Draft Submittal

(Pink Paper)

ROBINSON RETAKE EXAM
50-261/2001-302

DECEMBER 7, 2001

1. Reactor Operator Written Exam

Given the following conditions:

An ATWS has occurred. The crew is performing action contained in FRP-S.1, Response to Nuclear Power Generation/ATWS.

The RO has initiated boration as follows:

- CVC-310B, Loop 2 Cold Leg CHG is open
- HIC-121, Charging Flow controller demand set to 0%
- 2 Charging pumps running at full speed
- 1 Boric Acid pump aligned for blend is running
- MOV-350, Boric Acid to Charging pump suction is OPEN

Which one of the following describes the boric acid flow indication that will be present?

A. No boric acid flow will be indicated

B. FI-110, Boric Acid Bypass Flow, will provide the only indication of boric acid flow

C. FR-113, Boric Acid Flow Recorder, will provide the only indication of boric acid flow

D. Both FI-110 and FR-113 will indicate boric acid flow

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Question Number:	RO XX
Question:	Given the following conditions: An ATWS has occurred. The crew is performing action contained in FRP-S.1, Response to Nuclear Power Generation/ATWS. The RO has initiated boration as follows: • CVC-310B, Loop 2 Cold Leg CHG is open • HIC-121, Charging Flow controller demand set to 0% • 2 Charging pumps running at full speed • 1 Boric Acid pump aligned for blend is running • MOV-350, Boric Acid to Charging pump suction is OPEN Which one of the following describes the boric acid flow indication that will be present? A. No boric acid flow will be indicated B. FI-110, Boric Acid Bypass Flow, will provide the only indication of boric acid flow C. FR-113, Boric Acid Flow Recorder, will provide the only indication of boric acid flow D. Both FI-110 and FR-113 will indicate boric acid flow
Answer:	B. FI-110, Boric Acid Bypass Flow, will provide the only indication of boric acid flow
Justification:	Based on instructions given in FRP-S.1, step 4, and plant conditions in stem, flow will be through MOV-350 to the loop 2 Charging connection. This path passes through FI-110. FR-113 indicates boric acid flow to the blender; therefore flow will not be indicated on FR-113.
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	024AA1.20 Operate or monitor manual boration valve and indicators
K/A Values:	3.2
Cog Level:	Comprehension
References:	FRP-S.1, Step 4 SD-021 CVCS LP CVCS, Objective 3

Given the following conditions:

- Mode 1 at 100% RTP
- No scheduled releases are in progress
- A small leak develops from the bottom of Waste Condensate Tank 'A'
- All ventilation systems are in a normal configuration

Which one of the following identifies an indication that would alert the operators of the ~~accidental liquid radwaste~~ release ~~in progress~~?

An increase in the level of monitor:

A. R-3, PASS Panel Area Monitor

B. R-18, Waste Disposal System Liquid Effluent Monitor

C. R-4, Charging Pump Room Area Monitor

D. R-14C, Plant Effluent Noble Gas, Low Range Monitor

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% RTP • No scheduled releases are in progress • A small leak develops from the bottom of Waste Condensate Tank 'A' • All ventilation systems are in a normal configuration Which one of the following identifies an indication that would alert the operators of the accidental liquid radwaste release in progress? An increase in the level of monitor: A. R-3, PASS Panel Area Monitor B. R-18, Waste Disposal System Liquid Effluent Monitor C. R-4, Charging Pump Room Area Monitor D. R-14C, Plant Effluent Noble Gas, Low Range Monitor
Answer:	D. R-14C, Plant Effluent Noble Gas, Low Range Monitor
Justification:	A, and C are incorrect because although the PASS panel, and Charging Pump room are in vicinity of WCT 'A', the liquid from the leak will be collected in a sump and will not spill int those areas. "B" is incorrect because no liquid releases are in progress. The gas that comes ou of solution will be exhausted past R-14C by the Aux building exhaust
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	059AK202 Knowledge of the interrelations between the accidental liquid radwaste release ar radioactive gas monitors
K/A Values:	2.7
Cog Level:	Comprehension
References:	AOP-005, Rad Monitoring RM LP, Objective 3 RM SD036, page 12, step 2.4.8 Section 3.2.4, page 24 of 84

Which of the following describes the basis for the Component Cooling Water system valve realignment upon receipt of a Containment Isolation Phase 'B' actuation?

A. Isolates additional potential release paths from containment

B. Reduces heat load on CCW system by eliminating unnecessary cooling requirements

C. Reduces Diesel Generator loading requirements with Containment Spray in operation

D. Reduces the severity of a containment pressure transient by eliminating potential energy sources

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Question Number:	RO XX
Question:	Which of the following describes the basis for the Component Cooling Water system valve realignment upon receipt of a Containment Isolation Phase 'B' actuation? A. Isolates additional potential release paths from containment B. Reduces heat load on CCW system by eliminating unnecessary cooling requirements C. Reduces Diesel Generator loading requirements with Containment Spray in operation D. Reduces the severity of a containment pressure transient by eliminating potential energy sources
Answer:	A. Isolates additional potential release paths from containment
Justification:	PATH-1 Background document for step indicates that Hi-3 will serve 2 purposes: CS actuation to reduce containment pressure and phase B isolation to eliminate release paths. B is incorrect because although RCP cooling is no longer required, it is not the reason for phase B. On a CS actuation with LOOP, CCW will not start. This is not the reason for the phase B alignment. CCW may be a potential energy source to containment, but is not considered a significant contributor. Phase B is concerned with containment fission product barrier protection
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	026AK302 Reasons for alignment of CCWS on ESFAS actuation
K/A Values:	3.6
Cog Level:	~~Comprehension~~ Memory Comprehension
References:	PATH-1 Background, step grid B-7 Path-1 LP, Objective 3

Given the following conditions:

- The reactor has tripped.
- Two stuck rods have been identified.

The crew is performing EPP-4, Reactor Trip Response.

The procedure directs boration to which one of the following conditions? and why.

A. Hot Shutdown, because boration to Hot Shutdown conditions assures reactor shutdown regardless of the number of control rods not fully inserted

B. Cold Shutdown, because boration to Cold Shutdown conditions assures reactor shutdown regardless of the number of control rods not fully inserted

C. Hot Shutdown, because boration to Hot Shutdown conditions is required to compensate for the worth of the most reactive stuck rod

D. Cold Shutdown, because boration to Cold Shutdown conditions is required to compensate for the worth of the most reactive stuck rod

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Question Number:	RO XX
Question:	Given the following conditions: • The reactor has tripped. • Two stuck rods have been identified. The crew is performing EPP-4, Reactor Trip Response. The procedure directs boration to which one of the following conditions? A. Hot Shutdown, because boration to Hot Shutdown conditions assures reactor shutdown regardless of the number of control rods not fully inserted B. Cold Shutdown, because boration to Cold Shutdown conditions assures reactor shutdown regardless of the number of control rods not fully inserted C. Hot Shutdown, because boration to Hot Shutdown conditions is required to compensate for the worth of the most reactive stuck rod D. Cold Shutdown, because boration to Cold Shutdown conditions is required to compensate for the worth of the most reactive stuck rod
Answer:	B. Cold Shutdown, because boration to Cold Shutdown conditions assures reactor shutdown regardless of the number of control rods not fully inserted
Justification:	EPP-4 Background document description, page 9 of 19. A and C are incorrect because boration beyond Hot Shutdown conditions is required. D is incorrect because Shutdown Margin already assumes that the most reactive rod is stuck, which would not require further boration
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	024AK302 Knowledge of reasons for actions contained in EOP for Emergency Boration
K/A Values:	4.2
Cog Level:	Comprehension
References:	EPP-4, step 12 and background document LP EPP-4, Objective 3

Given the following conditions:

A High Process Radiation monitor alarm is received in the control room.

The RO acknowledges the alarm at the Westronics recorder at Console 2. The red LED is lit above R-31A, Main Steam Line radiation monitor.

Which one of the following describes how the RO will obtain a plot of the alarming radiation monitor?

A. Manually select the Group number containing the alarming monitor. All monitors in the group will print out in red.

B. The Group containing the alarming monitor will automatically begin plotting. All monitors in the group will print out in red.

C. Manually select the Group number containing the alarming monitor. All monitors in the group will print out in black with the exception of the alarming monitor, which prints out in red.

D. The Group containing the alarming monitor will automatically begin plotting. All monitors in the group will print out in black with the exception of the alarming monitor, which prints out in red.

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Question Number:	RO XX
Question:	Given the following conditions: A High Process Radiation monitor alarm is received in the control room. The RO acknowledges the alarm at the Westronics recorder at Console 2. The red LED is lit above R-31A, Main Steam Line radiation monitor. Which one of the following describes how the RO will obtain a plot of the alarming radiation monitor? A. Manually select the Group number containing the alarming monitor. All monitors in the group will print out in red. B. The Group containing the alarming monitor will automatically begin plotting. All monitors in the group will print out in red. C. Manually select the Group number containing the alarming monitor. All monitors in the group will print out in black with the exception of the alarming monitor, which prints out in red. D. The Group containing the alarming monitor will automatically begin plotting. All monitors in the group will print out in black with the exception of the alarming monitor, which prints out in red.
Answer:	D. The Group containing the alarming monitor will automatically begin plotting. All monitors in the group will print out in black with the exception of the alarming monitor, which prints out in red
Justification:	Page 33/34 of the SD. The westronics recorder has 8 groups of radiation monitors programmed in. Group 1 is normally plotting. Group 6 contains R-31A. When the alarm goes off, the alarming group automatically begins plotting.
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	076AA204 Ability to determine or interpret process effluent radiation chart recorder
K/A Values:	2.6
Cog Level:	Memory
References:	RMS SD, pages 33 and 34 RMS LP, Objective 9

Due to a SBLOCA with numerous Safety Injection failures, the crew has entered FRP-C.2 based upon an ORANGE condition on the Core Cooling CSF Status Tree.

Which of the following Critical Safety Functions may exhibit a RED condition based solely upon the actions performed in FR-C.2?

A. Subcriticality

B. Core Cooling

C. Heat Sink

D. Integrity

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Question Number:	RO XX
Question:	Due to a SBLOCA with numerous Safety Injection failures, the crew has entered FRP-C.2 based upon an ORANGE condition on the Core Cooling CSF Status Tree. Which of the following Critical Safety Functions may exhibit a RED condition based solely upon the actions performed in FR-C.2? A. Subcriticality B. Core Cooling C. Heat Sink D. Integrity
Answer:	D. Integrity
Justification:	FRP-C.2, step 20 caution describes RED condition on Integrity may develop due to rapid depressurization of SGs and SI accumulator injection. The crew will be directed to remain in FRP-C.2 until completion prior to transition to FRP-J.1
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E06EK1.2 Knowledge of operational implications of the following concepts as they apply to degraded core cooling: Normal, abnormal, and emergency procedures associated with degraded core cooling
K/A Values:	3.5
Cog Level:	Comprehension
References:	FRP-C.2, step 20 LP FRP-C.2, Objective 3

FRP-P.1, Response to Imminent Pressurized Thermal Shock, is entered from Critical Safety Function CSF-4, RCS Integrity, in response to ~~a...~~ which one of the following?

A. RED condition only

B. ORANGE condition only

C. RED or ORANGE condition

D. YELLOW or ORANGE condition

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Question Number:	RO XX
Question:	FRP-P.1, Response to Imminent Pressurized Thermal Shock, is entered from Critical Safety Function CSF-4, RCS Integrity, in response to a… A. RED condition only B. ORANGE condition only C. RED or ORANGE condition D. YELLOW or ORANGE condition
Answer:	C. RED or ORANGE condition
Justification:	CSF Entry conditions for FRP-P.1. P.2 is entered on a Yellow condition, making D incorrect. A and B are incorrect because they only represent half of the conditions that would require entry.
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E08 2.4.1 Knowledge of EOP entry conditions and immediate action steps
K/A Values:	4.3
Cog Level:	Memory
References:	FRP-P.1, entry conditions, page 3 of 22 LP FRP-P.1, Objective 2

The crew is performing a Natural Circulation Cooldown IAW EPP-5, Natural Circulation Cooldown.

Which one of the following describes a potential consequence of exceeding the cooldown rate limit of 25°F per hour?

A. Loss of Heat Sink due to excessive steaming rate

B. Pressurized Thermal Shock due to uncontrolled cooldown

C. Uncontrolled pressurizer level increase caused by RCS void formation

D. Inadvertent Safety Injection actuation due to loss of RCS pressure control

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Question Number:	RO XX
Question:	The crew is performing a Natural Circulation Cooldown IAW EPP-5, Natural Circulation Cooldown. Which one of the following describes a potential consequence of exceeding the cooldown rate limit of 25°F per hour? A. Loss of Heat Sink due to excessive steaming rate B. Pressurized Thermal Shock due to uncontrolled cooldown C. Uncontrolled pressurizer level increase caused by RCS void formation D. Inadvertent Safety Injection actuation due to loss of RCS pressure control
Answer:	C. Uncontrolled pressurizer level increase caused by RCS void formation
Justification:	During a natural circulation cooldown, the head will stay hotter than the rest of the RCS. As the RCS is cooled and pressure goes down, the head will become closer to saturation. If cooldown rate exceeds the RCS ability to remove heat from the head area, a void could form, causing a rapid rise in pressurizer level.. Heat sink will be maintained by AFW. PTS would not occur unless there was another mechanism for a large rapid cooldown rate, such as a LOCA. Any loss of RCS pressure control resulting in valid SI actuation would not be inadvertent, and SI would be blocked as the cooldown progresses. NOT TRUE
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E09EA1.2 Ability to operate and/or monitor the following as they apply to Natural Circulation Operations: Operating behavior characteristics of the facility
K/A Values:	3.6
Cog Level:	Comprehension
References:	EPP-5, Natural Circulation Cooldown, step 14 and basis LP-EPP-5, Objective 3

Inadvertant - intentional VS Valid

The plant is operating at 100 % power when a Loss of Off-Site power causes a reactor trip. Ten minutes after the trip, the following conditions exist:

- SG A Pressure 1040 psig and stable
- SG B Pressure 1035 psig and stable
- SG C Pressure 1040 psig and stable

- All RCPs are Off
- RCS Pressure is 2200 psig and stable
- Thot is approximately 578°F in all 3 loops and stable
- Core Exit TCs indicate approximately 580°F
- Tcold is approximately 567°F in all 3 loops and stable

Based on the above indications, what is the condition of the RCS?

A. Natural Circulation exists. The condenser steam dumps are maintaining heat removal

B. Natural Circulation does not exist. Heat removal may be established by opening the condenser steam dumps

C. Natural Circulation exists. SG PORVs are maintaining heat removal

D. Natural Circulation does not exist. Heat removal may be established by opening the SG PORVs

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Question Number:	RO XX
Question:	The plant is operating at 100 % power when a Loss of Off-Site power causes a reactor trip. Ten minutes after the trip, the following conditions exist: • SG A Pressure 1040 psig and stable • SG B Pressure 1035 psig and stable • SG C Pressure 1040 psig and stable • All RCPs are Off • RCS Pressure is 2200 psig and stable • Thot is approximately 578°F in all 3 loops and stable • Core Exit TCs indicate approximately 580°F • Tcold is approximately 567°F in all 3 loops and stable Based on the above indications, what is the condition of the RCS? A. Natural Circulation exists. The condenser steam dumps are maintaining heat removal B. Natural Circulation does not exist. Heat removal may be established by opening the condenser steam dumps C. Natural Circulation exists. SG PORVs are maintaining heat removal D. Natural Circulation does not exist. Heat removal may be established by opening the SG PORVs
Answer:	D. Natural Circulation does not exist. Heat removal may be established by opening the SG PORVs
Justification:	A and B are incorrect because on a loss of off site power, condenser steam dumps are unavailable due to loss of circulating water pumps. C is incorrect based on steam table indications, with Tcold approximately 15 degrees higher than saturation pressure of all 3 SGs, although Thot is lowering slowly. D is correct Tcold should be lowered by approximately 15 degrees. SG pressures are at or near the SG PORV set pressure, but the stem does not indicate if they are performing their function. The only way to tell if Natural Circulation exists is by trending Tcold.
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	Modified for Robinson parameters
K/A #:	E09EK2.2 Facility heat removal operations
K/A Values:	3.6
Cog Level:	Synthesis

References:	EOP PATH-1 on RCS temp > 547 to dump steam Steam tables EPP Supplement E, Natural Circulation verification

Given the following conditions:

- A manual reactor trip is performed by the RO
- Reactor trip breaker A indicates open
- Reactor trip breaker B indicates closed
- Reactor power indicates 3% and decreasing

Which one of the following describes the condition of the reactor and the appropriate action?

A. The reactor is tripped. Continue in Path-1

B. The reactor is tripped. Emergency Boration is required per EPP-4, Reactor Trip Response

C. The reactor is not tripped. Transition to FR-S.1, Response to Nuclear Power Generation/ATWS

D. The reactor is not tripped. Attempt to manually trip the reactor and initiate turbine trip

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Question Number:	RO XX
Question:	Given the following conditions: • A manual reactor trip is performed by the RO • Reactor trip breaker A indicates open • Reactor trip breaker B indicates closed • Reactor power indicates 3% and decreasing Which one of the following describes the condition of the reactor and the appropriate action? A. The reactor is tripped. Continue in Path-1 B. The reactor is tripped. Emergency Boration is required per EPP-4, Reactor Trip Response C. The reactor is not tripped. Transition to FR-S.1, Response to Nuclear Power Generation/ATWS D. The reactor is not tripped. Attempt to manually trip the reactor and initiate turbine trip
Answer:	A. The reactor is tripped. Continue in Path-1
Justification:	Path-1 basis document indicates trip is verified by at least 1 trip breaker open and power less than 5%. Those conditions are met, which by themselves eliminate C and D as answers. B is incorrect because there is no indication of a stuck rod. If the crew did decide to borate in EPP-4, Emergency boration is last on the list of methods.
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	007EA206 Determine or interpret the occurrence of a reactor trip
K/A Values:	4.3
Cog Level:	Comprehension
References:	Path-1 basis document LP Path-1, Objective 3

Given the following conditions:

A LBLOCA has occurred. The crew is performing action contained in PATH-1.

Foldout B directs switchover to Cold Leg Recirculation mode IAW EPP-9, Cold Leg Recirculation, when RWST level reaches a low limit.

Which one of the following describes the reason for switchover at this setpoint?

A. Maximizes the ability of Containment Spray to remove iodine from the containment atmosphere

B. Ensures level in the containment sump is high enough to provide adequate suction for ECCS pumps

C. Ensures that the injected volume of borated water will be sufficient to meet shutdown margin requirements

D. Ensures sufficient volume of borated water to maintain reactor vessel full prior to securing ECCS pumps

B-part of EPP-9 NOT the reason for going to recirc
* to guarantee coolant flow to the core by switching to CLR when/if RWST lvl ↓ switchover setpoint *

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Question Number:	RO XX
Question:	Given the following conditions: A LBLOCA has occurred. The crew is performing action contained in PATH-1. Foldout B directs switchover to Cold Leg Recirculation mode IAW EPP-9, Cold Leg Recirculation, when RWST level reaches a low limit. Which one of the following describes the reason for switchover at this setpoint? A. Maximizes the ability of Containment Spray to remove iodine from the containment atmosphere B. Ensures level in the containment sump is high enough to provide adequate suction for ECCS pumps C. Ensures that the injected volume of borated water will be sufficient to meet shutdown margin requirements D. Ensures sufficient volume of borated water to maintain reactor vessel full prior to securing ECCS pumps
Answer:	B. Ensures level in the containment sump is high enough to provide adequate suction for ECCS pumps
Justification:	Path-1 basis ensures ECCS suction will be maintained. A is incorrect because, while spray effectiveness is maximized when operating, it is not a reason for switchover. RWST is borated so that SDM will be maintained, but again, not a reason for switchover at this setpoint. D is incorrect because on a LBLOCA, the vessel will not be full. The RWST only ensures enough volume to fill the containment sump to provide continued core cooling though recirc.
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	Modified from Farley 10/23/95. INPO exam bank
K/A #:	011EK3.15 Knowledge of the reasons for criteria for shifting to cold leg recirc
K/A Values:	4.3
Cog Level:	~~Comprehension~~ Memory
References:	Path-1 basis Foldout B LP Path 1 Objective 3

During an ATWS event from 100% power End of Life (EOL) conditions, which one of the following will provide the most negative reactivity insertion within the first minute?

A. RCS boration

B. Manual rod insertion

C. Manual Turbine Trip

D. Isolating a Faulted Steam Generator

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Question Number:	RO XX
Question:	During an ATWS event from 100% power End of Life (EOL) conditions, which one of the following will provide the most negative reactivity insertion within the first minute? A. RCS boration B. Manual rod insertion C. Manual Turbine Trip D. Isolating a Faulted Steam Generator
Answer:	C
Justification:	Manual rod insertion and boration are physical acts that will take some time to take effect. FTC adds negative reactivity instantaneously, (as soon as the fuel is heated) whereas MTC will add negative reactivity as the water surrounding the fuel is heated, taking more time. Isolating a faulted SG will stop a positive reactivity insertion, but not necessarily add negative immediately. The best way to get FTC and MTC to immediately turn power is to trip the turbine, especially at EOL when MTC is most negative
Tier/Group	RO 1-2
10CFR55.41 10CFR55.43	41
Bank/New/ Modified	Salem 2001 editorial Mod
K/A #:	029EK1.05 Ops implications of negative FTC/MTC as applied to large PWRs
K/A Values:	RO 2.8
Cognitive Level:	Comprehension
References:	FRP-S.1 step 2 LP FRP-S.1, Objective 3 (Not a direct explanation of question) Reactor Theory, Chapter 4, Reactivity Coefficients

Given the following conditions:

- A Reactor Shutdown is in progress
- APP-005-B2, N-35 LOSS OF COMP VOLT, is received
- Intermediate Range Channel N-35 indicates 6 X 10^{-10} amps
- Intermediate Range Channel N-36 indicates 1 X 10^{-11} amps
- Source Range Channel N-51 indicates 80 CPS
- Source Range Channel N-52 indicates 90 CPS

Which one of the following correctly describes the action required to obtain Source Range indication?

A. Remove the Instrument Power fuses from N-36

B. Remove the control power fuses from N-36

C. Push both 'Source Range Logic Trip Defeat' buttons

D. Push both 'Permissive P-6 Defeat' buttons

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Question Number:	RO XX
Question:	Given the following conditions: • A Reactor Shutdown is in progress • APP-005-B2, N-35 LOSS OF COMP VOLT, is received • Intermediate Range Channel N-35 indicates 6 X 10^{-10} amps • Intermediate Range Channel N-36 indicates 1 X 10^{-11} amps • Source Range Channel N-51 indicates 80 CPS • Source Range Channel N-52 indicates 90 CPS Which one of the following correctly describes the action required to obtain Source Range indication? A. Remove the Instrument Power fuses from N-36 B. Remove the control power fuses from N-36 C. Push both 'Source Range Logic Trip Defeat' buttons D. Push both 'Permissive P-6 Defeat' buttons
Answer:	D. Push both 'Permissive P-6 Defeat' buttons
Justification:	If compensating voltage is lost, the detector will indicate high. If the detector indicates high, P-6 will be locked in unless it is defeated. The SR Logic Trip defeat buttons are used for SR High flux trip. Removing any power from N-36 will not cause N-35 to indicate low enough to remove the P-6 signal
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	033AK101 Operational implications of voltage changes on NI performance
K/A Values:	2.7
Cog Level:	Analysis
References:	SD010, NI system Page 14 and 23 Attachment 10.1, Figure 2 LP NIS, Objective 9 Logic Diagram sheet 4

During operation at power steam generator tube leakage is detected and estimated at 200 gpm by the reactor operator. The following plant indications existed at that time:

- RCS pressure – 2150 psig and lowering
- Reactor Power – 80%
- SG Pressures – 950 psig
- PZR Level – 42% and lowering

The unit is tripped and plant parameters following the trip are:

- RCS pressure – 1625 psig and lowering
- Reactor Power – 0%
- SG Pressures – 1025 psig
- PZR Level – 13% and lowering

Based on the two sets of given data, which ONE of the below describes the ~~effect on~~ approximate primary-to-secondary leakage following the trip?

~~Leakage following the trip is~~

A. ~~one~~ half of the initial ~~leak~~ rate ~~or about~~ 100 gpm.

B. ~~essentially equal to the initial leak rate or about~~ 200 gpm.

C. ~~approximately 70% of the initial leak rate or about~~ 140 gpm.

D. ~~One third of the initial leak rate or about~~ 67 gpm.

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Question Number:	RO XX
Question:	During operation at power steam generator tube leakage is detected and estimated at 200 gpm by the reactor operator. The following plant indications existed at that time: • RCS pressure – 2150 psig and lowering • Reactor Power – 80% • SG Pressures – 950 psig • PZR Level – 42% and lowering The unit is tripped and plant parameters following the trip are: • RCS pressure – 1625 psig and lowering • Reactor Power – 0% • SG Pressures – 1025 psig • PZR Level – 13% Based on the two sets of given data, which ONE of the below describes the effect on primary-to-secondary leakage? Leakage following the trip is A. one half of the initial leak rate or about 100 gpm B. essentially equal to the initial leak rate or about 200 gpm C. approximately 70% of the initial leak rate or about 140 gpm D. One third of the initial leak rate or about 67 gpm
Answer:	C. approximately 70% of the initial leak rate or about 140 gpm
Justification:	Leakage is approximately proportional to the square root of the Delta P across the break. If DP is 1200 psid prior to the reactor trip and 600 psid after the trip, then half of the DP should result in approximately 70% of the flow rate. The distractors are placed to provide other flow rates roughly equal to some portion of 100% of initial flow.
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	Modified from IP2 audit exam 2001
K/A #:	038EK1.02 Operational implications of leak rate versus pressure drop

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K/A Values:	3.2
Cog Level:	Analysis
References:	Thermodynamics, chapter 6

Given the following conditions:

- The plant is in Mode 6
- Fuel moves are in progress
- The Conveyor Car is in the SFP

R-5, SPENT FUEL PIT AREA radiation monitor goes into alarm

APP-036-B6, SPENT FUEL PIT LOW LEVEL, is illuminated

The crew is performing action contained in AOP-005, Radiation Monitoring. IAW Attachment 5, the crew is attempting to determine the source of the SFP level decrease.

Which one of the following describes the reason the crew will be directed to move the Conveyor Car to the CV?

A. Allows isolation of the SFP from the Refueling Cavity

B. Reduce SFP radiation levels by reducing the refueling equipment in the SFP

C. ~~Minimize the possibility of~~ Prevent uncovering a fuel assembly on the Conveyor Car

D. Ensures control of refueling equipment will be maintained by the Refueling SRO in the CV.

C currently true as phrased.

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Question Number:	RO XX
Question:	Given the following conditions: • The plant is in Mode 6 • Fuel moves are in progress • The Conveyor Car is in the SFP R-5, SPENT FUEL PIT AREA radiation monitor goes into alarm APP-036-B6, SPENT FUEL PIT LOW LEVEL, is illuminated The crew is performing action contained in AOP-005, Radiation Monitoring. IAW Attachment 5, the crew is attempting to determine the source of the SFP level decrease. Which one of the following describes the reason the crew will be directed to move the Conveyor Car to the CV? A. Allows isolation of the SFP from the Refueling Cavity B. Reduce SFP radiation levels by reducing the refueling equipment in the SFP C. Minimize the possibility of uncovering a fuel assembly on the Conveyor Car D. Ensures control of refueling equipment will be maintained by the Refueling SRO in the CV.
Answer:	A. Allows isolation of the SFP from the Refueling Cavity
Justification:	Step 10 of attachment 5, if there's a leak, attempt to locate it. Place conveyor in CV to close the Fuel Transfer Tube Isolation valve. Distractors plausible in this case because rad levels will be high, there is a possibility of having a fuel assembly on the conveyor, although design should prevent uncovery, and refueling evolutions are controlled by the SRO in the CV
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	061AK302 Knowledge of reasons for actions contained in alarm response for ARM alarms
K/A Values:	3.4
Cog Level:	Comprehension
References:	AOP-005, Attachment 5, Step 10 AOP-005 LP, Objective 3

A Loss of DC Bus 'A' has occurred.

The crew is performing action contained in EPP-26, Loss of DC Bus A.

480 Volt Bus 2B is being energized from 480 Bus 3.

Which one of the following describes the reason that the control switch for the tie breaker is held in the CLOSE position for 5 seconds?

A. Ensures energization of undervoltage relays

B. Ensures deenergization of undervoltage relays

C. Ensures energization of Amptector overcurrent devices

D. Ensures deenergization of Amptector overcurrent devices

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Question Number:	RO XX
Question:	A Loss of DC Bus 'A' has occurred. The crew is performing action contained in EPP-26, Loss of DC Bus A. 480 Volt Bus 2B is being energized from 480 Volt Bus 3. Which one of the following describes the reason that the control switch for the tie breaker is held in the CLOSE position for 5 seconds? A. Ensures energization of undervoltage relays B. Ensures deenergization of undervoltage relays C. Ensures energization of Amptector overcurrent devices D. Ensures deenergization of Amptector overcurrent devices
Answer:	A. Ensures energization of undervoltage relays
Justification:	EPP-26, Note prior to step 10. The undervoltage relays need time to pick up. If they dropped out (deenergized) the breaker would not close. The amptectors provide overcurrent protection for busses without DC control power. They are not affected by the operation of the tie breaker control switch from Bus 3
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	058AK302 Knowledge of reasons for actions contained in EOP for loss of DC power
K/A Values:	4.0
Cog Level:	Comprehension
References:	EPP-26, Loss of DC bus 'A' step 10 (Page 6 of 45) LP EPP 26 Objective 3.

Which one of the following describes the function of the Intermediate Range High Level Rod Stop?

A. Blocks rod withdrawal in Automatic only. Is automatically defeated above P-10

B. Blocks rod withdrawal in Automatic only. Must be manually defeated above P-10

C. Blocks rod withdrawal in Manual or Automatic. Is automatically defeated above P-10

D. Blocks rod withdrawal in Manual or Automatic. Must be manually defeated above P-10

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Question Number:	RO XX
Question:	Which one of the following describes the function of the Intermediate Range High Level Rod Stop? A. Blocks rod withdrawal in Automatic only. Is automatically defeated above P-10 B. Blocks rod withdrawal in Automatic only. Must be manually defeated above P-10 C. Blocks rod withdrawal in Manual or Automatic. Is automatically defeated above P-10 D. Blocks rod withdrawal in Manual or Automatic. Must be manually defeated above P-10
Answer:	D. Blocks rod withdrawal in Manual or Automatic. Must be manually defeated above P-10
Justification:	IR High Power rod stop at approximately 20% equivalent power. 1 out of 2 IR channels required for rod stop. Must be manually defeated above P-10, is automatically reinstated below P-10 (3 out of 4 PR < P-10 setpoint)
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	001K4.20 Knowledge of design features that provide for permissives or interlocks associated with increase from zero power
K/A Values:	3.2
Cog Level:	Memory
References:	RDCNT LP, Objective 9 SD010, NIS, page 36 of 80 Logic diagram sheet 9

The crew is performing actions of EPP-20, LOCA Outside Containment.

All actions have been performed, and attempts to isolate the leak have been unsuccessful.

Which one of the following procedures will provide the actions that will mitigate this event?

A. PATH-1 Diagnostics

B. EPP-~~6~~ 7, SI Termination

C. EPP-~~7~~ 8, Post LOCA Cooldown and Depressurization

D. EPP-15, Loss of Emergency Coolant Recirculation

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Question Number:	RO XX
Question:	The crew is performing actions of EPP-20, LOCA Outside Containment. All actions have been performed, and attempts to isolate the leak have been unsuccessful. Which one of the following procedures will provide the actions that will mitigate this event? A. PATH-1 Diagnostics B. EPP-6, SI Termination C. EPP-7, Post LOCA Cooldown and Depressurization D. EPP-15, Loss of Emergency Coolant Recirculation
Answer:	D. EPP-15, Loss of Emergency Coolant Recirculation
Justification:	Path 1 diagnostics would only lead back to EPP-20. EPP-6 will be detrimental to isolating the break because core cooling would be reduced. EPP-7 only applies to LOCA inside containment. EPP-15 will apply because if the break is not isolated, the RWST will eventually empty with no containment sump inventory available to maintain core cooling. EPP-15 provides steps to initiate makeup
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E04EA2.1 Ability to determine or interpret facility conditions and selection of procedures during abnormal and emergency operations
K/A Values:	3.4
Cog Level:	Comprehension
References:	EPP-20, step 7 RNO LP EPP-20, Objective 3

Which one of the following describes the RCP breaker interlock and indication associated with the Oil Lift System?

A. Oil lift pump running with pressure greater then 600 psig. White light illuminates at 650 psig lift pressure.

B. Oil lift pump running for greater than 2 minutes. White light illuminates at 600 psig lift pressure.

C. Oil lift pump running for greater than 2 minutes. White light illuminates at 650 psig lift pressure.

D. Oil lift pump running with pressure greater than 650 psig. White light illuminates at 600 psig.

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Question Number:	RO XX
Question:	Which one of the following describes the RCP breaker interlock and indication associated with the Oil Lift System? A. Oil lift pump running with pressure greater then 600 psig. White light illuminates at 650 psig lift pressure. B. Oil lift pump running for greater than 2 minutes. White light illuminates at 600 psig lift pressure. C. Oil lift pump running for greater than 2 minutes. White light illuminates at 650 psig lift pressure. D. Oil lift pump running with pressure greater than 650 psig. White light illuminates at 600 psig.
Answer:	A. Oil lift pump running with pressure greater then 600 psig. White light illuminates at 650 psig lift pressure
Justification:	Oil lift pump running with pressure interlock satisfied. White light illuminates at 650 psig. 2 minutes is not an interlock, just an admin requirement to allow pressure to build and oil to flow in the lift system.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	003K101 Physical connections and/or cause-effect relationship between RCP and lube oil system
K/A Values:	2.6
Cog Level:	Memory
References:	SD-001, Pages 23 and 24 RCS LP, Objective 9

Given the following conditions:

- Mode 1 at 100% RTP
- An electrical fault occurs which results in a loss of power to Instrument Bus 3

Which one of the following describes the impact that the loss of Instrument Bus 3 has on the automatic operation of the Engineered Safeguards Features (ESF) Actuation System?

A. Neither train of the Engineered Safeguards Actuation System is affected

B. The sequencers will not be able to automatically start any Train 'B' Engineered Safeguards loads

C. The sequencers will not be able to automatically start any Train 'A' Engineered Safeguards loads

D. The sequencers will not be able to automatically start any Train 'A' or 'B' Engineered Safeguards loads

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% RTP • An electrical fault occurs which results in a loss of power to Instrument Bus 3 Which one of the following describes the impact that the loss of Instrument Bus 3 has on the automatic operation of the Engineered Safeguards Features (ESF) Actuation System? A. Neither train of the Engineered Safeguards Actuation System is affected B. The sequencers will not be able to automatically start any Train 'B' Engineered Safeguards loads C. The sequencers will not be able to automatically start any Train 'A' Engineered Safeguards loads D. The sequencers will not be able to automatically start any Train 'A' or 'B' Engineered Safeguards loads
Answer:	B. The sequencers will not be able to automatically start any Train 'B' Engineered Safeguards loads
Justification:	Instrument Bus 3 supplies power to Train 'B' ESFAS. There are 8 other possible control power supplies. Train A sequencer sequencers are supplied by Instrument Bus 7A.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	013K201 Knowledge of bus power supplies to ESFAS/Safeguards equipment control
K/A Values:	3.6
Cog Level:	Comprehension
References:	ESF SD section 2.3 page 8 of 52 ESFAS LP Objective 6

10/29

Given the following conditions:

- Mode 1 at 100% RTP
- CWP 'A' and 'B' are running. CWP 'C' has just been returned to service after maintenance, and is available for start

CWP 'A' trips. Condenser backpressure rises from 4" Hg absolute to 5.5" Hg absolute and has stabilized.

Which one of the following provides the crew's required immediate operator actions?

No comment

A. Start 'C' Circ Water Pump

B. Verify V6-50A, 'A' Circ Water pump discharge closed

C. Verify standby vacuum pump is running

D. Secure any liquid radwaste release in progress

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% RTP • CWP 'A' and 'B' are running. CWP 'C' has just been returned to service after maintenance, and is available for start CWP 'A' trips. Condenser backpressure rises from 4" Hg absolute to 5.5" Hg absolute and has stabilized. Which one of the following provides the crew's required immediate operator actions? A. Start 'C' Circ Water Pump B. Verify V6-50A, 'A' Circ Water pump discharge closed C. Verify standby vacuum pump is running D. Secure any liquid radwaste release in progress
Answer:	B. Verify V6-50A, 'A' Circ Water pump discharge closed
Justification:	Per AOP-012, Radwaste releases will be stopped either at step 4 RNO or at step 5, not immediate action. A and C would only be performed if vacuum did not stabilize, also not immediate action
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	2.4.4 Ability to recognize abnormal indications that are entry conditions to AOPs/EOPs
K/A Values:	4.0
Cog Level:	Analysis
References:	AOP-012, steps 4 and 5 LP AOP-012, Objective 8

10/29

Which one of the following describes the control power supply for Reactor Trip Breaker 'B' and Reactor Trip Bypass Breaker 'B'?

	Reactor Trip Breaker 'B'	Reactor Trip Bypass Breaker 'B'
A.	'A' 125 VDC Dist. Panel	'A' 125 VDC Dist. Panel
B.	'A' 125 VDC Dist. Panel	'B' 125 VDC Dist. Panel
C.	'B' 125 VDC Dist. Panel	'A' 125 VDC Dist. Panel
D.	'B' 125 VDC Dist. Panel	'B' 125 VDC Dist. Panel

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Question Number:	RO XX
Question:	Which one of the following describes the control power supply for Reactor Trip Breaker 'B' and Reactor Trip Bypass Breaker 'B'? A. Reactor Trip Breaker 'B': 'A' 125 VDC Dist. Panel; Reactor Trip Bypass Breaker 'B': 'A' 125 VDC Dist. Panel B. Reactor Trip Breaker 'B': 'A' 125 VDC Dist. Panel; Reactor Trip Bypass Breaker 'B': 'B' 125 VDC Dist. Panel C. Reactor Trip Breaker 'B': 'B' 125 VDC Dist. Panel; Reactor Trip Bypass Breaker 'B': 'A' 125 VDC Dist. Panel D. Reactor Trip Breaker 'B': 'B' 125 VDC Dist. Panel; Reactor Trip Bypass Breaker 'B': 'B' 125 VDC Dist. Panel
Answer:	C. 'B' 125 VDC Dist. Panel 'A' 125 VDC Dist. Panel
Justification:	Trip and bypass breakers are powered from opposite trains for single failure considerations. Loss of one channel power supply will not cause a trip. 'B' RTB is powered from 'B' train DC
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank (INPO – Robinson Exam 8/24/96)
K/A #:	012K201 Knowledge of Power supplies to channels/components/interconnections
K/A Values:	3.3
Cog Level:	Memory
References:	RPS SD section 3.3, page 11 of 32 RPS LP Objective 6

e. Bistable Proving Lamps

The door of each protection rack is monitored and will give annunciation when opened. A hinged cover encloses the Test Panel. Opening the cover or placing the Test-Operate Switch in the TEST position or the Bistable Trip Switches in TRIP initiates an alarm. The Test Panel cover is designed such that it cannot be closed and the alarm cleared unless the Test Input Signal Plugs are removed. Closing the Test Panel cover will mechanically return the Test-Operate Switches to the OPERATE position.

The Bistable Trip Switches must be manually reset. Closing the Test Panel cover will not restore the Bistable Trip Switches to the Untripped Mode and the annunciator on the RTGB cannot be reset until the Bistable Trip Switches are returned to the Untripped Mode.

Analog Protection Channels 1, 2, 3 and 4 are powered from 120VAC Instrument Buses 1, 2, 3, 4 and 6, 7, 8, 9 respectively. Each rack has two power sources, one called control power and the other called instrument power.

3.2 Logic Channels (Figure 5)

The 2 Logic Channels each receive signals from the 4 Analog Protection Channels. These signals consist of the outputs of the comparator bistables (120v or 0v) to the relays of the logic trains.

Each Logic Channel consists of logic relay coils and a matrix of logic relay contacts that are wired in series with the Reactor Trip Pushbuttons, the UV Coils and the Automatic Shunt Trip Relays of the Reactor Trip and Reactor Trip Bypass Breakers.

Each Logic Channel contains a Test Panel which consists of:

a. Test Switches

b. Test Pushbuttons

c. Indicating Lights

Logic Channel 1 is powered from "A" 125VDC Distribution Panel. Logic Channel 2 is powered from "B" 125VDC Distribution Panel.

3.3 Reactor Trip and Reactor Trip Bypass Breakers (Figure 5)

Looking

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Given the following conditions:

- Mode 6
- Core offload in progress IAW FMP-019, Core and Insert Shuffle
- HVE-1A, CV PURGE EXHAUST UNIT, is running ~~spelloot~~ OK
- The REFUEL-PURGE selector switch on the RTGB is in REFUEL
- The HEPA filter downstream of V12-8, PURGE EXHAUST VALVE, becomes clogged

Which one of the following describes the system response as airflow through HVE-1A slowly lowers?

A. APP-010-B6, HVE-1A/B AIRFLOW LOST/OVLD, will illuminate. V12-8, PURGE EXHAUST VALVE, will shut AND HVE-1B will auto-start.

B. HVE-1A will ~~trip off~~ deenergize and the REFUEL-PURGE control circuit will automatically shift into the PURGE mode And HVE-1B will autostart

C. APP-010-B6, HVE-1A/B AIRFLOW LOST/OVLD, will illuminate. HVE-1A will ~~turn~~ deenergize ~~off~~, and HVE-1B will automatically start

D. R-11/12, CV PARTICULATE AND NOBLE GAS, Low flow alarm due to lower than expected CV exhaust flow flow mechnism for the monitor? affected by system press.?

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 6 • Core offload in progress IAW FMP-019, Core and Insert Shuffle • HVE-1A, CV PURGE EXHAUST UNIT, is running • The REFUEL-PURGE selector switch on the RTGB is in REFUEL • The HEPA filter downstream of V12-8, PURGE EXHAUST VALVE, becomes clogged Which one of the following describes the system response as airflow through HVE-1A slowly lowers? A. APP-010-B6, HVE-1A/B AIRFLOW LOST/OVLD, will illuminate. V12-8, PURGE EXHAUST VALVE, will shut B. HVE-1A will trip off and the REFUEL-PURGE control circuit will automatically shift into the PURGE mode C. APP-010-B6, HVE-1A/B AIRFLOW LOST/OVLD, will illuminate. HVE-1A will turn off, and HVE-1B will automatically start D. R-11/12, CV PARTICULATE AND NOBLE GAS, Low flow alarm due to lower than expected CV exhaust flow
Answer:	C. APP-010-B6, HVE-1A/B AIRFLOW LOST/OVLD, will illuminate. HVE-1A will turn off, and HVE-1B will automatically start
Justification: ?	Low air flow will cause the alarm. The running fan will trip and the standby fan will automatically start in 40 seconds. The REFUEL-PURGE switch is manually operated, nd R11/12 low flow is for the radiation monitors, not the purge system. Purge exhaust valve does not shut on low flow
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	029K104 Physical connections and/or cause-effect relationship between purge system and purge system
K/A Values:	3.0
Cog Level:	Comprehension
References:	SD-037 CVHVAC section 6.1 APP-010-B6 LP CVHVAC Objective 9

LOOK UP. need Logic Point

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Given the following conditions:

- Mode 1 at 35% RTP
- Breaker 52/10, 4KV Bus 1 to 4KV Bus 2 Tie, trips on fault

Which one of the following describes the automatic response of the electrical distribution system?

A. 4KV Bus 2 deenergizes, but is automatically picked up by the SUT through 'fast transfer'. EDG 'A' starts, but its output breaker does not close because voltage was lost for a very short time.

B. 4KV Bus 2 deenergizes and remains deenergized. EDG 'A' starts and picks up E1. 'A' train SBO loads sequence on

C. 4KV Bus 2 deenergizes and remains deenergized. EDG 'A' starts and picks up E1. No SBO loads sequence because E2 always had voltage, so there was not a loss of 'all AC power'

D. 4KV Bus 2 deenergizes, but is automatically picked up by the SUT through 'fast transfer'. EDG 'A' does not start because voltage was only lost for a very short time

- NO - 2 BAD distractors -
- How fast is fast xfer
- define "very short time"
- Does SUT ever "Auto" fast xfer to dead bus
  May be memory

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 35% RTP • Breaker 52/10, 4KV Bus 1 to 4KV Bus 2 Tie, trips on fault Which one of the following describes the automatic response of the electrical distribution system? A. 4KV Bus 2 deenergizes, but is automatically picked up by the SUT through 'fast transfer'. EDG 'A' starts, but its output breaker does not close because voltage was lost for a very short time B. 4KV Bus 2 deenergizes and remains deenergized. EDG 'A' starts and picks up E1. 'A' train SBO loads sequence on C. 4KV Bus 2 deenergizes and remains deenergized. EDG 'A' starts and picks up E1. No SBO loads sequence because E2 always had voltage, so there was not a loss of 'all AC power' D. 4KV Bus 2 deenergizes, but is automatically picked up by the SUT through 'fast transfer'. EDG 'A' does not start because voltage was only lost for a very short time
Answer:	B. 4KV Bus 2 deenergizes and remains deenergized. EDG 'A' starts and picks up E1. 'A' train SBO loads sequence on
Justification:	A and D are incorrect because although a fast transfer scheme is available, the conditions in the stem do not meet the conditions for fast transfer. The energization of E2 would not matter to SBO loads on E1 or EDG 'A' start
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	062K302 Knowledge of the effect that a loss or malfunction of AC Distribution will have on DG
K/A Values:	4.1
Cog Level:	Comprehension
References:	SD 006 ESF Section 6.3 page 24 of 25 KVAC LP Objective 14

10/29

Which one of the following provides the location and function of the 'CHARGER IN SERVICE' switch in the 'A' 125 VDC electrical system?

It is located on battery charger:

A. 'A' and places the selected battery charger in service

B. 'A-1' and places the selected battery charger in service

C. 'A' and places the selected battery charger alarms in service

D. 'A-1' and places the selected battery charger alarms in service

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Question Number:	RO XX
Question:	Which one of the following provides the location and function of the 'CHARGER IN SERVICE' switch in the 'A' 125 VDC electrical system? It is located on battery charger: A. 'A' and places the selected battery charger in service B. 'A-1' and places the selected battery charger in service C. 'A' and places the selected battery charger alarms in service D. 'A-1' and places the selected battery charger alarms in service
Answer:	D. 'A-1' and places the selected battery charger alarms in service
Justification:	A is incorrect because it provides wrong location and function. B and C are incorrect because they provide either the wrong location ©, or the wrong function (B)
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	063K103 Physical connections and/or cause-effect relationship between DC Bus, battery and charger
K/A Values:	2.9
Cog Level:	Memory
References:	SD-038, Page 9, section 4.1 LP DC, Objective 5

Given the following conditions:

- The unit is at 100% power
- Battery Charger 'A' is supplying Battery 'A' and its associated DC Bus loads
- Annunciator APP-036-D1 'BATTERY A/A1 TROUBLE' has just alarmed
- The AO reports the cause of the trouble is a ground on DC Bus 'A'
- Based upon visual inspection, the AO believes the ground may be on Battery 'A'
- Engineering recommends that Battery 'A' be disconnected from DC Bus 'A'

Which one of the following describes the appropriate action while attempting to isolate the ground?

A. Supply the 'A' DC Bus with the 'A' Charger because it is the preferred supply IAW Technical Specifications

B. Supply the 'A' DC Bus with the 'A-1' Charger because it is the preferred supply IAW Technical Specifications

C. Supply the 'A' DC Bus with the 'A' Charger because it is the only charger available to supply DC Bus 'A' while disconnected from Battery 'A'

D. Supply the 'A' DC Bus with the 'A-1' Charger because it is the only charger available to supply DC Bus 'A' while disconnected from Battery 'A'

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Question Number:	RO XX
Question:	Given the following conditions: • The unit is at 100% power • Battery Charger 'A' is supplying Battery 'A' and its associated DC Bus loads • Annunciator APP-036-D1 'BATTERY A/A1 TROUBLE' has just alarmed • The AO reports the cause of the trouble is a ground on DC Bus 'A' • Based upon visual inspection, the AO believes the ground may be on Battery 'A' • Engineering recommends that Battery 'A' be disconnected from DC Bus 'A' Which one of the following describes the appropriate action while attempting to isolate the ground? A. Supply the 'A' DC Bus with the 'A' Charger because it is the preferred supply IAW Technical Specifications B. Supply the 'A' DC Bus with the 'A-1' Charger because it is the preferred supply IAW Technical Specifications C. Supply the 'A' DC Bus with the 'A' Charger because it is the only charger available to supply DC Bus 'A' while disconnected from Battery 'A' D. Supply the 'A' DC Bus with the 'A-1' Charger because it is the only charger available to supply DC Bus 'A' while disconnected from Battery 'A'
Answer:	D. Supply the 'A' DC Bus with the 'A-1' Charger because it is the only charger available to supply DC Bus 'A' while disconnected from Battery 'A'
Justification:	Per OMM-035, place A-1 in service. Per OP-601, precaution 4.9, the A-1 charger should be placed in service because it can carry the bus disconnected from the battery. 'A' charger is preferred IAW TS, but not during ground isolation
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	063A201 Predict impact of grounds and use procedures to correct, control, or mitigate effects
K/A Values:	2.5
Cog Level:	Comprehension
References:	APP-036 step5 OP-601, 4.9 OMM-035, 8.6.5 LP OMM-35, Objective 3

Given the following conditions:

- The unit has tripped due to a loss of condenser pressure
- The SUT had a phase to phase short and the primary side melted
- EDG 'A' failed to start and cannot be restarted
- EDG 'B' started and is carrying its emergency bus

Which one of the following describes the expected status of MDAFW pump 'A' breaker?

A. Open because the SBO sequencer has cycled once and there is no voltage present on its supply bus

B. Shut because the SBO sequencer has cycled once and there is voltage present on its supply bus

C. Cycling due to the SBO sequencer because there is no voltage present on its supply bus

D. Open because the SBO sequencer did not activate because all AC power was not lost

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Question Number:	RO XX
Question:	Given the following conditions: • The unit has tripped due to a loss of condenser pressure • The SUT had a phase to phase short and the primary side melted • EDG 'A' failed to start and cannot be restarted • EDG 'B' started and is carrying its emergency bus Which one of the following describes the expected status of MDAFW pump 'A' breaker? A. Open because the SBO sequencer has cycled once and there is no voltage present on its supply bus B. Shut because the SBO sequencer has cycled once and there is voltage present on its supply bus C. Cycling due to the SBO sequencer because there is no voltage present on its supply bus D. Open because the SBO sequencer did not activate because all AC power was not lost
Answer:	A. Open because the SBO sequencer has cycled once and there is no voltage present on its supply bus
Justification:	B is incorrect due to incorrect power supply. MDAFW is powered from E1, which has no power. C is incorrect because it describes sequence operation prior to modification. D is incorrect because all AC does not have to be lost for sequencer operation. It is train dependent
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	064K302 Knowledge of the effect that a loss of the DG will have on ESF actuated equipment
K/A Values:	4.2
Cog Level:	Comprehension
References:	ESF LP Objective 14 ESF SD section 6.3.1, page 24 of 39

Which one of the following describes the power supply arrangement to Service Water Pump D?

	Normal	Alternate
A.	480 V DS Bus	480 V Bus E-1
B.	480 V Bus E-1	480 V DS Bus
C.	480 V DS Bus	480 V Bus E-2
D.	480 V Bus E-2	480 V DS Bus

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Question Number:	RO XX
Question:	Which one of the following describes the power supply arrangement to Service Water Pump D? A. Normal: 480 V DS Bus; Alternate: 480 V Bus E-1 B. Normal: 480 V Bus E-1; Alternate: 480 V DS Bus C. Normal: 480 V DS Bus; Alternate: 480 V Bus E-2 D. Normal: 480 V Bus E-2; Alternate: 480 V DS Bus
Answer:	D. 480 V Bus E-2 480 V DS Bus
Justification:	SWS Pump D can be operated for remote shutdown purposes. A Kirk-key interlock allows transfer of power from the normal supply (E-2) to the alternate supply (DS Bus)
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Modified from facility bank
K/A #:	075K203 Bus power supplies to Essential Service Water Pumps
K/A Values:	2.6
Cog Level:	Memory
References:	SD-004, SW System, page 20 SWS LP, Objective 6

Proof of manual capability

Given the following conditions:

- Unit 2 is in Hot Shutdown
- All electrical busses in normal alignments
- The key operated inhibit switch for Zone 24 (Electrical Penetration Area) on Fire Detection and Alarm Panel A2 (FDAP-A2) is placed in the INHIBIT mode

Which one of the following describes the fire detection and actuation capabilities of Zone 24 while it is in the INHIBIT mode?

A. Fire detection is still functional
Automatic actuation is disabled
Manual actuation is still functional

B. Fire detection is disabled
Automatic actuation is disabled
Manual actuation is disabled

C. Fire detection is disabled
Automatic actuation is disabled
Manual actuation is still functional

D. Fire detection is still functional
Automatic actuation is still functional
Manual actuation is still functional

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Question Number:	RO XX
Question:	Given the following conditions: • Unit 2 is in Hot Shutdown • All electrical busses in normal alignments • The key operated inhibit switch for Zone 24 (Electrical Penetration Area) on Fire Detection and Alarm Panel A2 (FDAP-A2) is placed in the INHIBIT mode Which one of the following describes the fire detection and actuation capabilities of Zone 24 while it is in the INHIBIT mode? A. Fire detection is still functional Automatic actuation is disabled Manual actuation is still functional B. Fire detection is disabled Automatic actuation is disabled Manual actuation is disabled C. Fire detection is disabled Automatic actuation is disabled Manual actuation is still functional D. Fire detection is still functional Automatic actuation is still functional Manual actuation is still functional
Answer:	A. Fire detection is still functional Automatic actuation is disabled Manual actuation is still functional
Justification:	Inhibit is more automatic actuation only. The detectors and actuators remain functional
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	086A3.03 Operate or monitor actuation of fire detection
K/A Values:	2.9
Cog Level:	Memory
References:	SD 045, FDAS, section 6.2.4, page 26 of 47 LP FDAS, Objective 8

2 Right Answers

Given the following conditions:

- The plant is in Cold Shutdown
- RHR 'B' pump running aligned for Shutdown Cooling
- RCS temperature is 185°F
- RCS pressure is 365 psig
- PT-403, RCS NR Pressure, fails HIGH

Which one of the following describes the effect on plant operation?

A. RHR-750 and 751, Loop 2 RHR Suction Valves, automatically close

B. RHR-750 and 751, Loop 2 RHR Suction Valves, cannot be opened if they close

C. PCV-145, Low Pressure Letdown Pressure Control Valve, closes to restore pressure to setpoint

D. PCV-145, Low Pressure Letdown Pressure Control Valve, opens to restore pressure to setpoint

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Question Number:	RO XX
Question:	Given the following conditions: • The plant is in Cold Shutdown • RHR 'B' pump running aligned for Shutdown Cooling • RCS temperature is 185°F • RCS pressure is 365 psig • PT-403, RCS NR Pressure, fails HIGH Which one of the following describes the effect on plant operation? A. RHR-750 and 751, Loop 2 RHR Suction Valves, automatically close B. RHR-750 and 751, Loop 2 RHR Suction Valves, cannot be opened if they close C. PCV-145, Low Pressure Letdown Pressure Control Valve, closes to restore pressure to setpoint D. PCV-145, Low Pressure Letdown Pressure Control Valve, opens to restore pressure to setpoint
Answer:	B. RHR-750 and 751, Pump suctions from Loop 2 Hot Leg, cannot be opened if they close
Justification:	RCS pressure from PT 403 provides an open permissive (Does not allow suction valves to open above 445) at 445 psig so that RHR discharge piping will not be overpressurized upon RHR initiation. Once the valves are open, they will not automatically close on high pressure. The signal is sent to both valves. There is no input from PCV-145 from PT-403. The signal that positions PCV-145 comes upstream of the valve from PT-145
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	005K401 Design features providing for overpressure mitigation
K/A Values:	3.0
Cog Level:	Memory
References:	SD-003, RHR SD-021, CVCS, Page 38 RHR LP, Objective 9

Which one of the following describes the power supply arrangement for the Component Cooling Water (CCW) pumps?

	CCW A	CCW B	CCW C
A.	480V Bus E2	480V DS Bus	480 V Bus E1
B.	480 V DS Bus	480 V Bus E1	480 V Bus E2
C.	480 V Bus E1	480 V DS Bus	480 V Bus E2
D.	480 V Bus E1	480 V Bus E2	480 V DS Bus

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Question Number:	RO XX
Question:	Which one of the following describes the power supply arrangement for the Component Cooling Water (CCW) pumps?

	CCW A	CCW B	CCW C
A.	480V Bus E2	480V DS Bus	480 V Bus E1
B.	480 V DS Bus	480 V Bus E1	480 V Bus E2
C.	480 V Bus E1	480 V DS Bus	480 V Bus E2
D.	480 V Bus E1	480 V Bus E2	480 V DS Bus

Answer:	B. 480 V DS Bus 480 V Bus E1 480 V Bus E2
Justification:	CCW A is powered from non-safety bus. CCW B and C are powered from E-Busses.
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	New (Similar questions in facility bank)
K/A #:	008K2.02 Knowledge of bus power supplies to CCW pumps including Emergency backup
K/A Values:	3.0
Cog Level:	Memory
References:	SD-013, CCW, page 9 of 43 LP CCW Objective 6

Given the following conditions:

- The unit is initially in a normal 100% power lineup
- The turbine trips due to a loss of condenser vacuum

Which one of the following describes the turbine control system signals which will send a trip signal to the Reactor Protection System?

A. 1/3 63AST relays <45 psig or 2/4 governor valves closed

B. 2/3 63AST relays <45 psig or 4/4 governor valves closed

C. 1/3 63AST relays <45 psig or 1/2 stop valves closed

D. 2/3 63AST relays <45 psig or 2/2 stop valves closed

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Question Number:	RO XX
Question:	Given the following conditions: • The unit is initially in a normal 100% power lineup • The turbine trips due to a loss of condenser vacuum Which one of the following describes the turbine control system signals which will send a trip signal to the Reactor Protection System? A. 1/3 63AST relays <45 psig or 2/4 governor valves closed B. 2/3 63AST relays <45 psig or 4/4 governor valves closed C. 1/3 63AST relays <45 psig or 1/2 stop valves closed D. 2/3 63AST relays <45 psig or 2/2 stop valves closed
Answer:	D 2/3 63AST relays <45 psig or 2/2 stop valves closed
Justification:	Both stop valves and/or 2/3 AST relays provide trip signals. Governor valves do not provide input
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	045K120 Physical connections and/or cause-effect relationship between M/TG and Protection systems
K/A Values:	3.4
Cog Level:	Memory
References:	Logic Dwg 5379-3695 EHC LP Objective 9, page 17

Given the following conditions:

- Mode 1 at 100% RTP
- APP 002-B7, CV NAR RANGE HI/LO PRESS illuminates
- CV Pressure indicates -0.4 psig, lowering slowly

Which one of the following describes the action necessary to clear the alarm IAW OP-921, Containment Air Handling?

A. Open Containment Pressure Relief Valves V12-10 and V12-11 until pressure is restored

B. Close Containment Pressure Relief Valves V12-10 and V12-11 until pressure is restored

C. Open Containment Vacuum Relief Valves V12-12 and V12-13 until pressure is restored

D. Close Containment Vacuum Relief Valves V12-12 and V12-13 until pressure is restored

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% RTP • APP 002-B7, CV NAR RANGE HI/LO PRESS illuminates • CV Pressure indicates -0.4 psig, lowering slowly Which one of the following describes the action necessary to clear the alarm IAW OP-921, Containment Air Handling? A. Open Containment Pressure Relief Valves V12-10 and V12-11 until pressure is restored B. Close Containment Pressure Relief Valves V12-10 and V12-11 until pressure is restored C. Open Containment Vacuum Relief Valves V12-12 and V12-13 until pressure is restored D. Close Containment Vacuum Relief Valves V12-12 and V12-13 until pressure is restored
Answer:	C. Open Containment Vacuum Relief Valves V12-12 and V12-13 until pressure is restored
Justification:	Low pressure, OP-921, section 8.4.3 requires opening vacuum relief valves to allow a pressure increase in CTMT. If pressure was high, a pressure relief would be performed using the pressure relief valves IAW section 8.2. Valves are opened until pressure is restored, then closed
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	103A409 Ability to operate/monitor containment vacuum system
K/A Values:	3.1
Cog Level:	~~Comprehension~~ Memory
References:	SD 037 CV HVAC section 6.4, page 24 of 57 LP CVHVAC, Objective 3 OP-921 section 8.4.3 APP-002-B7, action 5

You are assigned as a spare RO on day shift. You were unable to attend the pre-shift brief.

The on-shift RO has an emergency requiring him to leave the site immediately. You have been directed to replace him for the remainder of the shift.

IAW OMM-001-12, Minimum Equipment List and Shift Relief, which one of the following is required for the shift relief?

A. Perform a shift relief IAW Attachment 10.18, Middle of the Shift Turnover.

B. Perform a full shift relief IAW Attachment 10.11, RO/BOP turnover checklist.

C. Read and initial Shift Recap/Shift Briefing Attachment 10.7, ~~then relieve the watch.~~ title

D. Verbal turnover with CRSS approval. Read and sign Shift Recap/Shift Brief Attachment 10.7 after relieving the watch.

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Question Number:	RO XX
Question:	You are assigned as a spare RO on day shift. You were unable to attend the pre-shift brief. The on-shift RO has an emergency requiring him to leave the site immediately. You have been directed to replace him for the remainder of the shift. IAW OMM-001-12, Minimum Equipment List and Shift Relief, which one of the following is required for the shift relief? A. Perform a shift relief IAW Attachment 10.18, Middle of the Shift Turnover. B. Perform a full shift relief IAW Attachment 10.11, RO/BOP turnover checklist. C. Read and initial Shift Recap/Shift Briefing Attachment 10.7, then relieve the watch. D. Verbal turnover with CRSS approval. Read and sign Shift Recap/Shift Brief Attachment 10.7 after relieving the watch.
Answer:	A. Perform a shift relief IAW Attachment 10.18, Middle of the Shift Turnover.
Justification:	IAW OMM-001-12, section 8.10.8, a Middle of the shift turnover may be performed when an emergency or sickness arises. B is incorrect because it represents the normal shift turnover procedure. C may be performed for a relief where an individual is just stepping away temporarily, such as for a FFD test. D is incorrect, but contains a partially correct description of C (CRSS approval)
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.1.2 Knowledge of operator responsibilities during all modes of plant operation
K/A Values:	3.0
Cog Level:	Memory
References:	OMM-001-12, section 8.10.8 LP OMM-001-12, Objective 3

You have been assigned to perform a procedure designated 'Multiple Use' IAW PRO-NGGC-0200.

Which one of the following identifies the use of this designation?

A. One section of the procedure may be 'Continuous use' while another section may be designated 'Reference use'

B. One section may require dual verification of procedure steps while another section requires only one signoff per step

C. The performance of any one 'Continuous use' procedure section may require action in multiple locations

D. More than one individual will be required to complete the performance of the procedure

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Question Number:	RO XX
Question:	You have been assigned to perform a procedure designated 'Multiple Use' IAW PRO-NGGC-0200. Which one of the following identifies the use of this designation? A. One section of the procedure may be 'Continuous use' while another section may be designated 'Reference use' B. One section may require dual verification of procedure steps while another section requires only one signoff per step C. The performance of any one 'Continuous use' procedure section may require action in multiple locations D. More than one individual will be required to complete the performance of the procedure
Answer:	A. One section of the procedure may be 'Continuous use' while another section may be designated 'Reference use'
Justification:	PRO-NGGC-0200 identifies continuous, reference, information, and multiple use procedures. A multiple use procedure is identified as containing more than one level of use. The distractors are used to convey other uses of the word 'multiple', as in multiple signatures, locations, or personnel performance.
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	Modified from Robinson Bank
K/A #:	2.1.21 Ability to obtain and verify controlled procedure copy
K/A Values:	3.1
Cog Level:	Memory
References:	PRO-NGGC-0200 section 9.2.7, page 13 of 18 LP NGGC-0200, Objective 2

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The crew has completed OST-051, Reactor Coolant System Leakage Evaluation, (Every 72 hours during steady state operation, and within 12 hours after reaching steady state operation)

The following results are obtained:

- Identified leakage to PRT 2.7 GPM
- Unidentified leakage 0.8 GPM

The E&C Technician was directed to perform CP-014 to determine primary to secondary leakage and reports the following results:

- A SG 0.08 GPM
- B SG 0.56 GPM
- C SG 0.09 GPM

New # 10 distractor w/ earlier ballot

Which, if any, of the following Technical Specification RCS leak rate limits is being exceeded?

A. None

B. Identified

C. Unidentified

D. Primary to secondary

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Question Number:	RO XX
Question:	The crew has completed OST-051, Reactor Coolant System Leakage Evaluation, (Every 72 hours during steady state operation, and within 12 hours after reaching steady state operation) The following results are obtained: • Identified leakage to PRT 2.7 GPM • Unidentified leakage 0.8 GPM The E&C Technician was directed to perform CP-014 to determine primary to secondary leakage and reports the following results: • A SG 0.08 GPM • B SG 0.56 GPM • C SG 0.09 GPM Which, if any, of the following Technical Specification RCS leak rate limits is being exceeded? A. None B. Identified C. Unidentified D. Primary to secondary
Answer:	D. Primary to secondary
Justification:	B SG has a leak rate of .56 GPM, which is higher than 500 gallons per day (864). The total leakage through SGs and to the PRT is within the 10GPM limit for Identified, and 0.8 GPM is within limits for unidentified.
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.1.33 Ability to recognize TS entry for a system
K/A Values:	3.4
Cog Level:	Comprehension
References:	TS 3.4.13 OST-051 and attachments LP TS-3, Objective 2

No comment

The crew is performing a plant startup IAW GP-0003, Normal Plant Startup from Hot Shutdown to Critical.

- Tavg is 540° F.
- Reactor Trip Breakers are OPEN
- The STEAM DUMP T-AVG CONTROL BLOCKED status light is illuminated

You have been directed to place Condenser Steam Dumps in service.

PC-464B, STEAM HEADER PRESS, is correctly adjusted to maintain RCS temperature.

Which one of the following contains the ONLY action(s) required to allow RCS temperature to stabilize at current plant conditions using condenser steam dumps?

A. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS

B. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS, then place STEAM DUMP CONTROL switch to ON

C. Momentarily place STEAM DUMP CONTROL switch to BYPASS T-AVG INTLK, then place switch to OFF.

D. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS, then momentarily place STEAM DUMP CONTROL switch to BYPASS T-AVG INTLK

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Question Number:	RO XX
Question:	The crew is performing a plant startup IAW GP-0003, Normal Plant Startup from Hot Shutdown to Critical. • Tavg is 540° F. • Reactor Trip Breakers are OPEN • The STEAM DUMP T-AVG CONTROL BLOCKED status light is illuminated You have been directed to place Condenser Steam Dumps in service. PC-464B, STEAM HEADER PRESS, is correctly adjusted to maintain RCS temperature. Which one of the following contains the ONLY action(s) required to allow RCS temperature to stabilize at current plant conditions using condenser steam dumps? A. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS B. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS, then place STEAM DUMP CONTROL switch to ON C. Momentarily place STEAM DUMP CONTROL switch to BYPASS T-AVG INTLK, then place switch to OFF. D. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS, then momentarily place STEAM DUMP CONTROL switch to BYPASS T-AVG INTLK
Answer:	D. Place STEAM DUMP MODE SELECTOR SWITCH in STEAM PRESS, then momentarily place STEAM DUMP CONTROL switch to BYPASS T-AVG INTLK
Justification:	D is correct per GP-0002, section 8.5.32, page 86 of 111. A and B are incorrect because with the low Tavg interlock actuated, the steam dump control switch must be placed in bypass to clear the signal. C is incorrect because the steam dump will not operate if steam dumps are not in pressure control mode. (Condenser steam dump control was chosen for this question because it will affect reactivity and the topic was not selected as a system test item)
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.2.1 Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.
K/A Values:	3.7
Cog Level:	Comprehension
References:	GP-0002, step 8.5.32 LP GP-0002, Objective 8

In accordance with GP-010, Refueling, which one of the following describes the MINIMUM requirement for moving fuel between the Refueling Cavity and SFP?

A. A licensed SRO must be present on the refueling floor. A Fuel Handling licensed operator must be present in the SFP.

B. A Fuel Handling licensed operator must be present on the refueling floor. A licensed SRO must be present in the SFP.

C. A licensed SRO must be present on the refueling floor. An STA or Reactor Engineering must be present at the SFP.

D. Reactor Engineering must be present on the refueling floor. A Fuel Handling licensed operator must be present in the SFP.

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Question Number:	RO XX
Question:	In accordance with GP-010, Refueling, which one of the following describes the MINIMUM requirement for moving fuel between the Refueling Cavity and SFP? A. A licensed SRO must be present on the refueling floor. A Fuel Handling licensed operator must be present in the SFP. B. A Fuel Handling licensed operator must be present on the refueling floor. A licensed SRO must be present in the SFP. C. A licensed SRO must be present on the refueling floor. An STA or Reactor Engineering must be present at the SFP. D. Reactor Engineering must be present on the refueling floor. A Fuel Handling licensed operator must be present in the SFP.
Answer:	A. A licensed SRO must be present on the refueling floor. A Fuel Handling licensed operator must be present in the SFP
Justification:	GP-010 states that an SRO must be present for refueling activities on the refueling floor and a FH licensed operator must be in the Spent Fuel Pool. The procedure does not require STA or RE support, although they would most likely be stationed in the CV and/or SFP at some point in the fuel transfer process
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.2.26 Knowledge of Refueling administrative requirements
K/A Values:	2.5
Cog Level:	Memory
References:	GP-010, Refueling, Precautions 5.8 – 5.10 LP GP-010, Objective 3

Given the following conditions:

- RNP is in Cold Shutdown for refueling
- Core reload from the SFP to containment is in progress
- A fuel assembly has just been placed in the SFP upender to send to containment

Which one of the following ~~requirements~~ is an interlock that must be met in order to send the Conveyor Car to containment?

A. Conveyor Car control must be transferred to the SFP

B. The SFP bridge must be positioned out of the SFP Transfer Canal area

C. Both the CV and the SFP upenders must be in the horizontal (down) position

D. The CV manipulator crane must be positioned out of the CV transfer canal area

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Question Number:	RO XX
Question:	Given the following conditions: • RNP is in Cold Shutdown for refueling • Core reload from the SFP to containment is in progress • A fuel assembly has just been placed in the SFP upender to send to containment Which one of the following requirements must be met in order to send the Conveyor Car to containment? A. Conveyor Car control must be transferred to the SFP B. The SFP bridge must be positioned out of the SFP Transfer Canal area C. Both the CV and the SFP upenders must be in the horizontal (down) position D. The CV manipulator crane must be positioned out of the CV transfer canal area
Answer:	C. Both the CV and the SFP upenders must be in the horizontal (down) position
Justification:	C is correct because the conveyor will not move with either upender in the vertical position. Additionally, the transfer tube must be open. There is no conveyor interlock associated with crane locations, and SFP does not need control to transfer the conveyor, but the SFP console provides a switch for control at the Reactor Side
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	2.2.27 Knowledge of the refueling process
K/A Values:	2.6
Cog Level:	Memory
References:	FH System description pages 26-27 LP FHS Objective 9

Given the following conditions:

- Mode 1 at 100% RTP
- You have been directed to enter containment to perform a task.
- Your RWP states that your EPD dose alarm will be set at 80 mrem and your rate alarm will be set at 160 mrem/hr
- When you log in to the Automated Access Control System, the computer screen warns you that RIMS is not operational.

Which one of the following describes the settings for your EPD dose and rate alarms **and** what is the appropriate response to a dose alarm while you are performing a task?

A. Dose – 50 mrem; Rate – 100 mrem/hr. Stop work, exit the area, notify Health Physics

B. Dose – 50 mrem; Rate – 100 mrem/hr. Stop work, stay exactly where you are, notify Health Physics

C. Dose – 40 mrem; Rate – 80 mrem/hr. Stop work, exit the area, notify Health Physics

D. Dose – 40 mrem; Rate – 80 mrem/hr. Stop work, stay exactly where you are, notify Health Physics

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% RTP • You have been directed to enter containment to perform a task. • Your RWP states that your EPD dose alarm will be set at 80 mrem and your rate alarm will be set at 160 mrem/hr • When you log in to the Automated Access Control System, the computer screen warns you that RIMS is not operational. Which one of the following describes the settings for your EPD dose and rate alarms **and** what is the appropriate response to a dose alarm while you are performing a task? A. Dose – 50 mrem; Rate – 100 mrem/hr. Stop work, exit the area, notify Health Physics B. Dose – 50 mrem; Rate – 100 mrem/hr. Stop work, stay exactly where you are, notify Health Physics C. Dose – 40 mrem; Rate – 80 mrem/hr. Stop work, exit the area, notify Health Physics D. Dose – 40 mrem; Rate – 80 mrem/hr. Stop work, stay exactly where you are, notify Health Physics
Answer:	A.
Justification:	With RIMS out of service, default settings are 50mr and 100 mr/hr. Anytime the dosimeter alarms you should leave the area. Also, distractors C and D have the wrong dosimeter settings
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	Bank (Editorial Mods)
K/A #:	2.3.2 Knowledge of facility ALARA program
K/A Values:	2.5
Cog Level:	Memory
References:	PLP-016 Rad Fundamentals (I did not have a copy)

Given the following conditions:

- Mode 1 at 100% when a LBLOCA occurred
- A General Emergency has been in effect for 6 hours

Which one of the following is the TEDE limit for performing Life-Saving actions?

A. 5 Rem

B. 25 Rem

C. 75 Rem

D. 250 Rem

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 100% when a LBLOCA occurred • A General Emergency has been in effect for 6 hours Which one of the following is the TEDE limit for performing Life-Saving actions? A. 5 Rem B. 25 Rem C. 75 Rem D. 250 Rem
Answer:	B. 25 Rem
Justification:	Lifesaving action 25 Rem
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized
K/A Values:	2.5
Cog Level:	Memory
References:	EPTSC-04, Step 8.4.3.16.b, page 4-9

Which one of the following describes the correct sequence for initiating a Containment Purge for Refueling Operations?

A. Place the Purge or Refuel valves control switch in the REFUEL position, place a CV Purge fan control switch in START, verify purge supply and exhaust valves and containment intake damper open, verify fan starts.

B. Place a CV Purge fan control switch in START, verify containment intake damper opens, verify fan starts, verify purge supply and exhaust valves open. Place the Purge or Refuel valves control switch in the REFUEL position.

C. Place the Purge or Refuel valves control switch in the REFUEL position, place a CV Purge fan control switch in START, verify fan starts, verify purge supply and exhaust valves and containment intake damper open.

D. Place a CV Purge fan control switch in START, verify fan starts, verify containment intake damper and purge supply and exhaust valves open. Place the Purge or Refuel valves control switch in the REFUEL position.

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Question Number:	RO XX
Question:	Which one of the following describes the correct sequence for initiating a Containment Purge for Refueling Operations? A. Place the Purge or Refuel valves control switch in the REFUEL position, place a CV Purge fan control switch in START, verify purge supply and exhaust valves and containment intake damper open, verify fan starts. B. Place a CV Purge fan control switch in START, verify containment intake damper opens, verify fan starts, verify purge supply and exhaust valves open. Place the Purge or Refuel valves control switch in the REFUEL position. C. Place the Purge or Refuel valves control switch in the REFUEL position, place a CV Purge fan control switch in START, verify fan starts, verify purge supply and exhaust valves and containment intake damper open. D. Place a CV Purge fan control switch in START, verify fan starts, verify containment intake damper and purge supply and exhaust valves open. Place the Purge or Refuel valves control switch in the REFUEL position.
Answer:	A. Place the Purge or Refuel valves control switch in the REFUEL position, place a CV Purge fan control switch in START, verify purge supply and exhaust valves and containment intake damper open, verify fan starts.
Justification:	OP-921 section 8.4.2 describes the process. Valve control placed in REFUEL, start fan. Valves and dampers open prior to fan start. Distractors are mixed in different order of same actions
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.3.9 Knowledge of the process for performing a containment purge.
K/A Values:	2.5
Cog Level:	~~Comprehension~~ Memory
References:	OP-921, section 8.4.2, page 33-36 of 47 LP CVHVAC, Objective 8

Following a Reactor Trip and Safety Injection the STA reports that the SPDS is out of service.

Critical Safety Function status information is provided manually and indicates as follows:

Subcriticality	GREEN
Core Cooling	YELLOW
Heat Sink	YELLOW
Integrity	GREEN
Containment	GREEN
Inventory	YELLOW

Which one of the following is the required monitoring frequency of CSFSTs in this condition?

A. Continuously

B. Once every 10-20 minutes

C. Once every 30-40 minutes

D. Not required unless a significant change in plant status occurs

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Question Number:	RO XX
Question:	Following a Reactor Trip and Safety Injection the STA reports that the SPDS is out of service. Critical Safety Function status information is provided manually and indicates as follows: Subcriticality GREEN Core Cooling YELLOW Heat Sink YELLOW Integrity GREEN Containment GREEN Inventory YELLOW Which one of the following is the required monitoring frequency of CSFSTs in this condition? A. Continuously B. Once every 10-20 minutes C. Once every 30-40 minutes D. Not required unless a significant change in plant status occurs
Answer:	B. Once every 10-20 minutes
Justification:	OMM-22, section 8.2.6 defines applicability of manual CSF monitoring. If no condition higher than yellow is encountered, monitoring may be performed every 10-20 minutes. If a red or orange condition is observed, monitoring must be continuous. If a significant change in status occurs when monitoring is NOT continuous, then continuous monitoring must be implemented. These rules are particularly important when SPDS is unavailable.
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	Modified from Robinson Bank question used on 2/7/96
K/A #:	2.4.13 Knowledge of roles and responsibilities during EOP use
K/A Values:	3.3
Cog Level:	Comprehension
References:	OMM-22, section 8.2.6, page 19 of 50 LP OMM-22 R4, Objective 3

Which one of the following correctly describes the applicability of EPP foldouts?

Each foldout is applicable...

A. only during implementation of the associated EPP.

B. during implementation of the associated EPP and YELLOW path FRPs.

C. during implementation of the associated EPP, YELLOW and ORANGE path FRPs.

D. during implementation of the associated EPP and YELLOW, ORANGE, and RED FRPs until directed to refer to a different foldout or discontinue use.

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Question Number:	RO XX
Question:	Which one of the following correctly describes the applicability of EPP foldouts? Each foldout is applicable… A. only during implementation of the associated EPP. B. during implementation of the associated EPP and YELLOW path FRPs. C. during implementation of the associated EPP, YELLOW and ORANGE path FRPs. D. during implementation of the associated EPP and YELLOW, ORANGE, and RED FRPs until directed to refer to a different foldout or discontinue use.
Answer:	B. during implementation of the associated EPP and YELLOW path FRPs.
Justification:	OMM-22, section 8.2.4 states that foldouts are made effective when directed. When an EPP is in effect, the foldout remains in effect even when the crew is performing action IAW a YELLOW path FRP. ORANGE and RED conditions suspend use of foldouts.
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.4.14 Knowledge of general guidelines for EOP flowchart use
K/A Values:	3.0
Cog Level:	Memory
References:	OMM-22 page 13 of 50, section 8.2.4 LP OMM-20 R4, Objective 9

see abbr procedure

Given the following plant conditions:

- Reactor power is at 100%
- Off-Site power is lost causing a reactor trip
- The Emergency Diesel Generators fail to start
- The Turbine Stop valves are not closed

Which one of the following describes an action that should be taken in this situation in accordance with EPP-001, 'Loss of All AC Power'?

A. Emergency Borate using MOV-350

B. Close the MSIVs and bypasses

C. Manually run the turbine back with the limiter

D. Manually run the turbine back with the governor valve DECREASE button

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Question Number:	RO XX
Question:	Given the following plant conditions: • Reactor power is at 100% • Off-Site power is lost causing a reactor trip • The Emergency Diesel Generators fail to start • The Turbine Stop valves are not closed Which one of the following describes an action that should be taken in this situation in accordance with EPP-001, 'Loss of All AC Power'? A. Emergency Borate using MOV-350 B. Close the MSIVs and bypasses C. Manually run the turbine back with the limiter D. Manually run the turbine back with the governor valve DECREASE button
Answer:	B. Close the MSIVs and bypasses
Justification:	Action to attempt turbine trip at step 2 of EPP-001 is to close MSIVs and bypass valves. Boration only required if reactor does not trip, and alternate means of tripping the turbine are not provided for EPP-001
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls
K/A Values:	4.0
Cog Level:	Memory
References:	EPP-1, Step 2 RNO LP EPP-1, Objective 5

You have been directed to perform a Surveillance Test (OST) that is part of a Post Maintenance Test (PMT).

Which one of the following describes a condition where a step in the OST may be marked 'N/A'?

A. To change the conditions or intent of the test

B. A precaution or limitation of a test is not applicable

C. To designate components that are not being used as part of the PMT

D. To identify required components that are Out of Service during the performance of a test

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Question Number:	RO XX
Question:	You have been directed to perform a Surveillance Test (OST) that is part of a Post Maintenance Test (PMT). Which one of the following describes a condition where a step in the OST may be marked 'N/A'? A. To change the conditions or intent of the test B. A precaution or limitation of a test is not applicable C. To designate components that are not being used as part of the PMT D. To identify required components that are Out of Service during the performance of a test
Answer:	C. To designate components that are not being used as part of the PMT
Justification:	N/A should be used when performing partial OSTs to designate components that will not be used in the OST. Using N/A to change conditions or ignore precautions is forbidden. If required equipment is OOS, the OOS should be marked next to the step as well as action taken in the OST 'comments' section
Tier/Group	3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	2.2.12 Knowledge of surveillance procedures
K/A Values:	3.0
Cog Level:	Memory
References:	OMM-015, Section 8.2 LP OMM-15, Objective 2

A transient has occurred resulting in the following conditions:

- Reactor Trip and Safety Injection
- RCS Pressure is 1050 psig and decreasing
- RCS temperature is 545°F
- Pressurizer Level is 78% and increasing
- RCPs are tripped

The crew is performing PATH-1 when the following plant conditions develop:

- RCS Pressure is 1200 psig and increasing slowly
- RCS temperature is 545°F
- Pressurizer level is 32% and decreasing

Which one of the following describes the likely cause of the changing conditions?

A. The size of the RCS leak has increased

B. A Faulted Steam Generator has boiled dry

C. A Pressurizer Safety Valve or PORV has reseated

D. The Turbine failed to trip and the MSIVs were closed

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Question Number:	RO XX
Question:	A transient has occurred resulting in the following conditions: • Reactor Trip and Safety Injection • RCS Pressure is 1050 psig and decreasing • RCS temperature is 545°F • Pressurizer Level is 78% and increasing • RCPs are tripped The crew is performing PATH-1 when the following plant conditions develop: • RCS Pressure is 1200 psig and increasing slowly • RCS temperature is 545°F • Pressurizer level is 32% and decreasing • Which one of the following describes the likely cause of the changing conditions? A. The size of the RCS leak has increased B. A Faulted Steam Generator has boiled dry C. A Pressurizer Safety Valve or PORV has reseated D. The Turbine failed to trip and the MSIVs were closed
Answer:	C. A Pressurizer Safety Valve or PORV has reseated
Justification:	A- Incorrect because RCS pressure would be dropping if the leak had increased B- Incorrect because pressurizer level would act in the opposite way if the faulted SG boiled dry C- Correct D- If the turbine failed to trip the pressurizer level would act in the opposite way
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	008AA1.07 Ability to operate or monitor the following as they apply to the Pressurizer Vapor Space Accident: Reseating of code safety and PORV
K/A Values:	4.0
Cog Level:	Comprehension
References:	Lesson Plan Chapter 4 - Thermodynamic Processes

In procedure EPP-016, Uncontrolled Depressurization of All Steam Generators, the Operator is directed to establish feed flow to all three Steam Generators. What is the setpoint and basis for establishing flow in this range?

A. 80-90 gpm, maintain minimum feed flow to ensure CST inventory is maintained until RHR can be placed in service

B. 100-110 gpm, maintain a minimum of 300 gpm feed flow to ensure adequate heat sink is maintained

C. 80-90 gpm, establish a minimum verifiable flow to ensure components remain wet so that thermal stresses are minimized upon a feed flow increase

D. 100-110 gpm, establish a minimum verifiable flow to ensure components remain wet so that thermal stresses are minimized upon a feed flow increase

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Question Number:	RO XX
Question:	In procedure EPP-016, Uncontrolled Depressurization of All Steam Generators, the Operator is directed to establish feed flow to all three Steam Generators. What is the setpoint and basis for establishing flow in this range? A. 80-90 gpm, maintain minimum feed flow to ensure CST inventory is maintained until RHR can be placed in service B. 100-110 gpm, maintain a minimum of 300 gpm feed flow to ensure adequate heat sink is maintained C. 80-90 gpm, establish a minimum verifiable flow to ensure components remain wet so that thermal stresses are minimized upon a feed flow increase D. 100-110 gpm, establish a minimum verifiable flow to ensure components remain wet so that thermal stresses are minimized upon a feed flow increase
Answer:	C. 80-90 gpm, establish a minimum verifiable flow to ensure components remain wet so that thermal stresses are minimized upon a feed flow increase
Justification:	A- Incorrect- 80-90 gpm is the correct feed flow; however basis incorrect B- Incorrect – Feed flow range incorrect and basis incorrect C- Correct. D- Incorrect. Feed flow range incorrect, basis is correct
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E12EK3.1Knowledge of the reasons for the following responses as they apply to Uncontrolled Cooldown of All Steam generators: Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics
K/A Values:	3.5
Cog Level:	Memory
References:	EPP-016 step 9, page 17 of 41 of basis EPP-016 LP, Objective 3

fundamental
on system

Given the following conditions:

- A rapid load reduction from 100% to 70% power was performed.
- Control Bank D rods were inserted to 180 steps.
- One Control Bank D rod did not move and is currently at 214 steps.

Which one of the following describes a concern associated with the rod misalignment?

A. Xenon buildup in the area of the stuck rod may immediately affect core power distribution

use-time

B. Xenon burnout in the area of the stuck rod may immediately affect core power distribution

use-time

C. Xenon buildup in the area of the inserted rods may affect core power distribution if left uncorrected

D. Xenon burnout in the area of the inserted rods may affect core power distribution if left uncorrected

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Question Number:	RO XX
Question:	Given the following conditions: • A rapid load reduction from 100% to 70% power was performed. • Control Bank D rods were inserted to 180 steps. • One Control Bank D rod did not move and is currently at 214 steps. Which one of the following describes a concern associated with the rod misalignment? A. Xenon buildup in the area of the stuck rod may immediately affect core power distribution B. Xenon burnout in the area of the stuck rod may immediately affect core power distribution C. Xenon buildup in the area of the inserted rods may affect core power distribution if left uncorrected D. Xenon burnout in the area of the inserted rods may affect core power distribution if left uncorrected
Answer:	C. Xenon buildup in the area of the inserted rods may affect core power distribution if left uncorrected
Justification:	A- Incorrect. Xenon will not immediately affect core power distribution. The effects of xenon will be felt an hour after the transient. B- Incorrect. Burnout at the affected location should not be occurring. Not immediately either C- Correct. When power is reduced locally, as in the case of inserted rods, xenon will build in for several hours, further depressing flux in that area. In the area of the stuck rod, xenon will not be building in because flux stayed the same or increased (relative to inserted rods) D- Incorrect. Xenon will not burn out in the area of the inserted rods
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	005AK1.03 Knowledge of operational implications of xenon transient as related to stuck/inoperable rod
K/A Values:	3.2
Cog Level:	~~Comprehension~~ Memory
References:	TS 3.1.4 bases AOP-001 bases AOP-001 LP objective 6 Lesson Plan Reactor Theory Chapter 5, Control Rods

A Reactor Trip and Safety Injection have occurred.

The following alarms were received in the Control Room:

- APP-004-A1, S/G A HI STM LINE HI ΔP SFGRD/TRIP
- APP-004-A5, S/G A LO LVL & STM > FWF TRIP
- APP-006-A2, S/G A STM > FW FLOW
- APP-006-E5, STM LINE LO PRESS

The crew has completed Supplement G, Steam Generator Isolation.
Which one of the following describes the preferred method of controlling RCS temperature?

A. Condenser Steam Dumps from 'A', 'B', and 'C' SGs

B. 'A', 'B', and 'C' PORVs

C. 'B' and 'C' Main Steam Safety Valves

D. Condenser Steam Dumps from 'B' and 'C' SGs

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Question Number:	RO XX
Question:	A Reactor Trip and Safety Injection have occurred. The following alarms were received in the Control Room: • APP-004-A1, S/G A HI STM LINE HI ΔP SFGRD/TRIP • APP-004-A5, S/G A LO LVL & STM > FWF TRIP • APP-006-A2, S/G A STM > FW FLOW • APP-006-E5, STM LINE LO PRESS The crew has completed Supplement G, Steam Generator Isolation. Which one of the following describes the Main Steam System component(s) controlling RCS Heat Removal? A. Condenser Steam Dumps from 'A', 'B', and 'C' SGs B. 'A', 'B', and 'C' SG PORVs C. 'B' and 'C' SG Main Steam Safety Valves D. Condenser Steam Dumps from 'B' and 'C' SG
Answer:	D. Condenser Steam Dumps from 'B' and 'C' SG
Justification:	A- Incorrect. Steam Dump not available from A SG. A S/G isolated per Supplement "G" B- Incorrect. Steam Dump available from condenser C- Incorrect. Steam Dump available from condenser D- Correct
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	040/E12AK2.01 Knowledge of the interrelations between the Steam Line Rupture and the following: Valves
K/A Values:	2.6
Cog Level:	Comprehension
References:	Supplement G, SD-031 pg 18 No LP for Supplements found

Given the following conditions:

- Mode 1, 100% RTP
- 'A' CCW Pump and Heat Exchanger are in service
- The crew is isolating Component Cooling Water to the Spent Fuel Pit for Heat Exchanger maintenance
- CCW flow on FI-613 indicates 2200 GPM and trending down
- CCW Pressure on PI-612 indicates 110 psig and trending up slowly
- The RO opens CC-749A, CCW from RHR HX 'A'

Which one of the following describes the function provided by opening CC-749A?

A. Ensures sufficient flow through a CCW pump to satisfy the minimum flow requirement

B. Ensures CCW flow limitations on the Non-Regenerative Heat Exchanger are not exceeded

C. Ensures CCW Heat Exchanger flow will remain below 2350 GPM to minimize damage from tube vibration

D. Reduce CCW system pressure to ensure design pressure of the RHR Heat Exchangers is not exceeded

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1, 100% RTP • 'A' CCW Pump and Heat Exchanger are in service • The crew is isolating Component Cooling Water to the Spent Fuel Pit for Heat Exchanger maintenance • CCW flow on FI-613 indicates 2200 GPM and trending down • CCW Pressure on PI-612 indicates 110 psig and trending up slowly • The RO opens CC-749A, CCW from RHR HX 'A' Which one of the following describes the function provided by opening CC-749A? A. Ensures sufficient flow through a CCW pump to satisfy the minimum flow requirement B. Ensures CCW flow limitations on the Non-Regenerative Heat Exchanger are not exceeded C. Ensures CCW Heat Exchanger flow will remain below 2350 GPM to minimize damage from tube vibration D. Reduce CCW system pressure to ensure design pressure of the RHR Heat Exchangers is not exceeded
Answer:	A. Ensures sufficient flow through a CCW pump to satisfy the minimum flow requirement
Justification:	A- Correct. CCW pumps are to be run continuously with >2200 gpm flow. B- Incorrect. Flow limitation concern is for the CCW pump C- Incorrect. The 2350 limit is for SFP HX D- Incorrect. System is sized so as not to exceed design pressures of HX. With system aligned for operation, pump discharge will not be high enough to overpressurize HX
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	008A1.01 Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the CCWS controls including: CCW flow rate
K/A Values:	2.8
Cog Level:	Memory

References:	OP-306, Section 8.4.3 CCW LP Objective 5

A leak in the Service Water system has occurred.

The Aux Building North Header has been isolated due to a large leak downstream of the Service Water Booster Pump North Header supply valve, SW-25.

Which one of the following describes the impact on cooling water supplied to the Containment Air Recirculation Fans, HVH-1-4?

A. Service Water Booster Pump 'A' can supply cooling from the South Header only

B. Service Water Booster Pumps 'A' and 'B' can supply cooling from the South Header only

C. Service Water Booster Pump 'A' can supply cooling from the North and South Headers

D. Service Water Booster Pumps 'A' and 'B' can supply cooling from the North and South Headers

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Question Number:	RO XX
Question:	A leak in the Service Water system has occurred. The Aux Building North Header has been isolated due to a large leak downstream of the Service Water Booster Pump North Header supply valve, SW-25. Which one of the following describes the impact on cooling water supplied to the Containment Air Recirculation Fans, HVH-1-4? A. Service Water Booster Pump 'A' can supply cooling from the South Header only B. Service Water Booster Pumps 'A' and 'B' can supply cooling from the South Header only C. Service Water Booster Pump 'A' can supply cooling from the North and South Headers D. Service Water Booster Pumps 'A' and 'B' can supply cooling from the North and South Headers
Answer:	A. Service Water Booster Pump 'A' can supply cooling from the South Header only
Justification:	A- Correct because SWBP A takes suction from South Header B- Incorrect because leak location precludes cross-connect of headers. Leak would reinitiate upon cross-connect C- Incorrect because leak location precludes cross-connect of headers, and the North header is isolated upstream of the cross-connect D- Incorrect because a leak on Pump B suction downstream of isolation will preclude use of the pump
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	076K3.03 Knowledge of the effect that a loss or malfunction of the Service Water System will have on RB (Containment) Closed Cooling
K/A Values:	3.5
Cog Level:	~~Comprehension~~ Memory
References:	SW SD Figure 6 AOP-022, Attachment 6 AOP-022 LP, objective 8

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Given the following conditions:

The plant is operating at 100% power.

RTGB IRPI indication is lost. The cause is determined to be a tripped breaker on Instrument Bus 7A.

Which one of the following describes the effect on Control Bank D?

A. The ROD BOTTOM/ROD DROP annunciator is lit. Control Bank D rod bottom LEDs are lit. Control Bank D rods may be withdrawn manually

B. The ROD BOTTOM/ROD DROP annunciator is lit. Control Bank D rod bottom LEDs are lit. Control Bank D rods may not be withdrawn manually until the DROPPED ROD-ROD STOP BYPASS switch is placed in BYPASS

C. The ROD BOTTOM/ROD DROP annunciator is NOT lit. Control Bank D rod bottom LEDs are NOT lit. Control Bank D rods may be withdrawn manually

D. The ROD BOTTOM/ROD DROP annunciator is NOT lit. Control Bank D rod bottom LEDs are NOT lit. Control Bank D rods may not be withdrawn manually until the DROPPED ROD- ROD STOP BYPASS switch is placed in BYPASS

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power. RTGB IRPI indication is lost. The cause is determined to be a tripped breaker on Instrument Bus 7A. Which one of the following describes the effect on Control Bank D? A. The ROD BOTTOM/ROD DROP annunciator is lit. Control Bank D rod bottom LEDs are lit. Control Bank D rods may be withdrawn manually B. The ROD BOTTOM/ROD DROP annunciator is lit. Control Bank D rod bottom LEDs are lit. Control Bank D rods may not be withdrawn manually until the DROPPED ROD- ROD STOP BYPASS switch is placed in BYPASS C. The ROD BOTTOM/ROD DROP annunciator is NOT lit. Control Bank D rod bottom LEDs are NOT lit. Control Bank D rods may be withdrawn manually D. The ROD BOTTOM/ROD DROP annunciator is NOT lit. Control Bank D rod bottom LEDs are NOT lit. Control Bank D rods may not be withdrawn manually until the DROPPED ROD- ROD STOP BYPASS switch is placed in BYPASS
Answer:	C. The ROD BOTTOM/ROD DROP annunciator is NOT lit. Control Bank D rod bottom LEDs are NOT lit. Control Bank D rods may be withdrawn manually
Justification:	A- Incorrect. The Rod Bottom LED and ROD DROP annunciator are supplied from the NARPI module in the IRPI racks located in the cable spreading room. They are supplied from PP-61, Breaker 1 B- Incorrect. The Rod Bottom LED and ROD DROP annunciator are supplied from the NARPI module in the IRPI racks located in the cable spreading room. They are supplied from PP-61, Breaker 1 C- Correct. IB 7A supplies power to RTGB IRPI indication only. D- Incorrect. The Rod stop functions comes from the NI system.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	001K6.13 Knowledge of the effect that a loss or malfunction of the Rod Position Indication system will have on the Rod Control System (Location and operation of RPI)
K/A Values:	3.6
Cog Level:	Comprehension

References:	IRPI SD009, Section 4.5 and 6.2 IRPI LP Objectives 5 and 6

Given the following conditions:

The plant is operating at 100% power when a Loss of Off-Site Power and Reactor Trip occurs.

All equipment operates as expected.

Which one of the following describes the status of cooling water to RCPs Five (5) minutes into the event?

A. Seal Injection will provide the only cooling water to the RCP thermal barrier heat exchangers

B. CCW Pumps 'A' and 'B' running to provide cooling to RCP bearings

C. CCW Pumps 'B' and 'C' running to provide cooling to RCP bearings

D. CCW Pumps 'A', 'B', and 'C' running to provide cooling to RCP bearings

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power when a Loss of Off-Site Power and Reactor Trip occurs. All equipment operates as expected. Which one of the following describes the status of cooling water to RCPs Five (5) minutes into the event? A. Seal Injection will provide the only cooling water to the RCP thermal barrier heat exchangers B. CCW Pumps 'A' and 'B' running to provide cooling to RCP bearings C. CCW Pumps 'B' and 'C' running to provide cooling to RCP bearings D. CCW Pumps 'A', 'B', and 'C' running to provide cooling to RCP bearings
Answer:	C. CCW Pumps 'B' and 'C' running to provide cooling to RCP bearings
Justification:	A- Incorrect. 2 pumps auto start B- Incorrect. Pump 'A' does not start. DS bus deenergized C- Correct D- Incorrect. Pump 'A' does not start. DS bus deenergized
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	003K2.02 Knowledge of Power supplies to CCW pumps (Relation to RCP)
K/A Values:	2.5
Cog Level:	Comprehension
References:	CCW SD013, section 5.1.3 CCW LP Objecticve 3 and 6

Given the following conditions:

The plant is operating at 100% power. Rod Control is in MANUAL. All other control systems are operating in automatic.

Which one of the following describes the effect of temperature changes in the Chemical and Volume Control SYSTEM (CVCS)?

A. As NRHX outlet temperature INCREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS boration

B. As NRHX outlet temperature INCREASES, ion exchanger affinity for boron DECREASES, resulting in a potential RCS dilution

C. As NRHX outlet temperature DECREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS dilution

D. As NRHX outlet temperature DECREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS boration

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power. Rod Control is in MANUAL. All other control systems are operating in automatic. Which one of the following describes the effect of temperature changes in the Chemical and Volume Control SYSTEM (CVCS)? A. As NRHX outlet temperature INCREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS boration B. As NRHX outlet temperature INCREASES, ion exchanger affinity for boron DECREASES, resulting in a potential RCS dilution C. As NRHX outlet temperature DECREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS dilution D. As NRHX outlet temperature DECREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS boration
Answer:	C. As NRHX outlet temperature DECREASES, ion exchanger affinity for boron INCREASES, resulting in a potential RCS dilution
Justification:	A- Incorrect. Opposite effect on both affinity and RCS effect B- Incorrect. Opposite RCS effect C- Correct. If NRHX outlet temperature is decreased, the Ion exchangers will have a higher affinity for boron, causing a small dilution event, resulting in a rise in reactor power. D- Incorrect. Opposite RCS effect.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	004K5.36 Knowledge of the operational implications of the following as they apply to CVCS: Solubility of boron in water; temperature effect
K/A Values:	2.5
Cog Level:	Comprehension
References:	CVCS SD CVCS LP, Objective 14

Given the following conditions:

The plant is operating at 100% power. The CVCS is in a normal lineup with all equipment in service.

Which one of the following describes the operation of Emergency Makeup to Charging suction valve, LCV-115B?

A. Automatically opens when BOTH LT-112 and LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be open at the same time

B. Automatically opens when EITHER LT-112 or LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be closed at the same time

C. Automatically opens when BOTH LT-112 and LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be closed at the same time

D. Automatically opens when EITHER LT-112 or LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be open at the same time

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power. The CVCS is in a normal lineup with all equipment in service. Which one of the following describes the operation of Emergency Makeup to Charging suction valve, LCV-115B? A. Automatically opens when BOTH LT-112 and LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be open at the same time B. Automatically opens when EITHER LT-112 or LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be closed at the same time C. Automatically opens when BOTH LT-112 and LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be closed at the same time D. Automatically opens when EITHER LT-112 or LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be open at the same time
Answer:	C. Automatically opens when BOTH LT-112 and LT-115, VCT level transmitters, indicate Low VCT level. Interlocked with VCT Outlet Valve LCV-115C so that both valves cannot be closed at the same time
Justification:	A- Incorrect. Both cannot be shut at same time B- Incorrect. Need both indicators to open valve C- Correct. D- Incorrect. Need both indicators and valves cannot be closed at same time
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	004K4.07 Knowledge of CVCS dessign features and/or interlocks which provide for the following: Water Supplies
K/A Values:	3.0
Cog Level:	Memory
References:	CVCS SD section 5.2.3 and 5.2.4 and figures 17 and 17A CVCS LP Objective 9

NOT ACCEPTED

Which one of the following describes the indication provided by the bistable status lights on RTGB Panel B and the 'First Out' Annunciator Panel when an automatic reactor trip signal is generated?

A. A minimum of two bistable status lights illuminated in a horizontal row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be blinking

B. A minimum of two bistable status lights illuminated in a vertical row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be blinking

C. A minimum of two bistable status lights illuminated in a horizontal row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be solid

D. A minimum of two bistable status lights illuminated in a vertical row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be solid

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Question Number:	RO XX
Question:	Which one of the following describes the indication provided by the bistable status lights on RTGB Panel B and the 'First Out' Annunciator Panel when an automatic reactor trip signal is generated? A. A minimum of two bistable status lights illuminated in a horizontal row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be blinking B. A minimum of two bistable status lights illuminated in a vertical row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be blinking C. A minimum of two bistable status lights illuminated in a horizontal row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be solid D. A minimum of two bistable status lights illuminated in a vertical row is required to generate a reactor trip. The 'First Out' annunciator for the cause of the trip will be solid
Answer:	B. Two bistable status lights illuminated in any vertical row will cause a reactor trip. The 'First Out' annunciator for the cause of the trip will be blinking
Justification:	A- Incorrect because 2 lights in a horizontal row means that 2 inputs from the same analog channel, not the same parameter, are providing trip signals B- Correct C- Incorrect because the horizontal row contains signals from the same analog channel, and all subsequent annunciators after the First Out come in solid D- Incorrect because subsequent annunciators in the first out panel are solid, but the first one is blinking
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	007EK2.03 Knowledge of the interrelations between a reactor trip and the following: Reactor Trip Status Panel
K/A Values:	3.5
Cog Level:	Memory
References:	RPS SD011, page 12 of 32 RPS LP Objective 9

unacceptable distractors

A Large Break LOCA has occurred.

"A" Emergency Diesel Generator is out of service.

Assuming all components operate as designed, which one of the following describes the operation of the Engineered Safety Features to meet its minimum design function?

A. Two Trains of ECCS Pumps will start, while only one train is necessary to maintain adequate core cooling

B. One Train of ECCS Pumps will start, and will maintain adequate core cooling

C. Two Trains of ECCS Pumps will start, and both trains are required to maintain adequate core cooling

D. One Train of ECCS Pumps will start, but both trains are required for adequate core cooling

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Question Number:	RO XX
Question:	A Large Break LOCA has occurred. "A" Emergency Diesel Generator is out of service. Assuming all components operate as designed, which one of the following describes the operation of the Engineered Safety Features to meet its minimum design function? A. Two Trains of ECCS Pumps will start, while only one train is necessary to maintain adequate core cooling B. One Train of ECCS Pumps will start, and will maintain adequate core cooling C. Two Trains of ECCS Pumps will start, and both trains are required to maintain adequate core cooling D. One Train of ECCS Pumps will start, but both trains are required for adequate core cooling
Answer:	A. Two Trains of ESF equipment will start, while only one train of equipment is necessary to maintain adequate core cooling
Justification:	A- Correct. B- Incorrect. Two trains will start. Even though A DG is OOS, there is no loss of off-site power, so all equipment will start as necessary. C- Incorrect. Only one train is required to meet ECCS acceptance criteria. D- Incorrect. Only one train is required to meet ECCS acceptance criteria. Both trains will start
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	013K5.02 Knowledge of the operational implications of Safety System Logic and Reliability
K/A Values:	2.9
Cog Level:	Comprehension
References:	ESF SD006, section 2 ESF LP Objective 10

Given the following conditions:

- Mode 1 at 14% RTP
- POWER ABOVE P-10 Permissive Status light is ILLUMINATED
- The RO presses the IR LOGIC DEFEAT TRAIN A pushbutton
- The RO does not press the IR LOGIC DEFEAT TRAIN B pushbutton

Which one of the following describes the effect on the operation of the plant?

A. INTERM RANGE TRIP BLOCKED Permissive Status light is ILLUMINATED.
Outward Rod Motion will NOT be blocked above 20% equivalent power on N-36

B. INTERM RANGE TRIP BLOCKED Permissive Status light is EXTINGUISHED.
Outward Rod Motion will NOT be blocked above 20% equivalent power on N-36

C. INTERM RANGE TRIP BLOCKED Permissive Status light is ILLUMINATED.
Outward Rod Motion will be blocked above 20% equivalent power on N-36

D. INTERM RANGE TRIP BLOCKED Permissive Status light is EXTINGUISHED.
Outward Rod Motion will be blocked above 20% equivalent power on N-36

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 14% RTP • POWER ABOVE P-10 Permissive Status light is ILLUMINATED • The RO presses the IR LOGIC DEFEAT TRAIN A pushbutton • The RO does not press the IR LOGIC DEFEAT TRAIN B pushbutton Which one of the following describes the effect on the operation of the plant? A. INTERM RANGE TRIP BLOCKED Permissive Status light is ILLUMINATED. Outward Rod Motion will NOT be blocked above 20% equivalent power on N-36 B. INTERM RANGE TRIP BLOCKED Permissive Status light is EXTINGUISHED. Outward Rod Motion will NOT be blocked above 20% equivalent power on N-36 C. INTERM RANGE TRIP BLOCKED Permissive Status light is ILLUMINATED. Outward Rod Motion will be blocked above 20% equivalent power on N-36 D. INTERM RANGE TRIP BLOCKED Permissive Status light is EXTINGUISHED. Outward Rod Motion will be blocked above 20% equivalent power on N-36
Answer:	D. INTERM RANGE TRIP BLOCKED Permissive Status light is EXTINGUISHED. Outward Rod Motion will be blocked above 20% equivalent power on N-36
Justification:	A- Incorrect. Opposite effect of illuminated light. Both pushbuttons must be depressed to defeat the rod stop. The permissive light will only be illuminated when the trip is actually blocked. B- Incorrect. Motion will be blocked C- Incorrect. Light will not be illuminated D- Correct
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank (NI-09-021)
K/A #:	015A4.03 Ability to operate and/or monitor in the control room: Trip Bypasses
K/A Values:	3.8
Cog Level:	Comprehension
References:	NIS SD010 Figure 29 NIS LP Objective

Given the following conditions:

A Large Break LOCA has occurred.

- Train 'A' Engineered Safeguards did not automatically actuate
- Train 'B' Engineered Safeguards components automatically actuated with the exception of 'B' CV Spray Pump
- Containment Spray Pump 'A' is OOS for maintenance
- Containment Spray Pump 'B' failed upon automatic initiation and cannot be restarted.

Which one of the following describes the minimum action required to ensure containment pressure remains below its design limit?

A. Verify either Containment Air Recirc fan HVH-3 OR HVH-4 is running with its associated cooling water outlet low flow alarm clear

B. Verify Both Containment Air Recirc fans HVH-3 and HVH-4 are running with both associated cooling water outlet low flow alarms clear

C. Start either Containment Air Recirc fan HVH-1 or HVH-2. Ensure that the cooling water low flow alarm for all running Containment Air Recirc fans are clear

D. Start both Containment Air Recirc fans HVH-1 and HVH-2. Ensure that the cooling water low flow alarm for all running Containment Air Recirc fans are clear

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Question Number:	RO XX
Question:	Given the following conditions: A Large Break LOCA has occurred. • Train 'A' Engineered Safeguards did not automatically actuate • Train 'B' Engineered Safeguards components automatically actuated with the exception of 'B' CV Spray Pump • Containment Spray Pump 'A' is OOS for maintenance • Containment Spray Pump 'B' failed upon automatic initiation and cannot be restarted. Which one of the following describes the minimum action required to ensure containment pressure remains below its design limit? A. Verify either Containment Air Recirc fan HVH-3 OR HVH-4 is running with its associated cooling water outlet low flow alarm clear B. Verify Both Containment Air Recirc fans HVH-3 and HVH-4 are running with both associated cooling water outlet low flow alarms clear C. Start either Containment Air Recirc fan HVH-1 or HVH-2. Ensure that the cooling water low flow alarm for all running Containment Air Recirc fans are clear D. Start both Containment Air Recirc fans HVH-1 and HVH-2. Ensure that the cooling water low flow alarm for all running Containment Air Recirc fans are clear
Answer:	D. Start both Containment Air Recirc fans HVH-1 and HVH-2. Ensure that all cooling water low flow alarms are clear
Justification:	A- Incorrect. 4 CAR fans are required to maintain design basis. B- Incorrect. 4 CAR fans are required to maintain design basis. C- Incorrect. 4 CAR fans are required to maintain design basis. D- Correct. If no Containment Spray Pumps are in service, then all 4 CAR fans are required to maintain design basis. CAR fan is only operable if adequate cooling flow is provided (750 GPM) The low flow alarm is set at 800 GPM. For different combinations of available spray equipment, different numbers of fans are required. The distractors test different combinations and possible misconceptions of cooling water flow and fan requirements
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	022A1.04 Ability to predict or monitor changes in parameters to prevent exceeding design limits associated with operating the CCS controls including Cooling Water Flow
K/A Values:	3.2
Cog Level:	Comprehension
References:	CV HVAC SD037, page 22 of 36 CV HVAC LP Objective 5 CV HVAC SD037, page 25 of 36 ESFAS SD006, page 20 of 39

Given the following conditions:

The plant is operating at 100% power.

Due to a loss of Containment HVAC, containment temperature has risen from 97°F to 119°F. Actions are in progress to restore containment HVAC.

If the temperature continues to rise in containment, which one of the following describes the effect on pressurizer level indication?

A. The controlling pressurizer level channel will indicate slightly lower than actual level, and remain higher than the cold-calibrated pressurizer level instrument

B. The controlling pressurizer level channel will indicate slightly higher than actual level, and remain higher than the cold-calibrated pressurizer level instrument

C. The controlling pressurizer level channel will indicate slightly lower than actual level, and remain lower than the cold-calibrated pressurizer level instrument

D. The controlling pressurizer level channel will indicate slightly higher than actual level, and remain lower than the cold-calibrated pressurizer level instrument

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power. Due to a loss of Containment HVAC, containment temperature has risen from 97°F to 119°F. Actions are in progress to restore containment HVAC. If the temperature continues to rise in containment, which one of the following describes the effect on pressurizer level indication? A. The controlling pressurizer level channel will indicate slightly lower than actual level, and remain higher than the cold-calibrated pressurizer level instrument B. The controlling pressurizer level channel will indicate slightly higher than actual level, and remain higher than the cold-calibrated pressurizer level instrument C. The controlling pressurizer level channel will indicate slightly lower than actual level, and remain lower than the cold-calibrated pressurizer level instrument D. The controlling pressurizer level channel will indicate slightly higher than actual level, and remain lower than the cold-calibrated pressurizer level instrument
Answer:	B. The controlling pressurizer level channel will indicate slightly higher than actual level, and remain higher than the cold-calibrated pressurizer level instrument
Justification:	A- Incorrect. Channel will indicate higher B- Correct. The cold calibrated pressurizer level instrument is calibrated for temperatures far lower than normal operating temperatures and will indicate lower. When the containment atmospheric temperature rises, the pressurizer reference leg will heat up, causing density to decrease, and exerting less pressure on the reference leg side of the transmitter. This will result in an increase in indicated level. C- Incorrect. Higher than actual, and above Cold-Cal D- Incorrect. Higher than cold-cal
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New (Conditions modified and distractors slightly changed from 1998 Seabrook NRC examination)
K/A #:	022K3.02 Knowledge of the effect that a loss or malfunction of Containment Cooling will have on containment instrumentation readings
K/A Values:	3.0
Cog Level:	Comprehension
References:	Pzr LP Objective 14 Did not locate any plant information on reference leg heating

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Given the following conditions:

- Mode 1 at 45% RTP
- 'B' Condensate Pump and 'B' Main Feedwater Pump are operating
- Breaker 52/20, UNIT AUX TO 4KV BUS 4 BKR, trips on fault
- Plant equipment operates as designed

Which one of the following describes the impact on the plant and the action required to restore secondary inventory?

A. Feedwater is lost due to Feedwater isolation and Feedwater pump trip on low Tave with Reactor Trip. AFW will be manually restored in FRP-H.1, Loss of Secondary Heat Sink

B. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of bus 4. Verify 'A' Condensate pump and 'A' MFW pumps automatically start on low discharge pressure IAW AOP-010, Condensate/Feedwater Malfunctions

C. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of Bus 4. AFW flow will be verified in PATH-1 or EPP-4, Reactor Trip Response

D. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of Bus 4. 'A' Condensate pump will automatically start but A' MFW pump must be manually restarted in PATH-1 or EPP-4, Reactor Trip Response

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Question Number:	RO XX
Question:	Given the following conditions: • Mode 1 at 45% RTP • 'B' Condensate Pump and 'B' Main Feedwater Pump are operating • Breaker 52/20, UNIT AUX TO 4KV BUS 4 BKR, trips on fault • Plant equipment operates as designed Which one of the following describes the impact on the plant and the action required to restore secondary inventory? A. Feedwater is lost due to Feedwater isolation and Feedwater pump trip on low Tave with Reactor Trip. AFW will be manually restored in FRP-H.1, Loss of Secondary Heat Sink B. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of bus 4. Verify 'A' Condensate pump and 'A' MFW pumps automatically start on low discharge pressure IAW AOP-010, Condensate/Feedwater Malfunctions C. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of Bus 4. AFW flow will be verified in PATH-1 or EPP-4, Reactor Trip Response D. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of Bus 4. 'A' Condensate pump will automatically start but A' MFW pump must be manually restarted in PATH-1 or EPP-4, Reactor Trip Response
Answer:	C. 'B' Condensate pump and 'B' MFW pump will be lost due to loss of Bus 4. AFW flow will be verified in PATH-1
Justification:	A- Incorrect. The feedwater isolation signal does not trip MFW pumps. AFW pumps will start on low SG level and be verified in PATH-1 B- Incorrect. Loss of 4KV bus 4 will cause loss of both pumps. Both pumps have standby features but neither will start. The low discharge pressure auto start of a condensate pump requires the other condensate pump breaker to be closed. The MFP auto start requires a running condensate pump. C- Correct. D- Incorrect. The low discharge pressure auto start of a condensate pump requires the other condensate pump breaker to be closed.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Modified from bank question FW-06-007
K/A #:	056A2.04 Ability to predict the impacts of a loss of condensate pumps on the system, and use procedures to mitigate the consequences of the malfunction
K/A Values:	2.6

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Cog Level:	Comprehension
References:	FW LP, Objective 14 and Objective 6 PATH-1 and EPP-4 FW SD027 pages 17 and 18 of 33

Given the following conditions:

The reactor tripped from 100% power.

- A Loss of Heat Sink has occurred
- Safety Injection is actuated
- The crew is performing actions contained in FRP-H.1, Loss of Secondary Heat Sink
- AFW flow cannot be restored
- 'A' Condensate pump has been started

Which one of the following describes the MINIMUM action required to start a Main Feedwater pump?

A. Place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position

B. Reset Safety Injection and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position

C. Close Reactor Trip Breakers and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position

D. Close Reactor Trip Breakers, Reset Safety Injection, and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position

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Question Number:	RO XX
Question:	Given the following conditions: The reactor tripped from 100% power. • A Loss of Heat Sink has occurred • Safety Injection is actuated • The crew is performing actions contained in FRP-H.1, Loss of Secondary Heat Sink • AFW flow cannot be restored • 'A' Condensate pump has been started Which one of the following describes the MINIMUM action required to start a Main Feedwater pump? A. Place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position B. Reset Safety Injection and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position C. Close Reactor Trip Breakers and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position D. Close Reactor Trip Breakers, Reset Safety Injection, and place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position
Answer:	A. Place all FEEDWATER ISOLATION Key Switches in the OVRD/RESET position
Justification:	A- Correct. B- Incorrect. SI signal does not have to be reset C- Incorrect. If the key switches were not placed in override, the trip breakers would have to be reclosed to clear the feedwater isolation signal. D- Incorrect. SI does not have to be reset, trip breakers do not have to be reclosed. Placing the key switches in override/reset will bypass all FW isolation signals.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	059A4.11 Ability to manually operate or monitor in the control room: Recovery from automatic feedwater isolation
K/A Values:	3.1
Cog Level:	Comprehension
References:	FW SD027, Page 19 of 33 FW LP, Objective 8 FRP-H.1, step 16 and note

The plant is in Mode 1, 100% RTP.

Which one of the following Feedwater System conditions requires action in accordance with Technical Specifications?

A. FW-24, FW TO SG 'A' DRAIN, is found locked closed

B. FW-201, SG WLU ISOL TO AND FROM SG 'A' is found locked closed

C. FCV-479, SG 'A' FWRV BYPASS, is stuck 20% open and cannot be moved

D. FCV-478, SG 'A' FWRV is being controlled in MANUAL from the RTGB due to loss of an automatic SG level control input

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Question Number:	RO XX
Question:	The plant is in Mode 1, 100% RTP. Which one of the following Feedwater System conditions requires ~~action~~ ENTRY to in ~~accordance with~~ Technical Specifications? A. FW-24, FW TO SG 'A' DRAIN, is found locked closed B. FW-201, SG WLU ISOL TO AND FROM SG 'A' is found locked closed C. FCV-479, SG 'A' FWRV BYPASS, is stuck 20% open and cannot be moved D. FCV-478, SG 'A' FWRV is being controlled in MANUAL from the RTGB due to loss of an automatic SG level control input
Answer:	C. FCV-479, SG 'A' FWRV BYPASS, is stuck 20% open and cannot be moved
Justification:	A- Incorrect. Represents required Mode 1 valve position B- Incorrect. Represents required Mode 1 valve position C- Correct. If the FWRV bypass cannot be closed, it is inoperable and entry to TS 3.6.3 and 3.7.3 must be made. D- Incorrect. If the FWRV is in Manual, it is not inoperable if it can be controlled and meet its closure time on a FWI signal
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	059 Generic 2.1.33 Ability to recognize system operating parameters which are entry conditions for Technical Specifications
K/A Values:	3.4
Cog Level:	Memory
References:	FW LP, Objective 12 FW SD027, page 21and 22 Tech Specs3.6.3, Containment Isolation valves, and 3.7.3, Main Feed Valves

Given the following conditions:

The plant is operating at 100% RTP.

The following radiation monitors go into alarm:

- R-15, Condenser Air Ejector Gas Monitor
- R-19A, SG Sample Radiation Monitor
- R-37, Condensate Polisher Waste Effluent Monitor

All other Radiation Monitors are normal.

Which one of the following describes the plant response to these indications?

A. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE.
RCV-10549, Condensate Polisher Discharge to catch basin CLOSES.

B. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE.
V1-31, Blowdown Isolation Valve to catch basin, CLOSES.

C. V1-31, Blowdown Isolation Valve to catch basin, CLOSES.
RCV-10549, Condensate Polisher Discharge to catch basin CLOSES.

D. V1-31, Blowdown Isolation Valve to catch basin, CLOSES.
FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE.
RCV-10549, Condensate Polisher Discharge to catch basin CLOSES.

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% RTP. The following radiation monitors go into alarm: • R-15, Condenser Air Ejector Gas Monitor • R-19A, SG Sample Radiation Monitor • R-37, Condensate Polisher Waste Effluent Monitor All other Radiation Monitors are normal. Which one of the following describes the plant response to these indications? A. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE. RCV-10549, Condensate Polisher Discharge to catch basin CLOSES. B. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE. V1-31, Blowdown Isolation Valve to catch basin, CLOSES. C. V1-31, Blowdown Isolation Valve to catch basin, CLOSES. RCV-10549, Condensate Polisher Discharge to catch basin CLOSES. D. V1-31, Blowdown Isolation Valve to catch basin, CLOSES. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE. RCV-10549, Condensate Polisher Discharge to catch basin CLOSES.
Answer:	A. FCV-1933A and B, SG A Blowdown Sample Isolation Valves CLOSE. RCV-10549, Condensate Polisher Discharge to catch basin CLOSES.
Justification:	A- Correct. B- Incorrect. V1-31 will only close if R19A,B,C are in alarm. RCV 10549 not included C- Incorrect. V1-31 will only close if R19A,B,C are in alarm. FCV 1933A/B not included D- Incorrect. V1-31 will only close if R19A,B,C are in alarm
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	068K4.01 Knowledge of design features or interlocks which provide for handling of hot, acidic, or radioactive liquids
K/A Values:	3.4
Cog Level:	Memory
References:	RM LP Objective 9

	RM SD019, Attachment 10.2

A Gaseous Waste Discharge is being planned.

The calculated setpoint for Waste Gas Decay Tank Release Isolation valve, RCV-014, is 35%. RCV-014 is inadvertently set to 55%.

Which one of the following describes the potential effect on the plant?

A. PCV-1040, Pressure Reducing Release discharge, will close due to a low pressure on the WGDT

B. RCV-014 will close due to a low DP from the WGDT to the Plant Stack

C. RCV-014 will close due to a high radiation on the Plant Stack, Noble Gas Monitor, R-14C

D. Cover Gas Pressure Control Valve PCV-1027, Cover Gas Header Pressure control valve, will close to prevent overpressure on the WGDT

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Question Number:	RO XX
Question:	A Gaseous Waste Discharge is being planned. The calculated setpoint for Waste Gas Decay Tank Release Isolation valve, RCV-014, is 35%. RCV-014 is inadvertently set to 55%. Which one of the following describes the potential effect on the plant? A. PCV-1040, Pressure Reducing Release discharge, will close due to a low pressure on the WGDT B. RCV-014 will close due to a low DP from the WGDT to the Plant Stack C. RCV-014 will close due to a high radiation on the Plant Stack, Noble Gas Monitor, R-14C D. Cover Gas Pressure Control Valve PCV-1027, Cover Gas Header Pressure control valve, will close to prevent overpressure on the WGDT
Answer:	C. RCV-014 will close due to a high radiation on the Plant Stack, Noble Gas Monitor, R-14C
Justification:	A- Incorrect. PCV-1040 provides a constant DP across RCV-014 to provide a constant release rate regardless of DP between WGDT and plant stack B- Incorrect. RCV-014 is set based upon the activity in the tank and required flowrate to prevent exceeding limits. This is partially based upon available dilution flow from the plant ventilation system. If the valve is set too high, then a high radiation condition may exist, resulting in trip of the release valve. C- Correct. See above D- Incorrect. PCV-1027 closes to prevent overpressure on the WGDT when vent header pressure is too high.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	071A1.06 Ability to predict or monitor changes in parameters associated with operating the Waste Gas system controls including ventilation systems
K/A Values:	2.5
Cog Level:	Comprehension
References:	WD SD023, page 51 of 62 WD LP Objective 9

Plant Cooldown to 140°F is in progress.

Which one of the following actions during the cooldown is provided to minimize the probability of a brittle fracture event?

A. Removing Safety Injection pumps from service

B. Maintaining Letdown flow at maximum during the RCS cooldown

C. Maintaining RCPs running for as long as possible during the cooldown

D. Maintaining Safety Injection Accumulators in service until RCS pressure is 600 psig

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Question Number:	RO XX
Question:	Plant Cooldown to 140° is in progress. Which one of the following actions during the cooldown is provided to minimize the probability of a brittle fracture event? A. Removing Safety Injection pumps from service B. Maintaining Letdown flow at maximum during the RCS cooldown C. Maintaining RCPs running for as long as possible during the cooldown D. Maintaining Safety Injection Accumulators in service until RCS pressure is 600 psig
Answer:	A. Removing SI pumps from service during the cooldown
Justification:	A- Correct. Removing SI pumps removes mass input possibility. B- Incorrect. Letdown can be at any value, but is plausible because one of the potential initiating events of an LTOP is charging/letdown mismatch. C- Incorrect. RCPs ensure even cooldown throughout RCS but RCP cold restart is the LTOP concern. D- Incorrect. Accumulators are secured at 1000 psig
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	006K504 Knowledge of operational implications of brittle fracture, including causes and preventive actions
K/A Values:	2.9
Cog Level:	Memory
References:	TS 3.5.2 basis ECCS pumps TS 3.4.12 basis LTOP SI LP Objective 12

Given the following conditions:

- Reactor power is at 68%.
- The EH Turbine Control is in the IMP OUT position

One Turbine control valve drifts OPEN approximately 10% from its initial position.

Assuming no action by the crew, which one of the following describes the initial effect of the valve failure?

	Steam Pressure	RCS Tave	Reactor Power
A.	Increase	Increase	Decrease
B.	Increase	Decrease	Increase
C.	Decrease	Increase	Decrease
D.	Decrease	Decrease	Increase

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Question Number:	RO XX
Question:	Given the following conditions: • Reactor power is at 68%. • The EH Turbine Control is in the IMP OUT position One Turbine control valve drifts OPEN approximately 10% from its initial position. Assuming no action by the crew, which one of the following describes the initial effect of the valve failure? A. Steam Pressure: Increase; RCS Tave: Increase; Reactor Power: Decrease B. Steam Pressure: Increase; RCS Tave: Decrease; Reactor Power: Increase C. Steam Pressure: Decrease; RCS Tave: Increase; Reactor Power: Decrease D. Steam Pressure: Decrease; RCS Tave: Decrease; Reactor Power: Increase
Answer:	D. Decrease Decrease Increase
Justification:	A- Incorrect. All parameters reversed B- Incorrect. Steam pressure reversed C- Incorrect. Tave/Reactor power reversed D- Correct. If a control valve fails open, steam pressure will decrease, due to the increased steam flow and no action to raise RCS temperature. (Control Rod Withdrawal) If steam pressure decreases, Tcold will also decrease, resulting in a lower Tave. Reactor power will increase because of increased steam flow Increased power may also be seen on the higher RCS Delta T
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	035K501 Knowledge of the operational implications of the following concepts as they apply to the SG system: Effects of secondary parameters, pressure, and temperature, on reactivity
K/A Values:	3.4
Cog Level:	Comprehension
References:	Did not determine a facility reference. This is a GFES type question

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Given the following conditions:

- Plant is operating at 50% RTP
- 'A' Train of Feedwater is in service
- 'B' Condensate pump has just been started IAW GP-005, Power Operation
- 'A' Main Feedwater Pump trips on overload

Which one of the following describes the initial response of the Feedwater System with no operator action?

A. All SG Feedwater regulating valves throttle closed. 'B' Main Feedwater pump must be manually started

B. All SG Feedwater regulating valves throttle closed. 'B' Main Feedwater pump will automatically start

C. All SG Feedwater regulating valves throttle open. 'B' Main Feedwater pump must be manually started

D. All SG Feedwater regulating valves throttle open. 'B' Main Feedwater pump will automatically start

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Question Number:	RO XX
Question:	Given the following conditions: • Plant is operating at 50% RTP • 'A' Train of Feedwater is in service • 'B' Condensate pump has just been started IAW GP-005, Power Operation • 'A' Main Feedwater Pump trips on overload Which one of the following describes the initial response of the Feedwater System with no operator action? A. All SG Feedwater regulating valves throttle closed. 'B' Main Feedwater pump must be manually started B. All SG Feedwater regulating valves throttle closed. 'B' Main Feedwater pump will automatically start C. All SG Feedwater regulating valves throttle open. 'B' Main Feedwater pump must be manually started D. All SG Feedwater regulating valves throttle open. 'B' Main Feedwater pump will automatically start
Answer:	D. All SG Feedwater regulating valves throttle open. ~~The running Main Feedwater pump continues to run~~ 'B' MFW Pump will NOT start
Justification:	A- Incorrect. FRVs will open in response to the reduced SG level or reduced feedwater flow causing steam/feed mismatch. FRVs throttle open to maintain SG level constant B- Incorrect. FRVs will open in response to the reduced SG level or reduced feedwater flow causing steam/feed mismatch. FRVs throttle open to maintain SG level constant C- Incorrect. 'B' MFWP will start if 'B' Condensate pump is running D- Correct.
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	035A3.01 Ability to monitor automatic operation of SG level control
K/A Values:	4.0
Cog Level:	Comprehension
References:	FW SD027 page 15/16 of 33 SG LP Objective 14

Given the following plant conditions:

- A plant cooldown is in progress.
- RCS temperature is 357°F.
- RCS Pressure is 370 psig
- Both PORV OVERPRESSURE PROTECTION Permissive switches have been placed in LOW-PRESSURE position.

Following the switch alignment, the following alarm is received in the control room:

- APP-003-A3, PCV-456 LP PROT ACT/TROUB

Which one of the following is the likely cause of this alarm?

A. RC-535, PORV BLOCK, is closed

B. A temperature input to the actuation circuitry has failed high

C. A pressure input to the actuation circuitry has failed low

D. RCS Pressure is too high to place LTOPP in service. PORV operation has occurred

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Question Number:	RO XX
Question:	Given the following plant conditions: • A plant cooldown is in progress. • RCS temperature is 357°F. • RCS Pressure is 370 psig • Both PORV OVERPRESSURE PROTECTION Permissive switches have been placed in LOW-PRESSURE position. Following the switch alignment, the following alarm is received in the control room: • APP-003-A3, PCV-456 LP PROT ACT/TROUB Which one of the following is the likely cause of this alarm? A. RC-535, PORV BLOCK, is closed B. A temperature input to the actuation circuitry has failed high C. A pressure input to the actuation circuitry has failed low D. RCS Pressure is too high to place LTOPP in service. PORV operation has occurred
Answer:	A. RC-535, PORV BLOCK, is closed
Justification:	A- Correct. When LTOPP is in service, alarm will come in either when the block valve is closed or when actuation occurs. B- Incorrect. If a temperature instrument fails high, the auctioneered low input is still providing alarm control. C- Incorrect. If a pressure input fails low, LTOPP may not actuate as required but there would be no input to the alarm D- Incorrect. Pressure must be at or above 400 psig for actuation to occur. The alarm will also come in if auctioneered low temp is below 360 deg F. Current pressure is only 370 psig
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	010A4.03 Ability to manually operate or monitor in the control room: PORV and Block Valves
K/A Values:	4.0

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Cog Level:	Comprehension
References:	Pzr SD059, pages 16 and 17, 19 and 20 of 27, and figure 13 Pzr LP Objective 8

Given the following conditions:

The plant is operating in Mode 1, 100% RTP.

In preparation for refueling, fuel moves are taking place in the Spent Fuel Pit.

R-1, Control Room Area Radiation Monitor, fails its channel check. Repairs are estimated to take 8 hours.

Using the reference provided, which one of the following actions, if any, must be taken?

A. No action required for 7 days

B. Immediately suspend fuel movement in the Spent Fuel Pit

C. Immediately place one CREFS Train in Emergency Pressurization Mode

D. Initiate action to place the plant in Mode 3 within 6 hours and Mode 5 within 36 hours

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating in Mode 1, 100% RTP. In preparation for refueling, fuel moves are taking place in the Spent Fuel Pit. R-1, Control Room Area Radiation Monitor, fails its channel check. Repairs are estimated to take 8 hours. Using the reference provided, which one of the following actions, if any, must be taken? A. No action required for 7 days B. Immediately suspend fuel movement in the Spent Fuel Pit C. Immediately place one CREFS Train in Emergency Pressurization Mode D. Initiate action to place the plant in Mode 3 within 6 hours and Mode 5 within 36 hours
Answer:	C. Immediately place one CREFS Train in Emergency Pressurization Mode
Justification:	A- Incorrect. Wrong action B- Incorrect. Wrong action C- CorrectTech Specs require CREFS initiation with Rad monitor inop, or stop fuel moves. D- Incorrect. Wrong action The distractors are all part of the TS action required for different failures in the same TS
Tier/Group	2/3
10CFR55.41 10CFR55.43	41/43 (REFERENCE ATTACHED. REQUIRED FOR ROs)
B/N/M	New
K/A #:	034K6.02 Knowledge of how a loss or malfunction of radiation monitor affects fuel handling
K/A Values:	2.6
Cog Level:	Application
References:	TS 3.3.7 and action FH LP, Objective 13

Given the following conditions:

- The plant is in Mode 6 with fuel movement in progress. (Core offload to SFP)
- The Manipulator Crane is over the core with a fuel assembly
- The Refueling Cavity level is 20 inches below the operating deck
- A report is received from the CV that the Refueling Cavity water level is decreasing
- The crew has entered AOP-020, Section B, Loss of RHR-Vessel Head Off

Which one of the following describes the proper location for the fuel assembly in transit?

A. Its original core location

B. Its designated SFP location

C. Any available core location ← NOT UNTRUE JUST NOT COMPLETE

D. North Refueling Cavity area away from the core

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Question Number:	RO XX
Question:	Given the following conditions: • The plant is in Mode 6 with fuel movement in progress. (Core offload to SFP) • The Manipulator Crane is over the core with a fuel assembly • The Refueling Cavity level is 20 inches below the operating deck • A report is received from the CV that the Refueling Cavity water level is decreasing • The crew has entered AOP-020, Section B, Loss of RHR-Vessel Head Off Which one of the following describes the proper location for the fuel assembly in transit? A. Its original core location B. Its designated SFP location C. Any available core location D. North Refueling Cavity area away from the core
Answer:	A. Its original core location
Justification:	A- Correct B- Incorrect. The assembly could be placed in the upender but SFP is not an option C- Incorrect. The assembly may not have the correct geometry to place in any location D- Incorrect. Decreasing level, assembly should not stay in refueling cavity
Tier/Group	1/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	036AK2.01 Knowledge of the interrelations between a fuel handling accident and fuel handling equipment
K/A Values:	2.9
Cog Level:	~~Comprehension~~ Memory
References:	AOP-020, Section B, step 5 AOP-020 LP, Objective 8

Given the following conditions:

A reactor trip has occurred.

The crew has entered FRP-H.2, Response to Steam Generator Overpressure, based upon a YELLOW condition on the Heat Sink Status Tree.

- 'A' SG pressure indicates 1150 psig
- 'B' and 'C' SG pressures indicate 1010 psig
- 'A' SG level is 65%
- APP-002-F7, INST AIR HDR LO PRESS, is lit
- Instrument Air Header Pressure is 30 psig

Which one of the following actions will be required to mitigate the SG Overpressure condition?

A. Initiate AFW flow

B. Locally operate 'A' SG PORV to dump steam

C. Go to FRP-H.3, Response to SG High Level, to reduce pressure by reducing SG level

D. Align Nitrogen to SG PORVs using AOP-017, Loss of Instrument Air, and attempt to dump steam

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Question Number:	RO XX
Question:	Given the following conditions: A reactor trip has occurred. The crew has entered FRP-H.2, Response to Steam Generator Overpressure, based upon a YELLOW condition on the Heat Sink Status Tree. • 'A' SG pressure indicates 1150 psig • 'B' and 'C' SG pressures indicate 1010 psig • 'A' SG level is 65% • APP-002-F7, INST AIR HDR LO PRESS, is lit • Instrument Air Header Pressure is 30 psig Which one of the following actions will be required to mitigate the SG Overpressure condition? A. Initiate AFW flow B. Locally operate 'A' SG PORV to dump steam C. Go to FRP-H.3, Response to SG High Level, to reduce pressure by reducing SG level D. Align Nitrogen to SG PORVs using AOP-017, Loss of Instrument Air, and attempt to dump steam
Answer:	D. Align Nitrogen to SG PORVs using AOP-017, Loss of Instrument Air, and attempt to dump steam
Justification:	A- Incorrect. Do not initiate FW or AFW flow with a high level present. B- Incorrect. There is no guidance for local operation of PORVs in this procedure C- Incorrect. Only go to FR-H.3 if level is greater than 84% D- Correct. If Loss of Instrument Air is present, step 4 has the crew align Nitrogen..
Tier/Group	1/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E13EK1.3 Knowledge of operational implications of annunciators and condition indicating signals and remedial actions associated with SG Overpressure
K/A Values:	3.0
Cog Level:	Comprehension

References:	FRP-H.2, Step 4 FRP-H.2 LP, Objective 8

In procedure EPP-15, Loss of Emergency Coolant Recirculation, with an RCP running, normal spray flow is used to depressurize the RCS until Pressurizer level is >71% or RCS subcooling is between 35°F and 45°F.

Which one of the following is the basis for the depressurization of the RCS?

A. Decrease RCS leakage

B. Increase SI Injection flow

C. Ensure SI Accumulator injection

D. Allows RHR to be placed in service

WORK

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Question Number:	RO XX
Question:	In procedure EPP-15, Loss of Emergency Coolant Recirculation, with an RCP running, normal spray flow is used to depressurize the RCS until Pressurizer level is >71% or RCS subcooling is between 35°F and 45°F. Which one of the following is the basis for the depressurization of the RCS? A. Decrease RCS leakage B. Increase SI Injection flow C. Ensure SI Accumulator injection D. Allows RHR to be placed in service
Answer:	A. Decrease RCS leakage
Justification:	A- Correct.The depressurization is performed to decrease leakage, therefore decreasing makeup requirements. B- Incorrect. SI injection flow may not increase because there may be no water source. C- Incorrect. Setup for accumulator injection is performed later in the procedure after SG depressurization. D- Incorrect. RHR will not be placed in service until after the cooldown and depressurization are performed, later in the procedure
Tier/Group	1/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank (One distractor modified) EPP-015-03-001
K/A #:	E11EK3.2 Knowledge of the reasons for the following responses as they apply to the Loss of Emergency Coolant Recirculation: Normal, abnormal, and emergency procedures associated with Loss of Emergency Coolant Recirculation
K/A Values:	3.5
Cog Level:	Memory
References:	EPP-015 step 39 basis EPP 015 LP objective 3

Which one of the following describes two objectives of procedure EPP-015, Loss of Emergency Coolant Recirculation?

A. Maximize injection flow and initiate makeup to the RWST

B. Delay depletion of the RWST and stabilize RCS temperature

C. Restore Emergency Coolant recirculation capability and stabilize RCS temperature

D. Delay depletion of the RWST and restore Emergency Coolant recirculation capability

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Question Number:	RO XX
Question:	Which one of the following describes two objectives of procedure EPP-015, Loss of Emergency Coolant Recirculation? A. Maximize injection flow and initiate makeup to the RWST B. Delay depletion of the RWST and stabilize RCS temperature C. Restore Emergency Coolant recirculation capability and stabilize RCS temperature D. Delay depletion of the RWST and restore Emergency Coolant recirculation capability
Answer:	D. Delay depletion of the RWST and restore Emergency Coolant recirculation capability
Justification:	A- Incorrect. SI is reduced to the minimum required for heat removal. B- Incorrect. Stabilizing RCS temperature is not an action or priority C- Incorrect. Stabilizing RCS temperature is not an action or priority D- Correct. The procedure has 3 objectives: Minimizes depletion of RWST, depressurize RCS to minimize break flow and cause accumulator injection, and continue attempts to restore recirculation capability
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	Bank (Modified distractors) EPP-015-01-002
K/A #:	E11 Generic 2.4.18 Knowledge of specific bases for EOPs
K/A Values:	2.7
Cog Level:	Memory
References:	EPP-015 Basis EPP-015 LP Objective 1

Given the following conditions:

- RCS pressure is 1000 psig and trending down
- SG 'A' level is 5% and trending down, pressure is 500 psig and trending down slowly
- SG 'B' level is 7% and trending down, pressure is 480 psig and trending down slowly
- SG 'C' level is 3% and trending down, pressure is 490 psig and trending down slowly
- Total AFW flow is 140 GPM
- Containment pressure is 4 psig
- SPDS has been reset. The STA is monitoring Critical Safety Function Status Trees.

Which one of the following procedures will be used? ENTERED UNDER These conditions.

A. EPP-011, Faulted Steam Generator Isolation

B. FRP-H.1 Response to Loss of Secondary Heat Sink

C. FRP-H.5, Response to Steam Generator Low Level

D. EPP-016, Uncontrolled Depressurization of All Steam Generators

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Question Number:	RO XX
Question:	Given the following conditions: • RCS pressure is 1000 psig and trending down • SG 'A' level is 5% and trending down, pressure is 500 psig and trending down slowly • SG 'B' level is 7% and trending down, pressure is 480 psig and trending down slowly • SG 'C' level is 3% and trending down, pressure is 490 psig and trending down slowly • Total AFW flow is 140 GPM • Containment pressure is 4 psig • SPDS has been reset. The STA is monitoring CSF Status Trees Which one of the following procedures will be used? A. EPP-011, Faulted Steam Generator Isolation B. FRP-H.1 Response to Loss of Secondary Heat Sink C. FRP-H.5, Response to Steam Generator Low Level D. EPP-016, Uncontrolled Depressurization of All Steam Generators
Answer:	B. FRP-H.1 Response to Loss of Secondary Heat Sink
Justification:	A- Incorrect. Not RED B- Correct. Entry met for FRP-H.1 C- Incorrect. Not RED D- Incorrect. Not RED
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	Bank (Minor Mod)
K/A #:	E05 Generic 2.4.2 Knowledge of system setpoints, interlocks, and automatic actions associated with EOP entry conditions
K/A Values:	3.9
Cog Level:	Comprehension
References:	FRP-H.1 Entry conditions FRP-H.1 LP, Objective 2

Given the following conditions:

A LOCA has occurred. The crew is performing the actions of PATH-1.

The following conditions exist:

- RCS Pressure is 500 psig
- RCS temperature is 450°F
- SG NR levels are Off-Scale Low
- SG Pressures are 650 psig and trending down
- AFW flow is 450 GPM
- Pressurizer level is Off-Scale Low
- Containment Pressure is 25 psig
- SPDS has been reset. The STA is monitoring CSF Status Trees

Which one of the following procedures will the crew perform next for this event?

A. Continue in PATH-1 for the LOCA

B. FRP-J.1, Response to High Containment Pressure

C. FRP-H.1, Response to Loss of Secondary Heat Sink

D. EPP-016, Uncontrolled Depressurization of all Steam Generators

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Question Number:	RO XX
Question:	Given the following conditions: A LOCA has occurred. The crew is performing the actions of PATH-1. The following conditions exist: • RCS Pressure is 500 psig • RCS temperature is 450°F • SG NR levels are Off-Scale Low • SG Pressures are 650 psig and trending down • AFW flow is 450 GPM • Pressurizer level is Off-Scale Low • Containment Pressure is 25 psig • SPDS has been reset. The STA is monitoring CSF Status Trees Which one of the following procedures will the crew perform next for this event? A. Continue in PATH-1 for the LOCA B. FRP-J.1, Response to High Containment Pressure C. FRP-H.1, Response to Loss of Secondary Heat Sink D. EPP-016, Uncontrolled Depressurization of all Steam Generators
Answer:	B. FRP-J.1, Response to High Containment Pressure
Justification:	A- Incorrect. Conditions met for transition. A LOCA is in progress and once the Ctmt pressure problem is addressed, PATH-1 will be addressed. B- Correct. 25 psig is a RED condition requiring entry to FRP-J.1. C- Incorrect. SG levels are low but AFW is available, so entry conditions will not be met D- Incorrect. SGs are depressurizing because RCS pressure is dragging them down.
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	E14EA2.1 Ability to determine or interpret the following as they apply to High Containment Pressure: Facility Conditions and selection of appropriate procedures during abnormal or emergency operations
K/A Values:	3.3
Cog Level:	Comprehension
References:	FRP-J.1 Entry conditions FRP-J.1 LP Objective 2

The Control Room has been evacuated.

Which one of the following describes the location and conditions required for monitoring SG Pressure?

A. In the AFW Pump Room; readings may be obtained immediately

B. At the Secondary Control Panel; readings may be obtained immediately

C. In the AFW Pump Room; only after the DS Diesel is operating

D. At the Secondary Control Panel; only after the DS Diesel is operating

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Question Number:	RO XX
Question:	The Control Room has been evacuated. Which one of the following describes the location and conditions required for monitoring SG Pressure? A. In the AFW Pump Room; readings may be obtained immediately B. At the Secondary Control Panel; readings may be obtained immediately C. In the AFW Pump Room; only after the DS Diesel is operating D. At the Secondary Control Panel; only after the DS Diesel is operating
Answer:	B. At the Secondary Control Panel; readings may be obtained immediately
Justification:	A- Incorrect because the AFW pump room is a likely location, but no SG pressure indication available B- Correct. SG Pressure is read at SCP. DS Diesel required for other indications, but SG pressure is mechanical C- Incorrect because AFW pump room does not have SG Pressure indication and the DS Diesel is not required D- Incorrect because the DS Diesel is not required for SG Pressure indication
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	016K4.01 Knowledge of NNIS design features or interlocks which provide for the following: Reading of NNIS values outside of the control room
K/A Values:	2.8
Cog Level:	Memory
References:	DSP-002 Background document page 13 of 27 DSP-002 LP objective 3

Reactor Protection System Logic Channel 1 (Train 'A') is undergoing trip testing.

Which one of the following describes how a spurious reactor trip is prevented during the breaker testing?

A. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'A'

B. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'B'

C. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'A'

D. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'B'

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Question Number:	RO XX
Question:	Reactor Protection System Logic Channel 1 (Train 'A') is undergoing trip testing. Which one of the following describes how a spurious reactor trip is prevented during the breaker testing? A. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'A' B. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'B' C. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'A' D. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'B'
Answer:	B. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'A'
Justification:	A- Incorrect because the RTBB for Train A gets its trip signal from Train B B- Correct C- Wrong Bypass Breaker. Wrong Train. D- Wrong breaker. Right Train. Function of breaker is correct. Just not answer to question posed
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	012K4.05 Knowledge of design features and/or interlocks which provide for the following: Spurious Trip Protection
K/A Values:	2.7
Cog Level:	Memory
References:	RPS SD011, page 6 of 32 RPS LP Objective 5

A Large Break LOCA has occurred. The crew is attempting to transfer to Cold Leg Recirculation IAW EPP-9, Transfer to Cold Leg Recirculation.

- APP-002-B3, RWST LO-LO LVL is received.
- The RO verifies that RWST level indicates 8%

Which one of the following describes all equipment that ~~must be stopped~~ to prevent loss of suction?

A. RHR pumps only

B. RHR and SI pumps only

C. RHR pumps, SI pumps, and CV Spray pumps only

D. RHR pumps, SI pumps, CV Spray pumps, and Charging pumps

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Question Number:	RO XX
Question:	A Large Break LOCA has occurred. The crew is attempting to transfer to Cold Leg Recirculation IAW EPP-9, Transfer to Cold Leg Recirculation. • APP-002-B3, RWST LO-LO LVL is received. • The RO verifies that RWST level indicates 8% Which one of the following describes all equipment that must be stopped to prevent loss of suction? A. RHR pumps only B. RHR and SI pumps only C. RHR pumps, SI pumps, and CV Spray pumps only D. RHR pumps, SI pumps, CV Spray pumps, and Charging pumps
Answer:	D. RHR pumps, SI pumps, CV Spray pumps, and Charging pumps
Justification:	A- Incorrect because it does not include SI, CV Spray, or Charging B- Incorrect because it does not include CV Spray or Charging C- Incorrect because it does not include Charging D- Correct
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	006K6.01 Knowledge of the effect that a loss or malfunction of borated water sources will have on ECCS
K/A Values:	3.4
Cog Level:	Memory
References:	EPP-015, step 47 EPP-9, steps 5 and 10 APP-002-B3 EPP-9 LP Objective 8

Given the following conditions:

The plant is operating in Mode 1, 100% RTP.

Which one of the following describes the potential effect of placing Instrument Bus 3 on its alternate power supply, MCC-8?

A. A reactor trip would occur because the transfer is a 'break before make'

B. Indication is momentarily lost, AUTO controllers revert to MANUAL because the transfer is a 'break before make'

C. A reactor trip would occur because the transfer is a 'make before break'

D. Indication is not lost, AUTO controllers remain in AUTO because the transfer is a 'make before break'

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating in Mode 1, 100% RTP. Which one of the following describes the potential effect of placing Instrument Bus 3 on its alternate power supply, MCC-8? A. A reactor trip would occur because the transfer is a 'break before make' B. Indication is momentarily lost, AUTO controllers revert to MANUAL because the transfer is a 'break before make' C. A reactor trip would occur because the transfer is a 'make before break' D. Indication is not lost, AUTO controllers remain in AUTO because the transfer is a 'make before break'
Answer:	B. Indication is momentarily lost, AUTO controllers revert to MANUAL because the transfer is a 'break before make'
Justification:	A- Incorrect. No runback anymore. Reactor trip will not occur B- Correct. Indication would be lost because the transfer is a 'break before make. When the controllers lose power, they transfer to MANUAL C- No reactor trip. Not 'make before break' D- Incorrect because indication will be lost when the inverter supply to IB3 is opened. Not 'make before break'
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	062A1.03 Ability to predict and or monitor changes in parameters to prevent exceeding design limits associated with operating the AC distribution controls including: Effect on instrumentation and controls of switching power supplies
K/A Values:	2.5
Cog Level:	Comprehension
References:	480/120 V electrical SD016, page 14 of 32 and figure 3 VAC LP Objective 9

Given the following conditions:

A LOCA has occurred. Due to Safety Injection System failures, the following indications exist:

- RCS pressure indicates 660 psig and stable
- Core Exit T/Cs indicate 720°F and rising
- RVLIS Full Range indication is 41% and lowering
- All RCPs are secured
- SPDS has been reset. The STA is monitoring CSF Status Trees.

Which one of the following describes the condition of the reactor and the action required?

A. Vessel water level is 3.5 feet below the top of the active fuel. Enter FRP-C.2, Response to Degraded Core Cooling

B. Vessel water level is 3.5 feet below the top of the active fuel. Enter FRP-C.1, Response to Inadequate Core Cooling

C. Vessel water level is 3.5 feet above the bottom of the active fuel. Enter FRP-C.2, Response to Degraded Core Cooling

D. Vessel water level is 3.5 feet above the bottom of the active fuel. Enter FRP-C.1, Response to Inadequate Core Cooling

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Question Number:	RO XX
Question:	Given the following conditions: A LOCA has occurred. Due to Safety Injection System failures, the following indications exist: • RCS pressure indicates 660 psig and stable • Core Exit T/Cs indicate 720°F and rising • RVLIS Full Range indication is 41% and lowering • All RCPs are secured • SPDS has been reset. The STA is monitoring CSF Status Trees. Which one of the following describes the condition of the reactor and the action required? A. Vessel water level is 3.5 feet below the top of the active fuel. Enter FRP-C.2, Response to Degraded Core Cooling B. Vessel water level is 3.5 feet below the top of the active fuel. Enter FRP-C.1, Response to Inadequate Core Cooling C. Vessel water level is 3.5 feet above the bottom of the active fuel. Enter FRP-C.2, Response to Degraded Core Cooling D. Vessel water level is 3.5 feet above the bottom of the active fuel. Enter FRP-C.1, Response to Inadequate Core Cooling
Answer:	D. Vessel water level is 3.5 feet above the bottom of the active fuel. Enter FRP-C.1, Response to Inadequate Core Cooling
Justification:	A- Incorrect because level is incorrect and procedure entry is incorrect B- Incorrect because level is incorrect C- Incorrect because procedure entry is incorrect D- Correct because fuel uncovery is occurring and entry conditions are met for FRP-C.1
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	017A2.02 Ability to predict the impacts of Core damage on the ICCM and use procedures to correct, control, or mitigate the consequences of core damage
K/A Values:	3.6
Cog Level:	Memory
References:	CSF-2, Core Cooling CSFST FRP-C.2 LP Objective 2

Given the following conditions:

- A Loss of all AC has occurred.
- The crew is performing action contained in EPP-1, Loss of All AC Power.
- Power has NOT been restored to any AC bus.

Which one of the following describes the combination of valves that are expected to fail OPEN?

A. CVC-204A and B, Letdown Line Isolations, and HCV-121, Charging Flow Control

B. HVC-121, Charging Flow Control, and CVC-303A, RCP Seal Leakoff Isolation

C. LCV-115B, Emergency Makeup to Charging Pump Suction, and FCV-113A, Boric Acid to Blender Isolation

D. FCV-113A, Boric Acid to Blender Isolation, and CVC-307, Primary Seal Bypass Isolation

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Question Number:	RO XX
Question:	Given the following conditions: • A Loss of all AC has occurred. • The crew is performing action contained in EPP-1, Loss of All AC Power. • Power has NOT been restored to any AC bus. Which one of the following describes the combination of valves that are expected to fail OPEN? A. CVC-204A and B, Letdown Line Isolations, and HCV-121, Charging Flow Control B. HVC-121, Charging Flow Control, and CVC-303A, RCP Seal Leakoff Isolation C. LCV-115B, Emergency Makeup to Charging Pump Suction, and FCV-113A, Boric Acid to Blender Isolation D. FCV-113A, Boric Acid to Blender Isolation, and CVC-307, Primary Seal Bypass Isolation
Answer:	B. HVC-121, Charging Flow Control, and CVC-303A, RCP Seal Leakoff Isolation
Justification:	A- Incorrect because CVC-204A/B fail closed B- Correct C- Incorrect because LCV-115B fails closed D- Incorrect because CVC-307 fails closed All are valves potentially affecting reactivity or inventory, and all are plausible due to the nature of their function
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	055EA2.01 Ability to determine or interpret the following as they apply to a Station Blackout: Existing valve position on Loss of Instrument Air
K/A Values:	3.4
Cog Level:	Memory
References:	AOP-017, Attachment 1 Air LP Objective 5

Given the following conditions:

- A SBLOCA has occurred
- The crew is performing actions contained in PATH-1
- RCS Subcooling has been lost
- The RO is unable to start any SI pumps
- All CSFSTs are YELLOW or GREEN

Which one of the following describes the required operation of the RCPs and the reason for the action?

A. All RCPs must be tripped to prevent core uncovery and an Inadequate Core Cooling condition due to the mass being pumped out of the RCS break

B. All RCPs must be tripped because the two phase flow is creating an artificially high vessel level indication and core unccovery will eventually occur if RCPs are left running

C. Operating RCPs must remain in operation because there is no other source of core cooling

D. One RCP must immediately be stopped to save for future use in the Functional Recovery Procedures

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Question Number:	RO XX
Question:	Given the following conditions: • A SBLOCA has occurred • The crew is performing actions contained in PATH-1 • RCS Subcooling has been lost • The RO is unable to start any SI pumps • All CSFSTs are YELLOW or GREEN Which one of the following describes the required operation of the RCPs and the reason for the action? A. All RCPs must be tripped to prevent core uncovery and an Inadequate Core Cooling condition due to the mass being pumped out of the RCS break B. All RCPs must be tripped because the two phase flow is creating an artificially high vessel level indication and core unccovery will eventually occur if RCPs are left running C. Operating RCPs must remain in operation because there is no other source of core cooling D. One RCP must immediately be stopped to save for future use in the Functional Recovery Procedures
Answer:	C. Operating RCPs must remain in operation because there is no other source of core cooling
Justification:	A- Incorrect because SI pumps must be running to trip RCPs. B- Incorrect because SI pumps must be operating to trip RCPs C- Correct D- Incorrect although it is an action in FRP-C.2 to save an RCP for future use
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	009EK3.11 Knowledge of the reasons for the following responses as they apply to SBLOCA: Dangers associated with Inadequate Core Cooling
K/A Values:	4.4
Cog Level:	Memory
References:	PATH-1 PATH-1 LP, Objective 3

Given the following conditions:

- A Steam Generator Tube Leak exists on 'A' SG
- The crew is performing AOP-035, Steam Generator Tube Leak

While preparing to cool down to Cold Shutdown, 'A' SG remains isolated, and 'B' and 'C' Steam Generators are aligned to the Main Condenser.

Which one of the following describes the reason that 'A' SG is cooled down using the 'Backfill' method instead of using the Main Condenser?

A. Backfill requires no liquid radwaste processing

B. Backfill provides a faster method of cooling down a ruptured SG

C. Backfill conserves feedwater compared to cooldown using Main Condenser

D. Backfill minimizes the spread of contamination and minimizes radiological release

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Question Number:	RO XX
Question:	Given the following conditions: • A Steam Generator Tube Leak exists on 'A' SG • The crew is performing AOP-035, Steam Generator Tube Leak While preparing to cool down to Cold Shutdown, 'A' SG remains isolated, and 'B' and 'C' Steam Generators are aligned to the Main Condenser. Which one of the following describes the reason that 'A' SG is cooled down using the 'Backfill' method instead of using the Main Condenser? A. Backfill requires no liquid radwaste processing B. Backfill provides a faster method of cooling down a ruptured SG C. Backfill conserves feedwater compared to cooldown using Main Condenser D. Backfill minimizes the spread of contamination and minimizes radiological release
Answer:	D. Backfill minimizes the spread of contamination and minimizes radiological release
Justification:	A- Incorrect because backfill will require more radwaste processing because secondary system water will be processed also B- Incorrect because steam dump is the fastest method C- Main Condenser is closed cycle which conserves feedwater as compared to Backfill D- Correct. Backfill leaves the ruptured SG isolated, which will minimize the spread of contamination
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	037AA2.15 Ability to determine or interpret magnitude of radioactive release if cooldown must be completed using steam dump or atmospheric reliefs
K/A Values:	3.4
Cog Level:	Memory
References:	AOP-035 Background EPP-12 Background AOP-035 LP Objective 3

Given the following conditions:

- FRP-H.2, Steam Generator Overpressure, is in effect
- STA is monitoring CSFSTs
- The CRSS directs the BOP to check the affected SG water level <84%

Which one of the following describes the reason for this level check?

A. Preparation for resetting the Feedwater Isolation signal

B. The overpressure condition could be caused by the density effects on SG water level indication

C. To determine whether FRP-H.3, Response to SG High Level is the appropriate guideline for the event

D. Ensures adequate SG inventory for pressure reduction by dumping steam through the SG PORV

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Question Number:	RO XX
Question:	Given the following conditions: • FRP-H.2, Steam Generator Overpressure, is in effect • STA is monitoring CSFSTs • The CRSS directs the BOP to check the affected SG water level <84% Which one of the following describes the reason for this level check? A. Preparation for resetting the Feedwater Isolation signal B. The overpressure condition could be caused by the density effects on SG water level indication C. To determine whether FRP-H.3, Response to SG High Level is the appropriate guideline for the event D. Ensures adequate SG inventory for pressure reduction by dumping steam through the SG PORV
Answer:	C. To determine whether FRP-H.3, Response to SG High Level is the appropriate guideline for the event
Justification:	A- For an overfill/overpressure, feedwater isolation does not need to be reset B- High level may be a contributor to the overpressure condition, but not for the reason stated C- Correct D- There is plenty of SG inventory at levels far below 84%, especially if feedwater capacity is normal
Tier/Group	1/3
10CFR55.41 10CFR55.43	41
B/N/M	Bank FRP-H.2-3-1(Editorial modification)
K/A #:	E13EK3.4 Knowledge of the reasons for the following as they apply to the Steam generator Overpressure: 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 facility license and amendments aren't violated
K/A Values:	3.1
Cog Level:	Memory
References:	FRP-H.2 Basis FRP-H.2 LP Objective 3

The plant is at 20% RTP

The crew is raising load IAW GP-005, Power Operation.

Which one of the following describes the relationship between Rod Control, RCS Boron concentration, and the load increase?

A. Tave is being maintained equal to Tref using either manual rod withdrawal or RCS boron dilution during the load increase

B. RCS boron concentration is set at its 100% power value prior to the load increase. Tave is maintained equal to Tref using rod withdrawal only

C. Rods are manually withdrawn above the 100% power insertion limit prior to the load increase. Tave is maintained equal to Tref during the load increase using boron dilution only

D. Load is raised with Rod Control automatically maintaining Tave equal to Tref. RCS Boron concentration is adjusted as necessary to ensure rods stay within the Insertion Limits

NEED NEW QUEST OR Better distractors, only could be true except D (RCS auto w/drawal)

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Question Number:	RO XX
Question:	The plant is at 20% RTP The crew is raising load IAW GP-005, Power Operation. Which one of the following describes the relationship between Rod Control, RCS Boron concentration, and the load increase? A. Tave is being maintained equal to Tref using either manual rod withdrawal or RCS boron dilution during the load increase B. RCS boron concentration is set at its 100% power value prior to the load increase. Tave is maintained equal to Tref using rod withdrawal only C. Rods are manually withdrawn above the 100% power insertion limit prior to the load increase. Tave is maintained equal to Tref during the load increase using boron dilution only D. Load is raised with Rod Control automatically maintaining Tave equal to Tref. RCS Boron concentration is adjusted as necessary to ensure rods stay within the Insertion Limits
Answer:	A. Tave is being maintained equal to Tref using either manual rod withdrawal or RCS boron dilution during the load increase
Justification:	A- Correct B- Incorrect because if boron dilution was performed to the 100% value, rods would most likely be below the insertion limits C- Incorrect because the procedure just has the crew use a combination as necessary. It is easier to control Tave using manual rod control than it is intermittently diluting D- Incorrect because manual rod control is used
Tier/Group	2/3
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	045K5.23 Knowledge of the operational implications of the following concepts as they apply to the MT/G system: Relationship between rod control and RCS boron concentration during TG load increase
K/A Values:	2.7
Cog Level:	Memory
References:	GP-005 GP-005 LP, Objective 7

Given the following conditions:

- A LOCA has occurred
- HP reports air and steam streaming from the Containment Personnel Hatch
- Containment Pressure indicates 8.0 psig and rising

Assuming no additional action by the crew, which one of the following actuations will help minimize the leak rate from containment?

A. Safety Injection

B. Containment Isolation Phase A

C. Containment Ventilation Isolation

D. Containment Spray Actuation

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Question Number:	RO XX
Question:	Given the following conditions: • A LOCA has occurred • HP reports air and steam streaming from the Containment Personnel Hatch • Containment Pressure indicates 8.0 psig and increasing slowly Assuming no additional action by the crew, which one of the following actuations will help minimize the leak rate from containment? A. Safety Injection B. Containment Isolation Phase A C. Containment Ventilation Isolation D. Containment Spray Actuation
Answer:	D. Containment Spray Actuation
Justification:	A- Incorrect because the SI will cause a CI 'A' but will not affect Containment Atmosphere pressure B- Incorrect because containment atmospheric pressure would not be affected by CI 'A'. Actuation isolates process lines C- Incorrect because containment atmospheric pressure would not be reduced by a CVI. signal. None of the CV Vent systems would be moving air out of containment prior to or during the event D- Correct. Containment Spray will reduce pressure, reducing leakage from the containment atmosphere
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	069AK1.01 Knowledge of the operational implications of the following concepts as they apply to Loss of Containment Integrity: Effects of pressure on leak rate
K/A Values:	2.6
Cog Level:	Comprehension
References:	ESFAS SD page 23 Containment Spray SD Page 5 CSS LP Objective 1

Given the following conditions:

- A plant startup is in progress with reactor power at 4%
- The Main Generator is being paralleled to the grid
- Power is lost to Instrument Bus 2

Which one of the following describes the plant response for loss of power to Instrument Bus 2?

A. Reactor Trip due to failed Source Range channel

B. Reactor Trip due to failed Intermediate Range channel

C. Turbine Reference Runback due to Power Range failure

D. No effect because Reactor Power is less than the P-10 setpoint

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Question Number:	RO XX
Question:	Given the following conditions: • A plant startup is in progress with reactor power at 4% • The Main Generator is being paralleled to the grid • Power is lost to Instrument Bus 2 Which one of the following describes the plant response for loss of power to Instrument Bus 2? A. Reactor Trip due failed Source Range channel B. Reactor Trip due to failed Intermediate Range channel C. Turbine Reference Runback due to Power Range failure D. No effect because Reactor Power is less than the P-10 setpoint
Answer:	B. Reactor Trip due to failed Intermediate Range channel
Justification:	A- Incorrect. SR trips blocked > P6 B- Correct C- Incorrect. Generator not connected to grid D- Incorrect. Less than P10, IR 1 out of 2 trip logic.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	015K6.01 Knowledge of the effect that a loss or malfunction of sensors, detectors or indicators will have on the NIS
K/A Values:	2.9
Cog Level:	Comprehension
References:	Logic CP300-5379-2755 NIS SD010, Page 36 of 50 NIS LP, Objective 9

Given the following conditions:

The plant is operating at 100% power. All systems are in their normal alignments.

Which one of the following describes the expected RVLIS indication on the Inadequate Core Cooling Monitor (ICCM)?

	Dynamic Head	Full Range	Upper Range
A.	110%	108%	108%
B.	RCP ON	108%	108%
C.	110%	RCP ON	RCP ON
D.	RCP ON	RCP ON	RCP ON

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Question Number:	RO XX
Question:	Given the following conditions: The plant is operating at 100% power. All systems are in their normal alignments. Which one of the following describes the expected RVLIS indication on the Inadequate Core Cooling Monitor (ICCM)? A. Dynamic Head: 110% / Full Range: 108% / Upper Range: 108% B. Dynamic Head: RCP ON / Full Range: 108% / Upper Range: 108% C. Dynamic Head: 110% / Full Range: RCP ON / Upper Range: RCP ON D. Dynamic Head: RCP ON / Full Range: RCP ON / Upper Range: RCP ON
Answer:	C. 110% RCP ON RCP ON
Justification:	A- Incorrect. With RCPs on, FR and UR only indicate RCPs ON, not % B- Incorrect. With RCPs on, FR and UR only indicate RCPs ON, not % C- Correct. Full Range and Upper Range are used during Natural Circulation. The dynamic head is an indication of void fraction, with a low fraction indicating a high level. At 100% power with 4 RCPs operating the dynamic head will be maximum at 110%. D- Incorrect. No RCPs ON indication for dynamic head
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	017A3.01 Ability to operate or monitor in the control room: Forced, Natural, or interrupted circulation of the RCS
K/A Values:	3.6
Cog Level:	Comprehension
References:	ICCM SD 051, Figure 28 ICCM LP, Objective 5

A maybe true

What is the basis for maintaining PRT level less than the high level alarm setpoint of 83% **and** when does it apply?

The basis for this level is to minimize the possibility of thermal shocking the…

A. PRT Rupture Discs and affecting their rupture pressure. It only applies when PRT temperature is above 200 degrees

B. PRT Rupture Discs and affecting their rupture pressure. It applies at all times.

C. Pressurizer Safeties and PORVs which could cause them to leak. It only applies when Pressurizer temperature is above 200 degrees

D. Pressurizer Safeties and PORVs which could cause them to leak. It applies at all times.

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Question Number:	RO XX
Question:	What is the basis for maintaining PRT level less than the high level alarm setpoint of 83% **and** when does it apply? The basis for this level is to minimize the possibility of thermal shocking the… A. PRT Rupture Discs and affecting their rupture pressure. It only applies when PRT temperature is above 200 degrees B. PRT Rupture Discs and affecting their rupture pressure. It applies at all times. C. Pressurizer Safeties and PORVs which could cause them to leak. It only applies when Pressurizer temperature is above 200 degrees D. Pressurizer Safeties and PORVs which could cause them to leak. It applies at all times.
Answer:	C. Pressurizer Safeties and PORVs which could cause them to leak. It only applies when Pressurizer temperature is above 200 degrees
Justification:	A- Incorrect. Not applicable for Rupture discs B- Incorrect. Does not apply at all times and wrong components C- Correct D- Iincorrect. Does not apply at all times
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Modified (Bank question Pzr-10-001 attached)
K/A #:	010K6.04 Knowledge of the effect that a loss or malfunction of PRT will have on Pzr Pressure control system
K/A Values:	2.9
Cog Level:	Memory
References:	Op-103, Page 5, P&L 4.4 PZR SD059, Page 24 of 27 PZR LP Objective 16

A reactor trip has occurred. The crew is performing the action contained in EPP-4, Reactor Trip Response.

Which one of the following Rod Position indications is used to determine that a boration is necessary IAW EPP-4?

A. Group Demand Counters on Control Bank D indicate 220 steps withdrawn with all RTGB Rod Bottom LEDs illuminated

B. Group Demand Counters on Control Bank D indicate 190 steps withdrawn with two Rod Bottom LEDs extinguished

C. Group Demand Counters on Control Bank D indicate 220 steps withdrawn with all RTGB IRPI indicators reading less than 2.5 inches

D. Group Demand Counters on Control Bank D indicate 190 steps withdrawn with one RTGB IRPI indicator reading 200 steps withdrawn

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Question Number:	RO XX
Question:	A reactor trip has occurred. The crew is performing the action contained in EPP-4, Reactor Trip Response. Which one of the following Rod Position indications is used to determine that a boration is necessary IAW EPP-4? A. Group Demand Counters on Control Bank D indicate 220 steps withdrawn with all RTGB Rod Bottom LEDs illuminated B. Group Demand Counters on Control Bank D indicate 190 steps withdrawn with two Rod Bottom LEDs extinguished C. Group Demand Counters on Control Bank D indicate 220 steps withdrawn with all RTGB IRPI indicators reading less than 2.5 inches D. Group Demand Counters on Control Bank D indicate 190 steps withdrawn with one RTGB IRPI indicator reading 200 steps withdrawn
Answer:	B. Group Demand Counters on Control Bank D indicate 190 steps withdrawn with two Rod Bottom LEDs extinguished
Justification:	A- Incorrect because Rod Bottom LEDs indicate insertion below 20 steps B- Correct because 2 or more rods not inserted requires boration C- Incorrect because this is a normal reactor trip indication D- Incorrect because one rod is allowed to be stuck without boration. In all cases, Group Demand indication is not an indication of actual rod position, but is an indicator of Demanded position prior to the trip
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	014A2.05 Ability to predict the impacts of a reactor trip on the RPI system, and based on those predictions, use procedures to correct, control, or mitigate the effects of the malfunction on operations
K/A Values:	3.9
Cog Level:	Memory
References:	EPP-4, step 12 and basis EPP-4 LP, Objective 3

The plant is in Mode 1, 100% RTP.

During recovery from a Loss of Service Water, the crew has entered AOP-014, Component Cooling Water System Malfunction, due to increasing Component Cooling Water temperatures.

- The North Service Water Header in the Auxiliary Building is isolated.
- The crew has restored Service Water pressure to normal.
- CCW Heat Exchanger outlet temperature is 109°F and increasing slowly.
- SFP temperature is 95° F

Which one of the following describes appropriate actions to reduce heat load on the Component Cooling Water System?

A. Throttle OPEN CC-775, CC FROM SFP HX BUTTERFLY, to raise SFP temperature to 115 °F to 120°F

B. Secure Normal Letdown and place Excess Letdown in service

C. Verify both CCW Heat Exchangers in service with CCW Heat Exchangers Return valves, SW-739 & SW-740, at POSITION 2

D. Throttle CLOSED CC-775, CC FROM SFP HX BUTTERFLY, to raise SFP temperature to 115 °F to 120°F

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Question Number:	RO XX
Question:	The plant is in Mode 1, 100% RTP. During recovery from a Loss of Service Water, the crew has entered AOP-014, Component Cooling Water System Malfunction, due to increasing Component Cooling Water temperatures. • The North Service Water Header in the Auxiliary Building is isolated. • The crew has restored Service Water pressure to normal. • CCW Heat Exchanger outlet temperature is 109°F and increasing slowly. • SFP temperature is 95°F Which one of the following describes appropriate actions to reduce heat load on the Component Cooling Water System? A. Throttle OPEN CC-775, CC FROM SFP HX BUTTERFLY, to raise SFP temperature to 115°F to 120°F B. Secure Normal Letdown and place Excess Letdown in service C. Verify both CCW Heat Exchangers in service with CCW Heat Exchanger Return valves, SW-739 & SW-740, at POSITION 2 D. Throttle CLOSED CC-775, CC FROM SFP HX BUTTERFLY, to raise SFP temperature to 115°F to 120°F
Answer:	D. Throttle CLOSED CC-775, CC FROM SFP HX BUTTERFLY, to raise SFP temperature to 115°F to 120°F
Justification:	A- Incorrect – Opening CC-775 will increase the heat load on CCW System B- Incorrect – IAW AOP-014 Section D, step 6, this is not an appropriate action C- Incorrect- This action may decrease CCW temperature but the action does not affect CCW heat load as the question specifically asks D- Correct – Throttling closed on CC-775 will reduce the heat load on the CCW System and is an appropriate action IAW AOP-014, Section D, step 6
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	062AA1.06 Ability to operate and/or monitor the following as they apply to Loss of Nuclear Service Water: Control of flow rates to components cooled by CCWS
K/A Values:	2.9
Cog Level:	Comprehension
References:	AOP-014, Section D

Given the following conditions:

- Plant is in Mode 5
- RHR Pump 'A' in service providing core cooling with discharge pressure at 140 psig and stable
- The reactor vessel head is on
- RCS level is minus 14 inches and stable

The crew is responding to an unexpected rise in RCS temperature IAW AOP-020, Loss of Residual Heat Removal (Shutdown Cooling)

Which one of the following actions will be required during this event?

A. Stop any running RHR pumps

B. Reduce RHR flow to 1500 GPM

C. Verify at least one Component Cooling Water pump running

D. Throttle open FCV-605, RHR Heat Exchanger Bypass valve, to stabilize RCS temperature

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Question Number:	RO XX
Question:	Given the following conditions: • Plant is in Mode 5 • RHR 'A' in service providing core cooling with discharge pressure at 140 psig and stable • The reactor vessel head is on • RCS level is minus 14 inches and stable The crew is responding to an unexpected rise in RCS temperature IAW AOP-020, Loss of Residual Heat Removal (Shutdown Cooling) Which one of the following actions will be required during this event? A. Stop any running RHR pumps B. Reduce RHR flow to 1500 GPM C. Verify at least one Component Cooling Water pump running D. Throttle open FCV-605, RHR Heat Exchanger Bypass valve, to stabilize RCS temperature
Answer:	C. Verify at least one Component Cooling Water pump running
Justification:	A- Incorrect because it is action taken on vessel level or on persistent cavitation B- Incorrect because it is action for cavitation C- Correct D- Incorrect because throttling open the bypass will not stabilize temperature, it will actually increase heatup rate because it will bypass the heat exchanger
Tier/Group	1 / 2
10CFR55.41 10CFR55.43	41
B/N/M	New
K/A #:	025AA1.04 Ability to operate or monitor the following as they apply to Loss of Residual Heat Removal: Closed Cooling Water
K/A Values:	2.8
Cog Level:	Comprehension
References:	AOP-020, Section E, step 20 AOP-020 LP objective 8

Which one of the following explains the reason for closing the seal return valve after securing a Reactor Coolant Pump with a high #1 Seal Leakoff flow?

A. Establish a boundary at the #2 seal

B. Prevent overflowing the RCP standpipe

C. Minimize heat load on seal return heat exchanger

D. Prevent flow damage to the Thermal Barrier Heat Exchanger

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Question Number:	RO XX
Question:	Which one of the following explains the reason for closing the seal return valve after securing a Reactor Coolant Pump with a high #1 Seal Leakoff flow? A. Establish a boundary at the #2 seal B. Prevent overflowing the RCP standpipe C. Minimize heat load on seal return heat exchanger D. Prevent flow damage to the Thermal Barrier Heat Exchanger
Answer:	A. Establish a boundary at the #2 seal
Justification:	A- Correct. Seal return valve is closed to minimize inventory loss & establish a boundary at the #2 seal B- Incorrect. Standpipe should not overflow unless there is leakage past #2 seal C- Incorrect. Even a high seal flow would not be above the capacity of the Seal Return HX D- Incorrect. TBHX should not be affected unless it is leaking
Tier/Group	1/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	015/017AK2.07 Knowledge of the interrelations between the RCP malfunction and RCP seals
K/A Values:	2.9
Cog Level:	Memory
References:	AOP-018 Basis AOP-018LP, Objective 3

Given the following conditions:

- The plant is in Mode 1, 100% RTP
- A release of Waste Condensate Tank (WCT) 'A' is in progress
- Annunciator APP-036, RAD MONITOR TROUBLE, is received
- The BOP Operator reports the FAIL light for R-18, Liquid Waste Disposal Monitor, is ON

Which one of the following describes the status of the Liquid Waste Release Isolation, RCV-018?

A. RCV-018 will not automatically close. The release must be stopped manually

B. RCV-018 will automatically close when the monitor FAIL light is illuminated

C. RCV-018 is not immediately affected and will close if high radiation is sensed by R-18

D. Automatic operation of RCV-018 is defeated, but the release may continue unless an actual High Radiation condition exists

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2001 RO Written NRC Examination

Question Number:	RO XX
Question:	Given the following conditions: • The plant is in Mode 1, 100% RTP • A release of Waste Condensate Tank (WCT) 'A' is in progress • Annunciator APP-036, RAD MONITOR TROUBLE, is received • The BOP Operator reports the FAIL light for R-18, Liquid Waste Disposal Monitor, is ON Which one of the following describes the status of the Liquid Waste Release Isolation, RCV-018? A. RCV-018 will not automatically close. The release must be stopped manually B. RCV-018 will automatically close when the monitor FAIL light is illuminated C. RCV-018 is not immediately affected and will close if high radiation is sensed by R-18 D. Automatic operation of RCV-018 is defeated, but the release may continue unless an actual High Radiation condition exists
Answer:	A RCV-018 will not automatically close. The release must be stopped manually
Justification:	A- Correct. FAIL means loss of power and/or loss of indication B- Incorrect because the valve will not close. RCV-14C will close on a FAIL, however C- Incorrect because high radiation cannot be sensed by R-18 if there is a loss of indication. The candidate would have to believe the FAIL is for the control room meter rather than the whole channel D- Incorrect. The release may not continue if the radiation level in the line is unknown
Tier/Group	2/2
10CFR55.41 10CFR55.43	41
B/N/M	Bank (Distractors modified to RO level)
K/A #:	073A1.01 Ability to predict and/or monitor changes in parameters to prevent exceeding design limits associated with operating the PRM controls including: Radiation Levels
K/A Values:	3.2
Cog Level:	Memory
References:	APP-036 E7 RM LP Objective 9

'A' Reference

Given the following conditions:

- The plant is in Hot Shutdown
- AFW pump 'A' is running
- A small feedline break occurs between FCV-1424, 'A' AFW pump FCV, and isolation valve V2-16B (SG 'B' AFW isolation valve)

The RO closes FCV-1424 and the break flow stops.

A clearance is initiated to isolate the leak from all water sources.

Which one of the following describes an outcome of this event?

A. AFW flow from 'B' MDAFW pump will be available to all SGs

B. AFW flow from 'B' MDAFW pump will be available to 'A' and 'C' SGs only

C. AFW flow from 'B' MDAFW pump will be available to 'A' SG only

D. AFW flow from 'B' MDAFW pump will be available to 'C' SG only

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Question Number:	RO XX
Question:	Given the following conditions: • The plant is in Hot Shutdown • AFW pump 'A' is running • A small feedline break occurs between FCV-1424, 'A' AFW pump FCV, and isolation valve V2-16B (SG 'B' AFW isolation valve) The RO closes FCV-1424 and the break flow stops. A clearance is initiated to isolate the leak from all water sources. Which one of the following describes an outcome of this event? A. AFW flow from 'B' MDAFW pump will be available to all SGs B. AFW flow from 'B' MDAFW pump will be available to 'A' and 'C' SGs only C. AFW flow from 'B' MDAFW pump will be available to 'A' SG only D. AFW flow from 'B' MDAFW pump will be available to 'C' SG only
Answer:	B. AFW flow from 'B' MDAFW pump will be available to 'A' and 'C' SGs only
Justification:	'B' SG AFW flow is isolated. If the break was upstream of FCV-1424, then 'B' AFW could supply 'B' SG. Since the leak was isolated by closing 1424, the break is downstream, where the cross connect is located
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	061K302 Knowledge of the effect that a los or malfunction of the AFW system will have on the SG
K/A Values:	4.2
Cog Level:	~~Comprehension~~ Memory
References:	AFW LP Objective 3 SD-042, Figure 2, Page 38 of 49

Given the following conditions:

- CST is empty due to a weld failure on the tank
- RCS temperature is 495°F
- AFW supply has been switched to the deepwell pumps
- The Steam Driven AFW Pump is out of service for maintenance
- Both Motor Driven AFW pumps are running
- The Motor Driven AFW Pump Discharge Flow Control Valves, FIC-1424 and FIC-1425, have been set to 200 GPM each

Which one of the following provides the minimum number of deepwell pumps required to support this amount of AFW flow?

A. One (1)

B. Two (2)

C. Three (3)

D. Not Possible

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Question Number:	RO XX
Question:	Given the following conditions: • CST is empty due to a weld failure on the tank • RCS temperature is 495°F • AFW supply has been switched to the deepwell pumps • The Steam Driven AFW Pump is out of service for maintenance • Both Motor Driven AFW pumps are running • The Motor Driven AFW Pump Discharge Flow Control Valves, FIC-1424 and FIC-1425, have been set to 200 GPM each Which one of the following provides the minimum number of deepwell pumps required to support this amount of AFW flow? A. One (1) B. Two (2) C. Three (3) D. Not Possible
Answer:	C. Three (3)
Justification:	PSA significant action. Each deepwell pump is capable of 200 GPM. The total AFW required is 520 GPM (200+200+(60x2) and will require 3 deepwell pumps
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	061K107 Physical connections and cause-effect relationship between AFW and Emergency Water Source
K/A Values:	3.6
Cog Level:	~~Comprehension~~
References:	SD-042, Attachment 10.2 AFW LP, Objective 3

NRC EXAM

Given the following conditions:

The plant has experienced a trip from 100% RTP
All SGs indicate 6% NR level

Upon initiation of AFW, which one of the following correctly describes the automatic response of the AFW system under these conditions?

A. The normally closed MDAFW pump discharge flow control valves (FCV-1424 and 1425) fully open

B. The normally open SDAFW pump discharge flow control valve (FCV-6416) throttles in the closed direction

C. The normally closed SDAFW pump discharge flow control valve (FCV-6416) throttles in the open direction

D. The normally open MDAFW pump discharge flow control valves (FCV-1424 and 1425) throttle in the closed direction

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Question Number:	RO XX
Question:	Given the following conditions: The plant has experienced a trip from 100% RTP All SGs indicate 6% NR level Upon initiation of AFW, which one of the following correctly describes the automatic response of the AFW system under these conditions? A. The normally closed MDAFW pump discharge flow control valves (FCV-1424 and 1425) fully open B. The normally open SDAFW pump discharge flow control valve (FCV-6416) throttles in the closed direction C. The normally closed SDAFW pump discharge flow control valve (FCV-6416) throttles in the open direction D. The normally open MDAFW pump discharge flow control valves (FCV-1424 and 1425) throttle in the closed direction
Answer:	B. The normally open SDAFW pump discharge flow control valve (FCV-6416) throttles in the closed direction
Justification:	FCV 1424 and 1425 are normally closed. The valves do not fully open. When the pump starts, the valves throttle to maintain flow. FCV-6416 is normally open, and throttle closed
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank (Also last year NRC exam)
K/A #:	061A301 Monitor automatic operation of AFW startup/flows
K/A Values:	4.2
Cog Level:	Memory
References:	LP AFW Objective 10 SD-042 AFW section 3.3 page 14 of 37

Which one of the following actions will occur if a Control Room Ventilation Isolation is initiated by a High Radiation signal on Control Room Area Monitor, R-1?

A. Exhaust fan HVE-16 starts

B. Recirculation fan HVE-19A starts

C. Ventilation intake damper opens

D. Filter Bypass damper opens

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Question Number:	RO XX
Question:	Which one of the following actions will occur if a Control Room Ventilation Isolation is initiated by a High Radiation signal on Control Room Area Monitor, R-1? A. Exhaust fan HVE-16 starts B. Recirculation fan HVE-19A starts C. Ventilation intake damper opens D. Filter Bypass damper opens
Answer:	B. Recirculation fan HVE-19A starts
Justification:	All other components either stop or close on a Control Room Ventilation Isolation signal.
Tier/Group	2/1
10CFR55.41 10CFR55.43	41
B/N/M	Bank
K/A #:	072A301 Ability to monitor automatic operation of RMS including changes in ventilation alignment
K/A Values:	2.9
Cog Level:	Memory
References:	AOP-005, Attachment 1 LP RMS Objective 9