble temperature is reduced by approximately 130°F.

b. The steam in the pressurizer will be superheated. The water entering the pressurizer will be subcooled. Pressurizer sprays will control pressurizer pressure normally.

c. The steam in the pressurizer will be saturated. The water entering the pressurizer will be subcooled. Pressurizer sprays will control pressurizer pressure normally.

d. The steam in the pressurizer will be saturated. The water entering the pressurizer will be slightly above saturation and will cause RCS pressure to rise. Pressurizer sprays will be ineffective. Pressure control will be manually with pressurizer PORV control.

ANSWER
a.
REFERENCE
Steam Tables
NEW
HIGHER
Proposed references to be provided to applicants during examination: Steam Tables
K/A: 010K5.01 Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: Determination of condition of fluid in PZR, using steam tables
EXPLANATION
650°F steam space has a 2200 psia saturation pressure and the RCS temperature of 520°F has approximately 813 psia saturation pressure.

a. Correct, with the steam being superheated pressure will not lower until the steam space is cooled. The RCS is a saturated liquid.
b. Incorrect, steam is superheated but the water entering is not sub-cooled. Sprays will not control pressure.
c. Incorrect, steam is not saturated and the water entering is not sub-cooled. Sprays will not control pressure.

d. Incorrect, the pressurizer steam is not saturated with the RCS at saturation. With sprays not working PORVs would be an option for pressure control.

QUESTION # 038

Unit 1 was operating near full power when one channel of pressurizer pressure failed LOW.

- The crew responded appropriately per AOP-24, Response to Instrument Malfunctions and 0-SOP-IC-001, Routine Maintenance Procedure Removal of Safeguards or Protection Sensors from Service, tripping the required bistables.

What is the Pressurizer low pressure reactor trip logic using the remaining channels and the current status of the failed channel Pressurizer low pressure bistable proving lamp?

The reactor trip logic is now . . .

a. 1 out of 3, and the proving lamp is lit.

b. 1 out of 2, and the proving lamp is lit.

c. 1 out of 3, and the proving lamp is NOT lit.

d. 1 out of 2, and the proving lamp is NOT lit.

ANSWER
c.
REFERENCE
AOP-24, Response to Instrument Malfunctions.
PBN LP0273, Reactor Protection Overview, Rev. 7
PBN LP0315, Reactor Protection Signal Development, Rev. 13
Logic Sheet 88D195-13 Pressurizer Trip Signals
FSAR figure 7.2-15
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 012 A3.02 Ability to monitor automatic operation of the RPS, including: Bistables.
EXPLANATION:

a. Incorrect, the failed low channel trips the low pressure bistable, removing its output. It can't light the proving lamp when its output is placed across the lamp with the bistable trip switch.
b. Incorrect, the Pressurizer low pressure reactor trip logic is 2/4 initially, and becomes 1 out of 3 when the bistable is tripped. Also, the proving lamp will not light with the bistable tripped.
c. Correct Response.
d. Incorrect because the Pressurizer low pressure reactor trip logic is 2/4 initially, and becomes 1 out of 3 when the bistable is tripped.

QUESTION # 039

A total of __(1)____ separate instrument channels monitor containment pressure.

If one of the channels that provides input to the High Containment Pressure Safety Injection actuation logic fails, there are __(2)_ channels remaining in that train to provide the function.

	(1)	(2)
a.	a. Six (6);	Two (2)
b.	b. Eight (8);	Two (2)
c.	c. Eight (8);	Three (3)
d.	d. Six (6);	Three (3)

ANSWER
b.
REFERENCE
LP0486, Engineering Safety Features Actuation System (ESFAS), Rev 13.
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 013 K6.01 Knowledge of the effect of a loss or malfunction of the following will have on the ESFAS: Sensors and detectors.
EXPLANATION:
a. Incorrect because Eight (8) channels are used to monitor containment pressure.
b. Correct Response.
c. Incorrect because Three (3) channels are initially used for SI. If One (1) fails, the remaining Two (2) must remain operable.
d. Incorrect because Eight (8) channels are used to monitor containment pressure, AND because Three (3) channels are initially used for SI. If One (1) fails, the remaining Two (2) must remain operable.

Question #: 040

Given the following:

- A Safety Injection (SI) occurred on Unit 1.
- Five minutes later, the control operator checks the status of 1W-1A1, Containment Accident Recirculation Fan.

The operator expects the fan to be ____(1)_____ because its power supply is ___(2)____.
(assume no operator actions have been taken)

	(1)	(2)
a.	De-energized	1B31
b.	Energized	1B31
c.	Energized	1B04
d.	Energized	1B03

ANSWER
d.
REFERENCE
PBN LP0057, Containment Ventilation Systems, Rev. 18.
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 022 K2.01 Knowledge of bus power supplies to the following: Containment cooling fans.
EXPLANATION:
a. Incorrect because Fan 1W1A1 is powered by 1B03. 1B31 would be de-energized by the SI when it is stripped off by the B03 lockout relay.
b. Incorrect because Fan 1W1A1 is powered by 1B03 AND 1B31 would be de-energized.
c. Incorrect because Fan 1W1A1 is powered by 1B03.
d. Correct Response.

QUESTION #: 041

Which of the following correctly describes the minimum necessary equipment and corresponding containment pressure setpoint(s) to prevent exceeding design containment pressure following a design basis LOCA?

a. Two (2) Containment Accident Recirculation Fans started at 5 psig AND
   Two (2) Containment Spray pumps started at 25 psig.

b. Two (2) Containment Accident Recirculation Fans started at 4 psig AND
   One (1) Containment Spray pump starts at 25 psig.

c. Four (4) Containment Accident Recirculation Fans started at 5 psig.

d. Four (4) Containment Accident Recirculation Fans started at 4 psig.

ANSWER
c.
REFERENCE
PBNPS FSAR, Section 6.3, Containment Air Recirculation Cooling System
LP0057 Containment Ventilation
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 022; 2.4.2 Knowledge of system setpoints, interlocks and automatic actions associated with EOP entry conditions.
EXPLANATION:
a. Incorrect because only 1 Containment Spray Pump is needed with 2 Containment Cooling units. This is more than the MINIMUM needed
b. Incorrect because the Containment Cooling units start at 5 psig: E-0 Entry Conditions.
c. Correct Response.
d. Incorrect because the Containment Cooling units start at 5 psig: E-0 Entry Conditions.

QUESTION # 042

A large break Loss of Coolant Accident (LOCA) occurred on Unit 1, which resulted in the crew performing EOP-1.3 UNIT 1, Transfer to Containment Sump Recirculation – Low Head Injection.

Which of the following describes the procedural requirements for securing the two Containment Spray Pumps?

a. One pump is secured per EOP-0 Attachment A, Automatic Action Verification. The second pump is secured when RWST Level is LESS than 9 percent.

b. One pump is secured per EOP-0 Attachment A, Automatic Action Verification. The second pump is secured when 16 percent of the spray additive tank has been added to containment.

c. One pump is secured when containment pressure is less than 15 psig. The second pump is secured when RWST Level is LESS than 9 percent.

d. One pump is secured when containment pressure is less than 15 psig. The second pump is secured when 16 percent of the spray additive tank has been added to containment.

ANSWER
a.
REFERENCE
EOP-1.3 UNIT 1, TRANSFER TO CONTAINMENT SUMP RECIRCULATION - LOW HEAD INJECTION, Rev. 45.
PBNPS Lesson Plan LP0064, Containment Spray System, Rev. 21
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 026 A2.08 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: Safe securing of containment spray (when it can be done).
EXPLANATION:
a. Correct Response.
b. Incorrect. Because 16 percent of the spray additive tank needs to be added to containment; if this has not occurred, then a spray pump is started.
c. Incorrect. There are no containment pressure conditions per EOP-1.3 for securing containment spray pumps.
d. Incorrect. There are no containment pressure conditions per EOP-1.3 for securing containment spray pumps. Also, while 16 percent of the spray additive tank needs to be added to containment, if this has not occurred, then a spray pump is started.

QUESTION # 043

Which of the following lists the components, in order, through which steam flows from the Steam Generator(s) to the 1P-29, Turbine Driven Auxiliary Feedwater Pump in response to an auto start?

1. Governor Valve
2. Motor Operated Valve (MS-2019/2020)
3. Header Manual Isolation Valve (MS-235/237)
4. Low Suction/Overspeed Trip Throttle Valve (MS-2082)

Steam flows from. . .

a. Unit 1 'B' Steam Generator ONLY to a tap upstream of the MSIV, then - 2, 4, 3, 1.

b. Unit 1 AND Unit 2 'A' Steam Generators, to a tap downstream of the MSIV, then - 4, 1, 3, 2.

c. Unit 1 'A' AND 'B' Steam Generators, to a tap upstream of the MSIV - then 3, 2, 4, 1.

d. Unit 1 'A' AND Unit 2 'B' Steam Generators, to a tap upstream of the MSIV – then 3, 4, 2, 1

ANSWER
c.
REFERENCE
Drawing M-201 Sheet 1, Main Steam
MODIFIED (052.05LP0169.006 - 01 and 052.05.LP0169.002 - 01 combined
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 039K1.07 Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: AFW
EXPLANATION
Steam is supplied from BOTH unit 1 S/G's to a tap upstream of the MSIV's. The correct order of components is manual header isolation, then MOV, then trip throttle valve then finally the governor. Answer C is correct. Distractors A, B and D have varying differences.

QUESTION # 044

Given the following information

- Unit 2 has just transitioned from Mode 3 to Mode 4.
- One Condensate Pump is in operation supplying feed to both steam generators via Steam Generator Feedwater Regulating Valve bypasses.
- Both Main Feedwater Pumps' control switches have been placed in Pull-Out.

If a LO-LO SG LEVEL occurs in SG 'A' . . .

a. Neither Motor Driven Auxiliary Feedwater Pump will start.

b. Only the 'A' Motor Driven Auxiliary Feedwater Pump (P-38A) will start.

c. Only the 'B' Motor Driven Auxiliary Feedwater Pump (P-38B) will start.

d. Both Motor Driven Auxiliary Feedwater Pumps (P-38A & B) will start.

ANSWER
a.
REFERENCE
PBNP LP0128, Feedwater System; Rev 21; Page 25 of 35
PBNP LP0169, Auxiliary Feedwater System; Rev 28; Page 22 of 30.
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A SF4.059.K1.02 Knowledge of the physical connections and/or cause-effect relationships between the MFW System and the following systems: AFW System
EXPLANATION

a. Correct – Placing both SGFP switches in PULL TO LOCKOUT defeats the electric aux feed pump auto start signal due to the SG low low level auto start and the "loss of FW turbine trip" circuit.
b. Incorrect – Plausible if applicant believes that pump starts are tied to a specific steam generator.
c. Incorrect – Plausible if applicant believes that pump starts are tied to a specific steam generator.
d. Incorrect – Plausible since the electric aux feed pump auto start signal due to the SG low low level normally starts both electric pumps.

QUESTION # 045

The SGBD Isolation Defeat Switch on the C03 panel defeats the automatic isolation of the Steam Generator Blowdown Lines that is normally initiated upon . . .

a. blowdown sample line high radiation

b. blowdown Tank discharge line high pressure

c. the manual start of any Auxiliary Feedwater Pump

d. any start of the Turbine Driven Feedwater Pump

ANSWER
d.
REFERENCE
PBNP LP0037, Steam Generator Blowdown System; Rev 18; Pages 16 – 18
OI 14, Steam Generator Blowdown Operation; Rev 37; Pages 40 – 43
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A SF4.061.K4.03 Knowledge of AFW System design feature(s) and/or interlock(s) which provide for the following: Automatic blowdown/sample isolation
EXPLANATION

a. Incorrect – Plausible since high radiation does isolate blowdown but is not defeated by the defeat switch.
b. Incorrect – Plausible since high pressure on the outlet of the Blowdown Tank will isolate blowdown but is not defeated by the defeat switch.
c. Incorrect – Plausible since auto start of the motor driven pumps will isolate blowdown but is not overridden by the defeat switch. Manual start of the Motor Driven Auxiliary Feedwater Pumps does not isolate blowdown.
d. Correct – The switch allows operation of Turbine Drive Aux. Feed Pumps without isolating blowdown.

QUESTION # 046

Which one of the following flowpaths describes the NORMAL supply of power to a reactor protection instrument bus?

a. 480 VAC from safeguards bus, transformed to 120 VAC, and supplied to the instrument bus.

b. 480 VAC from safeguards bus, rectified to 125 VDC, inverted to 120 VAC and supplied to the instrument bus.

c. 480 VAC from non-safeguards bus inverted to 120 VAC and supplied to the instrument bus.

d. 125 VDC from the battery, to the battery bus, rectified to 120 VAC and supplied to the instrument bus.

ANSWER
b.
REFERENCE
LPO123, Rev 3, p 2,3 EO 2.4
TRHB 12.9, Rev 0, Fig 12.9.1
BANK
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A 062000.K4.10 Knowledge of A.C. Distribution System design feature(s) and/or interlock(s) which provide for the following: Uninterruptable ac power sources
EXPLANATION
None

QUESTION # 047

Which of the following Vital DC Distribution parameters are indicated in the Main Control Room?

1. Bus Voltage
2. Battery Current (In/Out)
3. Bus Feed Breaker Position
4. Charger Output Current

a. 1, 2, and 3

b. 1, 2, and 4

c. 1, 3, and 4

d. 2, 3, and 4

ANSWER
a.
REFERENCE
PBNP LP0121, DC Distribution; Rev 18; Pages 15 and 16
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A SF6.063.A3.01 Ability to monitor automatic operation of the D.C. Electrical System, including: Meters, annunciators, dials, recorders, and indicating lights
EXPLANATION
a. Correct
b. Incorrect – Charger output current not indicated in MCR
c. Incorrect – Charger output current not indicated in MCR
d. Incorrect – Charger output current not indicated in MCR

QUESTION # 048

You are the Third RO performing TS 81, Emergency Diesel Generator G-01 Monthly test. G01 EDG has just been synchronized to the grid with conditions just established for the required 60 minute test run. The following conditions are then noted:

- G-01 kW loading is 2650
- G-01 KVAR loading is 850
- G-01 amps are 400
- G-01 speed is 900 rpm
- G-01 voltage is 4150

Based on these indications, what actions are you going to take?

a. Reduce VARS by going to lower on the voltage regulator control switch which prevents overheating of the generator.

b. Trip the EDG to prevent exceeding the maximum voltage ratings of the supplied loads.

c. Establish VARS IN operation by going to lower on the governor control switch which prevents damage to the generator bore ring.

d. Raise EDG speed to reduce the reactive load and prevent motoring the generator.

ANSWER
a.
REFERENCE
TS-81 EDG G-01 Monthly
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A SF6.064.A2.19 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: Consequences of high VARS on ED/G integrity
EXPLANATION
Per TS-81 page 26 for the 60 minute run KW loading should be 2600-2700 kW, 300-800 KVARS and amp are not to exceed 450.

a. Correct, to reduce load the voltage regulator control switch goes to lower to prevent overheating the generator.
b. Incorrect, tripping the diesel can protect it but the given voltage ratings are in the normal band.
c. Incorrect, vars in is the wrong direction as well as the wrong switch listed, a partial correct reason is supplied.
d. Incorrect, raising speed would raise load and put more reactive load on the generator.

QUESTION # 49

Which one of the following switch combinations will result in an idle start of G01 Emergency Diesel Generator?

	MODE SELECTOR SWITCH (C02)	ENGINE START SELECTOR SWITCH (C64)	DIESEL CONTROL SWITCH (C02)	ENGINE START PUSHBUTTON (C64)
a.	AUTO	LOCAL	START	NOT DEPRESSED
b.	EXERCISE	AUTO	START	NOT DEPRESSED
c.	EXERCISE	LOCAL	START	NOT DEPRESSED
d.	EXERCISE	AUTO	AUTO	DEPRESSED

ANSWER
b.
REFERENCE
PBNP LP0133, Emergency Diesel Generators; Rev 23; Handout HO-18 Sheets 1 – 4
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 064A4.05 Ability to manually operate and/or monitor in the control room: Transfer of ED/G control between manual and automatic
EXPLANATION

a. Incorrect – Diesel Control Switch on C02 is disabled when Engine Start Selector Switch on C64 is in LOCAL
b. Correct
c. Incorrect – Diesel Control Switch on C02 is disabled when Engine Start Selector Switch on C64 is in LOCAL
d. Incorrect – Idle Start Pushbutton C64 is not enabled unless Engine Start Selector Switch on C64 is in LOCAL

QUESTION # 050

Given the following plant conditions:

- Unit 1 is at 100% power
- The 'A' Gas Decay Tank is being discharged per OP 9D, 'Discharge of Gas Decay Tanks'

Which of the following would cause an automatic isolation of the Waste Gas Decay Tank discharge?

a. RE-214, Aux Building Vent Exhaust Monitor high alarm.

b. Containment or Aux Bldg Vent System Air Flow Low alarm (1C04 1C 2-9).

c. RE-315, Aux Building Exhaust Low Range Gas high alarm.

d. RE-325, Drumming Area Exhaust Low Range Gas high alarm.

ANSWER
a.
REFERENCE
ARB 1C04 1C 2-9 Containment or Aux Bldg Vent System Air Flow Low
RMSASRB CI RE-214 Aux Building Vent Exhaust Monitor
RMSASRB CI RE-315 Aux Building Exhaust Low Range Gas
RMSASRB CI RE-325 Drumming Area Exhaust Low Range Gas
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 073A4.01 Ability to manually operate and/or monitor in the control room: Effluent release
EXPLANATION
a. Correct, RE-214 has an automatic feature associated with it where a high alarm causes an automatic isolation of WG-014 thus securing a GDT discharge.
b. Incorrect, there are no automatic features with this alarm. This does signify a potential loss of PAB ventilation which will require securing the GDT discharge manually.
c. Incorrect, there is no automatic feature with this alarm; it is used as a back up to RE-214.
d. Incorrect, there is no automatic feature with this alarm; it monitors another exhaust stack in the PAB.

QUESTION # 051

Given the following:

- Both units are at full power with the Letdown Gas Strippers in service
- 2HX-12D and HX-12C CCW Heat Exchangers are aligned to Unit 2 with 2HX-12D controlling CCW temperature in AUTO.
- Unit 2 was placed on two letdown orifices for downpower preparations
- PPCS trends are showing Unit 2 CCW HX outlet temp at 100ºF and rising
- The PAB AO reports that 2HX-12D CCX HX SW TCV is full open.

What operator actions should be taken to address the rising CC HX outlet temperature?

a. Start the standby CCW Pump.

b. Align Unit 2 CCW HX SW blowdown valves per 2-SOP-CC-001, 'Component Cooling System.'

c. Perform 2-SOP-CC-001, 'Component Cooling System' Attachment D, CCW HX Flushing.

d. Align 2SW-12C, HX-12C CCW HX SW TCV to AUTO at the same setpoint as 2SW-12D, 2HX-12D CCX HX SW TCV.

ANSWER
b.
REFERENCE
2-SOP-CC-001 Component Cooling System
NEW
HIGHER
Proposed references to be provided to applicants during examination: N/A
K/A: 076K1.01 Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: CCW system
EXPLANATION
a. Incorrect, this is an option when on RHR. P&L 3.9.7 allows starting another SW pump.
b. Correct, per 2-SOP-CC-001 alignment of the blowdown valves would occur to provide additional cooling.
c. Incorrect, opening the big 12" SW cooling valve is only permitted when on RHR, sump recirculation per EOP 1.3 or EOP 1.4 and Att D of 2-SOP-CC-001. Att D isolates CCW providing no cooling.
d. Incorrect, if aligning the second TCV, procedurally it is placed in manual not auto.

QUESTION # 052

Consider the following plant conditions:

- Both units are at 100% reactor power.
- C01 A 1-5, "SERVICE WATER STRAINER DP HIGH" Alarm is LIT.
- C01 A 2-5, "NORTH OR SOUTH SW HEADER STRAINERS" alarm is LIT.
- SW Header Pressure is 60 PSIG.

The TH AO is dispatched to investigate the alarms:

- AO reports that the South SW Main Zurn strainer had stopped backwashing and the DP on the strainer was 4 psid.
- AO reports that he has opened SW-3, South SW Main Zurn Bypass valve, and that DP has returned to normal.

What direction should be given to the AO and what is the reason for this action?

a. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve requires the SW and AFW Systems to be declared inoperable.

b. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve prevents the strainer from operating in continuous backwash mode.

c. Maintain bypass open to ensure South SW header has sufficient flow for required heat loads. Contact System Engineer to evaluate system flow conditions.

d. Maintain bypass open to ensure SW is available to safety related components normally supplied from the South SW header. SW supply to these components should be aligned to the alternate header as soon as possible.

ANSWER
a.
REFERENCE
OI-70 Service Water System Operation Attachment C and D
BANK (PBNP 2006 RO exam INPO 30320)
HIGHER
Proposed references to be provided to applicants during examination: N/A
K/A: 076 2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.
EXPLANATION
a. Correct,
b. Incorrect, but plausible, opening the bypass could be thought of affecting the backwash cycle.
c. Incorrect, but plausible to maintain flow to South header loads.
d. Incorrect, but plausible, examinee should recognize that vital loads have alternate supplies. These would be used if a header needed to be isolated.

QUESTION # 053

Given the following conditions:

- K-2A Instrument Air Compressor is in CONSTANT
- K-2B Instrument Air Compressor is OOS
- Z-31, Instrument Air Dryer relief valve is failing

Which of the following correctly states the expected response of the Instrument Air System as the leak worsens?
(Assume no operator actions)

Instrument Air header pressures will . . .

a. eventually return to normal after Z-31 Instrument Air Dryer automatically isolates the leak on high DP.

b. continue to lower due to the leak. PCV-3079, Service Air/Instrument Air Cross-connect valve will eventually open to try and restore Instrument Air header pressure.

c. lower and IA-3000-S, Z-39 IA Dryer Bypass valve, will open cross-connecting the north and south Instrument Air Headers.

d. lower and IA-3094-S, Z-31 IA Dryer Bypass valve, will open to isolate the leak.

ANSWER
b.
REFERENCE
LP0338 Instrument and Service Air
M-209 Sheets 1 thru 4 IA and SA system
STPT 14.7
ARP C01 D 3-1
NEW
HIGHER
Proposed references to be provided to applicants during examination: N/A
K/A: 078K1.02 Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Service air
EXPLANATION
a. Incorrect, There are no automatic isolations (other than bypass) on the IA dryers.
b. Correct, as IA header pressure lowers there are various automatic compressor starts (including SA) and as pressure lowers the SA system is automatically cross-connected to the IA system to help maintain operating pressure.
c. Incorrect, this valve will open automatically at 80 psig in the IA header but the north and south headers are already cross-connected.
d. Incorrect, this valve will open automatically at 80 psig in the IA header but the leak will remain aligned.

QUESTION # 054

While monitoring IA Header pressures on C01 with PI-3083A and PI-3084A, you observe the pressure cycling.

Which of the following describes the reason this cycling is observed?

a. Compressor will run continuously. The Total Closure Valve will OPEN when pressure drops to 95 psig and then CLOSE when pressure rises to 105 psig.

b. Compressor will start and load when pressure drops to 95 psig. Compressor will unload and stop when pressure rises to 105 psig.

c. Compressor will run continuously. The Total Closure Valve will CLOSE when pressure drops to 85 psig and then OPEN when pressure rises to 95 psig.

d. Compressor will start and load when pressure drops to 85 psig. Compressor will unload and stop when pressure rises to 95 psig.

ANSWER
a.
REFERENCE
LP0338 Instrument and Service Air
STPT 14.7
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: N/A
K/A: 078A4.01 Ability to manually operate and/or monitor in the control room: Pressure gauges
EXPLANATION

a. Correct, compressors run continuously and the total closure valve cycles to load and unload the compressor to maintain system pressure.
b. Incorrect, right load and unload setpoints but wrong with the compressor starting and stopping.
c. Incorrect, compressors run continuously and the total closure valve cycles to load and unload the compressor to maintain system pressure, pressures listed are wrong. 85 psig is when the SA to IA AOV's open, also a setpoint where a compressor that tripped on overpressure automatically restarts and what pressure in the IA system that auto starts a SA compressor.
d. Incorrect, pressures are common as explained in C. Compressors do not stop and start, they load and unload while continuously running.

QUESTION # 055

How is containment closure capability ensured during a refueling outage when RCS temperature is <200°F and movement of irradiated fuel assemblies for core reload is in progress?

a. Containment closure capability is not required below 200°F as long as we maintain >23 feet of water above the vessel flange.

b. CL-1E, 'Containment Closure Checklist' is maintained by the control room tracking all open penetrations.

c. Personnel and equipment hatch interlocks mechanisms are maintained in an operable status.

d. The Containment Isolation system is operable.

ANSWER
b.
REFERENCE
TLCO 3.9.3
BANK (051.05.LP0099.004 -#4)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: N/A
K/A: 103K3.03 Knowledge of the effect that a loss or malfunction of the Containment System will have on the following: Loss of containment integrity under refueling operations
EXPLANATION

a. Incorrect, there may be times, like defueled, where we do not require maintaining containment closure. Conditions listed in the stem require containment closure capability. (TLCO 3.9.3)
b. Correct, CL-1E is maintained by the Control Room as to the status of all containment penetrations and what needs to happen to close these items.
c. Incorrect, hatch interlocks are disabled when going below 200°F and not maintained operable.
d. Incorrect, LCO 3.6 series is required in Modes 1 thru 4, we do not require containment isolation to be operable.

QUESTION # 056

Unit 2 was operating at 100% power when annunciator 2C03 2D 1-8 2P-1A RCP COOLING WATER FLOW LOW was received. The crew subsequently entered AOP-1B, Reactor Coolant Pump Malfunction. While reviewing the fold-out page the following conditions are observed:

- Both RCP amps are normal.
- Both RCP cubicle smoke detectors alarms are normal.
- CCW Surge Tank level is 47% and lowering.
- 'A' RCP motor bearing temperature is 81°C and slowly rising.
- 'A' RCP stator temperature is 122°C and slowly rising.
- Sump 'A' level is rising.

While performing required foldout page actions, 2CC-759A, 'A' RCP CC Outlet MOV, is determined to be stuck in the mid position and will not stroke closed.

After the crew trips the reactor, they should trip . . .

a. the 'A' RCP due to motor bearing temperature exceeding limits.

b. the 'A' RCP due to stator temperature exceeding limits.

c. both RCPs; then shut 2CC-719, Containment Equipment CC Supply Header Isolation Valve.

d. the 'A' RCP; then shut 2CC-754A, 'A' RCP CC Inlet MOV[C1].

ANSWER
c.
REFERENCE
AOP-1B U2
BG AOP-1B U2
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 002 A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the RCS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of forced circulation
EXPLANATION:
a. Is incorrect because motor bearing temperature is not exceeding limits.
b. Is incorrect because stator temperature exceeds limits however RCP amps and smoke detectors are normal.
c. Is correct.
d. Is incorrect because both RCPs should be stopped and CCW fully isolated.

QUESTION # 057

Given the following plant conditions:

- Unit 2 was operating at 95% power with Group D rods at 210 steps.
- Group D rod position indication on the plant computer increased to 213 steps over a 15 minute period.

With no changes in RCS Tavg, and no operator action, which of the following could explain the change in indicated individual rod position?

a. A power range NI fails low.

b. A high worth rod in Control Bank C dropped into the core.

c. First Stage Impulse Pressure, PT-485, failed high.

d. The running CRDM cooling fan tripped on thermal overload.

ANSWER
d.
REFERENCE
PBN LP 0576 Rod Position Indication
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 014 K3.02 Knowledge of the effect that a loss or malfunction of the RPIS will have on the following: Plant computer
EXPLANATION

a. Is incorrect because rods would move outward faster and further in anticipatory manner resulting in TAVG rising with no operator action (and may go back in if error is large).
b. Is incorrect, because rods would step out faster and further with no operator action resulting in TAVG rising with no operator action.
c. Is incorrect because rods would step out faster and further with no operator action resulting in TAVG rising with no operator action.
d. Is correct. If the operating CRDM Cooling Fan loses power (no auto start of standby fan), RPI coil resistance increases due to increased temperatures, therefore indicating higher than actual rod position.

QUESTION # 058

Unit 1 is performing a reactor shutdown. Reactor power, as indicated on the intermediate range nuclear instruments, is as follows:

- N-35 = 1.6x10-10 amps and lowering
- N-36 = 1.4x10-10 amps and lowering
- Channel N-35 compensating voltage has failed
- rods begin to continuously withdraw due to a failed relay

Assuming no operator action, how does the reactor respond?

N-35 reads . . .

a. lower than actual level; a source range trip occurs.

b. higher than actual level; a source range trip occurs.

c. lower than actual level; a source range trip does not occur.

d. higher than actual level; a source range trip does not occur.

ANSWER
d.
REFERENCE
PBN LP2416
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 015 A4.02 Ability to manually operate and/or monitor in the control room: NIS indicators
EXPLANATION
a. Is incorrect because N-35 would read higher.
b. Is incorrect because a source range reactor trip would not occur due to SR NIs not being energized, although N-35 would read higher.
c. Is incorrect because N-35 would read higher but correct with regards to no reactor trip.
d. Is correct. N-35 would read higher thus not allowing the SR NIs to energize so a SR reactor trip would not occur.

QUESTION # 059

What is the reason that the quantity of aluminum metal components in containment must be minimized?

a. Aluminum melts in a high temperature fire.

b. Aluminum reacts with sodium hydroxide to produce hydrogen.

c. Aluminum combines with elemental iodine to form a soluble salt.

d. Aluminum loses structural strength in a high energy line break environment.

ANSWER
b
REFERENCE
FSAR 5.6
LP3821-ppt Intro to Accident TA and MCD
BANK
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 028 K5.03 Knowledge of the operational implications of the following concepts as they apply to the HRPS: Sources of hydrogen in containment
EXPLANATION
a. Is correct.
b. Distractors b, c and d are not the reason for minimizing aluminum in containment.

QUESTION # 060

With Unit 1 in Cold Shutdown, the Operations Supervisor directs the Containment Purge Supply and Exhaust System be placed in service in accordance with Section 5.3.1 of OP-9C, "Containment Venting and Purging Unit 1."

In order to start the . . .

(Exhaust Fan - 1W6A/B, Purge Exhaust Fans)
(Supply Fan - 1W2A/B, Purge Supply Fans)
(Exhaust Valve - 1VNPSE-3212, Purge Exhaust Fan Suction Containment Isolation)
(Supply Valve - 1VNPSE-3244, Purge Supply Fan Discharge Containment Isolation)

a. purge SUPPLY fan, the purge EXHAUST fan must be running and SUPPLY valve must be closed.

b. purge EXHAUST fan, the purge SUPPLY fan must be running and EXHAUST valve must be closed.

c. purge EXHAUST fan, the purge SUPPLY fan must be running and EXHAUST and SUPPLY valves must be open.

d. purge SUPPLY fan, the purge EXHAUST fan must be running and EXHAUST and SUPPLY valves must be open.

ANSWER
d.
REFERENCE
LP0057 Containment Ventilation Systems
OP-9C Containment Venting and Purging Unit 1
499B466 sheet 578A and 579A
BANK (Primaries 051.05.LP0057.004 #4)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: N/A
K/A: 029A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Purge System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Startup operations and the associated required valve lineups
EXPLANATION
a. Incorrect, proper fan sequence is listed.
b. Incorrect, opposite fan order and lists exhaust valve as shut. This valve is required to be open for start.
c. Incorrect, valve interlocks listed correctly but fan interlock is opposite.
d. Correct, fan interlocks require the exhaust fan running prior to starting the supply fan. Prior to starting the exhaust fan the supply and exhaust valves are open.

QUESTION # 061

Which of the following conditions would allow new fuel movement in the spent fuel pool?

a. Spent fuel water temperature is 48°F.

b. RE-221, Drumming Area Vent Gas Monitor, and RE-325, Drumming Area Exhaust Low-range Gas monitor are out of service.

c. Spent fuel pool water level is 62.25 feet.

d. Communication between the SFP area and the Control Room is lost.

ANSWER
c.
REFERENCE
0-SOP-FH-001
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 034 2.1.32 Ability to explain and apply system limits and precautions.
EXPLANATION:

a. Is incorrect because SFP temperature greater than 50°F is an initial condition for any fuel movement in the SFP.
b. Is incorrect because one of the two must be in service for any fuel movement in the SFP.
c. Is correct, because SFP level greater than or equal to 62.75 is an initial condition for irradiated fuel movement only.
d. Is incorrect because availability of communications is an initial condition for any fuel movement in the SFP.

QUESTION # 062

During operation at 100% power PT-486, Turbine First Stage Pressure failed LOW.

Which of the following describes the response of the Condenser Steam Dump System to this failure and why?

a. The steam dump valves remain closed but are "armed" due to a loss of load condition being sensed.

b. The dump valves modulate open immediately due to a Tavg/Tref deviation.

c. The steam dump valves blow open immediately due to a turbine trip signal.

d. The instrument failure will only have an affect on the steam dumps if the steam dump mode selector switch is in MANUAL.

ANSWER
a.
REFERENCE
883D195 Logic sheet 17 Steam Dump Control
BANK (PBNP 1999 SRO exam INPO 2759 (041.K6.03))
HIGHER
Proposed references to be provided to applicants during examination: N/A
K/A: 041K6.03 Knowledge of the effect of a loss or malfunction of the following will have on the SDS: Controller and positioners, including ICS, S/G, CRDS
EXPLANATION
a. Correct,
b. Incorrect, steam dumps will not modulate as the Tref signal is from PT-485 which gets compared to Tavg both of which are at full power.
c. Incorrect, there is no trip signal present.
d. Incorrect, this instrument has an effect with dumps in auto, not manual.

QUESTION # 063

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- Rod control is in automatic.
- A single set of Main Air Ejectors is in service.
- 1MS-2074, Z-53C-H Air Ejector Main Steam Supply control valve fails closed.

Which of the following conditions will result if NO operator action is taken?

a. Lowering megawatt output and rising hotwell temperature.

b. Rising megawatt output and rising gland seal header pressure.

c. Rising megawatt output and rising condenser hotwell level.

d. Lowering megawatt output and lowering hotwell temperature.

ANSWER
a.
REFERENCE
None Provided
BANK (PBNP 2006 RO INPO 30329)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 055K3.01 Knowledge of the effect that a loss or malfunction of the CARS will have on the following: Main Condenser
EXPLANATION
a. Correct
b. Incorrect, MW drops, no effect on gland steam pressure.
c. Incorrect, MW drops, no effect on hotwell level (minor thermal expansion).
d. Incorrect, hotwell temperature rises due to less vacuum.

QUESTION # 064

Given the following plant conditions:

- Unit 2 is operating at 100% power.
- Condensate Pump 2P-25A trips.
- Assume no operator actions are taken.

Which of the following is correct regarding the status of the Main Feedwater system 5 minutes after the condensate pump trip?

a. Both Main Feedwater Pumps are tripped due to low suction pressure.

b. All Main Feedwater Pumps and Heater Drain Tank Pumps are tripped due to a Safety Injection signal.

c. Both Main Feedwater Pumps are running and Low Pressure Feedwater Heater Bypass Valve (2CS-2237) is open.

d. Both Main Feedwater Pumps are tripped due to a loss of seal water.

ANSWER
a.
REFERENCE
LP0128 Main Feedwater
BANK (PBNP 2002 RO Exam INPO 20612)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 056K1.03 Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW
EXPLANATION

a. Correct, 1 Condensate pump and 2 HDT pumps cannot supply enough water to the suction of the Main Feed Pumps. Eventually the low suction trip timer will activate and 2-minutes later the Main Feed Pumps will trip off.
b. Incorrect, the SGFPs are tripped by an SI signal, but the HDT pumps are tripped by a high containment pressure signal of 5 psig. There is nothing in the plant conditions that would signify an SI would have taken place.
c. Incorrect, CS-2273 would try to supply more water if needed, but eventually the SGFPs will trip off.
d. Incorrect, true regarding both SGFPs tripped, but it is not due to loss of seal water. The seal water pumps trip due to the loss of condensate pressure. Seal water is required as a start permissive interlock for the SGFPs.

QUESTION # 065

Both Units are in their normal full power alignments when the following is noted:

- The site has experienced a Loss of Offsite Power
- There is a lockout on 4160 Safeguards Bus 1A05
- The deluge system for 1X01 Main Transformers has actuated

Which of the following is supplying water to the Fire Header and how is system pressure being maintained?

a. P-35A Electric Fire Pump via its full flow relief valve.

b. P-35B Diesel Fire Pump via its full flow relief valve.

c. P-35A Electric Fire Pump and P-35B Diesel Fire Pump via flow out of the transformer deluge valves.

d. P-35B Diesel Fire Pump via the engine governor speed control.

ANSWER
b.
REFERENCE
LP0003 Fire Protection System
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 086K4.01 Knowledge of Fire Protection System design feature(s) and/or interlock(s) which provide for the following: Adequate supply of water for FPS
EXPLANATION

a. A: Incorrect - P-35A is powered from 1B03 480 VAC Safeguards Bus which is not available due to the lockout, full flow relief is the correct pressure control.
b. B: Correct - P-35B Diesel Fire Pump started on low pressure and controls pressure with a full flow relief valve.
c. C: Incorrect - P-35A is powered from 1B03 480 VAC Safeguards Bus which is not available due to the lockout.
d. D: Incorrect - P-35B Diesel Fire Pump started on low pressure. Speed is maintained constant not tied to system pressure.

QUESTION # 066

Given the following information:

- You are assuming the midshift watch on Unit 2.
- Rod control is in MANUAL due to a failed TAVE/TREF comparator.

Shortly after assuming the watch, you observe the following abnormal plant indications:

- Reactor coolant system temperature has rapidly lowered approximately 2°F
- 'A' & 'B' S/G level deviation alarms on 2C03 are LIT
- Automatic charging pump speed is rising
- Overpower Delta-T runback alarm on 2C04 has LIT

Which of the following events is the most likely cause of these indications?

a. Turbine Generator Governor valve drifted towards closed

b. Loss of external electrical load

c. Loss of normal Feedwater

d. Excessive load increase

ANSWER
d.
REFERENCE
FSAR 14.1.7 Excessive Load Increase
BANK (BNP 2002 RO exam INPO 20651)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
EXPLANATION
a. Incorrect, lowering steam flow thus raising RCS temp.
b. Incorrect, loss of load causes power mismatch thus raising RCS temp.
c. Incorrect, lowering feedflow affects S/G levels but would not give a runback.
d. Correct, taking on load increases steam demand thus lowering RCS temp.

QUESTION # 067

Consider the following Unit 1 conditions:

- One Control Bank A control rod has become misaligned.
- Crew is implementing AOP-6B, 'Stuck or Misaligned Control Rod', and is to the point of recovering the misaligned rod.
- As the RO begins to withdraw the control rod, the "ROD CONTROL URGENT FAILURE" Alarm is received.

What actions should be taken as a result of this alarm?

a. Stop withdrawing control rod, immediately commence shutdown per Technical Specification requirements.

b. Stop withdrawing the control rod, place lift coil disconnect switch in 'disconnect', contact I & C to troubleshoot Rod Control system.

c. Immediately trip Unit 1 reactor and proceed to EOP-0, 'Reactor Trip or Safety Injection.'

d. Continue withdrawing the control rod, the Urgent Failure alarm is expected.

ANSWER
d.
REFERENCE
AOP-6B Stuck or Mis-Aligned Rod note prior to step 18
BANK (PBNP 2006 RO exam INPO 30323)
FUNDAMENTAL
K/A: 2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management.
Proposed references to be provided to applicants during examination: None
EXPLANATION
a. Incorrect, stop moving rods for an unexpected urgent failure alarm. Rod control issues may require a TS required S/D.
b. Incorrect, I&C troubleshoots and we disconnect all rods but the affected one for restoration.
c. Incorrect, tripping the unit can occur if rod control does not work as expected.
d. Correct, urgent failure alarm is expected per note in AOP-6B and continue withdrawing rod.

QUESTION # 068

You, as an RO on relief crew, are to verify a valve lineup per the applicable system checklist and drawing. During performance of the checklist you discover that a valve shown on the system drawing is NOT listed on the applicable checklist.

Which of the following describes the required actions for this plant configuration situation?

Notify the relief crew OS, then initiate a/an . . .

a. Condition Report (CR) and pen and ink the checklist to continue.

b. Condition Report (CR) and a Procedure Change Request (PCR) to update the checklist.

c. Operator Workaround and pen and ink the checklist to continue.

d. Work Request (WR) and an Engineering Change Request (ECR) to update the checklist.

ANSWER
b.
REFERENCE
OM 3.41 System Status Control Attachment A Discrepancy #1
BANK (INPO 28114 2004 HB Robinson)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.2.15 Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, tag-outs, etc.
EXPLANATION
a. Incorrect, a CR is initiated pen and ink is for typographical errors not technical.
b. Correct, a CR as well as a PCR is required prior to continuing.
c. Incorrect, Workaround is plausible but pen and ink to continue is not allowed for technical issue only typo's.
d. Incorrect, WR is to address equipment issues and an ECR would be required to fix a drawing.

QUESTION # 069

Both units are in a normal 100% power electric plant lineup.

The Shift Manager just declared G02, Emergency Diesel Generator, INOPERABLE.

Prior to any operator action being taken, which of the following correctly states the status of LCO 3.8.1, AC Operating Sources for both units?

	Unit 1	Unit 2
a.	met	not met
b.	not met	met
c.	not met	not met
d.	met	met

ANSWER
c.
REFERENCE
TS LCO 3.8.1 AC Operating Sources
BANK (Tech Spec Bank 057.02.LP3344.001 #15)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.
EXPLANATION

a. A: Incorrect, G02 is aligned to 2A05 per the stem, a common mis-perception is this failure would only affect unit 2.
b. B: Incorrect,
c. C: Correct, TSAC 3.8.1.E standby emergency source inoperable with G02 declared OOS applies until G01 aligned to both units busses. Equipment needed on 2A05 is shared between units.
d. D: Incorrect, This would be the case shortly after the failure when G01 is aligned to 2A05 to exit the TSAC.

QUESTION # 070

The following plant conditions exist on Unit 1:

- RHR has just been placed in service per OP-7A, 'Placing Residual Heat Removal System in Operation'.
- The Control Operator reports unstable RHR flow and discharge pressure.
- The Operating Supervisor enters SEP-1, 'Degraded RHR System Capability' and directs RHR pumps secured.
- The OS1 also directs the CO to have the PAB Operator reflood the RHR suction line.

Using the provided Figure 1 of SEP-1, analyze and choose which of the following water sources will be used to perform RHR suction line reflood?

a. The RHR Pump Suction from RWST MOV (1SI-856A).

b. The SI Accumulator Outlet MOV (1SI-841A).

c. The SFP to RHR valve (1SF-819) from the Spent Fuel Pool cooling system.

d. The Core Deluge MOV (1SI-852A) from the Safety Injection system.

ANSWER
c.
REFERENCE
SEP-1 Degraded RHR System Capability Figure 1
BANK
HIGHER
Proposed references to be provided to applicants during examination: SEP-1, Figure 1.
K/A: 2.2.41 Ability to obtain and interpret station electrical and mechanical drawings.
EXPLANATION
a. Incorrect, RWST gravity may not overcome RHR pressure plus a check valve prevents flow to reflood suction line.
b. Incorrect, SI Accumulator Outlet Valves danger tagged shut with no power.
c. Correct, SFP cooling supply to RHR can be lined up.
d. Incorrect, could start SI to flood core but wouldn't directly reflood RHR suction line.

QUESTION # 071

Consider the following Unit 1 conditions:

- 'B' SG is ruptured.
- Crew is performing EOP-3, Steam Generator Tube Rupture.

Which of the following describes how 1HC-478, 'B' Atmospheric Steam Dump Controller, will be aligned to minimize steam dumped from the 'B' Steam Generator?

a. Controller in MANUAL, CO maintaining 'B' SG pressure <1085 PSIG.

b. Controller in MANUAL, Manually closed.

c. Controller in AUTO, Set at 1085 PSIG.

d. Controller in AUTO, Set at 1050 PSIG.

ANSWER
d.
REFERENCE
EOP-3, Steam Generator Tube Rupture Step 5
BANK (PBNP 2005 RO exam Question 71)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.3.11 Ability to control radiation releases
EXPLANATION
a. Incorrect, combination of B and C
b. Incorrect, this would ensure ADV did not open, which would seem to be prudent, however, the safeties could lift and potentially not reseat.
c. Incorrect, plausible to minimize steam dump while maintaining overpressure protection available.
d. Correct, EOP-3 has operator verify the controller is in AUTO and set at 1050.

QUESTION # 072

Operations and RP have just completed filling a High Integrity Container (HIC) with spent resin. The results of a subsequent radiation survey is as follows:

- Top of shielded HIC by fill head: 2500 mr/hr on contact and 1200 mr/hr @ 30 cm
- Sides of shield: 100 mr/hr on contact and 60 mr/hr @ 30 cm

Which of the following describes the required radiological postings for the top of the HIC?

a. The HIC should be posted as a Locked High Radiation area.

b. The HIC should be posted as a High Radiation area.

c. No postings are required because you need a ladder to access the top of the shielded HIC.

d. The PAB truck bay should be barricaded with locked gate access and posted as a Very High Radiation area.

ANSWER
a.
REFERENCE
HP 3.2 Radiological Labeling, Posting and barricading requirements
NP 4.2.19 Entry into Various Radiologically Controlled Areas
TS 5.7 High Radiation Area definitions
BANK (PBNP 2002 RO INPO 20657)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.
EXPLANATION
a. Correct, LHRA posting required due to >1000 mrem/hr @ 30 cm.
b. Incorrect, posting is correct for sides of HIC but not the top.
c. Incorrect, top of lid requires posting as a LHRA even though you need a ladder.
d. Incorrect, potential method to post the truck bay as a LHRA but HIC is not high enough dose rates to be a VHRA.

QUESTION # 073

Given the following sequence of events:

- A transient on Unit 1 has resulted in a Reactor Trip and Safety Injection.
- * The crew has entered EOP-0, transitioned to EOP-1, and is currently implementing EOP-1.1, SI Termination.
- The STA reports that an Orange Path on the Integrity status tree exists.
- The OS transitions from EOP-1.1 to CSP-P.1.

While implementing CSP-P.1, which of the following is correct regarding foldout page applicability?

a. Only foldout page items from CSP-P.1 AND EOP-1.1 apply.

b. Only the foldout page items from CSP-P.1 apply.

c. The foldout page items in EOP-0, EOP-1, EOP-1.1, and CSP-P.1 ALL apply.

d. Only the foldout page items in EOP-0 AND CSP-P.1 apply.

ANSWER
b.
REFERENCE
OM 3.7 AOP and EOP Set Procedure Use and Adherence section 4.7
BANK (Biennial Master bank ADMIN OM 3.7 rules #1)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
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.
EXPLANATION
a. Incorrect, see b.
b. Correct, Transition to an orange or red path CSP supersedes actions of EOP-0, EOP-1 and EOP-1.1 including the FOP criteria.
c. Incorrect, see b.
d. Incorrect, see b.

QUESTION # 074

Given the following plant conditions:

- A reactor start-up is in progress.
- Reactor criticality has been achieved and critical rod height data is being recorded.
- A bank of rods suddenly drops into the core.
- Intermediate Range power is lowering.
- The operator immediately pushes the reactor trip pushbuttons, but the reactor trip breakers do not open.
- Safety Injection actuates on low PZR pressure.

The correct course of action is described by which of the following statements?
(EOP-0, 'Reactor Trip or Safety Injection')
(EOP-0.1, 'Reactor Trip Response')
(CSP-S.1, 'Response to Nuclear Power Generation/ATWS')

a. Complete EOP-0 Immediate actions and continue until first transition out.

b. Transition from EOP-0 to CSP-S.1.

c. Complete EOP-0 Immediate Actions and transition to EOP- 0.1.

d. Locally open reactor trip breakers and once opened exit EOP-0.

ANSWER
a.
REFERENCE
EOP-0 Reactor Trip or Safety Injection step 1 RNO
BANK (2002 PBNP RO Exam INPO 20663)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 2.4.21 Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.
EXPLANATION
a. Correct, S.1 does not apply because you are less than 5% power even though the trip breakers are closed.
b. Incorrect, correct answer if >5% power.
c. Incorrect, with the SI you need to continue in EOP-0 to EOP 1.1 if no SI is really needed.
d. Incorrect, you would try to open the trip breakers per step 1 of EOP-0 but stay in the procedure until directed to transition out.

QUESTION # 075

Which of the following describes the steps necessary to reset the over-speed trip and restart 1P-29, Turbine-Driven Auxiliary Feedwater Pump?

a. The Auxiliary Operator must locally open the Low Suction Pressure/Overspeed Trip valve.

b. The Auxiliary Operator must manually reset the trip linkage. The Control Operator may then open the valve by placing the control switch to open.

c. The Auxiliary Operator must manually reset the trip linkage. The Control Operator may then place the control switch to close to relatch the valve, and then open to reopen the valve.

d. The Control Operator resets the trip and relatches the valve by placing the control switch to close. Once relatched, the valve can be reopened by placing the control switch to open.

ANSWER

REFERENCE
OI-62B Turbine Driven Auxiliary Feedwater System (P-29) Sect 5.3
BANK (052.05.LP0169.004 #19)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.4.35 Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.
EXPLANATION
a. Incorrect, the AO takes local action but not for the trip valve itself.
b. Incorrect, RO must go to closed after reset to open the trip valve.
c. Correct, AO must reset the overspeed trip locally then the RO can operate the trip valve from the control room to reset the valve.
d. Incorrect, this can be done for resetting a low suction trip only.

QUESTION # 076

Unit 1 is operating in Mode 1 when the following is reported by the Control Operator:

- Alarm 1C04 1C 3-11, 1P-1A or 1P-1B RCP UPPER or LOWER SUMP OIL LEVEL HIGH or LOW is LIT.
- Alarm 1C04 1C 3-10, 1TR-2001 TEMPERATURE MONITOR is LIT.
- 1TR-2001 Point 3, A RCP Upper Guide Bearing Temperature is 85º C and slowly RISING.
- CCW Surge Tank level is 49% and slowly LOWERING.

Based on the above conditions, which of the following states the correct actions to be taken by the Operating Supervisor?

a. Enter AOP-9B, 'Component Cooling System Malfunction' which will have you immediately secure both RCPs and then isolate cooling water to the RCPs.

b. Enter AOP-1B, 'Reactor Coolant Pump Malfunction' and AOP-9B, 'Component Cooling System Malfunction' in parallel to get 'A' RCP secured with cooling water isolated.

c. Enter AOP-1B, 'Reactor Coolant Pump Malfunction' which will have you immediately secure 'A' RCP.

d. Take all of the ARB actions in 1C04 1C 3-11 to determine which RCP brought in the alarm THEN enter AOP-1B, 'Reactor Coolant Pump Malfunction' to secure the 'A' RCP.

ANSWER
b.
REFERENCE
AOP-1B Reactor Coolant Pump Malfunction
ARB 1C04 1C 3-11
AOP-9B Component Cooling System Malfunction
BANK (LOC Biennial written)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000015/17A202 Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Abnormalities in RCP air vent flow paths and/or oil cooling system
EXPLANATION
a. Incorrect, required if <10% CCW Surge tank level. AOP-9B would be entered based on lowering CCW level, but securing of RCP's takes place within this AOP.
b. Correct, Entry into both AOP's would be required to get the RCP secured with the leak isolated.
c. Incorrect, correct procedure to enter but you don't meet any RCP trip criteria.
d. Incorrect, you would enter an AOP while taking ARB actions, not wait until all ARB actions are done. ARB also requires a containment entry to complete.

QUESTION # 077

Unit 1 is in Mode 5 and being cooled down per OP-3C 'Hot Standby to Cold Shutdown'.

The following plant conditions exist:

- RCS temperature is 160º F
- RCS pressure is 310 psig
- LTOP and RHR are in service
- 1SI-841A SI Accumulator MOV is SHUT with power REMOVED
- 1SI-841B SI Accumulator MOV is SHUT with power AVAILABLE
- 1T-34B, SI Accumulator is DRAINED and DEPRESSURIZED to atmosphere
- The crew just secured the last Reactor Coolant Pump

The following plant conditions are then noted:

- RCS pressure is lowering
- Alarm 1C03 1D 4-4 RHR LOOP FLOW LO is LIT
- Alarm C01 B 1-4 UNIT 1 CONTAINMENT SUMP A LEVEL HIGH is LIT
- 1RE-211 'U1 Containment Air Particulate Monitor' is in alarm

The Operating Supervisor will direct actions to mitigate the RHR System leak in the .....

a. containment per EOP-0, 'Reactor Trip or Safety Injection.'

b. RHR Pump cubicle per SEP 2.3, 'Cold Shutdown LOCA.'

c. 8' pipeway 2 per SEP 2.2, 'Shutdown LOCA with RHR Aligned for Decay Heat Removal.'

d. containment per SEP 2.3, 'Cold Shutdown LOCA.'

ANSWER
d.
REFERENCE
EOP-0 Reactor Trip or Safety Injection
SEP 2.3 Cold Shutdown LOCA
BANK (LOC Biennial written)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000025A2.02 Ability to operate and/or monitor the following as they apply to the Loss of Residual Heat Removal System: Leakage of Reactor Coolant from RHR into closed cooling water system or into reactor building atmosphere.
EXPLANATION
a. Incorrect, correct leak location but EOP-0 does not apply with SI Accumulators isolated.
b. Incorrect, SEP 2.3 is required procedure but location of leak is wrong.
c. Incorrect, wrong procedure and location, might pick SEP 2.2 because RHR is aligned for DHR and goes thru this area.
d. Correct procedure and leak location.

QUESTION # 078

Given the following conditions:

- Unit 1 experienced an ATWS
- The turbine failed to trip when the turbine trip pushbutton was depressed while performing CSP-S.1, Response to Nuclear Power Generation/ATWS.
- While the Control Operator is addressing the failure of the turbine to trip, the STA reports that CST level is 8 feet and lowering.

(AOP-23 UNIT 1, ESTABLISHING ALTERNATE AFW SUCTION)

Which of the following actions are required?

a. IMMEDIATELY transition to AOP-23 from the Foldout Page, THEN return to CSP-S.1 when all AOP-23 actions are completed.

b. IMMEDIATELY reference AOP-23 from the Foldout Page, WHILE continuing to perform CSP-S.1.

c. Complete the remaining actions to trip the turbine, THEN branch to AOP-23 from the Foldout Page (perform in parallel with CSP-S.1).

d. Complete the remaining actions to trip the turbine, THEN transition to AOP-23 from the Foldout Page, returning to CSP-S.1 when all AOP-23 actions are completed.

ANSWER
c.
REFERENCE
OM 3.7, AOP and EOP Procedure Sets Use and Adherence.
CSP-S.1, Response to Nuclear Power Generation/ATWS
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 000029 2.4.8 Knowledge of how abnormal operating procedures are used in conjunction with EOPs.
EXPLANATION
a. AOP-23 UNIT 1 is the correct procedure AFTER all Immediate Actions are completed, but, transitioning to it implies exiting CSP-S.1, which is incorrect.
b. AOP-23 UNIT 1 is the correct procedure, but branching to it is required AFTER Immediate Actions are completed. The Foldout page is N/A initially.
c. Correct Response.
d. AOP-23 UNIT 1 is the correct procedure AFTER all Immediate Actions are completed, but branching to it from the foldout page is required (not referencing it).

QUESTION # 079 REVIEW PROVIDED MATERIAL VS QUESTION ANSWER

Given the following conditions:

- Both Units were at rated power
- A mis-calibration problem resulted in two (2) channels of 480 Volt loss of voltage relays for 1B03 Safeguards Bus reading 256 Volts at 10:00AM today (with no SI signal present).
- It is now 11:00 AM and the relay calibration has not changed.

Which of the following is a complete list of TS 3.3.4 Technical Specification Action Conditions required to be entered AND what automatic action occurred?

a. TSAC 3.3.4.D Two or more 480V loss of voltage channels per bus inoperable
TSAC 3.3.4.E RA and Completion Time not met for Condition A or Condition D

1B03 load shedding was initiated.

b. TSAC 3.3.4.A One or more functions with one channel per bus inoperable
TSAC 3.3.4.D Two or more 480V loss of voltage channels per bus inoperable
TSAC 3.3.4.E RA and Completion Time not met for Condition A or Condition D

1B03 was disconnected from offsite power.

c. TSAC 3.3.4.A One or more functions with one channel per bus inoperable
TSAC 3.3.4.D Two or more 480V loss of voltage channels per bus inoperable
TSAC 3.3.4.E RA and Completion Time not met for Condition A or Condition D

1B03 load shedding was initiated.

d. TSAC 3.3.4.A One or more functions with one channel per bus inoperable
TSAC 3.3.4.E RA and Completion Time not met for Condition A or Condition D

1B03 was disconnected from offsite power.

ANSWER
c.
REFERENCE
TS 3.3.4., LOP DG Instrumentation.
TS B 3.3.4., LOP DG Instrumentation
NEW
HIGHER
Proposed references to be provided to applicants during examination: LCO 3.3.4
K/A: 000056 2.2.38 Knowledge of conditions and limitations in the facility license.
EXPLANATION
a. Incorrect because actions of TSAC 3.3.4.A were not entered. Load shedding is a correct automatic response.
b. Incorrect because disconnecting the affected bus from offsite power occurs when degraded voltage occurs on 4.16KV buses.
c. Correct Response.

d. Incorrect because actions of TSAC 3.3.4.A were not entered AND disconnecting from the affected bus offsite power occurs when degraded voltage occurs on 4.16KV buses.

QUESTION # 080

Both units were at rated power in a normal electrical line up when lightning struck a 345 KV transmission line causing a transient:

- Red Inverter 1DY01 failed due to a problem with the AC output breaker.
- A short time later Yellow Inverter 1DY04 lost its synchronization and tripped off.

What is the status of the Instrument Buses after the electrical perturbation and what procedure(s) will be selected by the Operating Supervisor?

a. Unit 1 Red Instrument Buses are powered from their backup supply and the Yellow Instrument Buses are de-energized. Entry into AOP-0.2, 'Loss of Safety Related Instrument Buses' is required.

b. Unit 1 Red and Yellow Instrument Buses are powered from their backup supply. Entry into AOP-0.1, 'Declining Frequency on 345 KV Distribution System' is required.

c. Unit 1 Red and Yellow Instrument Buses are de-energized. Entry into EOP-0, 'Reactor Trip or Safety Injection' and parallel performance of AOP-0.2, 'Loss of Safety Related Instrument Buses' are required.

d. Unit 1 Red Instrument Buses are powered from their backup supply and the Yellow Instrument Buses are de-energized. Entry into AOP-0.1, 'Declining Frequency on 345 KV Distribution System' is required.

ANSWER
a.
REFERENCE
AOP-0.2 Loss of Safety Related Instrument Buses
AOP-0.1 Declining Frequency 345 KV Grid
NEW
Higher
Proposed references to be provided to applicants during examination: None
K/A 000057 2.4.11 Knowledge of abnormal condition procedures
EXPLANATION
a. Correct, Red still powered on alternate power, Yellow de-energized due to interlock. AOP 0.2 required entry.
b. Incorrect, yellow bus has no power. Wrong AOP for grid disturbance, might pick due to lightning strike and inverter issues are a key factor when entering AOP-0.1.
c. Incorrect, Red bus has power Yellow does not. Correct procedures for both vital instrument buses if neither inverter swapped to back up power.
d. Incorrect, wrong procedure to enter for vital bus loss.

QUESTION # 081

Unit 2 was operating at 75% power when a plant transient resulted in a reactor trip and safety injection. EOP-0, 'Reactor Trip or Safety Injection', has been entered and the crew is carrying out actions of the procedure. The following plant conditions are noted:

- RCS pressure 1100 psig and slowly lowering
- Pressurizer level 5% and slowly lowering
- Pressurizer PORVs closed
- Spray valves closed
- Steam Generator levels normal
- Steam Generator pressures normal
- Containment pressure normal
- Containment radiation normal
- Sump 'A' level normal
- RE 214, PAB Exhaust Monitor rising
- Several PAB area radiation monitors rising

After assessing these conditions, the next procedure the OS will implement is:

a. ECA-1.2, 'LOCA Outside Containment'

b. EOP-1.1, 'SI Termination'

c. EOP-1, 'Loss of Reactor or Secondary Coolant'

d. EOP-1.2, 'Small Break LOCA Cooldown and Depressurization'

ANSWER
a.
REFERENCE
EOP-0 Reactor Trip or SI
ECA-2.1 LOCA Outside Containment
Proposed references to be provided to applicants during examination: None
K/A W/E04 2.1 Ability to determine and interpret the following as they apply to the LOCA Outside Containment: Facility conditions and selection of appropriate procedures during abnormal and emergency operations
BANK (INPO 26174 PBNP 2003 SRO)
HIGHER
EXPLANATION

a. Correct, given plant indications a LOCA outside containment is taking place. No other transition criteria apply until transition to ECA-1.2 RNO Step 25.
b. Incorrect, do not meet SI termination criteria.
c. Incorrect, there were multiple transitions possible (PORV's open or leak in containment) to EOP-1 prior to transition out to ECA-1.2 which makes this plausible.
d. Incorrect, indications are from a small LOCA but it is outside containment.

QUESTION # 082

Given the following plant conditions entering a refueling outage:

- RCS temperature is 130°F and stable
- RCPs are secured
- Both trains of RHR are aligned for decay heat removal with 'A' train providing cooling
- Draindown to 40% Pressurizer level was just completed

The Control Operator then reports the following information to you:

- Pressurizer level is slowly rising
- Source range counts are slowly rising on both N-31 and N-32
- 1C04 1C 2-8 BA FLOW DEVIATION OR POTENTIAL DILUTION IN PROGRESS alarm is LIT

As the Operations Supervisor of the unit what actions are you going to take?

a. Enter AOP-6F, 'Low Concentration Water Pockets in RCS' and borate the RCS from the RWST using a Safety Injection Pump.

b. Use OP-4A, 'Filling and Venting Reactor Coolant System' Attachment D 'Blending Operation for Unit 1 and Unit 2' to borate the RCS from the blender using an available Charging Pump.

c. Enter CSP-S.1, 'Response to Nuclear Power Generation/ATWS' and emergency borate the RCS from the RWST using all available Charging Pumps.

d. Enter SEP-1, 'Degraded RHR System Capability' in an effort to raise RHR flow to 3000 gpm ensuring prompt mixing of the RCS.

ANSWER
a.
REFERENCE
AOP-6F Low Concentration Water Pockets in RCS
ARB 1C04 1C 2-8 BA Flow Deviation or Potential Dilution in Progress
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A 000024 2.4.47 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.
EXPLANATION
a. Correct, multiple entry conditions met plus this AOP is referenced in the ARB.
b. Incorrect, proper procedure used to borate the RCS for recovery from refueling.
c. Incorrect, this is used when greater than 350°F but is generally used when one thinks of emergency boration.
d. Incorrect, SEP-1 could potentially get faster mixing. More mixing would not occur until analysis is done of the amount of dilution that took place plus you don't meet entry requirements for this procedure.

QUESTION # 083

Given the following conditions:

- Fifteen minutes ago, an accidental release to the environment of a Waste Gas Decay tank began.
- Operators have been taking actions to monitor the release and attempting to isolate it.
- The release is currently about 10 times the Radiological Effluent Technical Specifications.
- The control room has just been informed that the release cannot be isolated for approximately two more hours.

Which of the following describes the appropriate Emergency Plan classification actions?

a. Declare RU1 Unusual Event at this time.

b. Declare RU1 Unusual Event after the release has exceeded sixty minutes.

c. Declare RA1 Alert with a classification time of fifteen minutes ago.

d. Declare RA1 Alert at this time; upgrade the classification to the next level if leak is not isolated within the next forty five minutes.

ANSWER
a.
REFERENCE
EPIP 1.2, Emergency Classification.
EPIP 1.2.1, Emergency Action Level Technical Basis.
NEW
HIGHER
Proposed references to be provided to applicants during examination: EPIP 1.2, page 8, Hot Initiating Conditions
K/A 000060 2.4.41 Knowledge of the emergency action level thresholds and classifications.
EXPLANATION:
a. Correct Response.
b. Incorrect because while the RU1 EAL threshold is 2X the TS limit for 60 minutes or longer, the declaration should not be delayed but made when it is determined that 60 minutes will be exceeded.
c. Incorrect because the RA1 EAL threshold is 200X the TS limit for 15 minutes or longer. The RA1 EAL has not been exceeded and is not projected to be exceeded.
d. Incorrect because although 15 minutes has elapsed, the RA1 EAL threshold is 200X the TS limit for 15 minutes or longer.

QUESTION # 084

Both Units were in normal full power operations when a fire in control board panel C01 caused spurious cycling of plant equipment and rendered the Control Room uninhabitable.

As a Control Room Supervisor, which of the following describes your response?

a. Enter AOP-10, Control Room Inaccessibility; Entering EOP-0, Reactor Trip or Safety Injection is not required.

b. Enter AOP-10A, Safe Shutdown - Local Control; Entering EOP-0, Reactor Trip or Safety Injection is not required.

c. Enter AOP-10, Control Room Inaccessibility; Entering EOP-0, Reactor Trip or Safety Injection is required after the Control Room is accessible.

d. Enter AOP-10A, Safe Shutdown – Local Control'; Entering EOP-0, Reactor Trip or Safety Injection is required after the Control Room is accessible.

ANSWER
b.
REFERENCE
BG AOP-10, CONTROL ROOM INACCESSIBILITY (Background Doc.)
AOP-10, CONTROL ROOM INACCESSIBILITY.
BG AOP-10A, SAFE SHUTDOWN - LOCAL CONTROL (Background Doc.)
AOP-10A, SAFE SHUTDOWN - LOCAL CONTROL
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A 000067 2.4.8 Knowledge of how abnormal operating procedures are used in conjunction with EOPs
EXPLANATION:

a. Incorrect because AOP-10 entry conditions do not include fire AND, IF they did, E-0 would be re-entered after the Control Room became accessible.
b. Correct Response.
c. Incorrect because AOP-10 entry conditions do not include fire AND, IF they did, E-0 would be re-entered after the Control Room became accessible.
d. Incorrect because no provision exists in AOP-10A to enter E-0.

QUESTION # 085

An event has occurred on Unit 2 with the following results:

- automatic reactor trip and safety injection.
- Immediate actions have just been performed and validated.
- While reviewing foldout page criteria the crew determines that there are two faulted S/Gs and one ruptured S/G.

After receiving this information Operating Supervisor immediately transitions to EOP-0.0, 'Rediagnosis' to aid in determining the next course of action.

The next procedure transition will be to _____.

a. EOP-0, 'Reactor Trip or Safety Injection'

b. EOP-2, 'Faulted Steam Generator Isolation'

c. EOP-3, 'Steam Generator Tube Rupture'

d. ECA -2.1, 'Uncontrolled Depressurization of Both Steam Generators'

ANSWER
a.
REFERENCE
EOP 0.0 Rediagnosis and associated bases document
OM 3.7 AOP and EOP Procedure Usage Step 4.4
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: W/EO1 & E02 A2.2 Ability to determine and interpret the following as they apply to the Reactor Trip or Safety Injection/Rediagnosis: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments
EXPLANATION

a. Correct, EOP-0.0 can be entered at any time. Deviation document states you should not continue past step 1 until EOP-0 has been completed and a transition out of EOP-0 has occurred.
b. Incorrect, this is a transition out of EOP-0.0 plus plant conditions meet the procedures purpose.
c. Incorrect, this is a transition out of EOP-0.0 plus plant conditions meet the procedures purpose.
d. Incorrect, this is a transition out of EOP-0.0 plus plant conditions meet the procedures purpose.

QUESTION # 086

Which statement describes the Technical Specification Safety Limit for Reactor Coolant System Pressure and its bases?

The Reactor Coolant System pressure shall not exceed 2735 psig . . .

a. at COLD SHUTDOWN during hydrostatic testing to prevent exceeding 115% of design pressure, the maximum transient pressure allowable under ASME Code.

b. in all MODES with settings providing protection to prevent exceeding this value for all analyzed transients.

c. during at power operation to ensure DNBR during steady-state operation, normal operational transients, is maintained greater than or equal to the 95/95 DNBR criterion.

d. while the RCS is greater than or equal to 200ºF in order to prevent exceeding design containment pressure resulting from the postulated Design Basis Accident.

ANSWER
b.
REFERENCE
TS 2.0 Safety Limits (SLs)
TS Bases 2.1.1 Reactor Core SLs
TS Bases 2.1.2 Reactor Coolant System (RCS) Pressure SLs
BANK (Kewaunee 2009 SRO exam)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 010 2.2.22 Knowledge of limiting conditions for operations and safety limits.
EXPLANATION

a. Incorrect, hydrostatic pressure testing is not done at cold shutdown and it is done to prevent exceeding 110% of design limits.
b. Correct, with the analyzed events there are trip settings and safety valves in place to prevent exceeding this value.
c. Incorrect, this statement is in the safety limits bases document but it relates to thermal power, RCS pressure and temperature figures.
d. Incorrect, exceeding containment pressure with a design basis accident is a statement from several bases descriptions.

QUESTION # 087

You are the Unit Supervisor for Unit 2, responding to the following conditions:

- A Large Break LOCA has occurred inside Containment.
- Containment pressure is 32 PSIG and lowering slowly.
- Both Containment Spray trains are running and delivering flow to Containment.
- The Unit 2 RO is performing the Immediate Action steps of EOP-0, Reactor Trip or Safety Injection.
- The RO informs you that 2SI-836A and 2SI-836B, Spray Additive Eductor Suction valves, did NOT open.

What are the potential consequences of this failure AND what direction should be given to the RO?

a. Increased hydrogen generation within Containment; manually open the valves during the performance of EOP-0 Attachment A, Automatic Action Verification.

b. Decreased retention of radioactive iodine in the Containment sump; allow completion of EOP-0 Immediate Action steps, then direct the RO to open 2SI-836A and 2SI-836B.

c. Increased corrosion of components within Containment; ensure the RO manually initiates Containment Spray during performance of Step 4 of EOP-0 Immediate Actions.

d. Increased radiation levels within Containment; direct the RO to immediately open 2SI-836A and 2SI-836B.

ANSWER
b.
REFERENCE
TS Bases 3.6.7 Spray Additive Bases
OM 3.7, AOP and EOP Procedure Sets Use and Adherence
EOP-0, Reactor Trip or Safety Injection
BANK 2005 PBNP Exam
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 026 ; 2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.
EXPLANATION:
a. Incorrect. With no NAOH going to containment there will be less production of hydrogen from reacting with aluminum.
b. Correct Response. Iodine retention will be decreased without NAOH addition to the containment. AFTER immediate actions have been completed, the valves should be opened.
c. Incorrect. Although the correct ph band is established with NAOH to reduce corrosion of components, this should not be corrected during immediate actions.
d. Incorrect. Actions should not be directed until after completion of immediate actions.

QUESTION # 088

Given the following full power conditions:

- A Tave channel failed HIGH causing rod motion
- Taking rod control to MANUAL did not stop rod motion
- The reactor trip was not successful
- The turbine trip was successful

Which of the following states the status of the Condenser Steam Dumps and the procedure selected by the Operating Supervisor to mitigate the event?

a. The Condenser Steam Dumps are OPEN and CSP-S.1, 'Response to Nuclear Power Generation/ATWS' will shut the MSIVs minimizing the cooldown to address reactivity effects.

b. The Condenser Steam Dumps are SHUT and EOP-0, 'Reactor Trip or Safety Injection' will direct use of the Condenser Steam Dumps to control RCS temperature in the desired band after transition out of CSP-S.1, 'Response to Nuclear Power Generation/ATWS.'

c. The Condenser Steam Dumps are OPEN and EOP-2, 'Faulted Steam Generator Isolation' will shut the MSIVs to address the faulted S/G concern.

d. The Condenser Steam Dumps are SHUT and EOP-0.1, 'Reactor Trip Response' will control S/G pressure utilizing the Condenser Steam Dumps in pressure control mode.

ANSWER
a.
REFERENCE
CSP-S.1 Response to Nuclear Power Generation/ATWS
883D195 Condenser Steam Dumps Logic sheet 17
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 039A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Malfunctioning steam dump
EXPLANATION

a. Correct, CSP-S.1 correct procedure due to no reactor trip >5% power. CSDs will be open controlling the high temperature due to the failure. Procedure will have you shut the MSIVs to stop the cooldown when the CSDs stay open.
b. Incorrect, CSDs are open due to the failure and correct use of CSDs for RCS temperature control if examinee uses CSDs with proper transitions.
c. Incorrect, CSDs are open due to failure and because of this candidate may diagnose a faulted S/G due to uncontrolled dumping of steam.
d. Incorrect, CSDs are open due to the fault, EOP-0.1 control of RCS temperature would be similar to EOP-0.

QUESTION # 089

Unit 1 is responding to a Steam Generator Tube Rupture on the 'A' Steam Generator.

- The crew is currently implementing EOP-3.1 'Post Steam Generator Tube Rupture Cooldown Using Backfill' in order to cooldown and depressurize the RCS
- Equipment malfunctions have caused the level in the 'A' Steam Generator to begin rising
- 1C03 1E2 1-2, 'Steam Generator 'A' Level Setpoint Deviation' is LIT and level is currently 95% and slowly rising
- The Shift Technical Adviser has informed the Operating Supervisor that a Yellow Path condition exists on the Heat Sink Critical Safety Function and that entry conditions for CSP-H.3 'Response to Steam Generator High Level' are met

If not corrected, (1) which of the following describes the most imminent damaging effects of this situation and (2) how the SRO will prioritize the use of CSP-H.3?

a. (1) Damage to 1P-29 Turbine Driven Auxiliary Feedwater Pump is likely.
   (2) The SRO must enter CSP-H.3 to address the challenge to the Heat Sink safety function because CSP-H.3 is a higher priority procedure than EOP-3.1.

b. (1) Potential damage to the Main Turbine is likely.
   (2) The SRO may enter CSP-H.3 at his discretion. If entered, the requirements of CSP-H.3 will supersede any continuous actions that were in effect in EOP-3.1.

c. (1) Potential damage to the 'A' Steam Generator Atmospheric Dump Valve is likely.
   (2) The SRO may enter CSP-H.3 at his discretion. If entered, any continuous actions that were in effect in EOP-3.1 will have priority over actions directed in CSP-H.3.

d. (1) Potential damage to 'A' Steam Generator Safety Valves is likely.
   (2) CSP-H.3 may NOT be used in this situation because the crew is now in the event -specific recovery procedure.

ANSWER
c.
REFERENCE
BG-CSP-ST-0 Critical Safety Function Status Trees
OM 3.7 AOP and EOP Procedure Sets Use and Adherence
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 059A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the MFW System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Overfeeding event
EXPLANATION
a. Incorrect, The yellow path critical safety procedure does not have higher priority than the EOPS or ECAs. While plausible, the TDAFP was previously isolated.
b. Incorrect, While CSP-H.3 entry is at SRO discretion, the continuous actions in the previous procedure continue to apply. While plausible, the Main Turbine was previously isolated.

c. Correct, CSP-H.3 entry is at SRO discretion and the continuous actions in the previous procedure continue to apply. The 'A' Steam Generator ADV Valve could actuate on high pressure and two-phase flow could damage it.
d. Incorrect, CSP-H.3 is applicable in this situation and can be used if desired, subject to non-interference with the higher priority EOP in progress. While plausible, 'A' Steam Generator Safety Valves would actuate only if the ADV could not control pressure.

QUESTION # 090

Unit 1 is in MODE 1.
Unit 2 is in MODE 6 for a refueling outage.

- All Auxiliary Feedwater pumps are OPERABLE
- All six Service Water pumps are OPERABLE
- All required offsite power sources to Units 1 & 2 are OPERABLE
- G02, Emergency Diesel Generator is OUT OF SERVICE with G01, Emergency Diesel Generator aligned to both 4160v Safeguards Buses.

Given these conditions, which of the following statements correctly describes the requirements associated with cross-tying 2B-03 to 2B-04, Unit 2 480v AC Safeguards buses?

The buses may be cross tied for ___(1)___ provided ___(2)___.

a. (1) up to 8 hours
   (2) 1 RHR loop is OPERABLE OR the Unit 2 Reactor Cavity water level is maintained > 23 feet above the Reactor Vessel flange

b. (1) up to 8 hours
   (2) 1 RHR loop is OPERABLE AND the Unit 2 Reactor Cavity water level is maintained > 23 feet above the Reactor Vessel flange

c. (1) up to 7 days
   (2) loads on the Unit 2 480v Safeguards Buses are limited to avoid overloading the standby Emergency Diesel Generator

d. (1) up to 7 days
   (2) G02, Emergency Diesel Generator is restored to an OPERABLE status and re-aligned to its associated 4160v Safeguards Bus

ANSWER
b.
REFERENCE
TS LCO 3.8.9 Distribution Systems - Operating
TS LCO 3.8.10 Distribution Systems - Shutdown
BANK (LOC Biennial Written)
HIGHER
Proposed references to be provided to applicants during examination: LCO 3.8.9 and 3.8.10
K/A: 062 2.2.38 Knowledge of conditions and limitations in the facility license
EXPLANATION
Cross tying up to 7 days is only allowed if the unit is defueled (in distractors C & D). A) is incorrect because redundant cooling capability requires an operable RHR loop and cavity level > 23 feet.

QUESTION # 091

Unit 2 is operating at 100% power with the following conditions:

- Pressurizer Level 40% and stable
- Volume Control Tank Level 40% and lowering
- Charging Pump control is in MANUAL
- RO reports a primary leak rate of 20 gpm
- 2RE-211 Containment Air Particulate Monitor is in alarm
- 2RE-212 Containment Noble Gas Monitor is in alarm

How will the RCS leak rate be addressed?

a. Entry into AOP-1A, 'Reactor Coolant Leak' with no plant shutdown required due to the leak size being within the capability of one charging pump.

b. Entry into AOP-1A, 'Reactor Coolant Leak' and conduct a plant shutdown with declaration of an UNUSUAL EVENT by the Shift Manager.

c. Direct a manual reactor trip, safety injection and containment isolation with entry into EOP-0, 'Reactor Trip or Safety Injection' along with declaration of an ALERT by the Shift Manager.

d. Entry into AOP-3, 'Steam Generator Tube Leak' and conduct a plant shutdown to Mode 3 using AOP-17A, 'Rapid Power Reduction'.

ANSWER
b.
REFERENCE
AOP-1A Reactor Coolant System Leak
EPIP 1.2
EPIP 1.2.1
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 002 2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.
EXPLANATION

a. Incorrect, entry into AOP-1A to address RCS leakage capacity of make up is discussed when determining classifications for fission product barriers.
b. Correct, entry into AOP-1A to address RCS leakage which would require a shutdown and the UE is classified based on >10 gpm leak rate.
c. Incorrect, a reactor trip is not required but if RCS leakage were worse these would be the correct actions. ALERT RCS leakage is 60 gpm or loss of subcooling.
d. Incorrect, entry into AOP-3 not correct, using AOP-17A could be used to take the unit offline.

QUESTION # 092

Unit 2 experienced a Loss of Coolant Accident, in which several vital ECCS systems have failed.

- While monitoring Core Exit Thermocouple (CET) temperatures it is noticed that a few are reading 2500°F, while a few are reading 74°F.
- Reactor Vessel Narrow Range Level is stable at 35 ft.
- The Operating Supervisor is reviewing the status of the Core Cooling Critical Safety Function

Which of the following correctly states how he would determine the requirement to transition to CSP-C.1 'Response to Inadequate Cooling'?

a. When any 5 Core Exit Thermocouples are greater than 700°F

b. When any Core Exit Thermocouple is greater than 1200°F

c. When any 5 Core Exit Thermocouples are greater than 1200°F

d. When any Core Exit Thermocouple is greater than 700°F

ANSWER
c.
REFERENCE
BG CSP-C.1 Response to Inadequate Core Cooling
BANK (Indian Point 2003 NRC Exam)
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 017A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the ITM System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Thermocouple open and short circuits
EXPLANATION
CET open and shorted conditions will cause failures of indicated CETs high and low. The core cooling safety function status tree background states that at least 5 CETs are used to make the decision to allow for thermocouples failed high.
a. Incorrect, entry into C.1 is not required for this temperature because RVLIS is 35 ft.
b. Incorrect, the transition decision is not based on one CET.
c. Correct, with any 5 CETs indicating greater than 1200 °F, CSP-C.1 is applicable.
d. Incorrect, entry into C.1 is not required because RVLIS is 35 ft, and only 1 CET

QUESTION # 093

Unit 1 is in MODE 6 with RP-1C, 'Refueling' in effect during a core reload.

- 'B' RHR Pump and HX are operating providing cooling
- 'A' RHR Pump and HX are isolated and drained for maintenance
- The refueling crew has a spent fuel assembly in the manipulator mast transiting to the core

The unit now experiences a loss of 480 VAC Safeguards Bus 1B04.

Which of the following would be required by the Core Load Supervisor?

a. Direct the fuel assembly be sent back to the Spent Fuel Pool and suspend loading fuel in the reactor until cooling is restored.

b. Direct the fuel assembly be placed into the core and suspend loading fuel in the reactor until cooling is restored.

c. Continue loading fuel in the core, only 1 train of RHR is required to be operable with the high cavity water level.

d. Continue loading fuel in the core for up to an hour before fuel motion has to be suspended.

ANSWER
a.
REFERENCE
RP-1C Refueling
TC LCO 3.9.4 and associated Bases
NEW
HIGHER
Proposed references to be provided to applicants during examination: None
K/A: 034K5.03 Knowledge of the operational implications of the following concepts as they apply to the Fuel Handling System: Residual heat removal; decay
EXPLANATION
LCO 3.9.4 requires one RHR loop to be OPERABLE and in operation while loading irradiated fuel assemblies into the core. Although the note allows the required pump to be not operating for up to one hour in an eight hour period, the loop must remain operable. Loss of 1B04 will trip the required RHR pump and make the loop inoperable.

a. Correct: With the required RHR loop inoperable, the refueling SRO must suspend loading irradiated fuel assemblies in the core immediately.
b. Incorrect: the fuel assembly should not be loaded into the core as explained above.
c. Incorrect: the train must also be operating. Also plausible if power loss to the B pump is not recognized.
d. Incorrect: the note does not allow the loop to be inoperable for the hour flow is secured.

QUESTION # 094

You are OS2 with a full crew complement of licensed individuals in the Control Room.

The Fourth License is assigned as Dedicated Operator while conducting TS-82, 'Emergency Diesel Generator G-02 Monthly.'

The Unit 2 Control Operator has requested to step outside the Control Room and make a personal 5 minute phone call.

What would be required, if anything, to allow the Unit 2 Control Operator to leave?

a. Nothing is required because there are still 5 licensed individuals in the Control Room and it will be less than 10 minutes.

b. Have the Fourth License conduct a short term relief turnover with the Unit 2 Control Operator.

c. Have the Third License conduct a short term relief turnover with the Unit 2 Control Operator.

d. Have the Shift Technical Advisor report to the Control Room while the Unit 2 Control Operator steps out.

ANSWER
c.
REFERENCE
OM 3.26 Use of Assigned and Dedicated Operators
TS-82 EDG G-02 Monthly step 5.4
NP 2.1.1 Attachment C 3.3.5
NEW
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.1.3 Knowledge of shift or short term relief turnover practices.
Explanation:

a. Incorrect, having only 5 licenses is allowed per minimum staffing. 10 minutes is a familiar time for the STA to report to the Control Room.
b. Incorrect, Normally fourth license could conduct a turnover but you cannot be the OATC while also a Dedicated Operator.
c. Correct, staffing is such that the Third RO is the one to relieve Unit 2 RO.
d. Incorrect, this is required for other minimum staffing issues that may arise.

QUESTION # 095

Which event provides the bases for the minimum boron concentration required to maintain shutdown margin while moving irradiated fuel assemblies during a core offload?

a. Shutdown LOCA

b. Boron dilution

c. Dropped fuel assembly

d. Loss of RHR

ANSWER
b.
REFERENCE
LCO 3.9.1 Boron Concentration
LCO 3.9.1 Bases
COLR
BANK (KNPP 2009)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.1.36 Knowledge of procedure and limitations involved in core alterations.
Explanation:
a. Incorrect, have minimum water and make up capability requirements for this.
b. Correct per TS Bases 3.9.1
c. Incorrect, dropped fuel assembly needs cavity water level and hatches secured.
d. Incorrect, this event requires water levels.

QUESTION # 096

Unit 1 is at 100% power. At 0800 on 1/10/11, all indications show that Control Bank D Rod K-7 Rod Position Indication has FAILED LOW.

Which of the following statements correctly describes the requirements of Technical Specifications Action Condition 3.1.7, Required Action A.1.2?

a. RA A.1.2 first performance must be done prior to 1600 on 1/10/11. Subsequent performances should be done every eight hours but a 25% extension is allowed.

b. RA A.1.2 first performance must be done prior to 1600 on 1/10/11. Subsequent performances must be done every eight hours with no extension allowed.

c. RA A.1.2 first performance should be done prior to 1600 on 1/10/11, but can be extended to 1800. Subsequent performances must be done every eight hours with no extension allowed.

d. RA A.1.2 first performance should be done prior to 1600 on 1/10/11, but can be extended to 1800. Subsequent performances should be done every eight hours but a 25% extension is allowed.

ANSWER
a.
REFERENCE
TS LCO 3.1.7 Rod Position Indication
TS 3.0 SR and applicability and associated Bases
BANK (LOC Biennial written 2008)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.2.23 Ability to track Technical Specification limiting conditions for operations.
EXPLANATION
a. A: Correct, application of modified time zero rules of use (example 1.3-7) RA A1.1 can not be extended. RA A1.2 can not be extended for the first performance
b. B: Incorrect, first statement true however 25% extensions are allowed.
c. C: Incorrect, no extension allowed on first SR, this is opposite of what is required.
d. D: Incorrect, second part of distractor is correct regarding 25% grace period.

QUESTION # 097

During a surveillance test P-32A Service Water Pump failed to receive an auto-start signal, but the pump started normally in manual.

Which of the following describes the operability implications of the auto-start failure?

a. P-32A and G01 EDG are INOPERABLE.

b. P-32A is OPERABLE and G01 EDG is INOPERABLE.

c. P-32A is INOPERABLE and G01 EDG is OPERABLE.

d. P-32A and G01 EDG are OPERABLE.

ANSWER
b.
REFERENCE
OI-70 Service Water System Operation
LCO 3.8.1 AC sources operating bases
LCO 3.7.8 SW System bases
OI-168 EDG Operability
Proposed references to be provided to applicants during examination: None
K/A: 2.2.37 Ability to determine operability and/or availability of safety related equipment.
NEW
FUNDAMENTAL
EXPLANATION
a. Incorrect, P-32A is operable, auto start not required for pump (similar to CCW). G01 is inoperable and because G01 normally powers 1B03 and P-32A is powered by 1B03.
b. Correct, G01 EDG is OOS due to loss of cooling water flow. P-32A is operable auto start not required for pump (similar to CCW).
c. Incorrect, see above.
d. Incorrect, see above.

QUESTION # 098

Given the following on Unit 2:

- Refueling operations are in progress
- It has been 7 days since shutdown
- The Containment Equipment hatch is removed
- Irradiated fuel is being moved in the manipulator from the core to the containment upender for transfer to the Spent Fuel Pool
- A leak is reported from the refueling cavity drain line cleanout flange
- Refueling Cavity water level is slowly lowering

Identify the direction the Core Load Supervisor should provide during this event.

a. Store the irradiated fuel assembly in the containment upender Frame Down, THEN shut the Transfer Tube Gate Valve AND the Spent Fuel Pool Transfer Canal Doors.

b. Store the irradiated fuel assembly in the Spent Fuel Pool upender Frame Down, THEN shut the Spent Fuel Pool Transfer Canal Doors.

c. Store the irradiated fuel assembly in any available core location, THEN have the Control Room secure Unit 2 Purge Supply and Exhaust Fans.

d. Store the irradiated fuel assembly in any available core location, THEN shut the Transfer Tube Gate Valve.

ANSWER
d.
REFERENCE
RP-1C Refueling
NEW
Higher
Proposed references to be provided to applicants during examination: None
K/A: 2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.
EXPLANATION
a. Incorrect, wrong place to store fuel assembly with leak being from the bottom of the lower cavity. Storing the fuel in the containment upender will not provide enough protection.
b. Incorrect, right potential location but only if shutting the transfer tube gate valve.
c. Incorrect, a good location for storage but wrong action with the equipment hatch removed. Requirement is to have purge supply and exhaust operating balancing air flow.
d. Correct, good fuel storage location and correct action to keep the SFP from lowering as well per RP-1C P&L's with listed leak location.

QUESTION # 099

A fire is reported to the Control Room by an Office Assistant and verified by an Auxiliary Operator in the area of the Lube Oil Storage Room.

According to NP 1.9.14, 'Fire Protection Organization,' which of the following describes a responsibility of the Operating Supervisor regarding fire emergency response guidelines?

The Operating Supervisor should . . .

a. proceed to the scene to act as the fire brigade leader, after assuring the Shift Manager is in the control room.

b. implement the Emergency Plan.

c. contact the Two Creeks Volunteer Fire Department for assistance as soon as fire magnitude is known.

d. relieve the Shift Manager who will proceed to the scene of the fire to direct activities.

ANSWER
a.
REFERENCE
NP 1.9.14 step 4.4
BANK (PBNP 2007 SRO Exam (previous 2 exams))
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.4.26 Knowledge of facility protection requirements, including fire brigade and portable firefighting equipment usage.
EXPLANATION
a. Correct, per NP 1.9.14 the OS reports to the scene after making sure the SM is in the control room.
b. Incorrect, this may be an action depending on how long the fire is active but the SM or unaffected OS will take care of this.
c. Incorrect, the control room will actually contact the fire department with input by the OS on the scene.
d. Incorrect, this is opposite of what happens.

QUESTION # 100

Given the following conditions:

- Unit 1 is at 100% power.
- Air in leakage to the condenser has resulted in steadily degrading condenser vacuum.
- A load reduction is directed in order to maintain vacuum.
- With the unit at approximately 85% power, a manual reactor trip is ordered due to the inability to maintain vacuum.

Based solely on the information given, which of the following describes the notification requirements for this event?

a. The NRC must be notified within 4 hours due to manual actuation of the Reactor Protection System.

b. The State/County must be notified within 15 minutes of the trip due to reaching an Emergency Plan classification for an Unusual Event.

c. WEPSS Balancing Authority must be notified within 1 hour in order to ensure grid stability is maintained.

d. No notifications to any outside agencies are required for these conditions.

ANSWER
a.
REFERENCE
Reportability Manual
NP 2.1.5 Switchyard Communications and Planning
NRC reporting form 361 (PBF-1646)
BANK (PBNP 2003 INPO 26169)
FUNDAMENTAL
Proposed references to be provided to applicants during examination: None
K/A: 2.4.30 Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.
EXPLANATION
a. Correct, 10CFR50.72(b)(2)(iv)(B) 4 hr non-emergency report.
b. Incorrect, there is no classification here so the UE is wrong but if there was a classification the 15 minutes is a common time the examinees see.
c. Incorrect, WEPSS Balancing Authority is called for in NP 2.1.5 as a 12-hour report.
d. Incorrect, not every event at the plant requires notification.