1 **ID: R01** **Points: 1.00**

The plant is operating at 100% power at end of core life. Following power maneuvers last night, conditions are as follows:

- All rods out
- 80% Rated Core Flow
- Recirc Pump A speed is 75%
- Recirc Pump B speed is 70%

Based on these conditions, what action is required? **(See attached Power-to-Flow Map.)**

A. Place the Reactor Mode Switch in SHUTDOWN.

B. Maintain current parameters until Xenon has reached equilibrium.

C. Notify SNE of unexpected operation outside the Power to Flow Map.

D. Withdraw Control Rods and/or raise core flow with the “B” Recirc pump to return to pre-maneuver positions.

Answer: C

Answer Explanation
Per MOP19, Reactor Engineering (SNE) shall be notified of all unplanned core reactivity changes and abnormalities. Plausible Distractors: A. A Reactor Scram is not warranted since there is no core instability noted AND no procedural guidance to scram. B. Again, if the operation is outside the normal power to flow map regions, the situation should be addressed immediately and corrected. D. Just making unsupervised core parameter changes is not allowed and could potentially lead to a more severe situation.

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31866
User-Defined ID:	R01
Cross Reference Number:	26639
Topic:	Unplanned Core Reactivity Changes
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	ILO 2013 mike
Comments:	K/A - Partial or Complete Loss of Forced Core Flow Circulation: **Ability to interpret reference materials, such as graphs, curves, tables, etc.** **Copy of power to flow map must be provided**

Question 1 Table-Item Links

Plant Procedures

20.138.01

ODE-01 Reactivity Management

MOP19

NUREG 1123 KA Catalog Rev. 2

G2.1.25 3.9/4.2 Ability to interpret station reference materials such as graphs, curves, tables, etc.

295001 Partial or Complete Loss of Forced Core Flow Circulation

2 **ID: R02** **Points: 1.00**

The plant is operating at 100% when a bird strike results in a loss of 120KV. All systems operate as designed.

With no operator action, what is the effect on the DC system?

A. Chargers 2A-1 / 2A-2 will carry the DC loads.

B. Spare Charger 2A1-2 will carry the DC loads.

C. Division 1 ESF batteries will carry its DC loads for only 3 hours.

D. Division 1 ESF batteries will carry its DC loads for at least 4 hours.

Answer: D

Answer Explanation
With a loss of 120KV the battery chargers will have to be manually placed back in the charging state. The ESF batteries are designed to last at least 4 hours without the chargers in operation. A is plausible, but chargers would have to be placed in off/reset, then run. B is plausible, but spare charger would have to be manually placed in run. C is a misunderstanding of TS 3.8.4 battery required times.

Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.50
System ID:	31446
User-Defined ID:	R02
Cross Reference Number:	NEW
Topic:	DC operation
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: **Effect of battery discharge rate on capacity**

Question 2 Table-Item Links

Do Not Use - Operations Related Procedures

23.309 260/130v DC Electrical System (ESF & BOP)

NUREG 1123 KA Catalog Rev. 2

295003 AK1.01 2.7/2.9 Effect of battery discharge rate on capacity

3 **ID: R03** **Points: 1.00**

The reactor has scrammed due to a **LOSS** of Offsite Power. **ONLY** EDGs 13 & 14 have started and loaded.

What is the current **SOURCE** of power for the station DC loads?

A. Division 1 Chargers are supplying Division 1 DC Loads. Division 2 Chargers are supplying Division 2 DC Loads.

B. Division 1 Batteries are supplying Division 1 DC Loads. Division 2 Chargers are supplying Division 2 DC Loads.

C. Division 1 Chargers are supplying Division 1 DC Loads. Division 2 Batteries are supplying Division 2 DC Loads.

D. Division 1 Batteries are supplying Division 1 DC Loads. Division 2 Batteries are supplying Division 2 DC Loads.

Answer: D

Answer Explanation
With ONLY EDGs 13 and 14 loaded, Div 1 and Div 2 DC loads are supplied by Batteries. MANUAL action is required to reset Div 2 Chargers, which have power available. A is plausible; is the normal configuration for DC Distribution. B is plausible; would be selected if candidate had misconception that EDG 13 and 14 automatically reenergize Div 2 Chargers. C is plausible; would be selected if candidate had misconception that EDG 13 and 14 automatically reenergize Div 1 Chargers.

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31546
User-Defined ID:	R03
Cross Reference Number:	315-0064-B000-001
Topic:	LOOP - EDGs
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013
Comments:	KA - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: **Battery charger**

Question 3 Table-Item Links

Plant Procedures

20.300.Offsite

NUREG 1123 KA Catalog Rev. 2

295004 AK2.01 3.1/3.1 Battery charger

4 **ID: R04** **Points: 1.00**

While operating at 100% power, the Generator Field Breaker 41CS on COP H11-P804 opens, causing a generator trip.

The generator trip occurred to protect against which ONE of the following conditions?

A. Main transformer overexcitation

B. Excessive input current to the generator

C. Phase to phase faults in the stator windings

D. Phase to ground faults in the main transformer

Answer: B

Answer Explanation
Opening the field breaker would result in a loss of generator field and with the generator tied to the grid would result in high input current in the generator. A is plausible, but if volts per hertz exceed 114%, a turbine trip will result. C is plausible, but phase to phase faults in the Stator windings will result in a turbine trip. D is plausible, but ground relays will detect ground faults in the generator windings and leads, and result in a turbine trip.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31466
User-Defined ID:	R04
Cross Reference Number:	315-0155-A010-001
Topic:	MTG Trips
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the reasons for the following responses as they apply to MAIN TURBINE GENERATOR TRIP: **Main generator trip**

Question 4 Table-Item Links

Plant Procedures

23.118

NUREG 1123 KA Catalog Rev. 2

295005 AK3.04 3.2/3.2 Main generator trip

5 **ID: R05** **Points: 1.00**

Reactor has scrammed. The P603 operator must verify all rods have inserted into the core.

Which of the following methods will the operator use to verify the rods fully inserted?

A. All blue Scram lights are lit on the Full Core Display.

B. All blue Scram Valve Pilot Solenoid lights on P603 are off.

C. The RWM Confirm Shutdown screen indicates all rods are in.

D. All IRM detectors are inserted, and power is on scale below IRM Range 4.

Answer: C

Answer Explanation
The RWM Confirm Shutdown screen will indicate how many rods (if any) failed to insert. A. indicates scram valves open, but does not indicate rods inserted. B. is an immediate action, but does not verify rod position. D. indicates power is below the POAH, but does not confirm rod position.

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31266
User-Defined ID:	R05
Cross Reference Number:	NEW
Topic:	Scram CR Position Verification
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	ILO 2013 doug
Comments:	KA - Ability to operate and/or monitor the following as they apply to SCRAM: **Control Rod Position**

Question 5 Table-Item Links

Plant Procedures

20.000.21

NUREG 1123 KA Catalog Rev. 2

295006 AA1.07 4.1/4.1 Control rod position

6 **ID: R06** **Points: 1.00**

The plant is operating at 68% power when the Control Room is evacuated due to toxic fumes. A reactor scram could not be completed prior to evacuation.

Which of the following is the preferred method of scramming the reactor and determining actions were successful?

A. Open CB2A (C71-P001A), and verify RPS Testability cabinet de-energized.

B. Open Generator output breaker CF/CM, and verify APRMs indicate decreasing Reactor Power.

C. Turn off circuits 5 & 6 on Dist Cab 2PA-2 and 2PB-2, and verify RPS white Group Scram lights indicate off.

D. Take 2 operable APRM Mode switches out of operate, and verify APRMs indicate decreasing Reactor Power.

Answer: D

Answer Explanation
The Remote Shutdown Panel does not include reactor shutdown and turbine trip controls because it is assumed that reactor shutdown and turbine trip will be performed prior to leaving the Control Room. If this action is not possible, then reactor shutdown will be initiated by taking two APRMs out of operation. A is plausible, but opening CB2A will only result in a Div 1 half scram. B is plausible; opening the breakers would result in a reverse power turbine trip and thus a reactor scram but is not the preferred method. C is plausible; action is required to remove power to SRVs to prevent a uncontrolled RPV blowdown for control of the plant from the dedicated shutdown panel based on fire in 3L zone.

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31467
User-Defined ID:	R06
Cross Reference Number:	NEW
Topic:	CR Evacuation
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: **Reactor power**

Question 6 Table-Item Links

Plant Procedures

20.000.19

NUREG 1123 KA Catalog Rev. 2

295016 AA2.01 4.1*/4.1* Reactor power

7 **ID: R07** **Points: 1.00**

The plant is operating at 100% with North and Center TBCCW Pumps in service, when the following occurs:

- 5D5, TBCCW PUMPS DIFFERENTIAL PRESSURE HIGH/LOW, alarms.
- P43-R805, TBCCW Headers Pressure Indicator, indicates a d/p of 19 psi.

With these conditions, which one of the following is the correct diagnosis and required operator action?

A. TBCCW Differential Pressure is too LOW; START South TBCCW Pump.

B. TBCCW Differential Pressure is too HIGH; STOP an operating TBCCW Pump.

C. TBCCW Differential Pressure is too LOW; REDUCE Main Turbine Generator Load.

D. TBCCW Differential Pressure is too HIGH; OPEN P43-F405, TBCCW DP Control Valve.

Answer: A

Answer Explanation
With Pressure Indicator below 20 psig, TBCCW Differential Pressure is too LOW. With degraded Pressure, starting the standby TBCCW Pump is directed by AOP 20.128.01, Loss of TBCCW System. Question requires person to determine if DP is HIGH or LOW based on a reported pressure indication, and select the appropriate mitigation response. b. Is plausible, and would be appropriate per ARP 5D5 for Differential Pressure above 30 psig. c. Is plausible, and is the required action for a complete loss of TBCCW or with indications of rising temperatures on the Main Turbine Generator Stator Water Cooling System. d. Is plausible, and would be appropriate per ARP 5D5 for Differential Pressure above 30 psig if accompanied by 5D2, TBCCW PUMPS RECIRC VALVE CLOSED

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.50
System ID:	31528
User-Defined ID:	R07
Cross Reference Number:	NEW
Topic:	TBCCW Pump trip
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	ILO 2013 mike
Comments:	KA - Partial or Complete Loss of Component Cooling Water: **Knowledge of the purpose and function of major system components and controls.**

Question 7 Table-Item Links

Plant Procedures

20.128.01

05D005

NUREG 1123 KA Catalog Rev. 2

G2.1.28 4.1/4.1 Knowledge of the purpose and function of major system components and controls

295018 Partial or Complete Loss of Component Cooling Water

8 **ID: R08** **Points: 1.00**

The IAS header has ruptured, and IAS pressure is approaching 20 psig. The reactor was manually scrammed, and RPV level dropped to 105 inches. RPV level was restored, and RPV level and pressure are now stabilized.

Currently, ventilation to the fourth floor Reactor Building SLC Tank area is _____.

A. in service supplied by SGTS

B. in service supplied by RBHVAC

C. isolated due to loss of Station Air

D. not in service due to low IAS pressure

Answer: A

Answer Explanation
SGTS auto starts on RBHVAC isolation at RPV Level 2. B. is plausible if there is a misconception concerning when RBHVAC isolates. C & D. are plausible if there is a misconception concerning the effect of loss of Station or Instrument Air systems.

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31267
User-Defined ID:	R08
Cross Reference Number:	NEW
Topic:	Loss of IAS - RBHVAC
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: **Plant Ventilation**

Question 8 Table-Item Links

Plant Procedures

20.129.01

NUREG 1123 KA Catalog Rev. 2

295019 AK2.08 2.8/2.9 Plant ventilation

9 **ID: R09** **Points: 1.00**

The plant is operating in Mode 4 with RHR pump B in Shutdown Cooling. A transient occurs in the plant which results in E1150-F008, RHR SDC outboard isolation valve, failing closed. You have been directed to place a Reactor Recirc pump in service and defeat RWCU isolations.

Which one of the following is the reason for these actions?

A. Ensures the necessary pressure head to prevent boiling in the core.

B. Allows for lowering of level to prevent a trip of the SBFW pump.

C. Prevents a RWCU filter demin inlet temperature trip.

D. Provides a means to feed and bleed the Rx vessel.

Answer: D

Answer Explanation
RHR SDC is lost with the F008 closed. Starting a Recirc pump and defeating RWCU isolations aligns for a feed and bleed control method. A is a possible misconception of systems used for pressure control. B Is plausible; SBFW receives an isolation signal for Level 8 signal. SDC is in service with level at or above 220”. C is plausible, but RWCU filter demins do not cause an isolation for high temp.

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31468
User-Defined ID:	R09
Cross Reference Number:	NEW
Topic:	Shutdown Cooling
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING: **Feeding and bleeding reactor vessel**

Question 9 Table-Item Links

Plant Procedures

20.205.01
23.800.04

NUREG 1123 KA Catalog Rev. 2

295021 AK3.02 3.3/3.4 Feeding and bleeding reactor vessel

10 **ID: R10** **Points: 1.00**

Fuel Handling operations are in progress, with the Reactor Mode Switch in **REFUEL**.

The following sequence of events occurs:

00:00 - Drive the refueling bridge from the fuel pool to over a core cell.
00:05 - Lower the Mast from the full up position to the bundle at that core cell.
00:10 - Grapple the fuel bundle.
00:15 - Raise the mast and fuel bundle.

When should a rod withdrawal block first be received during this sequence of events**, AND** what is the reason for this rod block?

A. 00:05; to prevent inadvertent criticality.

B. 00:15; to prevent inadvertent criticality.

C. 00:05; to prevent unloading a cell with a withdrawn control rod.

D. 00:15; to prevent unloading a cell with a withdrawn control rod.

Answer: A

Answer Explanation
The purpose of refueling interlocks is to restrict control rod movement, and refueling equipment operation, to reinforce operational procedures that prevent making the reactor critical during refueling. A rod block results when the Mode switch is in REFUEL and the refueling platform is near or over the core and the fuel grapple not full up. B Is plausible, because the reason for the interlock is to prevent inadvertent criticality. C Is plausible, because a rod block first occurs at 00:05. D Is plausible, because the reason is to prevent inadvertent criticality which occurs at 00:05

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31529
User-Defined ID:	R10
Cross Reference Number:	26603
Topic:	Refueling rod blocks
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 13
Text Field:	ILO 2013 mike
Comments:	KA - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: **Fuel handling equipment**

Question 10 Table-Item Links

Plant Procedures

03D113

NUREG 1123 KA Catalog Rev. 2

295023 AA1.03 3.3/3.6 Fuel handling equipment

11 **ID: R11** **Points: 1.00**

The plant is being started after a refueling outage. Reactor power was 9% when a small steam leak developed in the drywell.

The CRS has entered 29.100.01, Sheet 2, Primary Containment Control, based on a high Drywell temperature of 145°F. Drywell pressure is 1.4 psig and rising 0.05 psig every 15 minutes.

What action should be taken in accordance with plant procedures?

A. Start SGTS, and vent the Torus.

B. Verify RBHVAC is running, and vent the Drywell.

C. Scram the reactor in anticipation of an automatic scram.

D. Place RHR in Torus Cooling, Torus Spray and Drywell Spray.

Answer: B

Answer Explanation
The EOPs, step PCP-1, direct venting the drywell to keep DW pressure <1.68 psig in accordance with 29.ESP.07. A. is plausible because a steam leak would indicate particulate in the air. The examinee could expect the vent path to be through SGTS to reduce radioactive release. C.is plausible because the EOPs have been entered. The examinee may deduce that a scram on high drywell is imminent and conservatively scram the reactor. This is not the correct answer because venting the drywell is directed and should allow the operators to perform a controlled shutdown without placing the plant through a scram transient. D. is plausible because there are elevated containment parameters. The examinee may determine that containment cooling and pressure reduction is necessary at this time.

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	32866
User-Defined ID:	R11
Cross Reference Number:	NEW
Topic:	Venting DW Pressure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013
Comments:	KA - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: **Drywell pressure**

Question 11 Table-Item Links

Plant Procedures

29.ESP.07

NUREG 1123 KA Catalog Rev. 2

295024 EA2.01 4.2*/4.4* Drywell pressure

12 **ID: R12** **Points: 1.00**

The plant is operating at 100% when a circuit card failure results in an uncontrolled lowering of the Reactor Flow Limit. What actions would you be required to take?

A. Lower the pressure regulator setpoint.

B. Place the reactor mode switch in shutdown.

C. Verify the backup pressure regulator takes control.

D. Adjust the turbine flow limiter to match reactor flow limit.

Answer: B

Answer Explanation
Sudden lowering of the Reactor Flow Limit would result in the reactor pressure regulator system selecting this value through the low value gate logic. RPV pressure will continue to increase, and neither the TCVs nor the BPVs will open. A. Is plausible, lowering the pressure regulator setpoint would normally cause the control valves to open causing pressure to lower but reactor flow limiter failure would prevent this. C. Is plausible, would be the action if the pressure regulator fails low. D. Is plausible, lowering the turbine flow limit would open the bypass valves.

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31530
User-Defined ID:	R12
Cross Reference Number:	NEW
Topic:	Pressure Regulator Failure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - High Reactor Pressure: **Ability to perform without reference to procedures those actions that require immediate operation of system components and controls**.

Question 12 Table-Item Links

Plant Procedures

03D168

20.000.21

NUREG 1123 KA Catalog Rev. 2

G2.4.49 4.6/4.4 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls

295025 High Reactor Pressure

13 **ID: R13** **Points: 1.00**

After a plant transient and reactor scram, the following conditions exist:

- Div 1 RHR is injecting with **ONE** Pump at 13,500 gpm.
- Div 1 Core Spray is injecting with **TWO** Pumps at 7,750 gpm.
- Torus Pressure is 3.0 psig.
- Torus Level is -70 (minus 70) inches.
- Torus Temperature is 180°F.
- RPV Pressure is 85 psig (steady).
- RPV Water Level is -10 (minus 10) inches (rising).

The NO in the Reactor Building calls to report the RHR and Core Spray Pumps are rattling.

Using current pump configuration, which of the following is the **MAXIMUM** injection permissible to assure adequate core cooling? **(See attached 29.100.01 Sheet 6 curves.)**

A. Core Spray Flow - 6,000 gpm; RHR Flow - 8,000 gpm

B. Core Spray Flow - 7,000 gpm; RHR Flow - 10,000 gpm

C. Core Spray Flow - 7,000 gpm; RHR Flow - 8,000 gpm

D. Core Spray Flow - 6,000 gpm; RHR Flow - 10,000 gpm

Answer: C

Answer Explanation
Candidate must apply NPSH and Vortex limits. CS flow is limited by NPSH limit curve, and RHR flow is limited by Vortex limit curve. Torus Overpressure calculates to be 4.2 psig. The RHR vortex limit for -70” is <10,000 gpm, while NPSH is 10,000 gpm. All distractors are plausible because they contain a violation of one or both curves.

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31486
User-Defined ID:	R13
Cross Reference Number:	802-3002-0007-050
Topic:	ECCS Pump Limit Curves
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: **Pump NPSH** **Provide 29.100.01 Sheet 6 without cautions.**

Question 13 Table-Item Links

Plant Procedures

29.100.01 SH 6

NUREG 1123 KA Catalog Rev. 2

295026 EK1.01 3/3.4 Pump NPSH

14 **ID: R14** **Points: 1.00**

Which of the following is a reason why Drywell Sprays are initiated to control Drywell Temperature in the EOPs?

A. Ensures the effects of chugging are avoided.

B. Ensures NPSH limits for ECCS pumps are not exceeded.

C. Maintains temperature below Drywell Temperature LCO limits.

D. Maintains temperature within Primary Containment design limits.

Answer: D

Answer Explanation
If operation of all available drywell cooling is unable to terminate increasing drywell temperature before applicable component qualification or structural design temperature limits are reached, drywell sprays are initiated to effect the required drywell temperature reduction. This is done through the combined effects of evaporative and convective cooling. A Is plausible, Drywell sprays are initiated when Suppression Chamber Spray Initiation Pressure is exceeded to preclude chugging. B Is plausible, Torus water temperature has a direct effect on NPSH limits but Drywell Sprays would have minimal effect on Torus water temperature. C Is plausible, Drywell LCO temperature is EOP entry condition.

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31533
User-Defined ID:	R14
Cross Reference Number:	802-3004-0007-019
Topic:	Drywell Spray
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 9
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE: **Increased drywell cooling**

Question 14 Table-Item Links

Plant Procedures

BWROG EPGs Volume 1
BWROG EPGs Volume 2

NUREG 1123 KA Catalog Rev. 2

295028 EK3.04 3.6/3.8 Increased drywell cooling

15 **ID: R15** **Points: 1.00**

RCIC is being used to control RPV Water Level with its suction aligned to the Torus when a leak in the Torus occurs.

Which **ONE** of the following will occur **FIRST** as Torus Level continues to lower?

A. RCIC will **TRIP** due to Low Suction Pressure.

B. RCIC will **TRIP** due to Low Cooling Water Flow.

C. RCIC suction will **AUTO TRANSFER** to the CST due to Low Suction Pressure.

D. RCIC suction will **AUTO TRANSFER** to the CST due to Low Torus Water Level.

Answer: A

Answer Explanation
RCIC will trip on Low Suction Pressure. B. Is plausible, if low suction pressure trip did NOT occur, RCIC Lube Oil Temperature would rise to a point where equipment damage could occur. No trip on lube oil temperature C. Is plausible, low suction pressure causes a trip, but not a suction transfer to the CST. D. Is plausible, common misconception may be identified-CST low water level actuates suction transfer to Torus.

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31531
User-Defined ID:	R15
Cross Reference Number:	315-0143-C002-001
Topic:	RCIC Trip
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 mike
Comments:	KA - Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: **RCIC**

Question 15 Table-Item Links

Plant Procedures

01D94

NUREG 1123 KA Catalog Rev. 2

295030 EA1.02 3.4/3.5 RCIC: Plant-Specific

16 **ID: R16** **Points: 1.00**

Following a transient, plant conditions are:

- Drywell Pressure is 8 psig.
- **NO** High **OR** Low Pressure Injection systems are running.

Which of the following is the **LOWEST** stable RPV Water Level which assures Adequate Core Cooling?

A. Top of Active Fuel (TAF)

B. 25 inches **BELOW** TAF

C. 40 inches **BELOW** TAF

D. 48 inches **BELOW** TAF

Answer: C

Answer Explanation
Minimum Zero Injection Water Level (MZIRWL) defined by the EOP Flowcharts is -40 inches. In the EPGs (App C, pg C-2-53), the MZIRWL is the lowest RPV water level at which the covered portion of the reactor core will generate sufficient steam to prevent any clad temperature in the uncovered part of the core from exceeding 1,800°F. The MZIRWL is determined assuming no water is injected into the RPV. A is plausible; TAF assures Adequate Core Cooling, but is Not the Lowest level. B is plausible, and is the lower limit if Injection Systems are operating. D is plausible if BOTH Core Spray Pumps in one loop are operating.

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31487
User-Defined ID:	R16
Cross Reference Number:	802-3001-0108-001
Topic:	ACC water level
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: **Adequate Core Cooling**

Question 16 Table-Item Links

Plant Procedures

29.100.01 SH 3
BWROG EPG App C

NUREG 1123 KA Catalog Rev. 2

295031 EA2.04 4.6*/4.8* Adequate core cooling

17 **ID: R17** **Points: 1.00**

A failure to scram (ATWS) has occurred. The following conditions exist:

- Forty eight (48) control rods remain partially withdrawn.
- Both CRD pumps are operating.
- MPUs 2 and 3 are de-energized.
- P50-R870 IAS Header Pressure Indicator reads 0 psig.

Which **one** of the following methods should be attempted to insert the control rods?

A. Manually vent the CRDM over-piston.

B. Scram withdrawn control rods individually.

C. Manually drive withdrawn control rods individually.

D. Defeat RPS and ARI logic, reset the scram, then insert manual scram.

Answer: A

Answer Explanation
The loss of air prevents resetting scram, and the loss of MPU3 prevents use of RMCS (no rod select power). Venting the over-piston area is the only available option. B. is incorrect because the rods cannot be individually scrammed if the scram air header cannot be pressurized. C. is incorrect because no rod select power is available. D. is incorrect because defeating RPS and ARI logic will not close the scram valves because the loss of air.

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31506
User-Defined ID:	R17
Cross Reference Number:	NEW
Topic:	ATWS - methods
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown: Generic 2.4.31 - **Knowledge of annunciator alarms, indications, or response procedures**.

Question 17 Table-Item Links

Plant Procedures

29.ESP.03

NUREG 1123 KA Catalog Rev. 2

G2.4.31 4.2/4.1 Knowledge of annunciators alarms, indications, or response procedures
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or unknown

18 **ID: R18** **Points: 1.00**

During an accident condition involving fuel damage and a radiation release, the following conditions exist:

- Mode Switch is in SHUTDOWN.
- Reactor Power is 12% and oscillating.
- Div 1 AXM Channel 4 is 6.0 μCi/cc (rising).
- Div 2 AXM Channel 4 is 5.8 μCi/cc (rising).

Why do the **EPG BASES** permit bypass of the MSIV Level 1 and High Radiation interlocks in this condition?

A. Prevents a threat to Drywell integrity from Hydrogen accumulation.

B. Prevents power oscillations from exceeding the Steam Flow capacity of the Safety Relief Valves.

C. Allows the Main Condenser in conjunction with the Off Gas System to reduce the dose to the public.

D. Allows Main Steam Line Radiation Monitor data to be used to improve the accuracy of Offsite Dose Calculations.

Answer: C

Answer Explanation
BWROG EPG states: If, instead, high radiation interlocks are not bypassed and steam is discharged through the SRVs into the suppression pool, radionuclides not scrubbed in the pool will accumulate in the containment atmosphere, from which they may escape due to normal containment leakage. Even if processed prior to release by the Standby Gas Treatment System, the public dose will be higher than if these radionuclides were retained in or processed by the Offgas System. A is plausible; Fuel Damage may be accompanied by Hydrogen generation, which can be a long term containment threat. B is plausible; other ATWS mitigation actions reduce the probability of fuel damage from core power oscillations. D is plausible, MSL rad monitor readings are NOT used for offsite dose calculations

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31507
User-Defined ID:	R18
Cross Reference Number:	802-3003-0013-049
Topic:	Fuel Damage - Rad release
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE: **Protection of the general public**

Question 18 Table-Item Links

Plant Procedures

BWROG EPGs Volume 1

NUREG 1123 KA Catalog Rev. 2

295038 EK1.02 4.2*/4.4* Protection of the general public

19 **ID: R19** **Points: 1.00**

The plant is operating at rated conditions when a small fire starts around the 2A Transformer.

Which one of the following describes the response of the 2A Transformer Deluge System when the 2A Transformer Heat Sensor activates?

A. The Wet Pipe system will only spray when the fusible link melts.

B. Spray will not occur until the 2A Transformer is de-energized by opening breakers CM and CF.

C. Spray will automatically occur, which will result in a subsequent trip of the CM and CF breakers.

D. The deluge valve opens admitting water to the sprinkler piping, but doesn't spray until the fusible link melts.

Answer: B

Answer Explanation
Transformer Deluge Systems will not actuate unless Transformer Output Breakers are open OR pushbutton on COP is depressed AND any other initiation signal or fault alarm is in. A. Is plausible, the Deluge system uses open sprinklers instead of fusible sprinklers C. Is plausible, the system will not actuate unless the output breakers are opened. D. Is plausible, the transformer uses a Deluge Sprinkler System and not the wet pipe fusible link

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31532
User-Defined ID:	R19
Cross Reference Number:	315-0172-A021-002
Topic:	Transformer 2A deluge
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the interrelations between PLANT FIRE ON SITE and the following: **Sensors / detectors and valves**

Question 19 Table-Item Links

Plant Procedures

23.501.01

NUREG 1123 KA Catalog Rev. 2

600000 AK2.01 2.6/2.7 Sensors, detectors and valves

20 **ID: R20** **Points: 1.00**

RHR pump B is operating in Torus Cooling Mode when a Grid Disturbance occurs. ONLY the 345kV power lines voltage is degrading at 0.3 meter volts per minute.

Which **ONE** of the following describes the effect, if any, of this voltage degradation?

RHR Pump B _____.

A. breaker will trip on under voltage

B. breaker will trip on a degraded voltage load shed

C. breaker will trip on overcurrent, due to voltage reduction

D. will continue to operate UNAFFECTED for a prolonged period of time due to automatic Load Tap Changer

Answer: B

Answer Explanation
As voltage gradually lowers, the BUS Degraded Voltage condition will occur first thus causing a load shed. A is plausible, would be true for a rapid grid voltage drop. C is plausible, as voltage lowers current will rise with constant power. D is plausible, LTC's are not used on the 345kV side due to the wide fluctuations in voltage.

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31526
User-Defined ID:	R20
Cross Reference Number:	315-0057-B003-001
Topic:	Grid Disturbance
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the interrelations between GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES and the following: **Breakers, relays**

Question 20 Table-Item Links

Maintenance Plant Drawings

SD-2500-04
I-2572-29

NUREG 1123 KA Catalog Rev. 2

700000 AK2.02 3.1/3.3 Breakers, Relays

21 **ID: R21** **Points: 1.00**

The plant is operating at 68% power. Condenser pressure is rising. The current value is 3.0 psia.

At this time, what action should the operator take, and what is the reason for that action?

A. Place additional SJAEs into service to lower condenser pressure.

B. Start an additional Ring Water Buffer Pump to lower condenser pressure.

C. Perform a rapid power reduction to stabilize condenser pressure at 0.7 to 2.5 psia.

D. Place the Reactor Mode Switch to SHUTDOWN to preclude an automatic scram on Main Turbine Trip.

Answer: D

Answer Explanation
AOP 20.125.01 override states that the Mode Switch is to be placed in Shutdown if condenser vacuum reaches 2.8 psia. The crew will make a conservative decision to shutdown prior to losing the heat sink. Distractors are plausible in that they are actions to be taken as condenser pressure rises, but the override takes precedence.

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.50
System ID:	31347
User-Defined ID:	R21
Cross Reference Number:	NEW
Topic:	Loss of Vacuum
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to LOSS OF MAIN CONDENSER VACUUM: **Loss of Heat Sink**

Question 21 Table-Item Links

Plant Procedures

20.125.01

NUREG 1123 KA Catalog Rev. 2

295002 AK1.03 3.6/3.8 Loss of heat sink

22 **ID: R22** **Points: 1.00**

HPCI and RCIC have automatically started following a loss of feedwater event. RPV level rises to 220 inches, and a short time later HPCI turbine speed is 0 RPM. As RPV level begins to lower below 160 inches, the CRS directs HPCI to be restarted.

What MINIMUM action(s) must be taken to restore HPCI injection?

A. Open E4150-F001, Turbine Steam Supply Isolation Valve.

B. Depress the Reactor High Water Level Signal Reset pushbutton.

C. Open E4150-F003, HPCI Steam Supply Outboard Isolation Valve.

D. Depress the Reactor High Water Level Signal Reset pushbutton, and open E4150-F006, HPCI Pump Discharge Outboard Isolation Valve.

Answer: D

Answer Explanation
With no initiation signal present (L2/Hi DW), E4150-F006 will have to be manually opened once the high water level reset is pushed. A. E4150-F001 remains open after a L8 trip. B. The L8 reset pushbutton will open the HPCI turbine stop and control valve, but the F006 must be manually opened. C. E4150-F003 remains open after a L8 trip.

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31547
User-Defined ID:	R22
Cross Reference Number:	26581
Topic:	Loss of Feedwater
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 mike
Comments:	KA - Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL: **HPCI**

Question 22 Table-Item Links

Plant Procedures

23.202
02D089

NUREG 1123 KA Catalog Rev. 2

295008 AA1.04 3.5/3.5 HPCI: Plant-Specific

23 **ID: R23** **Points: 1.00**

The plant is operating at 100% power when the following alarms are received:

- 3D156, REACTOR WATER LEVEL LOW
- 5D68, RFP LOW FLOW / S RFPT TRIPPED

What is the expected response from the Reactor Recirculation system and the basis for that response?

A. Both RR pumps trip to prevent inadvertent power oscillations.

B. RR Pumps run back to Limiter 1 to prevent insufficient subcooling/NPSH loss.

C. RR Pumps run back to Limiter 2/3 to reduce steam flow and water loss from the vessel.

D. RR Pumps continue operating at pre-transient speeds to provide additional heat removal.

Answer: C

Answer Explanation
RR Limiter 2 is actuated when RPV Level 4 (192.7) alarms and a RFP is tripped or has low suction flow. A runback of Recirculation Pump speed reduces steam flow thus water loss from the vessel. This runback allows the plant time to recover from a tripped feed pump without the reactor scramming on low level. B Is plausible, RR Limiter 1 is actuated for feed flow less than 20% or Recirculation pump discharge valve not full open. A Is plausible, Alternate Rod Insertion (ARI) trips both RR MG sets for RPV Level 2. D Is plausible, misdiagnosed RR response to a RFP trip transient.

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31548
User-Defined ID:	R23
Cross Reference Number:	NEW
Topic:	RR response
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 3
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the interrelations between LOW REACTOR WATER LEVEL and the following: **Recirculation system**

Question 23 Table-Item Links

Plant Procedures

20.107.01
20.138.01

NUREG 1123 KA Catalog Rev. 2

295009 AK2.03 3.1/3.2 Recirculation system

24 **ID: R24** **Points: 1.00**

What is the basis for the Emergency Operating Procedures requiring Torus and Drywell Sprays to be terminated prior to 0 PSIG?

A. To ensure NPSH limits for ECCS pumps are not violated.

B. To prevent primary containment from becoming de-inerted.

C. To ensure the Drywell Spray Initiation Limit is not exceeded.

D. To prevent the cyclic condensation of steam at the downcomer openings.

Answer: B

Answer Explanation
The operation of drywell and suppression pool sprays must be terminated by the time drywell pressure and suppression chamber pressure decrease to 0 psig to ensure that primary containment pressure is not reduced below atmospheric. Maintaining a positive suppression chamber pressure precludes air from being drawn in through the vacuum relief system to de-inert the primary containment and also provides a positive margin to the negative design pressure of the primary containment. A This is a caution associated with reducing Torus pressure thus potentially violating NPSH limits. C: The DWSIL pressure limitation is 2.68 PSIG and is used for initiation of drywell sprays. D: This is to preclude the chugging effect associated with the Torus Spray Initiating limit and the basis for starting sprays prior to 9 psig.

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31366
User-Defined ID:	R24
Cross Reference Number:	NEW
Topic:	Drywell/Torus Spray Termination
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - High Drywell Pressure: **Knowledge of the operational implications of EOP warnings, cautions, and notes.**

Question 24 Table-Item Links

Plant Procedures

29.100.01 SH 6

NUREG 1123 KA Catalog Rev. 2

G2.4.20 3.8/4.3 Knowledge of operational implications of EOP warnings, cautions, and notes
295010 High Drywell Pressure

25 **ID: R25** **Points: 1.00**

During a control rod withdrawal, the following indications are received:

- 3D109 RBM Upscale/Inop
- 3D113 Control Rod Withdrawal Block
- White Rod Permissive light OFF

Which of the following is the first action directed by plant procedures?

A. Bypass the Rod Block Monitor.

B. Verify thermal limits are acceptable.

C. Deselect, then reselect the selected rod.

D. Ensure the RBM alarm reference point has automatically reset to LOW or MEDIUM.

Answer: B

Answer Explanation
Both 3D109 and 23.607 directs performance of thermal limit verification prior to moving any other rods. A. is plausible if examinee thinks RBM malfunction is indicated. C. is plausible to reset RBM for an edge rod. D. is plausible but is only required upon start of the unit.

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31367
User-Defined ID:	R25
Cross Reference Number:	NEW
Topic:	RBM Reset Prereqs
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the reasons for the following responses as they apply to INADVERTENT REACTIVITY ADDITION: **Control Rod Blocks**

Question 25 Table-Item Links

Plant Procedures

23.607

NUREG 1123 KA Catalog Rev. 2

295014 AK3.02 3.7/3.7 Control rod blocks

26 **ID: R26** **Points: 1.00**

A system that cannot be isolated from the RPV is discharging outside of the primary containment. The CRS has entered 29.100.01, Sheet 5, Secondary Containment and Rad Release.

Which of the following situations requires that an Emergency Depressurization be performed? **(Tables 12 and 14 from EOP 29.100.01, Sheet 5 provided)**

A. HPCI/CRD pump area at 220°F with SB HPCI rm at 6 R/hr

B. NW RHR pump room at 230°F with SE CS pump rm at 200°F

C. RBSB NE CORNER at 5.3 R/hr with RBSB NW CORNER at 5.1 R/hr

D. SW RHR pump room at 205°F with RBSB SW corner at 5.1 R/hr

Answer: C

Answer Explanation
Both Rad levels are greater than max safe. This is a valid RO question because ROs are required to know EOP bases. A/D are incorrect because they each suggest inter-parameter combinations. Their plausibility is based on the fact that they still require an analysis of Table 12 and 14 to draw a proper conclusion. B is incorrect because SE CS PUMP RM is still below its safe max value. Its plausibility is based on the fact that it still requires an analysis of Table 12 and 14 to draw a proper conclusion.

Question 26 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	32886
User-Defined ID:	R26
Cross Reference Number:	GRAND GULF EXAM BANK (MOD)
Topic:	SC rad levels
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mc
Comments:	KA - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: **Area radiation levels**

Question 26 Table-Item Links

Plant Procedures

29.100.01 SH 5

NUREG 1123 KA Catalog Rev. 2

295033 EA2.01 3.8/3.9 Area radiation levels

27 **ID: R27** **Points: 1.00**

While operating Division 1 SGTS manually for a surveillance, the following indications exist:

- SGTS Flow changed from 4100 scfm to 3500 scfm and is lowering slowly
- SGTS Exhaust Fan is running
- SGTS Cooling Fan is not running

The operator inadvertently depresses the Division 1 Manual isolation pushbutton. Which of the following is a potential concern for this condition?

A. Reduced flow will lower the resident time in the charcoal filter beds reducing the effectiveness.

B. Reduced flow will raise train temperatures causing reduced train effectiveness.

C. Unless flow is raised, an automatic start of the other division will occur.

D. SGTS may not be able to maintain building differential pressure.

Answer: D

Answer Explanation
A. Raises residence times B. true but is a minor if any effect on train effectiveness C. is not true but if initiating conditions are not well understood could distract D. is true bases for SGTS flow is maintaining building dp post-LOCA.

Question 27 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31406
User-Defined ID:	R27
Cross Reference Number:	NEW
Topic:	SC high d/p
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 md
Comments:	KA - Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: **SBGT**

Question 27 Table-Item Links

Plant Procedures

23.404

NUREG 1123 KA Catalog Rev. 2

295035 EA1.02 3.8/3.8 SBGT/FRVS

28 **ID: R28** **Points: 1.00**

Which of the following is the method used by RHR LPCI mode to assure adequate core cooling?

A. spray cooling

B. steam cooling

C. shutdown cooling

D. core submergence

Answer: D

Answer Explanation
Correct Answer D - RHR injection, along with jet pump configuration, is used to fill the RPV to cover the core during a LOCA. Plausible Distractors: A - other method used to assure ACC, but not the method used by RHR LPCI. B - other method used to assure ACC, but not the method used by RHR LPCI. C - other method used to assure cooling, but not the method used by RHR LPCI.

Question 28 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31407
User-Defined ID:	R28
Cross Reference Number:	NEW
Topic:	LPCI - ACC
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI: INJECTION MODE (PLANT SPECIFIC): **Core cooling methods**

Question 28 Table-Item Links

NUREG 1123 KA Catalog Rev. 2

203000 K5.02 3.5/3.7 Core cooling methods

29 **ID: R29** **Points: 1.00**

Plant is in Mode 5 with RHR in Shutdown Cooling on "A" loop. Reactor temperature suddenly starts trending up and is presently at 135°F.

Which of the following conditions could cause this?

A. GSW is lost.

B. EECW is lost.

C. RHRSW is lost.

D. Fuel Pool Cooling is lost.

Answer: C

Answer Explanation
Correct Answer C - Loss of RHRSW results in a loss of heat sink for Shutdown Cooling. Plausible Distractors: A & B. are plausible, but are not the heat sink used in this case. D. is plausible, but would not cause temperature to suddenly rise.

Question 29 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31426
User-Defined ID:	R29
Cross Reference Number:	NEW
Topic:	Shutdown Cooling Cooldown Rate
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the effect that a loss or malfunction of the following will have on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): **Component cooling water systems**

Question 29 Table-Item Links

Plant Procedures

23.205

NUREG 1123 KA Catalog Rev. 2

205000 K6.05 3.2/3.3 Component cooling water systems

30 **ID: R30** **Points: 1.00**

At 100% power a valid high drywell pressure signal occurs.

(1) What is the status of HPCI 75 seconds after receiving the high drywell pressure signal and (2) what operator action must be taken?

A. (1) Running and discharging through the minimum flow line
(2) Trip the HPCI turbine

B. (1) Running and injecting to the vessel at 5200 gpm
(2) Verify adequate feed flow and dial HPCI controller to minimum

C. (1) Running and injecting to the vessel at 5200 gpm
(2) Trip the HPCI turbine

D. (1) Running and discharging through the minimum flow line
(2) Verify adequate feed flow and dial HPCI controller to minimum

Answer: B

Answer Explanation

The system will start normally and inject.

A. is plausible because HPCI starts on Hi DW. The examinee may believe it will be on min flow because flow is not required for RPV level control. Also, they may trip the turbine because the turbine is not needed.
C. is plausible because they may decide to trip the turbine because it is not needed for RPV water level control. The correct action is to throttle flow to maintain level in band and shutdown iaw the SOP if it is not needed.
D. is plausible because the examinee may believe it will be on min flow because flow is not required for RPV level control.

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31427
User-Defined ID:	R30
Cross Reference Number:	NEW
Topic:	HPCI start signals
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mc
Comments:	KA - Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **High drywell pressure**

Question 30 Table-Item Links

Plant Procedures

23.202

NUREG 1123 KA Catalog Rev. 2

206000 A2.16 4/4.1 High drywell pressure: BWR-2,3,4

31 **ID: R31** **Points: 1.00**

While operating at 100% power, with EDG # 11 out of service, a Recirculation Loop rupture occurs. This is followed by a loss of Bus 64B.

What is the impact of this electrical loss?

A. Core Spray Pump A is de-energized.

B. Core Spray Pump B is de-energized.

C. RHR Pump C is de-energized.

D. RHR Pump D is de-energized.

Answer: A

Answer Explanation
Only Core Spray Pump A is powered from 4160v Bus 64B. B. Is plausible, CS pump B is powered from 4160v Bus 65E C. Is plausible, RHR pump C is powered from 4160v Bus 64C D. Is plausible, RHR pump D is power from 4160v Bus 65F

Question 31 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31428
User-Defined ID:	R31
Cross Reference Number:	NEW
Topic:	Core Spray Power
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of electrical power supplies to the following: **Pump power**

Question 31 Table-Item Links

Plant Procedures

23.203

NUREG 1123 KA Catalog Rev. 2

209001 K2.01 3.0*/3.1* Pump power

32 **ID: R32** **Points: 1.00**

Following a LOCA from 100% power, reactor pressure is lowering. At which of the following reactor pressures will Core Spray begin to inject?

A. 460 psig

B. 400 psig

C. 310 psig

D. 250 psig

Answer: D

Answer Explanation
250 psig is below the Core Spray Pumps injection pressure. If the system is aligned, injection will occur. A. Is plausible, 461 psig is the reactor pressure low alarm 2D27 which opens LPCI and CS Inbd Iso Vlv. B. Is plausible, this pressure is above the discharge injection pressure of CS. C. Is plausible, this pressure is the discharge pressure of LPCI.

Question 32 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31429
User-Defined ID:	R32
Cross Reference Number:	NEW
Topic:	Core Spray Injection Pressure
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to predict and/or monitor changes in parameters associated with operating the LOW PRESSURE CORE SPRAY SYSTEM controls including: **Reactor pressure**

Question 32 Table-Item Links

Plant Procedures

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

209001 A1.04 3.7/3.7 Reactor pressure

33 **ID: R33** **Points: 1.00**

The plant has experienced an ATWS condition, and SLC injection has been directed.

Which RWCU valve isolations should be expected following SLC Pump starting?

A. G3352-F001, RWCU Supply Inbd Iso Vlv, **and**
G3352-F004, RWCU Supply Otbd Iso Vlv

B. G3352-F001, RWCU Supply Inbd Iso Vlv, **and**
G3352-F220, RWCU to FW Otbd Cntm Iso Vlv

C. G3352-F004, RWCU Supply Otbd Iso Vlv, **and**
G3352-F220, RWCU to FW Otbd Cntm Iso Vlv

D. G3352-F001, RWCU Supply Inbd Iso Vlv, **and**
G3352-F004, RWCU Supply Otbd Iso Vlv, **and**
G3352-F220, RWCU to FW Otbd Cntm Iso Vlv

Answer: C

Answer Explanation
Correct Answer C - When the SLC actuation switched is placed in A(B) RUN, G3352-F004 closes and the RWCU Pumps trip, and G3352-F220 closes. Plausible Distractors: A - are plausible, but G3352-F001 only closes when a RWCU System isolation is received. B - are plausible, but G3352-F001 only closes when a RWCU System isolation is received. C - are plausible, but G3352-F001 only closes when a RWCU System isolation is received.

Question 33 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31430
User-Defined ID:	R33
Cross Reference Number:	NEW
Topic:	SLC injection indications
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: **RWCU isolation**

Question 33 Table-Item Links

Plant Procedures

23.139

NUREG 1123 KA Catalog Rev. 2

211000 K4.07 3.8*/3.9* RWCU isolation

34 **ID: R34** **Points: 1.00**

Reactor power is stable at 100% when 3D11, SLC Continuity Loss, alarms. The operator dispatched to H11-P613 reports that Squib Valve Currents are C41-M600A reading 5 ma, and C41-M600B reading 0 ma.

Based on these indications, which one of the following statements is true?

A. Squib A indicating light is OFF.

B. Squib B indicating light is OFF.

C. Both Squib indicating lights are ON.

D. Both Squib indicating lights are OFF.

Answer: B

Answer Explanation
Correct Answer B - Squib current reading should correspond to the indicating light on P603. When the light is ON, current should be ~5ma. The light is OFF when current is <2ma. Plausible Distractors: A - are plausible if examinee is confused about the correlation of current readings to light indication. C - are plausible if examinee is confused about the correlation of current readings to light indication. D - are plausible if examinee is confused about the correlation of current readings to light indication.

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31431
User-Defined ID:	R34
Cross Reference Number:	NEW
Topic:	SLC inop
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to monitor automatic operations of the STANDBY LIQUID CONTROL SYSTEM including: **Explosive valves indicating lights**

Question 34 Table-Item Links

Plant Procedures

03D011

NUREG 1123 KA Catalog Rev. 2

211000 A3.03 3.8/3.8 Explosive valves indicating lights: Plant-Specific

Technical Specifications

3.1.7 Standby Liquid Control (SLC) System

35 **ID: R35** **Points: 1.00**

Which of the following combinations result in a Reactor Scram?

A. RPV Pressure instruments B21N078A and C upscale high

B. MSL Radiation Monitor channels D11K603B and D upscale

C. IRM A and H HIGH-HIGH with Mode Switch not in RUN

D. IRM E and G HIGH-HIGH with Mode Switch not in RUN

Answer: C

Answer Explanation
C IRM A (trip channel A1) and H (trip channel B2) High-High w/Mode Switch not in RUN will trip both RPS logics for a full scram. A RPV Pressure instruments B21-N078A and C are both in the same trip system and will only cause a half scram. B MSL Rad Monitors D11-K603B and D are both in the same trip system and will only cause a half scram. D IRM E (A1) and G (A2) are both in the same trip system and will only cause a half scram.

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31432
User-Defined ID:	R35
Cross Reference Number:	NEW
Topic:	RPS logic
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to REACTOR PROTECTION SYSTEM: **Specific logic arrangements**

Question 35 Table-Item Links

Plant Procedures

23.601

NUREG 1123 KA Catalog Rev. 2

212000 K5.02 3.3/3.4 Specific logic arrangements

36 **ID: R36** **Points: 1.00**

A Full Scram will occur from which of the following combination:

A. APRM downscale with second APRM Upscale trip

B. APRM Simulated Thermal Power Upscale with second OPRM Upscale trip

C. LPRM Low Count with second APRM Inoperable

D. An APRM keylock switch is out of operate with second APRM Critical Test Fault

Answer: D

Answer Explanation
D. IS CORRECT 23.605 enclosure Plausible Distractors: A Knowledge Misconception. ROD BLOCK WITH ONE VOTE B Knowledge Misconception. ROD BLOCK WITH ONE VOTE C . Knowledge Misconception. ROD BLOCK WITH ONE VOTE

Question 36 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31433
User-Defined ID:	R36
Cross Reference Number:	NEW
Topic:	RPS - APRMS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to manually operate and/or monitor in the control room: **Reactor power**

Question 36 Table-Item Links

Plant Procedures

23.605

NUREG 1123 KA Catalog Rev. 2

212000 A4.05 4.3*/4.3* Reactor power

37 **ID: R37** **Points: 1.00**

A reactor start up is in progress. The reactor is critical, and the P603 operator is ranging IRMs when 3D64, IRM Downscale, alarms.

In accordance with 23.603, the P603 operator should _____.

A. bypass the associated IRM

B. range the associated IRM to next lower range

C. range the associated IRM to next higher range

D. wait until rising reactor power causes the downscale alarm to clear

Answer: B

Answer Explanation
Correct Answer B - During reactor startup while power is ascending through the Intermediate range, avoid ranging down IRM's unless 3D64, "IRM DOWNSCALE" is received for the IRM downscale. Plausible Distractors: A. Is plausible, would be performed if down range was unsuccessful. C. Is plausible, ranging the IRM up would not clear the downscale alarm D. Is plausible,waiting for power to increase would clear the alarm but is not procedurally driven

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31270
User-Defined ID:	R37
Cross Reference Number:	NEW
Topic:	Startup - IRMs
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	ILO 2013 doug
Comments:	KA - Intermediate Range Monitor (IRM) System: **Ability to interpret and Execute Procedure Steps**

Question 37 Table-Item Links

Plant Procedures

23.603

NUREG 1123 KA Catalog Rev. 2

G2.1.20 4.6/4.6 Ability to interpret and execute procedure steps
215003 IRM System

38 **ID: R38** **Points: 1.00**

The reactor operator is **inserting** a control rod to lengthen reactor period during a reactor startup. The IRM channels are on Range 3. The reactor mode switch is in STARTUP and no SRM channels are bypassed.

What is the effect if SRM A malfunctions and fails high?

A. Rod motion stops.

B. Rod motion continues.

C. The Reactor Scrams.

D. A Half Scram is received on RPS A.

Answer: B

Answer Explanation
The shorting links are only removed during fuel/handling evaluations. A rod withdrawal block would be actuated for any rod being withdrawn. This rod is being inserted. A. Is plausible, this would be true for any rod being withdrawn C. Is plausible, would be true if shorting links were removed D. Is plausible, SRM A Upscale Trip contact feeds into Trip Logic A1.

Question 38 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31566
User-Defined ID:	R38
Cross Reference Number:	315-0122-0004-005
Topic:	SRM malfunction
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 2
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the physical connections and/or cause effect relationships between SOURCE RANGE MONITOR (SRM) SYSTEM and the following: **Reactor Protection System**

Question 38 Table-Item Links

Plant Procedures

23.602

NUREG 1123 KA Catalog Rev. 2

215004 K1.01 3.6/3.7 Reactor protection system

39 **ID: R39** **Points: 1.00**

The plant is operating at 100% power when 9D70, DIV 1 120V RPS BUS 1A POWER FAILURE, alarms.

What affect will this condition have on the Average Power Range Monitors (APRMs)?

A. APRMs will remain energized.

B. APRM channel 1/3 will be INOP.

C. Control Rod Block AND APRM Upscale will alarm.

D. APRM 2-out-of- 4 Logic Module will cause a Reactor SCRAM.

Answer: A

Answer Explanation
Power is auctioneered such that a loss of RPS power results in the APRM, LPRM and RBM remaining energized and functional. B is plausible, APRMs 1/3 receive primary power through RPS A. C is plausible, but ONLY partially correct, Control Rod Block will occur but APRMs remain powered through QLVPS and upscale will not occur. D is plausible, 2/4 logic will remain powered through auctioneered power via RPS B.

Question 39 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31567
User-Defined ID:	R39
Cross Reference Number:	NEW
Topic:	APRM - power supply
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of electrical power supplies to the following: **APRM channels**

Question 39 Table-Item Links

Plant Procedures

23.605
09D70

NUREG 1123 KA Catalog Rev. 2

215005 K2 02 2.6/2.8 APRM channels

40 **ID: R40** **Points: 1.00**

The reactor is operating with both recirculation loops in operation when a manual runback is performed resulting in the following conditions:

- APRM Flux is 73%.
- APRM Recirc Flow is 40%.
- Total Core Flow is 54 Mlbm/hr (equally divided between both loops).

Which one of the following is the **LOWEST** APRM power which will produce a Simulated Thermal Power Trip?

A. 85%

B. 87%

C. 96%

D. 113.5%

Answer: B

Answer Explanation
Justification: The APRM Simulated Thermal Power Trip Setpoint is 0.63 (W) + 61.4% with W=40, the Trip Setpoint is 86.6%. The lowest listed power which exceeds this is 87%. A Is plausible, misunderstanding of how trip setpoints work C Is plausible, and is miscalculated with W=54 (core flow) D Is plausible, 113.5% is the high clamp value for the APRM STP trip Setpoint

Question 40 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31527
User-Defined ID:	R40
Cross Reference Number:	NEW
Topic:	APRM Trip setpoint
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM : **Core flow effects on APRM trip setpoints** **No reference will be provided.**

Question 40 Table-Item Links

Plant Procedures

03D101

NUREG 1123 KA Catalog Rev. 2

215005 K5.05 3.6/3.6 Core flow effects on APRM trip setpoints

41 **ID: R41** **Points: 1.00**

While operating at 100% CTP, a Station Blackout occurs.

- **NO** high pressure feed systems are operating.
- Div 1 ESF batteries experience a fault, and Div 1 DC distribution is **LOST**.
- 1D56, RCIC LOGIC BUS POWER FAILURE, alarms.

Which statement below describes the effect that the loss of Div 1 ESF DC distribution has on level control?

A. All injection sources will be lost.

B. HPCI system must be used to control RPV level.

C. RHRSW to RHR X-connect must be used to maintain level.

D. RCIC can be used for injection but must be controlled in manual from the Control Room.

Answer: B

Answer Explanation
HPCI is powered from Div 2 DC. RCIC is powered from Div. 1. A Is plausible, SBO results in limited injection sources C Is plausible, a SBO would result in no power to RHRSW D Is plausible, under certain logic failures RCIC will still function

Question 41 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31568
User-Defined ID:	R41
Cross Reference Number:	315-0143-A014-004
Topic:	RCIC-SBO
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the effect that a loss or malfunction of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) will have on following: **Reactor water level**

Question 41 Table-Item Links

Plant Procedures

20.300.SBO
01D56

NUREG 1123 KA Catalog Rev. 2

217000 K3.01 3.7/3.7 Reactor water level

42 **ID: R42** **Points: 1.00**

A plant transient has occurred, and ADS was allowed to automatically initiate. The following plant conditions exist:

- Drywell pressure.....2.8 psig (rising)
- RPV pressure.....724 psig (lowering)
- RPV water level.....28 inches (lowering)
- RHR Pumps.....all running
- Core Spray Pumps.....all running
- ADS.....initiated

Given the above conditions, which of the following actions would cause the ADS valves to close?

A. Recovering RPV level above Level 1

B. Depressing the Drywell Pressure Reset pushbutton

C. Depressing the ADS Timer Logic reset pushbuttons

D. Placing the ADS Inhibit Switches to the "Inhibit" position

Answer: C

Answer Explanation
Depressing the ADS timer reset pushbuttons will deenergize the K6B/K7B relays, reseting ADS logic, causing the ADS valves to close. All distractors show a misunderstanding of ADS logic.

Question 42 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31569
User-Defined ID:	R42
Cross Reference Number:	315-0142-0004-003
Topic:	ADS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of AUTOMATIC DEPRESSURIZATION SYSTEM design feature(s) and/or interlocks which provide for the following: **ADS logic control**

Question 42 Table-Item Links

Plant Procedures

23.601
23.201

NUREG 1123 KA Catalog Rev. 2

218000 K4.03 3.8/4 ADS logic control

43 **ID: R43** **Points: 1.00**

The plant is operating at power when it is discovered that a mis-calibrated instrument was used to set the High Drywell Pressure instrumentation setpoint. Which of the following Group isolations would be impacted by this error?

Group 1 - MSIV & Drains	Group 10 - RWCU Inbd
Group 2 - Rx Sample	Group 11 - RWCU Outbd
Group 3 - RHR	Group 12 - TWMS
Group 4 - SDC/HD Spray	Group 13 - DW Sumps
Group 5 - CSS	Group 14 - PC Vent
Group 6 - HPCI	Group 15 - TIP
Group 7 - HPCI Vac Bkr	Group 16 - PC Press Cont
Group 8 - RCIC	Group 17 - RRS Seals/PCRMS Isol
Group 9 - RCIC Vac Bkr	Group 18 - DW Pneumatics

A. Groups 1,3,7,9,12,13,14,15,18,

B. Groups 2,3,7,9,11,12,13,14,15,18

C. Groups 2,3,5,7,9,12,13,14,15,16,17,18

D. Groups 2,4,5,7,9,12,13,14,15,16,17,18

Answer: C

Answer Explanation

The automatic closure of various Class B valves prevents the release of significant radioactive material from the Primary Containment. These valves are not needed for a safe shutdown of the plant.

A. is incorrect; MSIV and drains will not isolate on a high drywell pressure signal.
B. is incorrect; RWCU will not isolate on drywell pressure.
D. is incorrect; SDC/HD Spray will not isolate on drywell pressure.

Question 43 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	6
Difficulty:	4.00
System ID:	31570
User-Defined ID:	R43
Cross Reference Number:	NEW
Topic:	Group isolation - Drywell pressure
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF: **Containment instrumentation**

Question 43 Table-Item Links

Plant Procedures

23.427

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

223002 K6.05 3.0/3.3 Containment instrumentation

44 **ID: R44** **Points: 1.00**

RCIC Steam Line Pressure - Low signals have been received from the following instruments:

- E5150-N058A
- E5150-N058B
- E5150-N058C

Based on these signals, what is the status of RCIC?

A. In a normal standby lineup.

B. Isolated with E5150-F007, RCIC Steam Line Inboard Valve, shut.

C. Isolated with E5150-F008, RCIC Steam Line Outboard Valve, shut.

D. Isolated with both E5150-F007, RCIC Steam Line Inboard Valve, and E5150-F008, RCIC Steam Line Outboard Valve, shut.

Answer: C

Answer Explanation
The trip of instruments A & C causes the closure of E5150-F008. A. is incorrect since the trip of A & C or B & D would cause a valve closure. B. is incorrect since B & D would have to be tripped to close E5150-F007. D. is incorrect since all 4 instruments would have to be tripped to close both E5150-F007 and F008.

Question 44 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.50
System ID:	31287
User-Defined ID:	R44
Cross Reference Number:	NEW
Topic:	PCIS - RCIC
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to predict and/or monitor changes in parameters associated with operating the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF controls including: **Valve Closures**

Question 44 Table-Item Links

Plant Procedures

23.601

NUREG 1123 KA Catalog Rev. 2

223002 A1.02 3.7/3.7 Valve closures

45 **ID: R45** **Points: 1.00**

During normal power operation an SRV fails open. Why does Feed Water Level Control maintain RPV water level at a lower level until the SRV is closed?

A. Feedwater flow rises, but not enough to compensate for the additional steam loss.

B. Feedwater flow lowers to anticipate level swell.

C. Feedwater flow lowers to match indicated steam flow.

D. Feedwater flow lowers to match actual steam flow.

Answer: C

Answer Explanation
Since FW Control does not sense the SRV steam flow, indicated steam flow lowers. FW Control reduces feed flow to match indicated steam flow. This results in RPV level lowering. The lower RPV level creates a level deviation, and feed flow is raised until RPV level is stable, but at a lower level than before the transient. A. This is a plausible condition but feedwater flow would lower to match indicated steam flow B. This is a plausible condition but feedwater flow would lower due to level swell and lower indicated steam flow D. This is a plausible condition but steam flow thru SRV is not seen by Feedwater Control System

Question 45 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31626
User-Defined ID:	R45
Cross Reference Number:	NEW
Topic:	SRV indications
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	ILO 2013 doug
Comments:	KA - Ability to predict and/or monitor changes in parameters associated with operating the RELIEF/SAFETY VALVES controls including: **Indicated vs. actual steam flow**

Question 45 Table-Item Links

Plant Procedures

23.107
20.000.25

NUREG 1123 KA Catalog Rev. 2

239002 A1.09 3.1/3.3 Indicated vs. actual steam flow: Plant-Specific

46 **ID: R46** **Points: 1.00**

With reactor power at 100%, the RFP A controller shifts to EMERGENCY BYPASS mode.

How does RPV level respond, and what actions are needed to restore level control?

A. Level lowers. Lower recirc flow and insert cram array to allow capacity of feedwater to turn level.

B. Level lowers. Take manual control of RFP B to raise Feed Flow and restore level.

C. Level will not change. Take manual control of RFP A, and control speed allowing RFP B to control level as necessary.

D. Level will not change. Take manual control of RFP B, and monitor for changes continuously until controller is repaired.

Answer: C

Answer Explanation
Level does not change. AOP 20.107.01 directs placing the affected RFP (A) to manual, and controlling speed as necessary to allow unaffected RFP (B) to control level. A. Functional misconception - RFP will not lose signal, if it did this would be appropriate B. Functional misconception - RFP will not lose signal so level will not lower, controller in manual D. Functional misconception - Incorrect action, unaffected RFP should remain in auto

Question 46 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31627
User-Defined ID:	R46
Cross Reference Number:	NEW
Topic:	DCS Failure
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 doug
Comments:	KA - Ability to (a) predict the impacts of the following on the REACTOR WATER LEVEL CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **Loss of controller signal output**

Question 46 Table-Item Links

Plant Procedures

20.107.01
23.107

NUREG 1123 KA Catalog Rev. 2

259002 A2.06 3.3/3.4 Loss of controller signal output

47 **ID: R47** **Points: 1.00**

SGTS has started on an automatic signal. SGTS D1 flow is 1600 scfm, and 8D35, DIV 1 SGTS Air Flow Stopped, has alarmed.

Low air flow could be caused by which of the following?

A. Div 1 SGTS 24kW Heater tripped.

B. SGTS Pre-Filter differential pressure is 1.3" water gauge.

C. Breaker for T46-C003, Div 1 SGTS Exhaust Fan has tripped.

D. T46-F003A, Div 1 SGTS Exhaust Fan Inlet Vortex Damper, malfunctioning.

Answer: D

Answer Explanation
SGTS Exhaust Fan Inlet Vortex Damper modulates on start to maintain normal flow band. A malfunction could cause it to maintain a lower than normal flow. Plausible Distractors A. heater will trip on alarm. If water collects in the charcoal could restrict flow. B. could lower flow, but vortex damper would maintain flow. C. if exhaust fan trips, flow would be 0.

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31628
User-Defined ID:	R47
Cross Reference Number:	NEW
Topic:	SGTS malfunction
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to monitor automatic operations of the STANDBY GAS TREATMENT SYSTEM including: **Valve operation**

Question 47 Table-Item Links

Plant Procedures

08D35
23.404

NUREG 1123 KA Catalog Rev. 2

261000 A3.03 3/2.9 Valve operation

48 **ID: R48** **Points: 1.00**

Maintenance has completed work on Bus 72S alternate supply breaker, 72S Pos 1C. Post maintenance testing has been completed and the breaker has been released for service. A failure causes 72S Pos 1B, Bus 72S normal supply breaker, to trip OPEN. The following indications are observed:

- 72S Pos 1C.....Indicates closed
- 72S Pos 1B.....Indicates tripped
- 9D16, DIV I 480V ESS BUS 72 BKR TRIPPED.....In alarm
- 72S Bus Voltage.....Zero (0)

What has occurred to cause these indications?

A. 72S auto throw-over worked properly.

B. Breaker 72S Pos 1C was left in TEST position.

C. Bus 72S throw-over mode select switch is in MANUAL.

D. A fault on bus 72S prevented energizing from the alternate supply.

Answer: B

Answer Explanation
From 23.300, “TEST - This position is used for testing a circuit breaker for proper operation. In this position, the main contacts are separated from the supply and load. The control circuit and auxiliary control are operational.” The normal control circuitry would energize the closing coil causing the breaker to close. The normal closed indications would be observed in the control room. The bus would not be powered because the main contacts would still be open. A. is plausible because 72S Pos 1C indicates CLOSED. The examinee may not understand that the bus voltage is from the bus and not independent from breaker position. C. is plausible because there is an apparent failure of the alternate supply to power the bus based on Zero bus voltage. The throw over switch in MANUAL would prevent auto throw over. D. is plausible because some buses have lock out features that prevent energizing from another source if there is a fault on the bus.

Question 48 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31646
User-Defined ID:	R48
Cross Reference Number:	NEW
Topic:	72S Pos 1C in TEST
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Ability to manually operate and/or monitor in the control room: **All breakers and disconnects (including available switch yard)**

Question 48 Table-Item Links

Plant Procedures

09D16

23.300

NUREG 1123 KA Catalog Rev. 2

262001 A4.01 3.4/3.7 All breakers and disconnects (including available switch yard): Plant-Specific

49 **ID: R49** **Points: 1.00**

The Rectifier/Charger and DC battery become disconnected from UPS Unit A due to a fault. Loads on UPS A Distribution cabinets are _____.

A. lost due to the loss of battery back-up

B. not affected due to static transfer switch operation

C. lost due to failure of Rectifier/Charger causing internal AC loss

D. not affected since Bus 72M pos. 3D (Normal) is still energized

Answer: B

Answer Explanation
Correct Answer B - If all DC power is lost to a UPS unit, Static Transfer Switch operation will automatically supply the distribution cabinet on that side from the alternate power supply. Plausible Distractors: A & C are incorrect since Static Transfer Switch functions to maintain loads. D is incorrect because AC supply to the rectifier is deenergized.

Question 49 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	31648
User-Defined ID:	R49
Cross Reference Number:	NEW
Topic:	UPS faults
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - **Uninterruptable Power Supply (A.C./D.C.): Generic Ability to determine operability and/or availability of safety related equipment**

Question 49 Table-Item Links

Plant Procedures

23.308.01

NUREG 1123 KA Catalog Rev. 2

G2.2.37 3.6/4.6 Ability to determine operability and/or availability of safety related equipment
262002 UPS (AC/DC)

50 **ID: R50** **Points: 1.00**

The plant is operating at 100% power with the AC Distribution System aligned normally. Loss of Battery 2B-2 results in a loss of control power to 480v ESF Bus 72F. Which of the following would be the impact of this condition?

A. 480v MCC 72CF transfers to Alternate.

B. North RWCU Pump trips and the system isolates.

C. Power is lost to Division 2 SGTS fans and dampers.

D. The automatic throw-over function of 480v MCC 72CF is disabled.

Answer: D

Answer Explanation
20.300.72F, Caution 2, states "Loss of Div 2 Battery 2B-2 results in loss of control power to Bus 72F which prevents auto transfer of MCC 72CF, and requires compliance with Technical Specifications." Plausible Distractors: A. would be true if 72CF was aligned to 72F (72C normally). B. is incorrect since N RWCU Pump is not affected by the DC loss and is powered from 72C which is still energized. C. is incorrect since Div 2 SGTS is not affected by the DC loss and is powered from 72F which is still energized.

Question 50 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	4.00
System ID:	31666
User-Defined ID:	R50
Cross Reference Number:	NEW
Topic:	DC distribution
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the physical connections and/or cause-effect relationships between D.C. ELECTRICAL DISTRIBUTION and the following: **A.C. electrical distribution**

Question 50 Table-Item Links

Plant Procedures

20.300.72F

NUREG 1123 KA Catalog Rev. 2

263000 K1.01 3.3/3.5A.C. electrical distribution

51 **ID: R51** **Points: 1.00**

The plant is operating at 100% power. EDG 12 is running paralleled to Bus 64C for a surveillance run. The following events then occur:

- 9D15, D1 4160V ESS Bus 64C Breaker Tripped, alarms.
- 64C-Pos.C6 trips open.
- 64C-Pos.C8 trips open.
- Bus 64C power ON light goes OFF.

Based on these indications which of the following is true?

A. North RRMG Set scoop tube positioner is locked.

B. CRS should enter 20.307.01, Emergency Diesel Generator Failure.

C. A half scram is received on Division 1 if RPS A is on normal supply.

D. RBCCW is not affected as none of the pumps are powered from 72C.

Answer: A

Answer Explanation
20.300.64C, Note 8 states "The North RR MG Scoop Tube Positioner will automatically lock on loss of power to the Scoop Tube Positioner and due to MPU 4 transfer." C. RPS Alternate supply is 72C. D. N RBCCW pump is powered from 72C. B. not appropriate as bus has tripped; not an EDG issue.

Question 51 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31706
User-Defined ID:	R51
Cross Reference Number:	NEW
Topic:	Loss of 64C Bus
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the effect that a loss or malfunction of the EMERGENCY GENERATORS (DIESEL/JET) will have on following: **Major loads powered from electrical buses fed by the emergency generator(s)**

Question 51 Table-Item Links

Plant Procedures

20.300.64C

NUREG 1123 KA Catalog Rev. 2

264000 K3.03 4.1*/4.2* Major loads powered from electrical buses fed by the emergency generator(s)

52 **ID: R52** **Points: 1.00**

The plant is experiencing a loss of air event. Station air header is 73 psig with all Station Air Compressors running.

At this time, air supply to PCMS isolation valves is _____.

A. provided by Station Air

B. provided by Instrument Air

C. provided by Non-Interruptible Air

D. isolated due to low supply air pressure

Answer: C

Answer Explanation
Correct Answer C - Enclosures in 20.129.01 show PCMS is an NIAS load. At this air pressure, all air supplies are isolated except NIAS. Plausible Distractors: A - Knowledge misconception - NIAS load B - Knowledge misconception - NIAS load D - Knowledge misconception - NIAS load

Question 52 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	31707
User-Defined ID:	R52
Cross Reference Number:	NEW
Topic:	Station Air Loss
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of (INSTRUMENT AIR SYSTEM) design feature(s) and or interlocks which provide for the following: **Cross-over to other air systems**

Question 52 Table-Item Links

Plant Procedures

20.129.01
23.129

NUREG 1123 KA Catalog Rev. 2

300000 K4.02 3/3 Cross-over to other air systems

53 **ID: R53** **Points: 1.00**

The plant is operating at 100% power with all equipment available when alarm 5D9, TBCCW Heat Exch Disch Temp High/Low is received. The following conditions are observed:

- P43-R803, TBCCW HX Temperature, indicates 88°F.
- P43-K817, TBCCW TCV P43-F402 Ctrlr, is in Auto.
- P43-F402 indicates FULL OPEN.

Which of the following actions, if taken, would correct this abnormal TBCCW system condition?

A. Slowly open P4100-F080A(B), TBCCW HX GSW Inlet Valve, and open P4300-F601(F602), TBCCW HX Inlet Iso Valve, for the standby TBCCW Heat Exchanger.

B. Close P4100-F146, GSW Rtrn From TBCCW TCV Restricting Orifice Iso Vlv and throttle P4100-F147, GSW Rtrn From TBCCW Restricting Orifice Bypass Vlv.

C. Verify closed P4300-F601(F602), TBCCW HX Inlet Iso Valve, and slowly open P4100-F080A(B), TBCCW HX GSW Inlet Vlv for the standby TBCCW Heat Exchanger.

D. Place P43-K817 in MANUAL and incrementally adjust TBCCW Outlet Temperature by controlling P43-F402, TBCCW HX Inlet Iso Valve, in manual.

Answer: A

Answer Explanation
Correct Answer A - SOP direction is to valve in the cooling water (GSW) and then open the inlet isolation valve to place another HX in service. Distractors: B - plausible because it appears to apply more cooling water. C - plausible -- correct valves, but they are not in the correct order of operation. D - plausible - if the controller had failed in AUTO. There is no indication of this.

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	32926
User-Defined ID:	R53
Cross Reference Number:	NEW
Topic:	Loss of TBCCW
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mc
Comments:	KA - Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: **High/low CCW temperature**

Question 53 Table-Item Links

Plant Procedures

23.128

05D009

NUREG 1123 KA Catalog Rev. 2

400000 A2.03 2.9/3 High/low CCW temperature

54 **ID: R54** **Points: 1.00**

The plant is at 86% power with rod pattern adjustments in progress when the following indications are received:

- 3D80, Control Rod Drift, alarms.
- No control rod positions indicated on four rod display.
- No RED full out or GREEN full in lights lit on full core display.

Based on these indications, what actions are appropriate?

A. Enter 20.106.07, Control Rod Drift.

B. Stop any control rod movements in progress.

C. Place the Reactor Mode Switch to SHUTDOWN.

D. Substitute rod positions for control rods with bad indications per 23.608, Rod Worth Minimizer.

Answer: B

Answer Explanation
Correct Answer B These conditions indicate a total loss of RPIS. The first action is to stop any rod motion in progress. Plausible Distractors: A. is incorrect since the drift alarm is due to loss of rod positions for all rods. C. is incorrect since there is no safety reason to shutdown the reactor at this time. D. is incorrect since it is a loss of all rod position indication.

Question 54 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.00
System ID:	31288
User-Defined ID:	R54
Cross Reference Number:	NEW
Topic:	Loss of RPIS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 doug
Comments:	KA - Ability to monitor automatic operations of the CONTROL ROD AND DRIVE MECHANISM including: **Control Rod Position**

Question 54 Table-Item Links

Plant Procedures

20.106.08

NUREG 1123 KA Catalog Rev. 2

201003 A3.01 3.7/3.6 Control rod position

55 **ID: R55** **Points: 1.00**

A plant startup is in progress with Reactor Power at 9% when the Feedwater Control System Steam Flow digital output fails downscale.

Which one of the following describes the effect on rod movement?

A. The RWM will enforce rod movement at all power levels.

B. Rod blocks will only be generated at power levels above 27%.

C. The RWM must be bypassed to allow rod movement until power reaches 12%.

D. Rod movement would be prevented by a withdraw error enforced by the RWM.

Answer: A

Answer Explanation
The RWM will enforce rod movement based on the selected rod sequence up to the low power setpoint (LPSP). LPSP is in effect until feedwater flow is >12.275% and steam flow is >12.25%. With the steam flow failed low, the LPSP would never be reached. C is plausible, LPSP is enforced until steam flow is >12.25% not power. B is plausible, rod blocks will be enforced at all power levels with a failed steam flow output. D is plausible, WE would be enforced for incorrectly selected rod below the LPSP.

Question 55 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31587
User-Defined ID:	R55
Cross Reference Number:	NEW
Topic:	RWM - setpoints
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the effect that a loss or malfunction of the ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) will have on following: **Reactor manual control system**

Question 55 Table-Item Links

Plant Procedures

23.608

NUREG 1123 KA Catalog Rev. 2

201006 K3.01 3.2/3.5 Reactor manual control system: P-Spec(Not-BWR6)

56 **ID: R56** **Points: 1.00**

During an EECW System surveillance with the plant operating at 100% power, P4400-F606B, EECW Supply to Div 2 EECW Drywell Equipment Isolation valve suddenly closes.

Which of the following describes the impact of this fault and any required operator actions?

A. RR MG Set bearing damage could occur. Trip RR Pump B.

B. RR Pump motor damage could occur. If flow cannot be restored within 2 minutes trip RR Pump B.

C. RR MG Set North Cooling Fan air temperatures could increase. If MG set air temperature exceeds 260°F, trip RR Pump B.

D. RR Pump seal damage could occur. If seal cavity temperature exceeds 180°F, Recirc Pump B must be shutdown.

Answer: B

Answer Explanation
Without cooling, RR MG set should be tripped within 2 minutes. Motor damage may occur. A. is plausible, but cooling would still be available to MG set bearings. C. is plausible, but cooling would still be available to MG set cooling unit. D. is plausible, Seal Temperature alarms at 160°F and pump should be tripped and isolated at >200°F.

Question 56 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31588
User-Defined ID:	R56
Cross Reference Number:	315-0167-B007-005
Topic:	EECW Valve Failure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	ILO 2013 mike
Comments:	KA - Knowledge of the operational implications of the following concepts as they apply to RECIRCULATION SYSTEM **:** **Pump/motor cooling**

Question 56 Table-Item Links

Plant Procedures

20.127.01
23.138.01
03D146
03D161

NUREG 1123 KA Catalog Rev. 2

202001 K5.03 2.7/2.7 Pump/motor cooling: Plant-Specific

57 **ID: R57** **Points: 1.00**

The Plant is operating at 100% when 1D66, STEAM LEAK DETECTION AMBIENT TEMP HIGH, alarms. It is determined that the Reactor Water Cleanup Pump Room A temperature is reading 177°F. The CRNSO observes the P602 panel and notices that G3352-F004, RWCU SUPPLY OTBD ISO VLV, is CLOSED. All other indications are normal.

Given the above conditions, which of the following statements describes **ALL** of the expected operator responses?

A. Close G3352-F119 RWCU SUPPLY SUCT ISO VLV and G3352-F220 RWCU TO FW OTBD CNTM ISO VLV and trip RWCU pumps.

B. Close G3352-F001 RWCU INBD ISO VLV and G3352-F220 RWCU TO FW OTBD CNTM ISO VLV.

C. Close G3352-F119 RWCU SUPPLY SUCT ISO VLV and G3352-F220 RWCU TO FW OTBD CNTM ISO VLV.

D. Close G3352-F001 RWCU INBD ISO VLV and G3352-F220 RWCU TO FW OTBD CNTM ISO VLV and trip RWCU pumps.

Answer: D

Answer Explanation

RWCU Area Temperature High >175°F will cause auto closure of G3352-F001,F004,F220 and result in a low flow RWCU pump trip. With temperature reading 177°F all valves should have isolated and pumps should have tripped with the closure of G3352-F004 causing low flow trip.

A. Is plausible, G3352-F119 does not receive an auto closure signal for high room temp
B. Is plausible, G3352-F001,F220 will need to be isolated but pump must also be tripped
C. Is plausible, G3352-F119 does not receive an auto closure signal for high room temp

Question 57 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31606
User-Defined ID:	R57
Cross Reference Number:	NEW
Topic:	RWCU valve isolations
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - Ability to (a) predict the impacts of the following on the REACTOR WATER CLEANUP SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: **Valve closures**

Question 57 Table-Item Links

Plant Procedures

01D66

23.707

NUREG 1123 KA Catalog Rev. 2

204000 A2.10 2.7/2.8 Valve closures

58 **ID: R58** **Points: 1.00**

Control rod operability surveillance is in progress at full power. With Control Rod 22-15 selected at 48, an insert signal is applied, and the following is displayed on the RWM:

- SR 22-15.....FF
- Self Test.....OK
- Mode.....OPERATE

What do these indications mean to the operator?

A. RPIS digital inputs are not valid at this position.

B. Rod Worth Minimizer has blocked rod movement.

C. RPIS position is a substituted value for this position.

D. RPIS position is bypassed in the Rod Worth Minimizer.

Answer: A

Answer Explanation
If either digit of the RPIS input position is inoperable, an "FF" will be displayed. B. Functional misconception - RWM is automatically bypassed. Cannot be true at full power. C. Functional misconception - If the rod has a substituted position, the position indication will be displayed in blue on IPCS display. D. Functional misconception - If the rod is bypassed in RWM, its I.D. will be displayed using inverse video on the RWM.

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	31289
User-Defined ID:	R58
Cross Reference Number:	NEW
Topic:	RPIS - RWM
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of the physical connections and/or cause-effect relationships between ROD POSITION INFORMATION SYSTEM and the following: **RWM**

Question 58 Table-Item Links

Plant Procedures

23.608

NUREG 1123 KA Catalog Rev. 2

214000 K1.01 3/3.2 RWM: Plant-Specific

59 **ID: R59** **Points: 1.00**

The plant is operating in Mode 3 with Division 1 RHR in Shutdown Cooling mode when RPV level begins lowering due to unknown reasons. The following indications are observed:

- Narrow range RPV level show a 6” difference between instruments
- Wide range shows a 20” difference between indicators
- Occasional notching is occurring on all instruments

Which of the following operator actions should be taken at this time?

A. Insert all control rods not fully inserted.

B. Verify Main Turbine Bypass Valves are closed.

C. Verify Reference Leg Backfill is in service with proper flow rate.

D. Isolate SDC by closing Shutdown Cooling Suction Isolation Valves E1150-F008 and E1150-F009.

Answer: D

Answer Explanation
22.000.02 P&L 3.4.1 states "If level anomalies (level indication deviates more than 5" on narrow range indication, 22" on wide range indication or notching occurs) and an unexplained loss of RPV level occurs, take immediate action to isolate SDC by closing E1150-F008, RHR SDC Otbd Suction Iso Vlv, and E1150-F009, RHR SDC Inbd Suction Iso Vlv, and refer to 20.205.01, "Loss of Shutdown Cooling." A. plausible if thought is to ensure reactor is fully shut down. B. plausible if thought is that failed open TBVs are causing RPV level loss. C. plausible due to malfunction of backfill causing loss of level indications.

Question 59 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31726
User-Defined ID:	R59
Cross Reference Number:	NEW
Topic:	Startup P & L
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 doug
Comments:	KA - Ability to manually operate and/or monitor in the control room: **Recorders**

Question 59 Table-Item Links

Plant Procedures

22.000.02

NUREG 1123 KA Catalog Rev. 2

216000 A4.01 3.3/3.1 Recorders

60 **ID: R60** **Points: 1.00**

The plant has experienced a LOCA. Current plant conditions are as follows:

- Drywell pressure ..... 15.7 psig
- Torus pressure ..... 9.9 psig
- Drywell Temperature ..... 230°F
- Torus Temperature ..... 120°F

Which system/subsystem would the crew use to lower drywell pressure under these post-LOCA conditions?

A. Torus Hardened Vents

B. Drywell Spray

C. Torus Spray

D. RBHVAC

Answer: B

Answer Explanation
23.205 System Description describes function of Drywell Spray A. Function misconception; not used for this condition C. Function misconception; does not spray in drywell or lower drywell pressure D. Function misconception; not used for this condition

Question 60 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31746
User-Defined ID:	R60
Cross Reference Number:	NEW
Topic:	RHR Contaiment Spray
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	ILO 2013 doug/PAT
Comments:	KA - RHR/LPCI: CMT Spray Mode - **Knowledge of system purpose and/or function**

Question 60 Table-Item Links

Plant Procedures

23.205

NUREG 1123 KA Catalog Rev. 2

G2.1.27 3.9/4.0 Knowledge of system purpose and or function
226001 RHR/LPCI: Containment Spray System Mode

61 **ID: R61** **Points: 1.00**

The design feature in Main and Reheat Steam that ensures Turbine isolation from high energy condensate contained in the heater shells and prevents water induction is:

A. Feedwater heater emergency drain valves open upon a Turbine trip to relieve heater levels and prevent water induction into the turbine.

B. Extraction Steam System Inlet Drain Valves and their respective isolation valves open if either the air operated check valves are closed or the motor operated isolation valves are out of the full open position.

C. Extraction Steam Motor Operated and Air Operated Inlet Valves to Feedwater Heaters 3, 4, 5, and 6 close upon receipt of a High-High level signal from their respective Heaters.

D. Steam is extracted from various points on the High Pressure and Low Pressure Turbines and is directed to the Feedwater Heaters.

Answer: C

Answer Explanation
Extraction Steam Motor Operated and Air Operated Inlet Valves to Feedwater Heaters 3, 4, 5, and 6 are interlocked to close upon receipt of a High-High level signal from their respective Heaters. If the Turbine trips, interlocks will also cause the Air Operated Valves to close. These interlocks ensure Turbine isolation from the high energy condensate contained in the heater shells and prevent water induction. As pressure in the Turbine decreases following a turbine trip, this condensate could flash and cause the Turbine to overspeed. Also water from a leaking heater tube is prevented from backing up to the Turbine A. is plausible, but does not prevent water induction. B. is plausible, but prevents condensate in lines. D. is plausible, but is the system purpose.

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	31747
User-Defined ID:	R61
Cross Reference Number:	NEW
Topic:	Main Steam Interlocks
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Knowledge of MAIN AND REHEAT STEAM SYSTEM design feature(s) and/or interlocks which provide for the following: **Over pressure control**

Question 61 Table-Item Links

Plant Procedures

23.108

NUREG 1123 KA Catalog Rev. 2

239001 K4.07 3.7/3.7 Over pressure control

62 **ID: R62** **Points: 1.00**

A plant startup is in progress. Reactor power is 50%, and the North RFP is feeding the RPV. Low Main Turbine lube oil pressure then causes a Main Turbine Trip.

Ten minutes after the trip, the North Reactor Feed Pump is _____.

A. running on low pressure steam

B. running on high pressure steam

C. tripped due to the loss of low pressure steam

D. tripped due to the loss of high pressure steam

Answer: B

Answer Explanation
LP Steam from the MSR supplies the RFPT while the turbine is operating at 50% power. RFPT steam supply automatically shifts from low pressure steam to high pressure steam when insufficient LP steam is available. Ten minutes after a Trubine Trip, there is not enough LP pressure steam and the HP steam will take over. A. is plausible, but after 2 minutes low pressure steam from the MSR is exhausted. C. is plausible, but the RFPT will switch over to HP steam. D. is plausible, but the HP steam will continue to operate the RFPT.

Question 62 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31306
User-Defined ID:	R62
Cross Reference Number:	NEW
Topic:	RFP - MT interelatioship
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	ILO 2013 doug/pt
Comments:	KA - Knowledge of the effect that a loss or malfunction of the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS will have on following: **Reactor Feedwater Pump**

Question 62 Table-Item Links

Plant Procedures

23.107
23.109
20.000.21

NUREG 1123 KA Catalog Rev. 2

245000 K3.05 2.7/2.8 Reactor feedwater pump: Plant-Specific

63 **ID: R63** **Points: 1.00**

Plant is operating at 65% power when the the CRNSO notes the following conditions:

- 6D15, Off Gas Hydrogen High, alarms.
- Hydrogen concentration indicates 2.5% on the OG Hydrogen Concentration Recorder.
- Local readings at the Hydrogen Analyzer Panel are 2.5% Channel A and 2.4% Channel B.
- The in-service recombiner temperature is 635°F and lowering.

Given these conditions, which of the following actions should the crew take?

A. Commence a plant shutdown to Hot Standby.

B. Place the standby recombiner train in service.

C. Immediately place the Reactor Mode Switch in Shutdown.

D. Reduce reactor power to maintain release rate below ODCM limits.

Answer: B

Answer Explanation
20.712.01 action for hydrogen >1% but <4%. A. is action for offgas explosion. C. is not a conservative action D. is action for high charcoal bed temperatures.

Question 63 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31748
User-Defined ID:	R63
Cross Reference Number:	NEW
Topic:	Off-Gas Hydrogen
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 doug
Comments:	KA - Ability to predict and/or monitor changes in parameters associated with operating the OFFGAS SYSTEM controls including: **Hydrogen gas concentration**

Question 63 Table-Item Links

Plant Procedures

20.712.01

NUREG 1123 KA Catalog Rev. 2

271000 A1.13 3.2/3.7 Hydrogen gas concentration

64 **ID: R64** **Points: 1.00**

A loss of 4160v Bus 68K occurs due to a bus lockout. How is fire header pressure maintained in this condition?

A. Fire Jockey Pump continues to run.

B. Electric Fire Pump starts on low pressure.

C. Diesel Fire Pump starts on low pressure.

D. Header pressure degrades with no pumps available.

Answer: A

Answer Explanation
Loss of 68K results in loss of the Electric Fire Pump (68K). The Fire Pump Jockey pump is supplied by 72K which is powered by 69K. A common misconception is that 72K is powered from 68K not 69K and would also be lost on a loss of 68K. Plausible Distractors: B Functional misconception - Power lost to Electric Fire Pump, pump not required to start. C Functional misconception - Jockey Pump continues to operate EFP and DFP not required D Functional misconception - DFP auto start not required to maintain pressure

Question 64 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31749
User-Defined ID:	R64
Cross Reference Number:	NEW
Topic:	Fire Protection Pumps
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 doug
Comments:	KA - Fire Protection: Knowledge of electrical power supplies to the following: **Pumps**

Question 64 Table-Item Links

Plant Procedures

23.501.01

NUREG 1123 KA Catalog Rev. 2

286000 K2 02 2.9/3.1 Pumps

65 **ID: R65** **Points: 1.00**

The plant has experienced an earthquake. During the transient a jet pump becomes displaced due to a failure of its hold down beam. What is the potential safety concern?

A. APRM high flux setpoints will be non-conservatively affected.

B. Proper core submergence post-LOCA cannot be maintained.

C. Indicated core flow may be lower than actual.

D. Loop jet pump flows cannot be matched.

Answer: B

Answer Explanation
A displaced Jet Pump could cause a loss of the ability to re-flood the core to at least 2/3 core height (design bases) A. is incorrect because APRM high flux setpoints are representative of reactor power from the LPRM system, not core flow. It is not affected. C. is incorrect because indicated core flow may be higher than actual (AOP). D. is incorrect because the operator will still have the ability to control RRMG speeds and loop flows.

Question 65 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31946
User-Defined ID:	R65
Cross Reference Number:	NEW
Topic:	Jet Pump Failure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 3
Text Field:	ILO 2013 mc
Comments:	KA - Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR VESSEL INTERNALS: **Reactor Recirc**

Question 65 Table-Item Links

Plant Procedures

23.605
20.138.02
20.138.02 Bases

NUREG 1123 KA Catalog Rev. 2

290002 K6.03 3.1/3.2 Recirculation system

66 **ID: R66** **Points: 1.00**

What is the basis for the requirements of making hi-com announcements prior to the start of major equipment?

A. Potential electrical load impact

B. Protection against personnel injuries

C. Potential Auto start system interrelations

D. Alert field operators to changing plant conditions

Answer: B

Answer Explanation
Per MOP03, Hi-Com announcements should be made prior to starting or stopping major pieces of equipment. This is based on DER-93-0356 where a failure of HPCI steam system rupture diaphragms resulted in personnel injury. A. Major pieces of plant equipment require a larger power source (4160kv) and have the potential to cause an electrical load impact but is not a requirement. C. Major pieces of plant equipment could have the potential to cause fluctuations (pressure, flow, load) in interrelating systems but is not a requirement. D. Starting large equipment has the potential to change plant conditions but is not a requirement.

Question 66 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31886
User-Defined ID:	R66
Cross Reference Number:	NEW
Topic:	Plant announcements
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - **Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.**

Question 66 Table-Item Links

Plant Procedures

MOP03 - Conduct Of Operations

NUREG 1123 KA Catalog Rev. 2

G2.1.14 3.1/3.1 Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.

67 **ID: R67** **Points: 1.00**

The plant is operating at 100% power in a black board condition when the CRNSO notices that the VAS display shows 3D19 as red, the SOER screen display shows the following:

This information indicates that the VAS system will incur __(1)__ of functionality and will result in __(2)__.
(See attached ARP 3D19.)

A. (1) loss
(2) loss of redundancy for one half side of VAS I/O

B. (1) no loss
(2) loss of P601 through P805 window failures

C. (1) no loss
(2) loss of redundancy for one half side of VAS I/O

D. (1) loss
(2) loss of P601 through P805 window failures

Answer: D

Answer Explanation

Alarm 3D19, Annunciator System Trouble, indicates a potential problem with the VAS system. The SOER screen display shows that MUXA/C have been lost. Flow chart in 3D19 indicates loss of VAS functionality and loss of annunciation for P601 through P805.

A this would be correct for a two MUX failure but redundancy would be lost for one side of VAS/IO
B this would be correct for a single MUX failure but P601 through P805 would remain functional
C this would be correct for a single MUX failure

Question 67 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31887
User-Defined ID:	R67
Cross Reference Number:	26575
Topic:	MUX Failures
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013 mike
Comments:	KA - **Ability to use plant computers to evaluate system or component status.** **Provide copy of 3D19 for MUX failures.**

Question 67 Table-Item Links

Plant Procedures

03D019

NUREG 1123 KA Catalog Rev. 2

G2.1.19 3.9/3.8 Ability to use plant computer to evaluate system or component status

68 **ID: R68** **Points: 1.00**

How is system configuration control maintained during a Local Leak Rate Test (LLRT)?

A. Test procedure steps are followed to maintain system configuration.

B. Operator Tags (white tag, red lettering) are hung to maintain system configuration.

C. Caution Tags (yellow with black lettering) are hung to maintain system configuration.

D. System Supervisor Tags (red tag, white lettering) are hung to maintain system configuration.

Answer: A

Answer Explanation
Per MOP 12, Caution Tags should not be used to provide configuration control during activities covered by another procedure (relay testing, LLRT, etc.). The procedure should maintain configuration control by way of procedure steps or special controls. C. Is plausible but is prohibited by MOP 12 B. Is plausible but is not permitted by MOP 12. Operator tagged equipment shall not be operated under any condition D. Is plausible but is not permitted by MOP 12. System Supervisor's tags shall be used exclusively when ordered by the System Supervisor.

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31888
User-Defined ID:	R68
Cross Reference Number:	638-0101-0101-003
Topic:	Configuration control
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013 mike
Comments:	KA - **Knowledge of the process for controlling equipment configuration or status**

Question 68 Table-Item Links

Plant Procedures

MOP12 - Tagging and Protective Barrier System

NUREG 1123 KA Catalog Rev. 2

G2.2.14 3.9/4.3 Knowledge of the process for controlling equipment configuration or status

69 **ID: R69** **Points: 1.00**

Which one of the following situations is appropriate for the use of Temporary Change Notice per MGA 04?

A. Change the intent of a system operating procedure section.

B. Change the approval requirement for an administrative procedure.

C. Correct a component identification in a system operating procedure.

D. Add a corrective action to prevent recurrence to an existing procedure.

Answer: C

Answer Explanation
This is allowed by MGA04. A is plausible, but intent changes are prohibited by MGA 04. B is plausible, but temporary changes to administrative procedures is prohibited by MGA 04. D is plausible, but addition of corrective actions is prohibited by MGA 04.

Question 69 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31166
User-Defined ID:	R69
Cross Reference Number:	802-4101-0013-008
Topic:	Use of Temporary Change Notice
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013
Comments:	KA - **Knowledge of the process for making changes to procedures.**

Question 69 Table-Item Links

Plant Procedures

MGA04

NUREG 1123 KA Catalog Rev. 2

G2.2.6 3.0/3.6 Knowledge of the process for making changes to procedures

70 **ID: R70** **Points: 1.00**

The plant is operating at 100% power with the operating crew making preparations to vent the Drywell for pressure control in accordance with 23.406, Primary Containment Nitrogen Inerting and Purge System, using Division I SGTS as a vent path. The CRNSO reports that Division I SGTS has failed to start.

Based on these conditions, what action should be taken to lower containment pressure?

A. Line-up and vent through RBHVAC.

B. Start Division II SGTS and vent the Torus.

C. Start Division II SGTS and vent the Drywell.

D. Line-up and vent containment through the Torus Hardened Vent.

Answer: A

Answer Explanation
23.406 Section 5.1 prerequisite states "If SGTS is to be used for purging/venting operation, both SGTS trains must be FUNCTIONALLY CAPABLE while in Modes 1, 2, 3, or 4." and "If SGTS is to be used for purge operation while in Modes 1, 2, or 3, only one train may be used." Since Division 1 has failed to start, SGTS cannot be used. RBHVAC is the only alternative. B & C are plausible, but incorrect due to the 23.406 Section 5.1 prerequisite stating SGTS cannot be used. D is plausible, but incorrect because the Torus hardened vent is only used when DW Pressure is >1.68 psig (during emergencies).

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31147
User-Defined ID:	R70
Cross Reference Number:	315-0019-C005-001
Topic:	Venting the Drywell
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	ILO 2013
Comments:	KA - **Ability to control radiation releases.**

Question 70 Table-Item Links

Plant Procedures

23.406

NUREG 1123 KA Catalog Rev. 2

G2.3.11 3.8/4.3 Ability to control radiation releases

71 **ID: R71** **Points: 1.00**

You have just left a contaminated area and are required to perform a frisk using a hand-held frisker.

What action is required if the meter is reading 340 cpm?

A. Contact Radiation Protection.

B. Perform a whole body frisk at a rate of 2 inches per minute.

C. Perform a whole body frisk at a rate of 0.5 inches per second.

D. Set the hand held frisker response switch to the FAST position.

Answer: A

Answer Explanation
MRP04, Enclosure B, page 3 of 7, states "Note the background reading on the meter. If 300 cpm or greater, contact Radiation Protection." B & C are incorrect - a proper whole body frisk takes approximately three minutes to perform. Training material states that monitoring is performed about one half inch from the frisker probe at a speed of about 2 inches per second. D is incorrect - the instrument should be on the X1 range and SLOW response.

Question 71 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	31208
User-Defined ID:	R71
Cross Reference Number:	508-0001-0036-001
Topic:	Frisk Using a Hand-Held Frisker
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 12
Text Field:	ILO 2013
Comments:	KA - **Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.**

Question 71 Table-Item Links

Plant Procedures

MRP 04

NUREG 1123 KA Catalog Rev. 2

G2.3.5 2.9/2.9 Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

72 **ID: R72** **Points: 1.00**

You have been assigned to the FIN Team to enter the RHR HX Room to perform a visual inspection. You have reviewed a survey of the room and received a pre-job brief to become knowledgeable of the Routine Specific RWP for this activity. Based on the survey the following radiological conditions are present in the room:

- Highest contamination level 750 dpm/100cm^2 beta-gamma
- General area radiation levels 250 mrem/hr

You observe the following posted signs when you arrive at the room:

CAUTION – RADIATION AREA

CAUTION – CONTAMINATION AREA

What actions are required?

A. Enter the area, and perform the visual inspection.

B. STOP. Notify the control point that the Radiation Area ONLY sign is incorrect.

C. STOP. Notify the control point that the Contamination Area ONLY sign is incorrect.

D. STOP. Notify the control point that the Radiation Area and the Contamination Area signs are BOTH incorrect.

Answer: B

Answer Explanation
B. The Contamination area sign is correct. The Radiation Sign should be be High Radiation Area based on the general radiation levels. A. is incorrect because the examinee must know when an area is posted incorrectly. C. is incorrect because only the radiation area sign is wrong. Plausible because the signs are posted and the examinee must know the levels to get the right selection. D. is incorrect because only the radiation area sign is wrong. Plausible because the signs are posted and the examinee must know the levels to get the right selection.

Question 72 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	4.00
System ID:	32846
User-Defined ID:	R72
Cross Reference Number:	NEW
Topic:	RWP
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 12
Text Field:	ILO 2013 mc
Comments:	KA - **Ability to comply with radiation work permit requirements during normal or abnormal conditions.**

Question 72 Table-Item Links

Plant Procedures

MRP 04

NUREG 1123 KA Catalog Rev. 2

G2.3.7 3.5/3.6 Ability to comply with radiation work permit requirements during normal and abnormal conditions

73 **ID: R73** **Points: 1.00**

In accordance with MOP10, "Fire Brigade", which one of the following individuals could be assigned to the fire brigade with the plant operating in Mode 1, assuming each individual has met the physical and training requirements?

A. Reactor Operator assigned as Safe Shutdown

B. Radwaste Operator assigned as Shift Communicator

C. Senior Reactor Operator assigned as the Shift Manager

D. Nuclear Operator assigned as Turbine Building Rounds

Answer: D

Answer Explanation
An NO assigned as rounds operator meets the requirements for fire brigade member. A, B, & C are incorrect - MOP10, sect.3.1.1, does not allow crew members necessary for safe shutdown of the unit, and does not allow the Shift Manager to be a member.

Question 73 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31067
User-Defined ID:	R73
Cross Reference Number:	802-4101-0028-006
Topic:	Fire Brigade Membership
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013
Comments:	KA - **Knowledge of fire protection procedures.**

Question 73 Table-Item Links

Plant Procedures

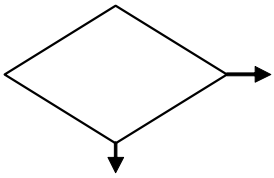
MOP10

NUREG 1123 KA Catalog Rev. 2

G2.4.25 3.3/3.7 Knowledge of fire protection procedures

74 **ID: R74** **Points: 1.00**

While reviewing the EOP flowcharts you come across a symbol that is a diamond shape with an arrow exiting the right side and another arrow out the bottom of the diamond shape.



What does this symbol indicate?

A. Decision Step

B. Hold/Wait Point

C. Instructional Step

D. Concurrent Execution

Answer: A

Answer Explanation
Diamond shape with arrows indicate a Decision Step. B is plausible: octagonal shape is a hold/wait point. C is plausible; rectangular shape is an instructional step. D is plausible; EXECUTE CONCURRENTLY BOX indicate concurrent execution steps.

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	31149
User-Defined ID:	R74
Cross Reference Number:	802-3001-0005-008
Topic:	EOP Flowchart Symbols
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013
Comments:	KA - **Knowledge of general guidelines for EOP usage.**

Question 74 Table-Item Links

Plant Procedures

Fermi Writers Guide App F: EOP Flowcharts

NUREG 1123 KA Catalog Rev. 2

G2.4.14 3.8/4.5 Knowledge of general guidelines for EOP usage

75 **ID: R75** **Points: 1.00**

A plant transient occurred, and 29.100.01 Sheets 1A, 2 and 3 were entered. Conditions have continued to deteriorate, and the SAGs are being implemented. Subsequently, an unisolable HPCI steam line rupture occurs.

Which of the following actions would you expect the CRS to follow?

A. Enter 29.100.01 Sheet 5, Secondary Containment and Rad Release, and continue in the existing EOPs.

B. Continue in the SAGs as directed by the TSC, and enter 29.100.01 Sheet 5, Secondary Containment and Rad Release.

C. Enter 29.100.01 Sheet 5, Secondary Containment and Rad Release, and re-enter 29.100.01 Sheet 1A, RPV Control - ATWS.

D. Continue in the SAGs as directed by the TSC, and do **NOT** enter any EOPs.

Answer: D

Answer Explanation
Concerning actions after entry into the SAGs, BWROG EPGs/SAGs, Appendix B states "*Additional EOP entry conditions may then be disregarded until the PSAMGs are exited." (page B-4-4)* A, B & C are plausible if the examinee believes we are still operating in the EOPs.

Question 75 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	6
Difficulty:	4.00
System ID:	31148
User-Defined ID:	R75
Cross Reference Number:	NEW
Topic:	Prioritize EOP/SAG Actions
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	ILO 2013
Comments:	KA - **Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines.**

Question 75 Table-Item Links

Plant Procedures

BWROG EPG App B

NUREG 1123 KA Catalog Rev. 2

G2.4.16 3.5/4.4 Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as operating procedures, abnormal operating procedures, and severe accident management guidelines