EXAMINATION
2012 ILO Exam - RO

1 **ID: RO1** **Points: 1.00**

The plant is operating at 100% CTP and at the 100% rod line with APRM/OPRM #2 bypassed. The North RR MG Set speed begins to decrease. The scoop tube is locked per 20.138.03 Uncontrolled Recirc Flow Change. No additional actions have been completed. The following conditions are observed:

- 3D107 OPRM INOP is alarming
- Total Rated Core flow is 40%

What action is required and the basis for this action? (see attached Power-to-Flow Map)

A. Increase core flow to restore operation outside the "Exit" Region Sufficient margin may not be available for the operator response to suppress potential power oscillations.

B. Insert control rods to restore operation outside the "Exit" Region. Sufficient margin may not be available for the operator response to suppress potential power oscillations.

C. Trip the North RR MG Set because the change of >10% could cause concerns with MCPR and possible fuel cladding failure due to PCI failure.

D. Place Reactor Mode Switch in SHUTDOWN to terminate the potential for unacceptable power oscillations.

Answer: D

Answer Explanation:

With the OPRM inoperable and the reactor operating in the "Scram" region or if the core thermal-hydraulic instability is detected, then unacceptable power oscillations may result. Therefore, the reactor mode switch must be immediately placed in the shutdown position to terminate the potential for unacceptable power oscillations.

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26758
User-Defined ID:	RO1
Cross Reference Number:	NEW
Topic:	Perform immediate actions for Uncontrolled Recirc Flow Change
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you are in the "scram" region for the given conditions. This would be a valid action and basis for in the "exit" region. B. is incorrect because you are in the "scram" region for the given conditions. This would be a valid action and basis for in the "exit" region. C. is incorrect because the North RR MG Set speed decreased, not increased. This is a valid action for a >10% increase. Reference: 20.138.03 Bases, page 3

Question 1 Table-Item Links

Plant Procedures

20.138.03

20.138.03 Bases

NUREG 1123 KA Catalog Rev. 2

295001 AK3.04 3.4/3.6 Reactor SCRAM

Associated objective(s):

Without reference perform AOP immediate actions.

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

Following a loss of 120 KV, both EDG 11 and EDG 12 are running and loaded. What is the status of the ESF 130VDC Electrical Distribution System, and what actions, if any, are required to restore?

A. Both DIV 1 and DIV 2 130VDC Chargers continue to supply loads. No operator actions required.

B. DIV 1 130VDC Batteries and DIV 2 130VDC Chargers continue to supply loads. Place tripped Div 1 130VDC Battery Chargers in OFF/RESET, then ON.

C. DIV 1 130VDC Chargers and DIV 2 130VDC Batteries continue to supply loads. Place tripped Div 2 130VDC Battery Chargers in OFF/RESET, then ON.

D. Both DIV 1 and DIV 2 130VDC Batteries continue to supply loads. Place tripped DIV1 and Div 2 130VDC Battery Chargers in OFF/RESET, then ON.

Answer: B

Answer Explanation:

Div 1 130VDC Battery Chargers 2A-1 and 2A1-2 are both powered from MCC 72B-2A and Battery Charger 2A-1 is powered from MCC 72C-3A, which are immediately powered by the EDGs. Upon the initial loss of power the CR1 relay will drop out preventing the automatic restart of the battery charger. Therefore once the EDGs supplies power to the busses, all that is required to restart the battery chargers are to take the CMC to Off/Reset.

Question 2 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:	26719
User-Defined ID:	R02
Cross Reference Number:	NEW
Topic:	Status of the ESF 130VDC System on Loss of 120kV and actions required to restore
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because DIV 1 chargers lose power, do not auto sequence back on, and must be restored within 4 hours. C. is incorrect because this would be true for a loss of 345KV. D. is incorrect because this would be true for a SBO. Reference: 20.300.120kv, page 25

Question 2 Table-Item Links

Plant Procedures

20.300.120kv

NUREG 1123 KA Catalog Rev. 2

295003 AA1.04 3.6/3.7 D.C. electrical distribution system

Associated objective(s):

Given a copy of the following AOPs: Loss of 345Kv, 120Kv, Offsite Power, and Station Blackout, determine which equipment will be restored and which will remain without power until full system restoration.

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

The plant is operating at full power when the following annunciators and indications are received:

- 9D17, DIV I ESS 130 V BATTERY 2PA TROUBLE
- 9D21, DIV I EDG SEQUENCER TROUBLE
- 1D6, DIV I CSS LOGIC POWER FAILURE
- 1D8, RHR LOGIC A 125 VDC BUS POWER FAILURE
- 1D62, STM LK DET HPCI LOGIC POWER FAILURE
- Div I DC powered valves position indicating lights are OFF.
- Breaker position indicating lights for Div I ESF Bus breakers are OFF.

Based on these alarms, select the correct DIAGNOSIS AND EFFECT, if any, on Division I EDGs ability to mitigate a Loss of Offsite Power.

A. ONLY the Division I Batteries have been lost. Division I EDGs will NOT START if Offsite Power is LOST.

B. ONLY the Division I Batteries have been lost. Division I EDGs will AUTO START if Offsite Power is LOST.

C. BOTH Division I Battery Chargers AND BOTH Division I Batteries have been lost. Division I EDGs will NOT START if Offsite Power is LOST.

D. BOTH Division I Battery Chargers AND BOTH Division I Batteries have been lost. Division I EDGs will AUTO START if Offsite Power is LOST.

Answer: C

Answer Explanation:

Alarms indicate a complete Loss of DC, BOTH Chargers and BOTH Batteries. With no Batteries, DC power is not available to support EDGs start functions during a Loss of Offsite Power.

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26738
User-Defined ID:	R03
Cross Reference Number:	202-0701-000-A016-014
Topic:	Status of EDGs on Loss of Offsite Power
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A is plausible; chargers would maintain DC Voltage, preventing these alarms. B is plausible; chargers would maintain DC Voltage, preventing these alarms. EDGs will NOT start. D is plausible; EDGs will NOT start. References: 9D21, page 1; 20.300.260ESF, page 4; ST-OP-315-0064-001, page 17

Question 3 Table-Item Links

Plant Procedures

20.300.260VESF

09D21

09D17

NUREG 1123 KA Catalog Rev. 2

295004 AA2.01 3.2/3.6 Cause of partial or complete loss of D.C. power

Associated objective(s):

Given a copy of the following AOPs: Loss of 345Kv, 120Kv, Offsite Power, and Station Blackout, determine which equipment will be restored and which will remain without power until full system restoration.

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

Following a MANUAL Reactor Scram from 50% power, the following conditions are observed in IPCS:

- ALL Turbine Control Valves are SHUT.
- Generator Megawatts on has just reached ZERO.
- The Main Generator Exciter Field Breaker is CLOSED.
- BOTH Main Generator output breakers are CLOSED.

Based on these conditions, which one of the following Turbine Generator Trip signals will initiate?

A. Loss of Field

B. Reverse Power

C. Generator Differential

D. Negative Phase Sequence

Answer: B

Answer Explanation:

With TCVs SHUT, no steam is being supplied to the Turbine Generator. The Generator is still connected to the grid and will begin motoring. Reverse Power will be sensed by this condition and will generate a Turbine Generator Trip when the 67 relay is energized. Breaker position must be looked up in SOER.

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:	26740
User-Defined ID:	R04
Cross Reference Number:	315-0128-000-A013-001
Topic:	Turbine Generator Trip Signals
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. would be true if the Main Generator Field Breaker OPENED, or excitation was lost. C. would be true if an electrical fault condition occurred resulting in Differential Current condition. D. would be true if a phase open occurred in the Generator Stator. Like the Reverse Power trip, the Negative Phase Sequence trip is time dependent, which is a common misconception. Reference: 20.000.21 Bases, page 5

Question 4 Table-Item Links

Plant Procedures

20.000.21 Bases

NUREG 1123 KA Catalog Rev. 2

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

Associated objective(s):

Analyze Main Generator and Excitation response using control room indications and annunciators.

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

The plant is operating at 15% power during a startup.
ALL Turbine Control Valves **OPENED** due to an electrical malfunction resulting in a Reactor Scram. No operator actions have been taken.

Which one of the following lists the systems available for Decay Heat Removal **IMMEDIATELY** after the scram?

A. Safety Relief Valves and Reactor Water Cleanup ONLY.

B. Turbine Bypass Valves, Safety Relief Valves, and Reactor Water Cleanup ONLY.

C. Main Steam Line Drain Valves, Turbine Bypass Valves, and Safety Relief Valves ONLY.

D. Main Steam Line Drain Valves, Turbine Bypass Valves, Safety Relief Valves, and Reactor Water Cleanup.

Answer: A

Answer Explanation:

Power at 15% indicates Mode Switch in run. TCVs opening lowers RPV Pressure. When pressure reaches 756 psig with Mode Switch in run, a GP1 PCIS isolation occurs and a Scram. With MSIVs closed, only SRVs and RWCU are immediately available to remove decay heat.

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26742
User-Defined ID:	R05
Cross Reference Number:	215-0048-000-A018
Topic:	Systems available for Decay Heat Removal following a scram.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because Turbine Bypass Valves are not available. C. is incorrect because Turbine Bypass Valves and MSL Drains are not available. D. is incorrect because Turbine Bypass Valves and MSL Drains are not available. Reference: 20.000.21 Bases, page 2

Question 5 Table-Item Links

Plant Procedures

20.000.21

20.000.21 Bases

NUREG 1123 KA Catalog Rev. 2

295006 AK1.01 3.7/3.9 Decay heat generation and removal

Associated objective(s):

Perform proper system operations in accordance with System Operating Procedures (SOP).

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

Which one of the following correctly identifies the RCIC controls **or** indications available at **BOTH** the Main Control Room **AND** the Remote Shutdown Panel?

A. RCIC Pump Flow indication.

B. RCIC Pump Discharge Pressure indication.

C. E5150-F010, RCIC Pump CST Suction Isolation Valve, control pushbuttons.

D. RCIC Pump Flow controller with Manual and Automatic Setpoint Adjustments.

Answer: A

Answer Explanation:

RCIC Flow Indication exists at both locations.

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:	3.00
System ID:	26744
User-Defined ID:	R06
Cross Reference Number:	315-0044-000-A013-001
Topic:	Identify remote controls for the RCIC System.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because it exists only in the MCR. C. is incorrect because it exists only in the MCR. D. is incorrect because it exists only in the MCR. Reference: 20.000.19, page 6

Question 6 Table-Item Links

Plant Procedures

20.000.19

NUREG 1123 KA Catalog Rev. 2

295016 AK2.01 4.4*/4.5* Remote shutdown panel: Plant-Specific

Associated objective(s):

Identify associated remote and local instrumentation, indications, alarms, and controls for the RCIC System.

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

The plant is operating at 65% with the following conditions:

- North TBCCW pump tripped.
- Center TBCCW pump tripped.

Which one of the following would allow the starting of the South TBCCW pump IAW 20.128.01, Loss of TBCCW?

A. TBCCW Heat Exchanger Discharge Temp is 90°F.

B. Head Tank Level is -20 inches indicated.

C. Pump Suction Pressure is 5 psig.

D. Loss of 72N.

Answer: A

Answer Explanation:

Temperature is above the entry condition, and allows for a start of the pump.

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:	2.50
System ID:	26746
User-Defined ID:	R07
Cross Reference Number:	NEW
Topic:	Starting requirements for single TBCCW pump.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because this is below the trip set point for the pump (-18 inches). C. is incorrect because this is below the trip set point for the pump (7 psig). D. is incorrect because this is the power supply for the South Pump. Reference: 23.128, page 4

Question 7 Table-Item Links

Plant Procedures

23.128

NUREG 1123 KA Catalog Rev. 2

295018 AK3.04 3.3/3.3 Starting standby pump

Associated objective(s):

Perform proper system operations in accordance with System Operating Procedures (SOP).

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

The plant is operating at 100% power with the following Station Air Compressor lineup:

- East Station Air Compressor..... Off
- Center Station Air Compressor.....Running
- West Station Air Compressor ..... Auto

Following a seismic event, Bus 72A has been de-energized, and both Control Air Compressors auto start. What is the status of the Station Air Compressors?

A. Center Station Air Compressor running, West Station Air Compressor running

B. Center Station Air Compressor running, West Station Air Compressor **NOT** running

C. Center Station Air Compressor **NOT** running, West Station Air Compressor running

D. Center Station Air Compressor **NOT** running, West Station Air Compressor **NOT** running

Answer: B

Answer Explanation:

72 A is the power supply to West, with pressure dropping less than 85 psig (indicative of CAC auto start). the West should start, the Center t will remain running.

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:	26748
User-Defined ID:	R08
Cross Reference Number:	NEW
Topic:	Status of Station Air Compressors during loss of 72A.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because the west cannot start due to loss of power. C. is incorrect because the center will still have power. D. is incorrect because the center will still have power. References: 20.300.72AAttachment 1, page 1; 20.129.01, page 3, 23.129 page 5

Question 8 Table-Item Links

Plant Procedures

20.129.01

20.300.72A

NUREG 1123 KA Catalog Rev. 2

295019 AA1.03 3/3 Instrument air compressor power supplies

Associated objective(s):

Describe general Compressed Air System operation, including component operating sequence, normal operating parameters, and expected system response.

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

The plant is in HOT SHUTDOWN, with the following conditions:

- Reactor Pressure is 25 psig.
- RPV Water Level is 250 inches.
- RHR Pump B is operating in Shutdown Cooling Mode.
- 2D26, DIV II RHR SYSTEM LOW FLOW BYPASS INITIATED, alarms due to an electrical fault.

Which one of the following describes the effect on pump flow and continued RHR Loop B Shutdown Cooling operation?

A. DIV 2 RHR pump B Flow will increase; Reactor Water Level will lower until Shutdown Cooling isolates.

B. DIV 2 RHR pump B Flow will remain the same; RHR Loop B will remain operating in Shutdown Cooling with this condition.

C. DIV 2 RHR pump B Flow will decrease; Reactor Water Level will lower until Shutdown Cooling isolates.

D. DIV 2 RHR pump B Flow will increase; RHR Heat Exchanger Bypass Valve has opened; Reactor Coolant System flow will decrease until Shutdown Cooling isolates.

Answer: A

Answer Explanation:

The alarm 2D26 indicates the RHR pumps min flow valve has opened resulting in increased pump flow (two paths). The min flow valve will reject Rx water to the Torus causing level to lower until a low Rx water level isolation is reached.

Question 9 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:	26798
User-Defined ID:	R09
Cross Reference Number:	315-0041-000-A016-002
Topic:	Effect of Min Flow valve open on RHR Shutdown Cooling operation
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because the alarm indicates the min flow valve has opened which will affect flow and level. C. is incorrect because RHR pump flow will increase. This could be confused with RHR Loop flow which would slightly decrease as a result of the min flow valve opening. D. is incorrect because it could identify a misconception about the word BYPASS in the alarm title. If the RHR HX were fully BYPASSED, coolant system flow would increase with no isolation. References: 2D26, page 1; 3D79, page 1

Question 9 Table-Item Links

Plant Procedures

03D079

02D026

NUREG 1123 KA Catalog Rev. 2

295021 AA2.02 3.4/3.4 RHR/shutdown cooling system flow

Associated objective(s):

Given RHR System performance data, detect abnormalities, and determine possible causes for performance problems.

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

An irradiated fuel bundle is being removed from the core. An adjacent bundle has been lifted along with the selected bundle. When noticed, fuel movement is stopped, and the adjacent bundle falls back into the core.

Bubbles come to the pool surface, and the local Continuous Air Monitor (CAM) alarms. The following indications are observed:

- 16D1, RB REFUELING AREA FIFTH FLOOR HIGH RADN, alarms.
- D21-R600 Radiation Monitoring Recorder, Channel 17 indicates 100 mr/hr.
- D21-K717, RB5 Refuel Floor Lo Range ARM Ind trip Unit (Ch. 17), indicates tripped.
- No other alarms are received.

What automatic actions, if any, would occur as a result of this event?

A. No automatic actions occur.

B. RBHVAC trips, Div 1 SGTS Auto Starts, CCHVAC aligns in Recirc Mode.

C. RBHVAC trips, both divisions of SGTS Auto Start, CCHVAC aligns in Recirc mode.

D. Group 14-Drywell and Suppression Pool Ventilation System and Group 16-Nitrogen Inerting System isolation.

Answer: A

Answer Explanation:

Area radiation monitors provide alarm only. 16D1 requires AOP entry and plant announcement.

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:	3.00
System ID:	26799
User-Defined ID:	R10
Cross Reference Number:	802-2001-000-0009-003
Topic:	RBHVAC Auto Actions
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 11
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because these actions are associated with Division 1 radiation upscale trips. C. is incorrect because these actions are associated with Reactor building Vent Exhaust Rad Monitor Upscale Trip or Fuel Pool Vent Exhaust Rad Monitor Upscale Trip. D. is incorrect because these actions are associated with Reactor building Vent Exhaust Rad Monitor Upscale Trip or Fuel Pool Vent Exhaust Rad Monitor Upscale Trip. Reference: 20.710.01, page 3

Question 10 Table-Item Links

Plant Procedures

16D01

20.710.01

NUREG 1123 KA Catalog Rev. 2

G2.4.45 4.1/4.3 Ability to prioritize and interpret the significance of each annunciator or alarm

Associated objective(s):

Describe general Reactor Building HVAC System operation, including component operating sequence, normal operating parameters, and expected system response.

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

The plant is operating at 50% power when a loss of Drywell Cooling occurs. The following sequence is observed:

- 1205 - 3D81, PRIMARY CONTAINMENT PRESSURE HIGH/LOW alarmed.
  - Drywell Pressure indicated 1.50 psig.
- 1206 - 8D41, DIV I DRYWELL TEMPERATURE HIGH alarmed.
  - 17D41, DIV II DRYWELL TEMPERATURE HIGH alarmed.
  - Average Drywell Temperature was 142°F.
- 1300 - Drywell Pressure was lowered by venting, clearing alarm 3D81.
- 1320 - Drywell Cooling was restored, clearing alarms 8D41 and 17D41.
- 1340 - The following indications are observed:
  - Drywell Pressure is -0.09 (minus 0.09) psig.
  - Drywell Temperature is 120°F.

Which one of the following describes the OPERABILITY of the Primary Containment, with respect to Temperature and Pressure, during this evolution?

A. The Primary Containment was maintained OPERABLE throughout this evolution and no actions are required.

B. The Primary Containment was rendered INOPERABLE due to Low Drywell Pressure only, and remains INOPERABLE.

C. The Primary Containment was rendered INOPERABLE due to Low Drywell Pressure and High Average Temperature, and remains INOPERABLE.

D. Primary Containment was rendered INOPERABLE due to High Average Temperature AND High Drywell Pressure, and Required Actions were met within the Completion Time.

Answer: A

Answer Explanation:

LCO 3.6.1.4 Low Primary Containment Pressure was NOT exceeded during the evolution (-0.10 psig) and the containment remains OPERABLE.

Question 11 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:	26800
User-Defined ID:	R11
Cross Reference Number:	315-0016-000-0013-001
Topic:	Operability of Primary Containment
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 9
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because Drywell Pressure is not below the TS required containment pressure. C. is incorrect because Drywell Temperature never exceeded the 145°F limit D. is incorrect because Drywell Temperature never exceeded 145°F and Drywell Pressure never exceeded 2.0 psig. Reference: Tech Spec 3.6.1.4

Question 11 Table-Item Links

NUREG 1123 KA Catalog Rev. 2

295024 EK1.01 4.1/4.2* Drywell integrity: Plant-Specific

Technical Specifications

3.6.1.4 Primary Containment Pressure

Associated objective(s):

Given plant conditions that constitute non-compliance with any LCO, apply Technical Specifications and Bases to determine the applicable Condition(s), Required Action(s), and associated Completion Time(s).

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

The plant is operating at 90% power. The #1 pressure regulator is in service and you are asked to raise the setpoint 1 PSI. When you take your finger off of the raise button, the button stays depressed and you are unable to release it from this position.

Which of the following describes the response of the plant with NO OPERATOR ACTION?

A. Reactor pressure will lower and the reactor will scram on MSIV closure.

B. Reactor pressure will raise and the reactor will scram on high reactor pressure.

C. The #2 pressure regulator will take over and control reactor pressure approximately 3.5# below the setpoint of the #1 regulator.

D. The #2 pressure regulator will take over and control reactor pressure approximately 3.5# above the setpoint of the #1 regulator.

Answer: **B**

Answer Explanation:

Raising the setpoint of the pressure regulator will result in reactor pressure increasing until the High Reactor Pressure Scram setpoint in reached.

Question 12 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:	26801
User-Defined ID:	R12
Cross Reference Number:	315-0145-000-A016-001
Topic:	Pressure Regulator failure - setpoint rising
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because lowering the pressure regulator setpoint would result in reactor pressure lowering. C. is incorrect because this is the result of the pressure regulator signal failing low and indicated pressure would be above the setpoint as opposed to below. D. is incorrect because this is the result of the pressure regulator signal failing low with indicated pressure controlling —3.5 psi higher. References: 22.000.03, page 15; 20.109.02, page 3

Question 12 Table-Item Links

Plant Procedures

20.109.02

22.000.03

NUREG 1123 KA Catalog Rev. 2

295025 EK2.08 3.7/3.7 Reactor/turbine pressure regulating system: Plant-Specific

Associated objective(s):

Describe general Governor/Pressure Control System operation, including component operating sequence, normal operating parameters, and expected system response.

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

At 12:00 the plant is operating at 100% power with Torus Water Average Temperature at 78°F when a single SRV opens and all subsequent actions fail to close the SRV. The stuck open SRV is adding 2°F/minute temperature increase into the torus.

(1) What time **MUST** the Reactor Mode switch be placed in SHUTDOWN and (2) what is the basis for this action?

A. (1) 12:16
(2) The relief valve tailpipes are not designed for continuous blowdown with the reactor at power, and structural damage could result.

B. (1) 12:14
(2) The relief valve tailpipes are not designed for continuous blowdown with the reactor at power, and structural damage could result.

C. (1) 12:16
(2) This ensures the Reactor is shutdown by control rod insertion before the requirement for boron injection is reached.

D. (1) 12:14
(2) This ensures the Reactor is shutdown by control rod insertion before the requirement for boron injection is reached.

Answer: C

Answer Explanation:

At 110°F the reactor mode switch is placed in shutdown to prevent exceeding the BIIT.

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:	26749
User-Defined ID:	R13
Cross Reference Number:	NEW
Topic:	Perform actions for Torus Temp approaching BIIT.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because the relief valves are designed for blowdown at full reactor power. B. is incorrect because this would correlate to a temperature of 106°F and the valves are designed for full power. D. is incorrect because this would correlate to a temperature of 106°F. Reference: 20.000.25, page 2

Question 13 Table-Item Links

Plant Procedures

29.100.01 SH 2

20.000.25

NUREG 1123 KA Catalog Rev. 2

295026 EK3.05 3.9/4.1 Reactor SCRAM

Associated objective(s):

Perform other EOP / AOP actions as directed.

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

The reactor was operating at 100% power when a plant transient occurred. Several minutes later the following conditions are observed:

- Drywell pressure is 1.4 psig and slowly rising
- Drywell temperature is 155°F and slowly rising
- Reactor water level is 28 inches

Which actions shall be taken to prevent drywell pressure from exceeding the high drywell scram setpoint?

A. Manually initiate both divisions of EECW.

B. Unisolate EECW to and from the drywell.

C. Manually start all single speed drywell cooling fans.

D. Increase cooling water flow using P42-F400, RBCCW Temp Control Vlv in AUTO, or MANUAL.

Answer: C

Answer Explanation:

Rx water level is at the less than level 1 setpoint (32") and results in DW single speed fans tripping. DW fans must be restarted to lower temperature and pressure.

Question 14 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:	26802
User-Defined ID:	R14
Cross Reference Number:	802-3004-000-0007-012
Topic:	Drywell Fan operation in EOPs
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because all single speed fans have tripped and cooling water would have no affect on drywell temperature/pressure without fans. B. is incorrect because a high drywell signal does not exist and with no fans, cooling water would have no impact. D. is incorrect because all single speed fans have tripped per level 1 signal. Reference: 29.ESP.01, page 4

Question 14 Table-Item Links

Plant Procedures

17D41

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

295028 EA1.04 3.9/4 Drywell pressure

Associated objective(s):

Describe general Drywell Cooling System operation, including component operating sequence, normal operating parameters, and expected system response.

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

The plant is operating at 100% power when a leak develops in the Torus. At 12:00 the initial Torus level as indicated on T50-R804 A(B) Torus Level Recorder reads -1.5 inches and lowering at -0.5 inches per minute. At time 12:20 which instrument(s) should be monitored for EOP entry on Torus Water Temperature?

A. Average Temperature on T23-R800 Suppression Chamber Bulk Water Temperature on H11P601 OR T47-R803A(B) DW Cooling System Temperature Div I (II) on H11P808(P817).

B. Average Temperature on T23-R800 Suppression Chamber Bulk Water Temperature on H11P601.

C. Points 9 and 10 on T50-R800A(B) PC Air & Water Temperature Div I (II) on H11P601(P602).

D. Points 11 and 12 on T50-R800A(B) PC Air & Water Temperature Div I (II) on H11P601(P602).

Answer: D

Answer Explanation:

At -11 inches in the Torus, all 8 of the thermocouples providing input to the T23-R800 recorder are uncovered and will indicate air temperature. Water temperature must be obtained from Drywell and Torus Air and Water Temperature Recorders points 11 and 12.

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:	3.50
System ID:	26750
User-Defined ID:	R15
Cross Reference Number:	NEW
Topic:	Monitor Torus Water Temperature for EOP entry.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because at -11 inches, water temperature must be obtained from Drywell and Torus Air and Water Temperature Recorders points 11 and 12. This is plausible if calculation was inaccurate and level was determined to be >-11 inches. B. is incorrect because at -11 inches, water temperature must be obtained from Drywell and Torus Air and Water Temperature Recorders. This is plausible if calculation was inaccurate and level was determined to be >-11 inches. C. is incorrect because points 11 and 12 are the correct points to monitor. Reference: 29.100.01 SH 6, Caution #6

Question 15 Table-Item Links

Plant Procedures

29.100.01 SH 6

NUREG 1123 KA Catalog Rev. 2

295030 EA2.02 3.9/3.9 Suppression pool temperature

Associated objective(s):

Apply notes and cautions as directed by the EOP / AOP.

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

The plant was operating at 100% power when a LOCA occurred. The following plant conditions exist:

- RPV pressure ..... 900 psig
- RPV level .....155 inches and lowering
- Heater Feed Pumps .....tripped

The STA reports that the leak is 1.0 million lb/hr.

Which systems would provide the **MINIMUM** flow to maintain RPV water level? Assume all systems are operating at rated flow. (8.34 lbm/gal)

A. HPCI and RCIC

B. Both SBFW pumps

C. HPCI and both SBFW pumps

D. RCIC, both CRD pumps and both SBFW pumps

Answer: D

Answer Explanation:

29.ESP.01 Pump Capacities Table lists RCIC flow rate at 600 GPM and CRD at 200 GPM/pump and SBFW at 600 GPM/pump. This would total 2,200 GPM total system flows.

2,200GPM * 8.34 lbm/gal * 60 mins = 1.1 million lbm/hr.

Question 16 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:	26818
User-Defined ID:	R16
Cross Reference Number:	802-3003-000-0111-002
Topic:	Determine Required Flow needed for Leak Size
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this would total 2 8 million lbm/hr. B. is incorrect because this would total 0 6 million lbm/hr. C. is incorrect because this would total 3 1 million lbm/hr. Reference: 29.ESP.01, page 50

Question 16 Table-Item Links

Plant Procedures

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

G2.4.6 3.7/4.7 Knowledge of EOP mitigation strategies

Associated objective(s):

Apply notes and cautions as directed by the EOP / AOP.

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

During an ATWS emergency event, the following conditions exist:

- Reactor power ..... above APRM Downscale Setpoint
- RPV water level ..... in level band + 50 to + 100 inches
- RPV pressure ..... 550 psig
- SLC Pumps ..... inoperable
- SBFW System ..... being used for boron injection

Given the above conditions, identify which of the following the operating crew can use to determine that Hot Shutdown Boron Weight has been injected to the reactor.

A. SLC tank level is <45".

B. IRMs indicate downscale.

C. 1290 lbs of Borax and 1290 lbs of Boric Acid have been added.

D. 3215 lbs of Borax and 3215 lbs of Boric Acid have been added.

Answer: C

Answer Explanation:

1290 lbs of Borax and 1290 lbs of Boric Acid are the requirements to achieve the hot shutdown boron weight.

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:	2.50
System ID:	26751
User-Defined ID:	R17
Cross Reference Number:	802-3002-000-0008-003
Topic:	Determine Hot Shutdown Boron Weight.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because SLC pumps are inoperable. It was once a method of alternate boron injection. B. is incorrect because IRM indication is not a valid means to determine hot shutdown boron weight. D. is incorrect because this is the amount used to determine cold shutdown boron weight. Reference: 29.100.01 SH 1A, Table 15

Question 17 Table-Item Links

Plant Procedures

29.100.01 SH lA

NUREG 1123 KA Catalog Rev. 2

295037 EK1.03 4.2/4.4* Boron effects on reactor power (SBLC)

Associated objective(s):

Apply notes and cautions as directed by the EOP / AOP.

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

Following a Main Steam Line Break from full power, the Offsite Release Rate has been exceeded. 3D45, CONT CENTER MAKEUP AIR RADN MONITOR UPSCALE TRIP alarms.

- Div 1 CCHVAC Makeup Air Radiation Monitor, D11-K809 reads 600 cpm.
- Div 2 CCHVAC Makeup Air Radiation Monitor, D11-K813 reads 700 cpm.

Which one of the following actions is correct?

A. OPERATE CCHVAC in the Purge Mode to maximize dilution.

B. SHUTDOWN BOTH CCHVAC Emergency Makeup Fans to reduce the main control room pressure.

C. OPERATE CCHVAC in the Recirculation Mode using ONE Emergency Makeup Fan to optimize filtration.

D. OPERATE CCHVAC in the Recirculation Mode using BOTH Emergency Makeup Fans to maximize filtration.

Answer: C

Answer Explanation:

High radiation conditions require CCHAVC in RECIRC Mode. Since the emergency fans are sized for 100% capacity, filtration is optimized by operating ONE make up Fan. High radiation conditions require CCHAVC in RECIRC Mode. Since the emergency fans are sized for 100% capacity, filtration is optimized by operating ONE make up Fan.

Question 18 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:	26975
User-Defined ID:	R18
Cross Reference Number:	315-0173-000-0005-001
Topic:	CCHVAC Emergency Makeup Fan
Num Field 1:	LOK H
Num Field 2:	10 CFR 44.41 (b) 5
Text Field:	2012 ILO Exam
Comments:	Plausible Distractors: A is plausible; would be true for a smoke condition in the control room. B is plausible; normal CCHVAC intake fans are shutdown to reduce radioactivity intake. D is incorrect because AOP Bases state that dual fan operation reduces radionuclide residence time in the Charcoal Filter Trains, reducing filtration. Reference: 20.000.02, page 5

Question 18 Table-Item Links

Plant Procedures

20.000.02

03D045

NUREG 1123 KA Catalog Rev. 2

295038 EK2.07 3.5/3.7 Control room ventilation.

Associated objective(s):

Describe general Control Center HVAC system operation, including component operating sequence, normal operating parameters, and expected system response.

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

During 20.000.18, Control of the Plant from the Dedicated Shutdown Panel, SBFW injection to the RPV must take place within _____ of the reactor scram based on _____

A. 10 minutes; the predicted amount of time it will take to uncover the reactor core assuming an isolated reactor with no makeup water.

B. 10 minutes; the predicted amount of time it would take to startup CTG 11-1, align electrical power to SBFW, and align SBFW for injection assuming a loss of 120 kV mat power.

C. 29 minutes; the predicted amount of time it will take to uncover the reactor core assuming an isolated reactor with no makeup water.

D. 29 minutes; the predicted amount of time it would take to startup CTG 11-1, align electrical power to SBFW, and align SBFW for injection assuming a loss of 120 kV mat power.

Answer: C

Answer Explanation:

An analysis has been performed assuming an isolated reactor with no makeup water. This analysis predicts that it will take more than 29 minutes before the reactor core is uncovered.

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:	2.00
System ID:	26760
User-Defined ID:	R19
Cross Reference Number:	802-2001-000-R006-010
Topic:	Explain basis for SBFW injection w/in 29 minutes during 20.000.18.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because 10 minutes is how long it would take to start a peaker. B. is incorrect because 10 minutes is how long it would take to start a peaker D. is incorrect because bases is incorrect. Reference: 20.000.18 Bases, page 3

Question 19 Table-Item Links

Plant Procedures

20.000.18

20.000.18 Bases

NUREG 1123 KA Catalog Rev. 2

600000 AK3.04 2.8/3.4 Actions contained in the abnormal procedure for plant fire on site

Associated objective(s):

Explain bases for notes and cautions.

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

During startup, the plant is operating at 27% power. The Systems Operations Center notifies Fermi 2 that there is potential for degraded grid conditions due to erratic reactive loading in Monroe County. The following conditions are observed:

- 4D132, Generator Frequency High/ Low is alarming.
- Currently the frequency is 58 Hz.

Which of the following actions is required?

A. Adjust voltage to raise frequency back to 60 hz in accordance with 4D132.

B. Trip the main turbine and perform actions in accordance 20.109.01.

C. Scram the reactor and perform actions in accordance with 20.000.21.

D. Start CTG 11-1 in accordance with 23.324.

Answer: **B**

Answer Explanation:

With generator frequency less than 58.2% and power less than 30%, 20.300.GRID directs tripping the turbine.

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:	3.00
System ID:	26761
User-Defined ID:	R20
Cross Reference Number:	202-1103-000-A001-009
Topic:	Actions required for Degraded Grid Conditions
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because frequency is too low, but this is how you would adjust. C. is incorrect because reactor power is less than 30%. D. is incorrect because this is not required, but could be used for supplemental power. Reference: 20.300.GRID, page 7

Question 20 Table-Item Links

Plant Procedures

20.300.GRID

NUREG 1123 KA Catalog Rev. 2

700000 AA1.02 3.8/3.7 Turbine/generator controls

Associated objective(s):

Given a copy of electrical AOPs, analyze and determine which have immediate actions.

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

During a Loss of Condenser Vacuum, the following alarm status exists:

- 4D108, CONDENSER PRESSURE HIGH is alarming.
- 4D46, MAIN TURBINE TRIPPED is alarming.
- 3D86, MN STM LINE ISO VALVE CLOSURE CHANNEL TRIP is alarming.
- 5D46, N/S RFPT EXHAUST PRESSURE TRIP/FAULT is **CLEAR.**

These alarms are consistent with which one of the following Main Condenser Backpressure values?

A. 2.5 psia

B. 5.0 psia

C. 7.0 psia

D. 12.5 psia

Answer: C

Answer Explanation:

With pressure greater than 6.85 psia, you will get 4D108, turbine trip, and MSIV closure, but not feed pump trip.

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:	26838
User-Defined ID:	R21
Cross Reference Number:	315-0032-000-0001-001
Topic:	Loss of Condenser Vacuum pressure setpoints
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because the turbine has tripped and MSIV closure. B. is incorrect because MSIV closure. D. is incorrect because there is no feed pump tripped alarm. Reference: 20.125.01, page 2

Question 21 Table-Item Links

Plant Procedures

20.125.01

NUREG 1123 KA Catalog Rev. 2

295002 AA1.04 3.3/3.4 PCIS/NSSSS

Associated objective(s):

List the automatic features of Primary Containment Isolation System operations.

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

The plant was operating at full power, when the following occurred:

- Both Feedwater Pumps Tripped.
- The reactor automatically scrammed.
- One Control Rod is at position 48. All other Control Rods are fully inserted.
- RCIC is isolated.
- HPCI initiation **RAISED** RPV Water Level from 110 inches. HPCI was manually tripped as RPV Water Level reached 210 inches.

Plant conditions are currently:

- Reactor pressure 700 psig, rising at 10 psig per minute.
- MSIVs are OPEN.
- The operating CRD Pump tripped.

What is the expected RPV Water Level response over the next ten minutes, and what action will be required?

Over the next ten minutes, RPV Water Level will _____

A. **RISE** due to swell. It is required to allow steam off to lower RPV Water Level **BELOW** 214 inches.

B. **LOWER** due to shrink. It is required to use HPCI to maintain RPV Water Level **ABOVE** 173.4 inches.

C. **LOWER** due to shrink. It is required to use only RCIC to maintain RPV Water Level **ABOVE** 0 inches.

D. **RISE** due to swell. It is required to TERMINATE AND PREVENT Injection Systems to lower RPV Water Level **BELOW** 114 inches.

Answer: A

Answer Explanation:

HPCI injected (100 inches x 200 gal per inch) 20,000 gallons of cold CST water. As this water is heated, SWELL occurs. It is required to maintain RPV Water level below Level 8 (214 inches). The SRO is required to direct operators to allow steaming to lower RPV Water Level. Shrink cannot occur because heatup and pressurization of saturated system is in progress with NO steam voids. All SRVs and TBVs are shut for the next ten minutes because reactor pressure will be below 800 psig.

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:	26839
User-Defined ID:	R22
Cross Reference Number:	802-3003-000-0011-003
Topic:	RPV Water Level Response
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	2012 ILO Exam
Comments:	B. is plausible ; identifies misconception about shrink and swell. C. is plausible; identifies misconception about shrink and swell. 0 inches is the MINIMUM for the ATWS RPV Water Level Control Band. ATWS is plausible because One Control Rod did not fully insert. D. is plausible, 114 inches is the maximum for the ATWS RPV Water Level Control Band. ATWS is plausible because ONE Control Rod did not fully insert.

Question 22 Table-Item Links

Plant Procedures

23.107

NUREG 1123 KA Catalog Rev. 2

295008 AA2.05 2.9/3.1 Swell

Associated objective(s):

Monitor critical parameters.

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

During a transient, Drywell Pressure is 3.0 psig, Drywell Temperature is 232°F, and all single speed Drywell Coolers are **TRIPPED.**

Which one of the following responses is correct, and why?

A. Do **NOT** attempt to restart Drywell Coolers, to prevent piping damage.

B. Restart all available Drywell Coolers, to lower Drywell Temperature and Pressure.

C. Do **NOT** attempt to restart Drywell Coolers, to prevent cycling the Reactor Building to Torus Vacuum Breakers.

D. Defeat High Drywell Pressure isolation of RBCCW and restart all available Drywell Coolers, to lower Drywell Temperature and Pressure.

Answer: D

Answer Explanation:

With Drywell Temperature below 242°F, defeat isolation, restore RBCCW and restart drywell coolers.

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:	3.00
System ID:	26840
User-Defined ID:	R23
Cross Reference Number:	802-3005-000-0009-012
Topic:	Perform actions to lower Drywell Temperature and Pressure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because DW temperature is not above the design limit of 242°F. B. is incorrect because DW temperature is not above 242°F and flow to and from the drywell coolers has been isolated when DW/P >1.68 psig. C. is incorrect because spray below the DWSIL curve may cause RB to Torus Vacuum Breakers OPEN. References: 29.100.01 SH 2, DWT-3; 29.ESP.08, page 3

Question 23 Table-Item Links

Plant Procedures

29.ESP.08

29.100.01 SIT 2

NUREG 1123 KA Catalog Rev. 2

295012 AK3.01 3.5/3.6 Increased drywell cooling

Associated objective(s):

Perform other EOP / AOP actions as directed.

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

The plant was operating at 70% rated power when an **INCREASE** in Main Generator megawatts was observed. The positions of the control rods and recirculation flow rate have not changed.

Which of the following caused the **INCREASE** in Main Generator megawatts?

A. A Safety Relief Valve has OPENED.

B. A Turbine Bypass Valve has OPENED.

C. #6 Feedwater Heater String Bypass Valve has CLOSED.

D. #6 North Feedwater Heater Extraction Steam Supply Valve has CLOSED.

Answer: D

Answer Explanation:

A Feedwater Heater Extraction Steam Supply Valve closing causes increased core inlet subcooling which raises Reactor Power and steam flow to the Main Turbine.

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:	26841
User-Defined ID:	R24
Cross Reference Number:	315-0131-000-0005-011(M)
Topic:	Effect of Loss of FW Heating
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because an Open SRV would cause a small increase in reactor power, but a decrease in Main Generator Power. B. is incorrect because an Open Bypass Valve would cause a small increase in reactor power, but a decrease in Main Generator Power. C. is incorrect because this is the normal lineup. If it were open it would be true. Reference: 20.107.02, pages 2 & 7

Question 24 Table-Item Links

Plant Procedures

20.107.02

NUREG 1123 KA Catalog Rev. 2

295014 AK2.07 3.9/3.9 Reactor power

Associated objective(s):

Discuss the Extraction Steam and Heater Drains System interrelationships with other systems.

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

Heavy thunderstorms just caused a load-reject from 100% power. The reactor conditions are:

- APRM Power stable at 20%
- No indications of control rod position
- Recirc pumps tripped
- All MSIVs are open
- Reactor Level being maintained by feedwater
- Reactor Pressure being maintained through Turbine Bypass Valves
- Mode switch in SHUTDOWN

The CRNSO's **FIRST** action and the reason for that action should be:

A. Order 29.ESP.11 for MSIVs to prevent possible discharge of radionuclides to the suppression pool.

B. Inhibit ADS to prevent a reactivity addition and possible core damaging power excursion.

C. Bypass and restore drywell pneumatics to maintain the condenser as a heat sink.

D. Terminate and prevent to prevent high core inlet subcooling.

Answer: **B**

Answer Explanation:

FSL-1 DIRECTS Inhibit ADS to prevent a Reactivity Addition and possible core damaging power excursion.

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:	3.50
System ID:	26842
User-Defined ID:	R25
Cross Reference Number:	202-0601-000-0001-035
Topic:	Actions on Load Reject and ATWS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because it is directed in step FSL-4, which is after inhibiting ADS. C. is incorrect because it is directed in step FSL-4, which is after inhibiting ADS. D. is incorrect because it is directed in step FSL-10 or FSL-11, which is after inhibiting ADS. Reference: 29.100.01 SH 1A, FSL-2

Question 25 Table-Item Links

Plant Procedures

29.100.01 SH lA

NUREG 1123 KA Catalog Rev. 2

295015 AK1.04 3.8/3.8 Reactor pressure: Plant-Specific

Associated objective(s):

Perform other EOP / AOP actions as directed.

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

What does 29.ESP.23, Defeat of RBCCW/EECW Cooling Water to Drywell Isolation, inhibit, and when would it be required?

A. Defeats the RBCCW Low Differential Pressure input to EECW/EESW logic It would be directed to be performed for restoration from a loss of offsite and onsite power.

B. Defeats the High Drywell Pressure input to EECW/EESW logic. It would be directed to be performed for restoration from a loss of offsite and onsite power.

C. Defeats the High Drywell Pressure input to EECW/EESW logic. It would be directed to be performed any time there was a leak outside the Drywell.

D. Defeats the RBCCW Low Differential Pressure input to EECW/EESW logic. It would be directed to be performed any time there was a leak outside the Drywell.

Answer: B

Answer Explanation:

This procedure provides instructions for defeating the High Drywell Pressure input to EECW/EESW logic to permit restoration of RBCCW/EECW Cooling Water to the Drywell when directed by 20.300.SBO, "Loss of Offsite and Onsite Power (Division 1 only).

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:	4.00
System ID:	26843
User-Defined ID:	R26
Cross Reference Number:	NEW
Topic:	Restore RBCCW/EECW to Drywell in 20.300.SBO
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because it is not performed when there is a leak outside the Drywell. C. is incorrect because it does not defeat the RBCCW Low D/P. D. is incorrect because it does not defeat the RBCCW Low D/P and it is not performed when there is a leak outside the Drywell. Reference: 29.ESP.23, page 2

Question 26 Table-Item Links

Plant Procedures

29.ESP.23

NUREG 1123 KA Catalog Rev. 2

G2.4.34 4.2/4.1 Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects

Associated objective(s):

Describe the three methods of restoring cooling water to the Drywell when Primary Containment pressure is greater than 1.68 psig.

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

The plant is operating at 97% power when the plant experiences a seismic event. The following alarms are received:

- 6D69, SEISMIC SYSTEM EVENT/TROUBLE
- 2D78, REAC BLDG FLR/EQUIP DRN SUMPS LVL HI-HI/LO-LO
- 7D10, ELECTRIC FIRE PUMP AUTO START
- 7D6, DIESEL FIRE PUMP AUTO START

G1101-D073, RB NW Equip Drn Sump Level is verified at 47 inches and rising with both sump pumps running. No additional alarms are received. 29.100.01 Sheet 5, Sec Cont/Rad Release has been entered. What action is required?

A. Isolate the leak in Fire Protection System.

B. Place Mode Switch in Shutdown.

C. Assemble the Fire Brigade.

D. Perform GOP shutdown.

Answer: A

Answer Explanation:

Indications are given that a leak is coming from the fire protection system. 29.ESP.01 lists the FP system as a possible source for leakage into this sump. 29.100.01 Sheet 5 directs you to isolate systems leaking into secondary containment.

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:	3.00
System ID:	26858
User-Defined ID:	R27
Cross Reference Number:	NEW
Topic:	Actions for Flooding from Fire Proterction System
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because sump level has not exceeded the max safe, and is not a primary system (FP). C. is incorrect because auto starts of both fire pumps is not positive indication of a fire.. D. is incorrect because sump level has not exceeded the max safe. References: 29.ESP.01, page 21; 29.100.01 SH 5, SC-2

Question 27 Table-Item Links

Plant Procedures

29.100.01 SH 5

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

295036 EA1.02 3.5/3.6 Affected systems so as to isolate damaged portions

Associated objective(s):

Perform other EOP / AOP actions as directed.

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

Choose the statement that describes how water hammer in RHR is minimized or prevented.

A. The RHR suction and discharge piping is maintained full of water by Keep Fill supplied from the Demin System.

B. The RHR discharge piping is maintained full of water by Keep Fill supplied from the Demin System.

C. The RHR discharge piping is maintained full of water by Keep Fill supplied from the Condensate Storage and Transfer System.

D. The RHR suction and discharge piping is maintained full of water by Keep Fill from the Condensate Storage and Transfer System.

Answer: C

Answer Explanation:

Justification RHR discharge piping is supplied by CSTS, suction is supplied from torus via gravity.

Question 28 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26898
User-Defined ID:	R28
Cross Reference Number:	202-0601-000-0001-035
Topic:	RHR Keep Fill
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because it is not supplied from Demin system B. is incorrect because it is not supplied from the Demin system. D. is incorrect because the suction is supplied from the Torus. Reference: 23.205, page 15

Question 28 Table-Item Links

Plant Procedures

23.205

NUREG 1123 KA Catalog Rev. 2

203000 K1.04 3.3/3.4 Keep fill system

Associated objective(s):

Discuss the RHR System interrelationships with other systems.

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

(1) What conditions are the operating crew allowed to close E1100-F060B, Division 2 LPCI Manual Isolation Valve, and (2) what is the reason for this precaution?

A. (1) Modes 3, 4, or 5.
(2) A valve stem failure could result in an unisolatable leak.

B. (1) Modes 3, 4, or 5.
(2) The operators may not be able to reopen the valve due to high dp.

C. (1) RPV depressurized or SM approval.
(2) The operators may not be able to reopen the valve due to high dp.

D. (1) RPV depressurized or SM approval.
(2) A valve stem failure could result in an unisolatable leak.

Answer: D

Answer Explanation:

Justification per 23.205 precaution 3.1.8. Unless authorized by the SM, E1100-F060B, Div 2 LPCI Manual Iso Vlv, shall **not** be closed with RPV pressurized. The valve stem could fail and cause an unisolatable leak.

Question 29 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:	26899
User-Defined ID:	R29
Cross Reference Number:	202-0501-000-A005-006(M)
Topic:	3.1.8Precaution of F060 Operation
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you must have SM approval or be depressuized. B. is incorrect because you must have SM approval or be depressuized and reason is not correct. C. is incorrect because the reason not high dp. Reference: 23.205, precaution 3.1.8

Question 29 Table-Item Links

Plant Procedures

23.205

NUREG 1123 KA Catalog Rev. 2

203000 A2.03 3.2/3.3 Valve closures

Associated objective(s):

State major precautions and limitations, and major safety considerations for the RHR System, and describe their bases.

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

Which one of the following components would be affected by a loss of power from the 2PB bus?

A. E1150-F017B LPCI Loop B Outboard Isolation Valve

B. E1150-F015B LPCI Loop B Inboard Isolation Valve

C. E1150-F008 Shutdown Cooling Outboard Isolation Valve

D. E1150-F009 Shutdown Cooling Inboard Isolation Valve

Answer: C

Answer Explanation:

Justification it is the only valve given which receives power from 2PB.(2PB1 Pos 5A)

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26900
User-Defined ID:	R30
Cross Reference Number:	315-0141-000-A014-003
Topic:	Loss of 2PB
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because it gets power from 72CF. B. is incorrect because it gets power from 72CF. D. is incorrect because it gets power from 72C. Reference: 20.300.260ESF Enclosure B, page 1

Question 30 Table-Item Links

Plant Procedures

23.205

20.300.260VESF

NUREG 1123 KA Catalog Rev. 2

205000 K2.02 2.5*/2.7* Motor operated valves

Associated objective(s):

Describe the normal and alternate power supplies to RHR System components.

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

The plant is operating at 94% power during surveillance 24.202.01 HPCI Pump and Valve Operability. After the HPCI turbine comes up to speed, E4150-F012, Pump Min Flow Iso Valve, fails in the open position. Assuming no operator action, explain the effect this will have on Torus water level?

A. Torus water level will **rise** until suction source switches **from** Torus **to** CST.

B. Torus water level will **rise** until suction source switches **from** CST **to** Torus.

C. Torus water level **will lower** until suction source switches **from** CST **to** Torus.

D. Torus water level **will lower** until suction source switches **from** Torus **to** CST.

Answer: B

Answer Explanation:

Because the E4150-F012, Pump MM Flow Iso Valve goes back to the Torus, the flowpath would be from the CST to Torus. Level would increase in the Torus until +3 inches, then suction source auto swaps from CST to Torus.

Question 31 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	3.00
System ID:	26901
User-Defined ID:	R31
Cross Reference Number:	NEW
Topic:	Min flow valve failure affect on torus level
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because Level would increase in the Torus until +3 inches, then suction source auto swaps from CST to Torus. C. is incorrect because Level would increase in the Torus. D. is incorrect because Level would increase in the Torus. Reference: 23.202, page 7

Question 31 Table-Item Links

Plant Procedures

23.202

NUREG 1123 KA Catalog Rev. 2

206000 K3.03 3.4*/3.5* Suppression pool level control: BWR-2,3,4

Associated objective(s):

Given various system operating parameters, relate system/equipment operation to fundamental concepts to determine proper operation/response as described in the BWR Fundamentals Catalog.

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

The plant was operating at 95% power when a LOCA occurred in the drywell. The following plant conditions exist:

- Drywell Pressure ..... 2.4 psig
- Reactor Pressure..... 500 psig and lowering

What is the status of Div 1 CS Pumps Minimum Flow Bypass Valve, E2150-F031A, and what condition would allow it to reposition?

A. E2150-F031A would be CLOSED. It would open when E2150-F005A, CSS Loop A Inboard Isolation Valve is throttled shut.

B. E2150-F031A would be CLOSED. It would open if A or C Core Spray Pump is secured.

C. E2150-F031A would be OPEN. It would close when E2150-F005A, CSS Loop A Inboard Isolation Valve is opened.

D. E2150-F031A would be OPEN. It would close when Reactor Pressure drops below 245 psig.

Answer: D

Answer Explanation:

With a high Drywell Pressure, CS Pumps will start and not inject. The MM Flow Valves will be open unitl flow exceeds 775 gpm. CS aligns for injection at 461 psig, with shutoff head at 285 psig.

Question 32 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26902
User-Defined ID:	R32
Cross Reference Number:	NEW
Topic:	CS Min flow valve operation
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect for the given conditions, flow would not exceed 775 gpm, the min flow valve would be shut. B. is incorrect for the given conditions, flow would not exceed 775 gpm, the min flow valve would be shut. C. is incorrect because FOO5A, CSS Loop A Inboard Isolation Valve opens at 461 psig. The pumps will still be at shutoff head. Reference: 29.ESP.01, page 50

Question 32 Table-Item Links

Plant Procedures

23.203

29.ESP.01

NUREG 1123 KA Catalog Rev. 2

209001 K4.05 2.6/2.6 Pump minimum flow

Associated objective(s):

Given various system operating parameters, relate system/equipment operation to fundamental concepts to determine proper operation/response as described in the BWR Fundamentals Catalog.

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

Per LCO 3.1.7 Standby Liquid Control Systems, two SLC Subsystems shall be operable in Modes 1 and 2. Why does this LCO not apply in other modes?

A. In Modes 3, 4, and 5, Shutdown cooling will dilute the born concentration.

B. In Modes 3, 4, and 5, all rods are inserted and criticality cannot be achieved.

C. In Mode 4 and 5, temperature is less than 200°F. SLC is ineffective at temperature below 200°F.

D. In Mode 5, only one rod can be withdrawn at a time in a cell containing fuel assemblies. Demonstration of adequate SDM ensures the reactor will not become critical.

Answer: D

Answer Explanation:

SLC is not required in Modes 3 and 4 because with the mode switch in SHUTDOWN, no rods can be withdrawn. In mode 5, after verifying the reactor will remain shutdown with the highest rod worth rod fully withdrawn(SDM), one rod may be withdrawn and the reactor will not be critical.(TS B 3.1.7 APPLICABILITY).

Question 33 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:	26918
User-Defined ID:	R33
Cross Reference Number:	NEW
Topic:	TS SLC Operabilty Requirements
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect it is the wrong bases. SDC would dilute the SLC boron being injected. C. is incorrect because temperature may affect the effectiveness, but is still the wrong bases. B. is incorrect because you can withdraw rods in mode 5. This is the correct bases for modes 3 and 4. Reference: Tech Spec 3.1.7

Question 33 Table-Item Links

NUREG 1123 KA Catalog Rev. 2

211000 K5.03 3.2/3.5 Shutdown margin

Technical Specifications

3.1.7 Standby Liquid Control (SLC) System

Associated objective(s):

Describe the Standby Liquid Control System technical specification limiting conditions for operation, their bases, the associated surveillance requirement(s), and their relationship to operability.

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

An operator standing by a Hydraulic Control Unit (HCU) bank hears a click of multiple solenoid valves changing position, and no sound of air discharging. This is followed by an announcement from the Control Room of the receipt of a 1/2 scram.

Which **ONE** of the following is the initiating event which leads to this condition?

A. A 1/2 scram of RPS Channel A.

B. A 1/2 scram of RPS Channel B.

C. A 1/2 scram caused one half of the Back-Up Scram Valves to energize.

D. A 1/2 scram caused one half of the Back-Up Scram Valves to de-energize.

Answer: A

Answer Explanation:

Justification because when RPS A cause a half scram, solenoids will reposition, no air would vent.

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26919
User-Defined ID:	R34
Cross Reference Number:	213-0202-000-0001
Topic:	Solenoids reposition during half scram
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect for if RPS B initiated the half scam, air would be vented. C/D. is incorrect because backup scam valves energize when full scram signal is present. Reference: M-5703-1

Question 34 Table-Item Links

Plant Drawings

M-5703-1

NUREG 1123 KA Catalog Rev. 2

212000 K1.06 3.5/3.6 Control rod drive hydraulic system

Associated objective(s):

Given various system operating parameters, relate system/ equipment operation to fundamental concepts to determine proper operation/response as described in the BWR Fundamentals Catalog.

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

Which one of the following provides power for the Intermediate Range Channel B instrument drawer?

A. 120/208 VAC Cabinet 72E-2B-1

B. 120 VAC UPS Distribution Cabinet B

C. 48/24 VDC DC Distribution Cabinet 2IA1-3

D. 48/24 VDC DC Distribution Cabinet 21131-3

Answer: D

Answer Explanation:

Justification because 48/24 VDC Distribution provides power for the IRM Channel B instrument Drawer.

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26920
User-Defined ID:	R35
Cross Reference Number:	202-0211-000-A003
Topic:	IRM power supplies
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect it is the power supply for IRM B Detector Drive Power. B. is incorrect it is the power supply for IRM Chart Recorder. C. is incorrect it is the power supply for IRM Channels A, C, E, and G instrument drawers. Reference: 20.300.24/48DC Enclosure B

Question 35 Table-Item Links

Plant Procedures

23.603

20.300.24/48VDC

NUREG 1123 KA Catalog Rev. 2

215003 K2.01 2.5*/2.7 IRM channels/detectors

Associated objective(s):

Describe the normal and alternate power supplies to Intermediate Range Monitoring System components.

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

An upscale failure on SRM(s) (1) will be the **MINIMUM** required to cause a reactor scram with the shorting links (2) .

A. (1) A **ONLY**
(2) removed

B. (1) A **AND** B
(2) removed

C. (1) A **ONLY**
(2) installed

D. (1) A **AND** B
(2) installed

Answer: A

Answer Explanation:

Justification this is the minimum to cause a scram. Only one upscale with shorting links removed will cause a scram.

Question 36 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26921
User-Defined ID:	R36
Cross Reference Number:	315-0122-000-B007-003
Topic:	Upscale trip causing scram
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect it will cause a scam, but is not the minimum C. is incorrect it will not generate a scram. D. is incorrect it not cause a scam, but is a common misconception. Reference: 3D55

Question 36 Table-Item Links

Plant Procedures

03D055

NUREG 1123 KA Catalog Rev. 2

215004 K3.01 3.4/3.4 RPS

Associated objective(s):

Discuss failure modes of Source Range Monitoring System controls and vital instruments, including design features that could result in erroneous operation or indication.

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

The reactor is operating with **BOTH** recirculation loops in operation, conditions are as follows:

- APRM Flux is 40%.
- APRM Recirc Flow is 53%
- Total Core Flow is 55 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. 87%

B. 90%

C. 95%

D. 114%

Answer: C

Answer Explanation:

The APRM Simulated Thermal Power Upscale Trip setpoin is 0.63(W) +61.4%, with W=45, the trip setpoint is 94.79%. The lowest listed power which exceeds this is 95%.

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26922
User-Defined ID:	R37
Cross Reference Number:	315-0124-000-A017-006(M)
Topic:	STP 2 loop trip
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this would be true if you used W=40. B. is incorrect because this would be true if you used W=45. D. is incorrect because this the High Clamp Value for the APRM STP Trip Setpoint. Reference: 3D101

Question 37 Table-Item Links

Plant Procedures

03D101

NUREG 1123 KA Catalog Rev. 2

215005 K4.07 3.7/3.7 Flow biased trip setpoints

Associated objective(s):

Describe general Power Range Neutron Monitoring System operation, including component operating sequence, normal operating parameters, and expected system response.

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

While the RCIC System is operating, the following system conditions exist:

- Lube oil temperature..... 150°F
- Lube oil pressure.....11 psig
- E51-F044 (Governor Valve)..... cycling
- E51-F040 (Turbine Exhaust Check Valve)..... hammering open and closed

Given the above RCIC Systems conditions, identify which of the following is likely causing these problems.

A. High system flow.

B. Lube oil high temperature.

C. Turbine speed below 2100 rpm.

D. The fluid being pumped by the RCIC Pump is too hot.

Answer: C

Answer Explanation:

Justification P&L 3.5 states RPM under 2100 causes control valve instability along with water hammer. Both indications are given in the stem.

Question 38 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:	26938
User-Defined ID:	R38
Cross Reference Number:	315-0143-000-0107-001
Topic:	RCIC flow precaution
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect the check valve would not be hammering. B. is incorrect lube oil temperature rising is a result not cause. C. is incorrect CST does not get that hot. Reference: 23.206 P&L 3.5

Question 38 Table-Item Links

Plant Procedures

23.206

NUREG 1123 KA Catalog Rev. 2

217000 K5.02 3.1/3.1 Flow indication

Associated objective(s):

State major precautions and limitations, and major safety considerations for the RCIC System, and describe their bases.

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

RCIC system has started automatically on Level 2 due to a loss of Feedwater.

Which of the following accurately describes what is sensed by the E51-R613, RCIC Pump Flow Indicator?

A. Flow through the minimum flow bypass valve (E5150-F019).

B. Total system flow from all RCIC Pump flowpaths.

C. RPV injection flow through RCIC Pump Discharge Inboard Isolation Valve (E5150-F013).

D. RCIC Pump test line flow back to the CST through the test line isolation valve (E5150-F022).

Answer: C

Answer Explanation:

Justification this flow detector only senses what is going in to the reactor.

Question 39 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:	26939
User-Defined ID:	R39
Cross Reference Number:	315-0143-000-0002-004
Topic:	Flow sensed by the flow indicator
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect it does not sense this flow. B. is incorrect it does not sense min flow bypass or test. D. is incorrect it does not sense this flow. Reference: M-5709-1

Question 39 Table-Item Links

Plant Drawings

M-5709-1 RCIC System FOS

NUREG 1123 KA Catalog Rev. 2

217000 A4.08 3.7/3.6 System flow

Associated objective(s):

Given various system operating parameters, relate system/equipment operation to fundamental concepts to determine proper operation/response as described in the BWR Fundamentals Catalog.

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

The plant was operating at 100% power when a loss of feedwater occurred and the following conditions exist:

- RPV pressure ..... 875 psig
- HPCI system ..... inoperable
- RCIC system ..... inoperable
- MSIVs ..... cannot be opened

Given the above parameters, the operating crew should inhibit the ADS System under which of the following conditions:

A. 184 rods indicate full in.

B. RPV Level at 31 inches.

C. Only one RHR pump is running.

D. Drywell pressure is less than 1.68 psig indicating there is no leak into the Drywell.

Answer: **B**

Answer Explanation:

Justification 29.100.01 Sheetl Directs this if level is less than 32 inches or ADS timer starts its countdown.

Question 40 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26940
User-Defined ID:	R40
Cross Reference Number:	315-0143-000-002-004(M)
Topic:	When to inhibit ADS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this is not an ATWS. C. is incorrect this is a condition for ADS to actuate, not a reason for inhibiting D. is incorrect it is not a reason for inhibiting. Reference: 29.100.01 SH 1, L-5

Question 40 Table-Item Links

Plant Procedures

29.100.01 SH 1

NUREG 1123 KA Catalog Rev. 2

218000 K4.01 3.7/3.9 Prevent inadvertent initiatior of ADS logic

Associated objective(s):

Given a set of plant conditions/actions taken and a current copy of 29.100.01 Sh 1 through 6, determine which step(s) is (are) to be directed by the CRS.

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

A failure of B21-N681A and B21-N681B resulted in numerous isolations and actuations including Division 1 Group 18 Primary Containment Pneumatic Supply System.

How does a Group 18 Primary Containment Pneumatic Supply System Isolation affect ADS valve actuation?

A. ADS SRVs can only be operated after Drywell Pneumatics have been bypassed and restored.

B. ADS SRVs can only be operated after Emergency Nitrogen bottle supplies are hooked up.

C. ADS SRVs can only be operated at least 5 times.

D. ADS SRVs cannot be operated.

Answer: C

Answer Explanation:

Group 18 Isolation limits each ADS valve to at least 5 cycles based on the Accumulator capacity.

Question 41 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:	26941
User-Defined ID:	R41
Cross Reference Number:	NEW
Topic:	G18 isolation effect on ADS
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect this is a way to restore, but not the only way. B. is incorrect this is a way to restore, but not the only way. D. is incorrect each ADS valve is available for 5 cycles based on the Accumulator capacity. Reference: ST-OP-315-0042, page 12

Question 41 Table-Item Links

Plant Procedures

23.201

NUREG 1123 KA Catalog Rev. 2

218000 K6.07 3.4/3.5 Primary containment instrumentation

Associated objective(s):

Discuss the ADS interrelationships with other systems.

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

While operating at 100% power, the B21-N686A, Main Steam Line A High Flow Detection Pressure Differential Trip Unit Div 1 fails **UPSCALE.**

Which of the following describes the expected response, if any, of the MSIVs?

A. **NO MSIVs** will close.

B. **ALL MSIVs** will close.

C. Only MS Line A Inboard MSIV will close.

D. Only MS Line A Inboard **AND** Outboard MSIVs will close.

Answer: A

Answer Explanation:

Justification each MSL has 4 Trip Units and only one upscale will not cause any MSIV to close.

Question 42 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:	26942
User-Defined ID:	R42
Cross Reference Number:	315-0148-000-0004-022
Topic:	MSL flow detector failed upscale
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect no division 2 upscale. C. is incorrect only one upscale will not cause any MSIV to close. D. is incorrect only one upscale will not cause any MSIV to close. Reference: 23.601, page 14

Question 42 Table-Item Links

Plant Procedures

23.601

NUREG 1123 KA Catalog Rev. 2

223002 A1.02 3.7/3.7 Valve closures

Associated objective(s):

Describe how the Nuclear Boiler system provides redundancy.

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

While operating at 100% power, the following alarm is received:

- 1D61 SRV OPEN

The P603 Operator reports power, pressure, and level are stable. **NO** Red OPEN lights are on. A report from the relay room is SRV A Tailpipe temperature is 222°F and slowly rising.

What is the cause of the alarm, and what actions are recommended?

A. SRV A is open. Push open button for SRV A, and the close button.

B. SRV A is open. Pull fuses for SRV A to ensure it does not reopen.

C. SRV A is leaking by. Push open button for SRV A, and the close button.

D. SRV A is leaking by. Reactor shutdown, and pressure must be lowered to reset.

Answer: D

Answer Explanation:

Based on power, pressure, level report, the SRV did not open. 1D61 actuates on temperature or pressure in the tailpipe. Per 1D61, if the SRV is leaking, General Electric recommends lowering pressure below 200 psig to reset the valve (TMPE-96-0065).

Question 43 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:	26971
User-Defined ID:	R43
Cross Reference Number:	NEW
Topic:	Leaky SRV
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect indications given do not support SRVA opened, but these are the correct IAs if it did. B. is incorrect indications given do not support SRVA opened, but these are the correct Supplemental actions if the SRV will not go shut. C. is incorrect because these are the IAs for OPEN SRV. Reference: 1D61

Question 43 Table-Item Links

Plant Procedures

23.201

01D61

NUREG 1123 KA Catalog Rev. 2

239002 A2.02 3.1/3.2 Leaky SRV

Associated objective(s):

Identify alarm response procedures associated with the Nuclear Boiler system.

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

The plant is operating at 100% power with the Feedwater Control System (FWCS) in 3 element control.

Which **ONE** of the following describes the response of the FWCS to a feed line rupture estimated at 5000 gpm in the A feedwater line?

FWCS will....

A. shift to single element control and raise the speed of both Reactor Feed Pump Turbines.

B. stay in three element control and raise the speed of both Reactor Feed Pump Turbines.

C. shift to single element control and raise the speed of the A Reactor Feed Pump Turbine only.

D. stay in three element control and raise the speed of the A Reactor Feed Pump Turbine only.

Answer: A

Answer Explanation:

Justification due to the leak and divergence between A and B feed water detectors, the FWCS will shift to single element. Due to the reduction in total feed flow, level will decrease, and both feed pumps will speed up to increase level.

Question 44 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:	26972
User-Defined ID:	R44
Cross Reference Number:	315-0146-000-A015-004
Topic:	Forced single element
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because FWCS will not stay in three element. C. is incorrect because FWCS will speed up both feed pumps. D. is incorrect because FWCS will not stay in three element. Reference: ST-OP-315-0046, page 17

Question 44 Table-Item Links

Plant Procedures

23.107

NUREG 1123 KA Catalog Rev. 2

259002 A3.04 3.2/3.2 Changes in reactor feedwater flow

Associated objective(s):

Discuss potential modes of Feedwater Control System component failures and any industry operating experience related to the failure.

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

Which of the following symptoms would be indicative of a high temperature (>255°F) in the SGTS Charcoal Adsorber?

A. Increasing Iodine effluents.

B. Decreasing Iodine effluents.

C. Increasing SGTS flow.

D. Decreasing SGTS flow.

Answer: A

Answer Explanation:

Justification as temperatures increase above 255°F, the increased molecular motion makes adsorption more difficult, and iodine which has collected on the carbon surfaces may be driven off.

Question 45 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:	26973
User-Defined ID:	R45
Cross Reference Number:	315-0120-000-0008-004
Topic:	Purpose fans come on at 255°F
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because it would cause the opposite. C. is incorrect because it would not affect flow. D. is incorrect because it would not affect flow. Reference: ST-OP-315-0020, page 12

Question 45 Table-Item Links

Plant Procedures

23.404

NUREG 1123 KA Catalog Rev. 2

261000 K4.02 2.6/2.8 Charcoal bed decay heat removal

Associated objective(s):

Discuss the function and purpose of Standby Gas Treatment System components, including their importance to nuclear safety.

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

Following a transient, plant conditions are as follows:

- Drywell Pressure is 2.25 psig.
- 8D46 DIV I REACTOR BLDG PRESSURE HIGH / LOW is alarming.
- 17D46 DIV II REACTOR BLDG PRESSURE HIGH / LOW is alarming.
- Reactor Building Pressure is 0 inches water column.

Which one of the following has occurred?

A. Reactor Building HVAC Exhaust Fans are running.

B. Both Trains of Standby Gas Treatment are running.

C. Both Trains of Standby Gas Treatment have failed to start.

D. All Reactor Building HVAC Isolation Dampers have failed to isolate.

Answer: C

Answer Explanation:

With a high drywell, both SGTS trains should start and RBHVAC should trip. The indication of 0 inches of Reactor pressure is a result of RBHAVC tripping(pressure increase) and standby gas not starting(pressure would <-.5 inches).

Question 46 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26944
User-Defined ID:	R46
Cross Reference Number:	315-0120-000-A020-001(M)
Topic:	Indications of RB pressure with SGTS running
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 8
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because even with RBHVAC in service, pressure would be negative. B. is incorrect because pressure would be negative. D. is incorrect because would have no impact with no ventilation fans running. Reference: 8D46

Question 46 Table-Item Links

Plant Procedures

08D46

NUREG 1123 KA Catalog Rev. 2

261000 A4.03 .3/3 Fan

Associated objective(s):

Describe general Standby Gas Treatment System operation, including component operating sequence, normal operating parameters, and expected system response.

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

Following a Loss of Coolant Accident with an electrical plant malfunction, plant conditions are as follows:

- RPV Water Level is 35 inches, **LOWERING.**
- Reactor Pressure is 250 psig, **LOWERING.**
- 345 kV Mat Power Indicating Lights are **OFF.**
- EDG 13 is **LOADED** carrying Bus 65E.
- Bus 65F and Bus 14ED Power Indicating Lights are **OFF.**
- Bus 72F and Bus 72ED Power Indicating Lights are **OFF.**
- 65F-F6 Breaker is **TRIPPED.**
- 65F-F8 Breaker is **CLOSED.**

Which one of the following lists the electrical procedure which should be executed to provide **MAXIMUM** Low Pressure ECCS Injection to support 29.100.01, Sheet 1, RPV Control actions?

A. 20.300.65F, Loss of Bus 65F, due to Bus 65F being LOCKED OUT.

B. 20.300.72F, Loss of Bus 72F, due to Bus 72F being LOCKED OUT.

C. 20.307.01, Emergency Diesel Generator Failure, due to EDG 14 failing to start.

D. 20.300.SBO, Loss of Offsite and Onsite Power, due to a combination of electrical malfunctions.

Answer: **C**

Answer Explanation:

A loss of 345kv power indicated in loss of ESF Div 2 AC Power. An EDG 14 START FAILURE has resulted in BUS 65F being de-energized

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26974
User-Defined ID:	R47
Cross Reference Number:	802-2001-000-A000-001
Topic:	Loss of 345 kv effect on ECCS Systems
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because a 65F LOCKOUT condition is excluded by 65F-F8 breaker being CLOSED. B. is incorrect because a 72F LOCKOUT condition is excluded by 65F-F6 breaker being tripped. D. is incorrect because a Station Blackout is excluded by DIV 1 ESF Buses energized and EDG 13 LOADED. Reference: 20.307.01, step H1

Question 47 Table-Item Links

Plant Procedures

20.307.01 - EDG Failure

NUREG 1123 KA Catalog Rev. 2

G2.4.8 3.8/4.5 Knowledge of how abnormal operating procedures are used with EOPs

262001 K1.01 3.8/4.3* Emergency generators (diesel/jet)

Associated objective(s):

Describe how the 120/345KV Switchyards assists in maintaining the critical safety functions.

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

A Loss of offsite power has occurred and the following conditions exist:

- The reactor has scrammed.
- Only EDG 14 has started and has energized its respective ESF bus.
- EDGs 11, 12 and 13 have failed to start.
- Offsite power has been restored to the 345 kV Matt.
- Bus 72R has been energized.

How will the UPS system respond?

A. Loads on Unit A are supplied from the Unit B Rectifier through the Unit A Inverter.

B. Loads on Unit A are supplied from its Alternate Source through the Static Transfer Switch.

C. Loads on Unit B are supplied from the UPS battery though the Inverter.

D. Loads on Unit B are supplied from its Alternate Source through the Static Transfer Switch.

Answer: A

Answer Explanation:

Power has not been restored to the UPS A primary power supply (72M), this would result in UPS A to be powered through the UPS B rectifier from 72 R.

Question 48 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26977
User-Defined ID:	R48
Cross Reference Number:	213-0128-000-A007-004
Topic:	Power to UPS A after casualty
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because power is available through UPS B by way of the rectifier. C. is incorrect because when AC power is available it will provide the source of power. D. is incorrect because unit B primary power supply is available. Reference:23.308.01 Enclosure C

Question 48 Table-Item Links

Plant Procedures

23.308.01

NUREG 1123 KA Catalog Rev. 2

262002 K6.01 2.7/2.9 A.C. electrical power

Associated objective(s):

Describe how the Uninterruptible Power Supply System provides redundancy.

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

When a 130V ESF Battery Charger is placed in "Equalize Mode", which one of the following occurs?

A. The battery charging rate will be decreased.

B. The Battery Charger will pick up 50% of the DC load.

C. The associated DC Bus voltage will be increased.

D. The Battery Charger voltage will equalize with the battery voltage.

Answer: C

Answer Explanation:

With the battery placed in the Equalize Mode, an increase in voltage and current should be verified on the charger front panel.

Question 49 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26958
User-Defined ID:	R49
Cross Reference Number:	315-0264-000-0002-019
Topic:	Equlize Mode Operation
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because placing the charger in Equalize Mode will increase the charging rate. B. is incorrect because the charger would pick up all the associated DC load. D. is incorrect because this is a misconception regarding Equalize Mode. Reference: 23.309, page 12

Question 49 Table-Item Links

Plant Procedures

23.309

NUREG 1123 KA Catalog Rev. 2

263000 A1.01 2.5/2.8 Battery charging/discharging rate

Associated objective(s):

Describe general DC Electrical Distribution System operation, including component operating sequence, normal operating parameters, and expected system response.

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

Concurrent with a Loss of 345 kV power, Bus 65E Breakers E6 and E8 indicate **TRIPPED.**

What is the status of Emergency Diesel Generators (EDGs), and what action is required?

A. Only **ONE** Emergency Diesel Generator has started. Action should be taken to clear a Bus 65E lockout condition prior to energizing Bus 65E.

B. Only **TWO** Emergency Diesel Generators started. Action should be taken to manually load the EDG to re-energize Bus 65E.

C. Only **THREE** Emergency Diesel Generators started. Action should be taken to clear a Bus 65E lockout condition prior to energizing Bus 65E.

D. All **FOUR** Emergency Diesel Generators started. Action should be taken to manually load one of the EDGs to re-energize Bus 65E.

Answer: A

Answer Explanation:

Bus 65E Lockout conditions are indicated by TRIP of Breakers E6 and E8. This opens the 1MY86 contact thus preventing the emergency start signal for the associated EDG. The Lockout must be cleared prior starting the EDG

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:	3.00
System ID:	26979
User-Defined ID:	R50
Cross Reference Number:	315-0065-000-0014-002
Topic:	Loss 345 kv bus lockout
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because EDG 13 will not auto start with a Lockout inhibiting the start function. C. is incorrect because Division 1 EDGs will not receive a start signal for a loss of DIV 2 AC power. D. is incorrect because Division 1 EDGs will not receive a start signal for a loss of DIV 2 AC power. Reference: 10D32

Question 50 Table-Item Links

Plant Procedures

10D32

NUREG 1123 KA Catalog Rev. 2

264000 A2.09 3.7/4.1 Loss of A.C. power

Associated objective(s):

Given various system operating parameters, relate system/equipment operation to fundamental concepts to determine proper operation/response as described in the BWR Fundamentals Catalog.

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

At 08:00 with the plant operating at 80% power, the EDG 11 diesel fuel oil tank develops a leak. After isolation, the fuel oil storage tank is at 24,500 gallons. Which ONE, if any, of the following Technical Specifications must be completed?

A. Perform SR 3.8.1.1 "Verify correct breaker alignment and indicated power availability for each offsite circuit" by 08:50.

B. Perform SR 3.8.1.1 "Verify correct breaker alignment and indicated power availability for each offsite circuit" by 09:15.

C. No Technical Specification actions required.

D. Be in Mode 3 by 20:00.

Answer: A

Answer Explanation:

A 7 day fuel oil level of <30,240 gallons would require entry into TS 3.8.3 Condition D and required the EDG to be declared inoperable immediately. This requires entry into TS 3.8.1 Condition A which requires the performance of SR 3.8.1.1 within 1 hour.

Question 51 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:	26980
User-Defined ID:	R51
Cross Reference Number:	804-0001-000-0007-009(M)
Topic:	Low fuel oil storage tank level
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because no 1.25 extensions are permitted in initial period. C. is incorrect because 24,500 is less than the 30,240 gallon limit D. is incorrect because this action is required if associated completion time is not met. Reference: Tech Spec 3.8.3

Question 51 Table-Item Links

NUREG 1123 KA Catalog Rev. 2

264000 K1.05 3.2/3.3 Emergency generator fuel oil supply system

G2.2.39 3.9/4.5 Knowledge of less than one hour technical specification action statements for systems

Technical Specifications

3.8.1 AC Sources Operating

3.8.3 Diesel Fuel Oil, and Starting Air

Associated objective(s):

Identify Emergency Diesel Generator System related technical specifications, with emphasis on action statements requiring prompt actions (for example, one hour or less).

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

The plant is operating at 100% power with the West Station Air Compressor running, and the East Station Air Compressor in AUTO. How would the Station Air System respond if TBCCW cooling capabilities have degraded?

A. The West Station Air Compressor will trip on high air temperature and the East Compressor will auto start once air header pressure is <95 psig and run until it trips on high air temperature.

B. The West Station Air Compressor will trip on high air temperature and the East Compressor will auto start once air header pressure is <95 psig and run.

C. The West Station Air Compressor will trip on high air temperature and the East Compressor will auto start once air header pressure is <90 psig and run.

D. The West Station Air Compressor will trip on high air temperature and the East Compressor will auto start immediately and run until it trips on high air temperature.

Answer: B

Answer Explanation:

With TBCCW cooling capabilities degraded, the discharge air temperature of the compressor will cause it to trip at 125°F. Once air header pressure lowers to 95 psig, the East will auto start and continue to run. The East compressor does not have a high air temperature trip.

Question 52 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26959
User-Defined ID:	R52
Cross Reference Number:	NEW
Topic:	Degraded TBCCW flow affect
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	2012 ILO Exam
Comments:	. Justification: A. is incorrect because the East will not trip on high air temperature. C. is incorrect because the East will auto start at <95 psig. D. is incorrect because the East will not auto start until air header pressure lowers to <95 psig and will not trip on high air temp. Reference: 7D61, 23.129 Enclosure A

Question 52 Table-Item Links

Plant Procedures

23.129

07D61

NUREG 1123 KA Catalog Rev. 2

300000 A3.02 2.9/2.7 Air temperature

Associated objective(s):

Describe how the Compressed Air System provides redundancy.

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

The plant is operating normally at 100% power when the following occurs:

- 480 VAC Bus 72N is deenergized.
- 5D5, TBCCW PUMPS DIFFERENTIAL PRESSURE HIGH/LOW Alarms.
- TBCCW Headers Pressure Indicator on P43-R805 reads 17 psid.
- TBCCW Pump Suction Pressure is 10 psig.

As a result of this transient, which of the following describes the status of the TBCCW system?

A. One TBCCW pump remains in service; TBCCW DP Control Valve, P43-F405 will SHUT.

B. One TBCCW pump remains in service; TBCCW DP Control Valve, P43-F405 will OPEN.

C. The operating TBCCW pump will trip on Low Suction Pressure; TBCCW DP Control Valve, P43-F405 will SHUT.

D. An additional TBCCW pump can be started; TBCCW DP Control Valve, P43-F405 will control pressure in the normal band.

Answer: A

Answer Explanation:

With a loss of 480 VAC Bus 72N, two of the three TBCCW pumps are de-energized and the DP control valve will close to ensure maximum flow to components is available.

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26960
User-Defined ID:	R53
Cross Reference Number:	202-0901-000-A001-039
Topic:	Loss of 72N
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because it would be true if Differential Pressure were >30 psid C. is incorrect because it would be true if Suction Pressure were < 7 psig D. is incorrect because it would be true if Bus 72 M was deenergized and 72 N were energized Reference: 5D5

Question 53 Table-Item Links

Plant Procedures

05D005

NUREG 1123 KA Catalog Rev. 2

400000 A4.01 3.1/3 CCW indications and control

Associated objective(s):

Describe how the Turbine Building Closed Cooling Water System provides redundancy.

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

A drifting control rod can be prevented from continuing to drift out only by manually applying an insert signal. The Reactor Operator could determine that a stuck collet piston was causing this malfunction, by which of the following methods:

A. Insert the control rod one notch at a time and observe the rod remains at a given position.

B. Fully withdraw the rod with the NOTCH OVERRIDE switch, then observe the rod commence to slowly drift inward.

C. Electrically disarm the directional control valves, manually close C 11-F113 (Charging Water Isol Valve) and observe the rod stops drifting.

D. Manually close C11-F103 (Drive Water Isol Valve) and C11-F105 (Exhaust Water Isol Valve) and observe the rod commence to drift out.

Answer: D

Answer Explanation:

By closing the F103 and the F105, the drive water and exhaust water are isolated. This would eliminate the force on the under and over piston areas and confirm the collet is stuck.

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:	2.50
System ID:	26962
User-Defined ID:	R54
Cross Reference Number:	202-0301-000-0202-004
Topic:	Determine if stuck collet piston
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because a stuck collet would cause the rod to continue to drift. B. is incorrect because the CR should be fully inserted for a drifting rod. C. is incorrect because, the above actions would not prevent the CR from continuing to drift from a stuck collet. Reference: 20.106.07, note 3

Question 54 Table-Item Links

Plant Procedures

20.106.07

NUREG 1123 KA Catalog Rev. 2

201003 A2.03 3.4/3.7 Drifting rod

G2.1.30 4.4/4.0 Ability to locate and operate components, including local controls

Associated objective(s):

Discuss potential modes of Control Rod Drive Mechanism component failures and any industry operating experience related to the failure.

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

The plant was operating at 100% power when the reactor scrammed due to a Group 1 isolation caused by a fault in the NSSSS logic.

NO operator action has been taken at this time. Plant conditions are as follows:

- RPV level is 140" and steady (lowest level indicated was 135").
- RPV pressure is cycling between approximately 905 and 1017 psig.

What is the status of the Reactor Recirc Pump Breakers?

A. **ONLY** the Field Breakers are OPEN.

B. The Motor and Field Breakers are OPEN.

C. **ONLY** the Field Breakers are CLOSED.

D. The Motor and Field Breakers are CLOSED.

Answer: B

Answer Explanation:

During a MSIV closure event, reactor pressure will reach the ATWS-ARI/RPT trip setpoint of 1133 psig. The cycling of reactor pressure between 905 and 1017 psig indicates that the SRV lift setpoint has been reached.

Question 55 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:	26963
User-Defined ID:	R55
Cross Reference Number:	315-0104-000-0006-010
Topic:	Hi Reactor Pressure affect on RRMG Breakers
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because ARI will trip both the MG set and field breaker. C. is incorrect because ARI will trip both the MG set and field breaker. D. is incorrect because ARI will trip the MG sets and the field breakers. References: 3D25; 3D26

Question 55 Table-Item Links

Plant Procedures

03D025

03D026

NUREG 1123 KA Catalog Rev. 2

202001 K4.07 2.8/2.9 Motor generator set trips: Plant-Specific

Associated objective(s):

List the automatic features of Reactor Recirculation system operations.

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

Which one of the following describes the correct flow path during normal operation of the RWCU system?

A. Reactor Recirculation Loops, RWCU pumps, RHX, NRHX, Filter/Demin, Blowdown Control Valve, Main Condenser.

B. Reactor Recirculation Loops and Bottom Head Drain, RWCU pumps, NRHX, RHX, Filter/Demin, RHX, "B" feed water line

C. Reactor Recirculation Loops, RWCU pumps, RHX, NRHX, Filter/Demin, RHX, "A" feed water line

D. Reactor Recirculation Loops and Bottom Head Drain, RWCU pumps, RHX, NRHX, Filter/Demin, RHX, "B" feedwater line

Answer: D

Answer Explanation:

This is the correct flowpath.

Question 56 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:	26982
User-Defined ID:	R56
Cross Reference Number:	315-0108-000-B003-002(M)
Topic:	RWCU Flowpath
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this is the flowpath for blowdown opeartion. B. is incorrect because NRHX and RHX are out of order. C. is incorrect because RWCU does not go to "A" feed line. Reference: 23.707, page 2

Question 56 Table-Item Links

Plant Procedures

23.707

NUREG 1123 KA Catalog Rev. 2

204000 K1.03 3.1/3.1 Reactor feedwater system

Associated objective(s):

Draw a basic block diagram of the Reactor Water Cleanup system.

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

During the approach to criticality, a loss of UPS A circuit 8 occurs. Which of the following statements correctly describes the response of the Rod Worth Minimizer (RWM) to this event?

A. A rod block is applied by the RWM. The WHITE "Selected Rod" light on the 4-Rod Display is NOT illuminated and the "Rod Out Perm" light is NOT illuminated.

B. A rod block is applied by the RWM. The WHITE "Selected Rod" light on the 4-Rod Display and "Rod Out Perm" is illuminated.

C. A rod block is NOT applied by the RWM. The Full Core Display Selected Rod Identification Light is NOT illuminated.

D. A rod block is NOT applied by the RWM. The Full Core Display Selected Rod Identification Light is illuminated.

Answer: A

Answer Explanation:

RPIS power is supplied from UPS A circuit 8. RPIS senses Rod position and supplies this information to the RWM, the Four Rod Display and the Full Core status. The RWM will enforce a rod block if rod position is unknown.

Question 57 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:	26964
User-Defined ID:	R57
Cross Reference Number:	315-0111-000-0010-002
Topic:	Loss of UPS A
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because loss of power to RPIS will cause loss of indication to the 4-rod display. C. is incorrect because a Rod block will be generated by the RWM due to loss of RPIS. D. is incorrect because a Rod block will be generated by the RWM due to loss of RPIS. Reference: 23.623, section 1.1.4

Question 57 Table-Item Links

Plant Procedures

23.623

NUREG 1123 KA Catalog Rev. 2

214000 K3.01 3/3.2 RWM: Plant-Specific

Associated objective(s):

Discuss potential modes of Rod Worth Minimizer system component failures and any industry operating experience related to the failure.

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

The reactor is at 54% power, 58% core flow, both recirculation pumps are in service and control rods are being withdrawn to increase power.

Control Rod 22-07 is selected. Due to a failure in RMCS, Control Rod 22-15 is also selected.

Based on these conditions, a control rod block:

A. will occur only if power exceeds 107.2%. RBM local power

B. is immediately imposed by the RBM to prevent any rod movement.

C. is imposed by the RMCS once rod movement is initiated.

D. is imposed by the RWM once rod movement in initiated.

Answer: **B**

Answer Explanation:

The RBM will initiate a Rod Block if multiple rods are selected.

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26965
User-Defined ID:	R58
Cross Reference Number:	315-0126-000-0003-017
Topic:	Failure of RMCS causing 2 rod selected
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this is the upscale setpoint for reactor power >82% C. is incorrect because there is a failure of the RMCS and the RCMS does not enforce a Rod Block. D. is incorrect because the RWM enforces a Rod Block at Reactor power —<27% power. Reference: 3D113

Question 58 Table-Item Links

Plant Procedures

03D113

NUREG 1123 KA Catalog Rev. 2

215002 K1.06 3/3.1 Control rod selection: BWR-3,4,5

Associated objective(s):

Discuss failure modes of Reactor Manual Control System controls and vital instruments, including design features that could result in erroneous operation or indication.

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

The plant is in Mode 5 with refueling in progress. The following conditions are present:

- Fuel Pool Temperature is 108°F.
- Fuel Pool Water Level is 20'2" above fuel assemblies.
- FPCCU Skimmer Surge Tank Level is 3.5 feet.

Which of the following alarms, IF ANY, would be received based solely on the given information?

A. No alarms expected.

B. 2D13 FUEL POOL COOLING TROUBLE, 2D1 FUEL POOL WATER LOW

C. 2D9 FUEL POOL SYSTEM TEMPERATURE HIGH, 2D13 FUEL POOL COOLING TROUBLE

D. 2D1 FUEL POOL WATER LOW, 2D9 FUEL POOL SYSTEM TEMPERATURE HIGH

Answer: B

Answer Explanation:

You have exceeded the setpoint for 2D1, FUEL POOL WATER LOW, AND have a low skimmer surge tank level, giving you 2D13, FUEL POOL COOLING TROUBLE.

Question 59 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26983
User-Defined ID:	R59
Cross Reference Number:	NEW
Topic:	Fuel pool low level
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 6
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you have exceeded the setpoint for 2D1, FUEL POOL WATER LOW, and 2D13, FUEL POOL COOLING TROUBLE C. is incorrect because you have not exceeded 125°F. D. is incorrect because you have not exceeded 125°F. References: 2D1; 2D13

Question 59 Table-Item Links

Plant Procedures

02D013

02D001

03D113

NUREG 1123 KA Catalog Rev. 2

233000 A4.04 2.9*/3.1 Pool level

Technical Specifications

3.7.7 Spent Fuel Storage Pool Water Level

Associated objective(s):

Identify alarm response procedures associated with the Fuel Pool Cooling and Cleanup System.

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

Off Gas Hydrogen concentration has increased to 2.0% with the East Recombiner train in service. Which of the following conditions could cause this condition?

A. N20-F403, Cond Byp Line FCV, fails open.

B. N20-F403, Cond Byp Line FCV, fails closed.

C. N62-F400, 18"Manifold Steam Supply TCV, fails closed.

D. N62-F401A, MS To East Prehtr TCV, fails closed.

Answer: D

Answer Explanation:

The Preheater increases the Off Gas temperature from 350°F to 380°F and superheats the water vapor to improve the efficiency of the recombiner catalyst. If this valve failed closed, it would decrease the efficiency of the recombiner, therefore increasing the Hydrogen concentration.

Question 60 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:	27158
User-Defined ID:	R60
Cross Reference Number:	315-0135-000-0004-003
Topic:	Off Gas-Hydrogen Recombiner
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 4
Text Field:	2012 ILO EXAM
Comments:	Justification: A. is incorrect because this would have no effect on Hydrogen concentration. B. is incorrect because this would have no effect on Hydrogen concentration. C. is incorrect because this would decrease Hydrogen concentration. Reference: 6D25

Question 60 Table-Item Links

Plant Procedures

06D25

NUREG 1123 KA Catalog Rev. 2

239001 K3.04 2.8/2.8 Offgas system

Associated objective(s):

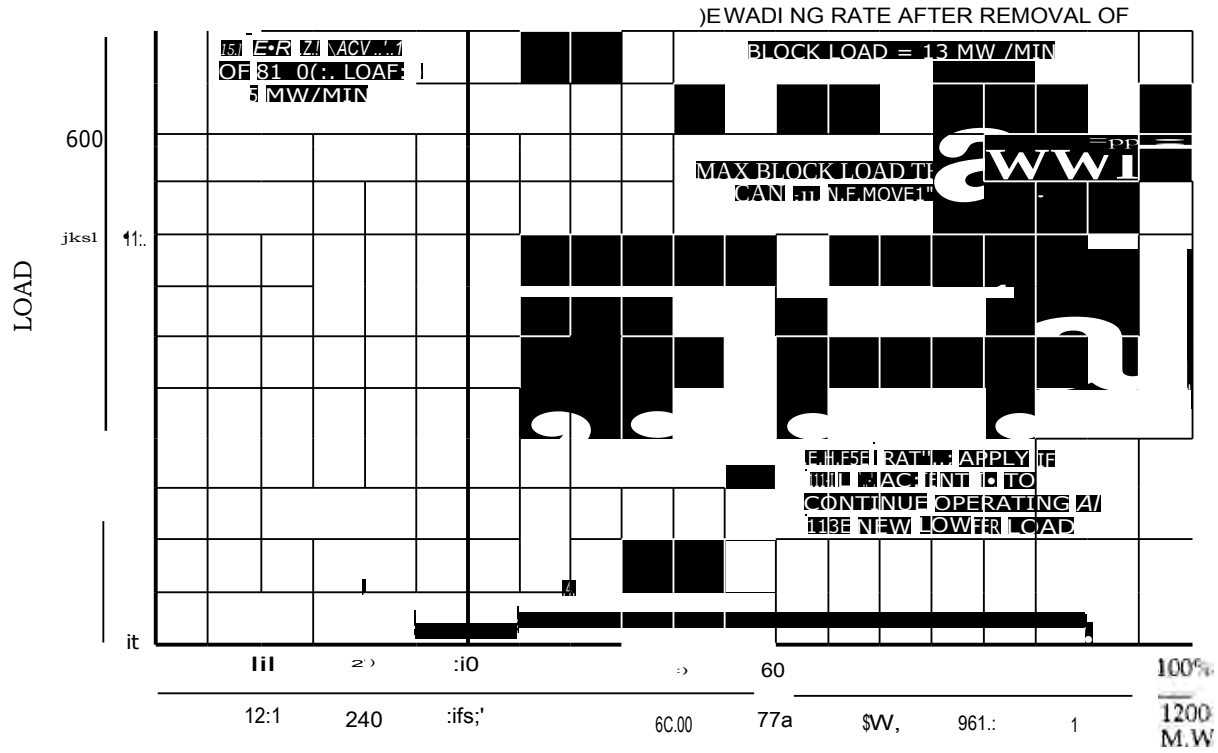
Given Off Gas System performance data, detect abnormalities, and determine possible causes for performance problems.

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

The main generator has been operating with the following conditions for the last 3 hours:

- Generator voltage: 120.5
- Generator VARs: 50 MVAR lag
- Generator Output: 840 MWe

Using Enclosure C of 23.118 (graph below), how much block load may be removed from the machine?



MACHINE LOAD

A. 420 MWe

B. 40% of rated MWe

C. 13 MW/MIN

D. 600 MWe

Answer: A

Answer Explanation:

Following the chart on enclosure C would indicate the maximum block load removal for the above conditions would be 420 MWe.

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26966
User-Defined ID:	R61
Cross Reference Number:	315-0155-000-0005-003(M)
Topic:	How much block load can be removed
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because 40% of rated load would exceed the maximum line
	C. is incorrect because the 13MW/MIN is applied after the initial load is removed D. is incorrect because this would exceed the maximum load reduction. Reference: 23.118 Enclosure C

Question 61 Table-Item Links

Plant Procedures

23.118

NUREG 1123 KA Catalog Rev. 2

245000 K5.07 2.6/2.9 Generator operations and limitations

Associated objective(s):

Identify relationships between significant Main Generator and Excitation System operating parameter values.

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

The plant is operating at 100% power when an electrical fault trips the NORMAL feed to 65D. What is the impact on the Condensate system?

A. A decrease of Condensate will cause a low suction pressure trip of the Heater Feed Pumps and Reactor Feedwater Pumps.

B. A decrease of Condensate will cause a loss of cooling to the Reactor Feedwater pump bearings.

C. A decrease in Condensate will cause a loss of Heater Drains and a Reactor Recirc runback to Limiter 3.

D. A decrease in Condensate will cause a reduction in feedwater heating and subsequent Reactor power spike.

Answer: A

Answer Explanation:

The loss of 65D will cause a trip of the North and South Condenser pumps and loss of feedwater to the vessel. This will require entry into 20.107.01 Loss of Feedwater or Feedwater Control, and the immediate action of placing the mode switch in shutdown

Question 62 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26967
User-Defined ID:	R62
Cross Reference Number:	NEW
Topic:	Effect of loss of condensate
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because a loss of condensate will result in a RFP trip and SCRAM condition. C. is incorrect because a loss of condensate will result in a RFP trip and SCRAM condition. D. is incorrect because a loss of condensate will result in a RFP trip and SCRAM condition. Reference: 20.300.65D Attachment 1

Question 62 Table-Item Links

Plant Procedures

20.107.01

20.300.65D

NUREG 1123 KA Catalog Rev. 2

256000 K2.01 2.7*/2.8 System pumps

Associated objective(s):

Discuss the Condensate system interrelationships with other systems.

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

During a startup, the North RFPT is operating.
The following conditions exist:

- Reactor Power is 1% CTP.
- Reactor pressure is 650 psig.
- SULCV is 40% open.
- SULCV WA Station is in AUTO.
- North Feedwater Flow Control WA Station is in MANUAL.
- The Interruptible Air Supply to the SULCV is lost.

(1) How will this failure FIRST affect RPV Water Level? AND
(2) What actions will mitigate this failure?

A. (1) RPV Water Level will **RISE.**
(2) Manually close the SULCV locally.

B. (1) RPV Water Level will **RISE.**
(2) Trip the North RFPT, start the West Standby Feedwater Pump and control RPV Water Level using N2103-F003, SBFW 4" Disch Flow Ctrl Vlv.

C. (1) RPV Water Level will **LOWER.**
(2) Start the West Standby Feedwater Pump and control RPV Water Level using N2103-F003, SBFW 4" Disch Flow Ctrl Vlv.

D. (1) RPV Water Level will **LOWER.**
(2) Place the Feedwater Flow Control WA Station in AUTO and open N2100-F607, N RFP Disch Line Iso Valve.

Answer: B

Answer Explanation:

SULCV fails open on a loss of air. With Reactor Feed Pump in manual, RPV Water level will rise. Tripping the RFPT will stop flow through the SULCV and SBFW can be used to control level.

Question 63 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:	27059
User-Defined ID:	R63
Cross Reference Number:	315-0146-000-B006-001
Topic:	Loss of IAS to SULCV
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you have lost the mode of force for activating SULCV. C. is incorrect because level will rise. D. is incorrect because level will rise. Reference: 20.129.01, page 2

Question 63 Table-Item Links

Plant Procedures

20.129.01

23.107

NUREG 1123 KA Catalog Rev. 2

259001 A2.07 3.7/3.8 Reactor water level control system malfunctions

Associated objective(s):

Discuss potential modes of Feedwater Control System component failures and any industry operating experience related to the failure.

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

The plant is operating at 100%, an electrical fault causes a loss of bus 69K. Which one of the following describes the effect on the Fire Protection System?

A. The Jockey Pump will de-energize. The Electric Fire pump will start when Fire Main Pressure decreases to 110 psig.

B. The Jockey Pump will de-energize. The Electric Fire pump will start when Fire Main Pressure decreases to 130 psig.

C. The Jockey Pump and Electric Fire pump will be de-energized. The Diesel Fire Pump will start when Fire Main Pressure decreases to 110 psig.

D. The Jockey Pump and Electric Fire pump will be de-energized. The Diesel Fire Pump will start when Fire Main Pressure decreases to 130 psig.

Answer: B

Answer Explanation:

Loss of 120kv de-energizes 68K AND 72K, the power supplies to the Jockey Pump and Electric Fire Pump. The Diesel Pump will auto start when pressure drops below 110 psig.

Question 64 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:	26968
User-Defined ID:	R64
Cross Reference Number:	NEW
Topic:	Loss of 120KV effect
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because Electric fire pump starts at 130 psig. C. is incorrect because Electric Fire Pump has power. D. is incorrect because Diesel Fire Pump starts at 110psig and the Electric Fire Pump has power. Reference: 7D6

Question 64 Table-Item Links

Plant Procedures

07D06

20.300.69K

NUREG 1123 KA Catalog Rev. 2

286000 K6.01 3.1/3.1 A.C. electrical distribution: Plant-Specific

Associated objective(s):

Describe how the Fire Protection and Detection System provides redundancy.

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

The reactor is operating in Mode 2 at 5% power. The P603 Operator is pulling control rods to increase power when the following is observed:

- 3D76 CONTROL ROD OVERTRAVEL
- 3D80 CONTROL ROD DRIFT
- All APRMs indicate a rise in power
- Dl1-R603 Main Steam Line PRMS Recorder indicates a rise in levels

Which of the following would describe (1) the impact on the plant, and (2) what action should be taken?

A. 1) A control rod is drifting out of the core causing power to increase.
2) Select the drifting rod and insert to the original position per 20.106.07 "Control Rod Drift".

B. 1) A control rod has dropped with possible fuel failure.
2) Attempt to re-couple rod per 20.106.02 "Uncoupled / Dropped Control Rod".

C. 1) Reactor will scram on APRM setdown.
2) Place Mode switch in shutdown and perform actions 20.000.21 "Reactor Scram".

D. 1) A control rod has drifted out of the core with possible fuel failure.
2) Immediately insert and disarm the Control Rod in accordance with 20.106.07 "Control Rod Drift".

Answer: **B**

Answer Explanation:

The symptoms indicate that a control rod has dropped from the core and an increase in activity is occurring from the dropped rod.

Question 65 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:	26970
User-Defined ID:	R65
Cross Reference Number:	802-2004-000-0005-007(M)
Topic:	Control rod drop
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because the alarms indicate that a control rod has dropped from the core. C. is incorrect because reactor power will not reach the 15% upscale trip. D. is incorrect because you would first try to re-couple the rod.. Reference: 20.106.02, page 3

Question 65 Table-Item Links

Plant Procedures

03D076

20.106.02

NUREG 1123 KA Catalog Rev. 2

290002 A2.03 3.6/3.9 Control rod drop accident

Associated objective(s):

Given Control Rod Drive Hydraulic system performance data, detect abnormalities, and determine possible causes for performance problems.

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

During an ATWS, SLC Pump B has been started. The following indications are observed:

- RPV Pressure is 1015 psig.
- SLC Tank Level is 72 inches decreasing.
- SLC Pump Discharge Pressure is 1050 psig.
- 3D11, SLC IGNITION CONTINUITY LOSS, is activated.
- **BOTH** H11P603 Continuity Circuit indicating lights are **OFF.**
- RWCU G3352-F004 and F220 both **CLOSED.**
- RWCU G3352-F001 remains **OPEN.**

The above conditions indicate which of the following?

A. Normal operation.

B. SLC Explosive Valves failed to fire.

C. RWCU failed to isolate on SLC injection.

D. SLC Pump B Discharge Relief Valve failed open.

Answer: A

Answer Explanation:

Proper indication of SLC injection include RWCU isolation (G3352-F004 and F220 only), SLC tank level decreasing, 3D11 activated, Continuity Circuit indicating lights off, and pressure slightly higher than RPV pressure.

Question 66 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26984
User-Defined ID:	R66
Cross Reference Number:	2011 LOR EXAM
Topic:	SLC Normal operation
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because if they failed to fire, 3D11 would not alarm, Continuity Circuit indicating lights would be on, and pressure would be higher. C. is incorrect because RWCU did isolate properly, but there is a common misconception G3352-F001 shuts on SLC injection. D. is incorrect because even though pressure is higher, it is not fluctuating as indication of relief valve stuck open. Reference: 23.139, page 11

Question 66 Table-Item Links

Plant Procedures

23.139

NUREG 1123 KA Catalog Rev. 2

G2.1.31 4.6/4.3 Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup

Associated objective(s):

State the normal values of significant Standby Liquid Control System parameters.

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

There is a small leak in the Steam Tunnel. Using a camera, an isolation valve has been identified. During the pre job brief, this activity is identified as **MODERATE.** RP determines double PCs are required for entry. Dry Bulb temperature is 103°F, and no other heat stress prevention equipment will be used.

After isolating the leak, the Nuclear Operator reports the job took 10 minutes. When is the **EARLIEST** you can send this Nuclear Operator back to normal duties? (See attached SAFETY HANDBOOK, Ch 21)

A. After 10 minutes of rest time.

B. After 20 minutes of rest time.

C. After 30 minutes of rest time.

D. After 60 minutes of rest time.

Answer: C

Answer Explanation:

Using TABLE 21-2A, stay time is 20 minutes for double PCs for a temperature of 103°F. Using the rest time calculation on page 21.5, rest time is 30 minutes.

Question 67 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:	27118
User-Defined ID:	R67
Cross Reference Number:	NEW
Topic:	Heat Stress Actions
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect, but could be correct if chart read wrong or calculation not properly utilized. B. is incorrect because This is the actual stay time allowed. D. is incorrect because if this does not take the ratio of time worked vs stay time into the calculation. Reference: Safety Handbook, Section 21, Table 21-2A

Question 67 Table-Item Links

Plant Procedures

Safety Handbook, Section 21, Hot and Cold Environments / Temperature Extremes

NUREG 1123 KA Catalog Rev. 2

G2.1.26 3.4/3.6 Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).

Associated objective(s):

2.1.26 Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen) (CFR: 41.10 / 45.12) RO 3.4 SRO 3.6

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

Per 23.138.01, Reactor Recirculation System, which ONE of the following describes the **minimum** qualification and coordination requirements for local operation of a Recirculation MG Set Scoop Tube?

A. A qualified Nuclear Operator in communication with the Main Control Room can perform scoop tube position adjustment.

B. A licensed Nuclear Supervising Operator in communication with the Main Control Room can perform scoop tube position adjustment.

C. A qualified Nuclear Operator can perform scoop tube position adjustment with a licensed Nuclear Supervising Operator supervising at the Recirculation MG Set.

D. A licensed Nuclear Supervising Operator can perform scoop tube position adjustment with a Senior Reactor Operator supervising at the Recirculation MG Set.

Answer: **B**

Answer Explanation:

Per 23.138.01, a licensed operator can perform local scoop tube position adjustment while in constant communication with the Control Room Operator.

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26998
User-Defined ID:	R68
Cross Reference Number:	315-0104-000-0001-001
Topic:	Qualifications for scoop tube adjuctment
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect although NOs do operate equipment outside the Main Control Room. C. is incorrect although NOs do operate equipment outside the Main Control Room. D. is incorrect because you have to be in constant communication with the Control Room Operator. Reference: 23.138.01, page 18

Question 68 Table-Item Links

Plant Procedures

23.138.01

NUREG 1123 KA Catalog Rev. 2

G2.1.8 3.4/4.1 Ability to coordinate personnel activities outside the control room

Associated objective(s):

Describe methods for monitoring plant status, control of equipment, and maintaining proper Control Room work environment, including:

a. The responsibility of the CRNSO.
b. The five CRNSO Guidelines to ensure continued monitoring of plant status.
c. Access to the Control Room and exceptions to the access requirements.
d. Leaving the "At Controls Area."
e. Removing a system/component from service.
f. Restoring a system/component to service.
g. Performing valve, electrical, and instrument lineups.

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

While testing Source Range Monitors (SRMs) prior to startup, the following SRM status is noted:

Channel	SRM Detectors Inserted	Signal to Noise Ratio
A	3 counts per second	18
B	2 counts per second	18
C	2 counts per second	22
D	2 counts per second	21

Which one of the following describes the status of Source Range Monitors?

A. **ONE** SRM is **NOT** capable of supporting a Reactor Startup.

B. **TWO** SRMs are **NOT** capable of supporting a Reactor Startup.

C. **THREE** SRMs are **NOT** capable of supporting a Reactor Startup.

D. **ALL** SRMs are capable of supporting a Reactor Startup.

Answer: A

Answer Explanation:

SRM B has <3cps AND S/N ratio below 20.

Question 69 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:	26999
User-Defined ID:	R69
Cross Reference Number:	315-0022-000-A017-001
Topic:	SRM Operability
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: B/C/D are incorrect because only SRM B has <3cps AND S/N ratio below 20. Reference: Tech Spec 3.3.1.2

Question 69 Table-Item Links

Plant Procedures

22.000.01

23.602

NUREG 1123 KA Catalog Rev. 2

G2.2.1 4.5/4.4 Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity

Technical Specifications

3.3.1.2 Source Range Monitor (SRM) Instrumentation

Associated objective(s):

Describe the Power Range Neutron Monitoring System technical specification limiting conditions for operation, their bases, the associated surveillance requirement(s), and their relationship to operability.

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

Per MOP05, Control of Equipment, "Access to Protected Areas may be granted to allow activities deemed necessary by the Shift Manager." Which of the following personnel are **NOT** exempt from Protected Equipment restrictions?

A. Security

B. Plant Manager

C. NRC inspectors

D. Nuclear Operators

Answer: **B**

Answer Explanation:

Per MOP 5, Control of Equipment, Security, Operations, and NRC inspectors are exempt from Protected Equipment restrictions.

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	27062
User-Defined ID:	R70
Cross Reference Number:	NEW
Topic:	Protected Equipment Posting exemptions
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A/C/D are all exempt. Reference: MOP05, pages 30 & 31

Question 70 Table-Item Links

Plant Procedures

MOP05 - Control Of Equipment

NUREG 1123 KA Catalog Rev. 2

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

Associated objective(s):

List and describe other "systems" that assist Operations in the control of equipment and tracking of information in the plant, including:
a. Shiftly Responsibilities
b. Audits
c. Evolution Evaluation Program
d. Control Room Information System
e. Deleted
f. Night Orders
g. Operations Department Instructions
h. Limiting Condition for Operation

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

The plant is operating at full power.
The following Drywell Floor and Equipment Drain Sump Effluent Integrator readings (total gallons pumped) have been noted for the past 24 hours:

TIME	Floor Drain Integrator	Equipment Drain Integrator	Leak Rate Floor (gpm)	Leak Rate Equipment (gpm)
0000	89321	27861	2.3	16.4
0800	90543	35805	2.54	16.55
1600	92079	44181	3.2	17.45
0000	94383	52821	4.8	18.0

With these conditions, which **ONE** of the following statements is correct?

A. **NO** Drywell Leakage limit has been exceeded.

B. **TOTAL LEAKAGE** has exceeded the leakage limit

C. **UNIDENTIFIED LEAKAGE** has exceeded the leakage limit

D. **UNIDENTIFIED LEAKAGE INCREASE** has exceeded limits within a 24 hour period.

Answer: D

Answer Explanation:

A 2 gpm increase in UNIDENTIFIED DRYWELL LEAKAGE within a twenty four hour period has been exceeded. 2.3 gpm increased to 4.8 gpm in 24 hours.

Question 71 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:	26978
User-Defined ID:	R71
Cross Reference Number:	315-0116-000-0003-015
Topic:	TS Unidentified Leakage Rate
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 5
Text Field:	2012 ILO Exam
Comments:	Plausible Distractors: A is plausible; would be true in MODE 2 STARTUP, because the 2 gpm increase in 24 hours is NA in MODE 2. B is plausible; would be true if 24 hour Total Leakage exceed 25 gpm (22.8 gpm actual). C is plausible; would be true if 5.0 gpm Floor Leakage were exceeded (4.8 gpm max). Reference: Tech Spec 3.4.4

Question 71 Table-Item Links

NUREG 1123 KA Catalog Rev. 2

G2.2.22 4.0/4.7 Knowledge of limiting conditions for operations and safety limits

Technical Specifications

3.4.4 RCS Operational LEAKAGE

Associated objective(s):

Given plant conditions that constitute non-compliance with any LCO, apply Technical Specifications and Bases to determine the applicable Condition(s), Required Action(s), and associated Completion Time(s).

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

A licensed operator is conducting a normal day to day inspection of equipment which is located in a high radiation area. In accordance with plant administrative procedures, the operator must perform the inspection by which of the following methods?

A. The evolution should be preplanned and the received dose should be maintained ALARA.

B. The operator should enter the area with a hand held monitoring device.

C. Obtain Radiation Protection approval prior to the inspection.

D. Conducted by a visual inspection at the barrier to the area.

Answer: D

Answer Explanation:

IAW MOPO4, Normal, day to day inspection of high radiation areas should be made by visual inspection at the door for abnormal conditions such as steam, leaks, high temperature, or unusual noises

Question 72 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:	27378
User-Defined ID:	R72
Cross Reference Number:	802-4101-0033-002
Topic:	Radiological safety in locked high rad area
Num Field 1:	LOK:L
Num Field 2:	10 CFR 55.41 (b) 10
Text Field:	2012 ILO Exam
Comments:	A. is incorrect because this necessary if it is required to enter the inspection area. B. is incorrect because entry is not allowed for day to day inspections. C. is incorrect because this action would be required per MRPO6 if entry was needed.

Question 72 Table-Item Links

Operations Related Procedures

MOPO4 Shift Operations

NUREG 1123 KA Catalog Rev. 2

G2.3.12 3.2/3.7 Knowledge of radiological safety principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.

Associated objective(s):

Describe the requirements that must be followed while In control of a High Radiation, Locked High Radiation, or Very High Radiation Areas at Fermi 2 including storage and inventory of Fermi 1 keys

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

Which one of the following conditions will cause the Division 1 Accident Range Monitor to automatically shift from STANDBY to OPERATE?

A. Automatic start of Division 1 SGTS.

B. Automatic shift of CCHVAC to the Recirc Mode.

C. High Radiation Trip of Div 1 or 2 Containment High Range Radiation Monitors.

D. High Radiation Alarm on the Div 1 SGTS SPING Medium Range Noble Gas Channel.

Answer: D

Answer Explanation:

High radiation ALARM ON THE Div 1 SGTS SPING Medium Range Noble gas channel will cause Div 1 AXM to automatically shift from standby to operate.

Question 73 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:	26969
User-Defined ID:	R73
Cross Reference Number:	315-0150-000-0000-001
Topic:	Division 1 AXM shift to Operate
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41 (b) 12
Text Field:	2012 ILO Exam
Comments:	Justification: A/B/C are plausible; this is likely to occur during high rad conditions, but will not cause the AXM to shift from standby to operate. Reference: 23.625 Enclosure G, page 1

Question 73 Table-Item Links

Plant Procedures

23.625

NUREG 1123 KA Catalog Rev. 2

G2.3.15 2.9/3.1 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

Associated objective(s):

Describe general Process Radiation Monitoring System operation, including component operating sequence, normal operating parameters, and expected system response.

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

Select the response that correctly completes the following statement concerning notifications during an RERP event.

State and Local authorities must be contacted within (1) and the NRC must be informed no later than __(2)__.

A. 1. 60 minutes
2. 60 minutes

B. 1. 15 minutes
2. 15 minutes

C. 1.30 minutes
2. 45 minutes

D. 1. 15 minutes
2. 60 minutes

Answer: D

Answer Explanation:

Per EP-290, State and Local authorities must be contacted within 15 minutes and the NRC 60 minutes after classifying an event.

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	26943
User-Defined ID:	R74
Cross Reference Number:	831-0001-000-0001-001
Topic:	RERP Notification Times
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A/B/C is plausible, but do not meet the requirements of EP-290. Reference: EP-290, pages 3 & 5

Question 74 Table-Item Links

Plant Procedures

EP-290

NUREG 1123 KA Catalog Rev. 2

G2.4.43 3.2/3.8 Knowledge of emergency communications systems and techniques

Associated objective(s):

Given a reportable event, discuss the requirements and responsibilities for making notifications to Regulatory Agencies and the Company, including:

a. What events require immediate notification.
b. The relationship between the severity of the event and the NRC Notification/Reporting requirement.
c. Completely filling out a Fire Protection System Impairment Form.
d. What notifications are required if the SM or CRS authorize a departure from procedures or Technical Specifications.
e. Exclusions to required notifications to the NRC.

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

While operating at full power, Alarm 3D8 DIV I/II OFF GAS RADN MONITOR UPSCALE alarms. The CRNSO reports Dl1-R601 (OFF GAS LOG SCALE PRMS REC) CH AB readings are 980 mr/hr and 995 mr/hr, with both **RISING.** The observed off gas flow rate is currently 105 SCFM.

Using Tech Spec Offgas Radiation Monitors Conversion Factors from 78.000.09, Att. 3, what is the current Offgas Rad Release Rate and what actions, if any, are required?

A. The Tech. Spec. Offgas Rad Release Rate limit has not been exceeded. No further actions are necessary.

B. The Tech. Spec. Offgas Rad Release Rate limit has been exceeded. Reduce reactor power to radiation levels within the Tech Spec. limits

C. The Tech. Spec. Offgas Rad Release Rate limit has not been exceeded. Reduce reactor power to ensure that the limit is not exceeded.

D. The Tech. Spec. Offgas Rad Release Rate limit has been exceeded. Place the Mode switch in SHUTDOWN and shut the MSIVs and Main Steam Line drains.

Answer: C

Answer Explanation:

The calculated release rate is approaching the TS limit of 340. Condition B of 20.000.07 requires a power reduction to prevent exceeding the TS limit

Question 75 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	27078
User-Defined ID:	R75
Cross Reference Number:	315-0135-000-0010-001(M)
Topic:	High OffGas Rad Release
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.41(b) 10
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because 20.000.07 has required actions associated with an increase in Off Gas Rad levels. B/D. is incorrect because the off gas release rates have not been exceeded. Reference: 20.000.07, page 3

Question 75 Table-Item Links

Plant Procedures

03D008

20.000.07

NUREG 1123 KA Catalog Rev. 2

G2.4.47 4.2/4.2 Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material

Technical Specifications

3.7.5 Main Condenser Offgas

Associated objective(s):

Recognize symptoms for entry into emergency and abnormal operating procedures.

EXAMINATION ANSWER KEY
2012 ILO Exam - SRO

1 **ID: SOl** **Points: 1.00**

While in Mode 1 conducting SR 3.5.1.2 "functional test of LPCI swing bus automatic throwover scheme", the surveillance **FAILS.** (1) What is the operability status of LPCI, and (2) what action is required per Technical Specifications?

A. (1) One LPCI subsystem is INOPERABLE.
(2) Restore subsystem within 7 days.

B. (1) One LPCI pump in both subsystems is INOPERABLE.
(2) Restore pumps within 7 days.

C. (1) Two LPCI subsystems are INOPERABLE.
(2) Immediately enter LCO 3.0.3.

D. (1) Two LPCI subsystems are INOPERABLE.
(2) LCO 3.0.3 may be delayed up to 12 hours.

Answer: **C**

Answer Explanation:

Two LPCI subsystems are INOPERABLE and must enter LCO 3.03 immediately.

Question 1 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:	26718
User-Defined ID:	SO1
Cross Reference Number:	NEW
Topic:	TS Operability and Action for SR 3.5.1.2
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this is true if this surveillance only imp one subsystem. B. is incorrect because this is true 3.5.1 condition B. D. is incorrect because Conditions and Required Actions may be delayed up to 12 hours for completion of the required testing. If it fails the test, you must immediately enter LCO 3.03. Reference: Tech Spec 3.5.1.2

Question 1 Table-Item Links

Plant Procedures

24.321.07

NUREG 1123 KA Catalog Rev. 2

295003 AK3.01 3.3/3.5 Manual and auto bus transfer

G2.2.36 3.1/4.2 Ability to analyze the effect of maintenance activities such as degraded power sources, on the status of limiting conditions for operations

Technical Specifications

3.5.1 ECCS Operating

Associated objective(s):

Given plant conditions that constitute non-compliance with any LCO, apply Technical Specifications and Bases to determine the applicable Condition(s), Required Action(s), and associated Completion Time(s).

2 **ID: SO2** **Points: 1.00**

The following conditions exist after the control room was immediatelyabandoned due to a fire in the Main Control Room:

- Reactor water level at 50" and lowering
- Reactor pressure cycling between 905-1017 psig
- Torus water temperature at 105°F and rising
- Drywell pressure at 1.1 psig and rising
- UPS A & B are powered by UPS battery

As the Control Room Supervisor, which action would you direct first, and what is the reason for this action?

A. Start RCIC to prevent uncovering the core.

B. Start CTG 11-1 to restore electrical power to necessary loads.

C. Start RHR Pump C in torus cooling to remove the heat from the open SRVs.

D. Start Drywell Fans 1 & 2 to prevent an unwanted high drywell pressure actuation.

Answer: B

Answer Explanation:

Evacuation of the MCR due to fire in 3L zone requires entry into 20.000.18 Dedicated Shutdown Panel. The first action requires starting the CTG, which will allow for starting the Standby Feedwater to restore level.

Question 2 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:	26720
User-Defined ID:	SO2
Cross Reference Number:	202-1103-000-A001-005
Topic:	Direct actions for Evacuation of Main Control Room
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this would be valid work direction if you were at Remote Shutdown Panel. C. is incorrect because this would be a supplemental action with rising torus temperature. D. is incorrect because this would be a supplemental action with rising drywell pressure. Reference: 20.000.18, page 3

Question 2 Table-Item Links

Plant Procedures

20.000.18

NUREG 1123 KA Catalog Rev. 2

295016 AA1.04 3.1/3.2 A.C. electrical distribution

G2.1.7 4.4/4.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

3 **ID: S03** **Points: 1.00**

While the plant is operating at full power, annunciator 7D50, Div I/II Control Air Compressor Auto Start alarms. The following conditions exist:

- RPV Pressure is 1024 psig and stable.
- RPV Water Level is 197 inches and stable.
- Reactor Power is 100% and stable.
- Both RR MG Sets are at 77% speed with no limiter in effect.
- Station Air Header Pressure is 79 psig.

Which ONE of the following identifies the cause of the annunciator 7D50 and the required action?

A. The Control Air Compressor started on Control Air Pressure less than 85 psig. **ENTER** 20.129.01, Loss of Station and/or Control Air.

B. The Control Air Compressor started on Station Air Header Pressure less than 90 psig. **ENTER** 20.129.01, Loss of Station and/or Control Air.

C. The Control Air Compressor started on Station Air Pressure less than 80 psig. **DISPATCH** an operator to cross connect IAS to Div 2 NIAS per 23.129, Station and Control Air System.

D. The Control Air Compressor started on Control Air Header Pressure less than 80 psig. **DISPATCH** an operator to cross connect IAS to Div 2 NIAS per 23.129, Station and Control Air System.

Answer: A

Answer Explanation:

The Control Air Pressure less than 85 psig is entry condition for 20.129.01, Loss of Station and/or Control Air. This also causes 7D50 to alarm.

Question 3 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:	26739
User-Defined ID:	S03
Cross Reference Number:	315-0071-000-0011-002
Topic:	Actions required for Loss of Control Air pressure.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because Station Air Header does not cause the 7D50 alarm. C. is incorrect because Station Air Header does not cause the 7D50 alarm. D. is incorrect because you would enter 20.129.01 Loss of Station and/or Control Air. Reference: 20.129.01, page 3

Question 3 Table-Item Links

Plant Procedures

20.129.01

07D50

NUREG 1123 KA Catalog Rev. 2

295019 AA2.01 3.5/3.6 Instrument air system pressure

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

4 **ID: SO4** **Points: 1.00**

The plant just entered Mode 4 in preparation for a Refueling Outage. Div 1 RHR aligned for SDC. A leak develops in the RWCU system and isolates on high differential flow. The following alarms and indications are observed:

- 1D23, DIV I RHR PUMP A/C MOTOR TRIPPED
- 3D79 REAC VESSEL WATER LEVEL L3
- RPV water level is 170 inches and steady.
- RPV temperature is 150°F and rising slowly.

As CRS, (1) what procedure(s) would be selected to mitigate this event and (2) what actions are the minimum required to be performed to allow restoration of Div 1 RHR to Shutdown Cooling?

A. (1) 20.205.01 LOSS OF SHUTDOWN COOLING
(2) Reset NSSS logic, and depress E1150-F015A Seal In Reset pushbutton.

B. (1) 20.205.01 LOSS OF SHUTDOWN COOLING, 29.100.01 SH 5 SEC CONT/RAD RELEASE
(2) Reset NSSS logic, and depress E1150-F015A Seal In Reset pushbutton.

C. (1) 20.205.01 LOSS OF SHUTDOWN COOLING, 29.100.01SH 1 RPV CONTROL
(2) Raise level above 220", reset NSSS logic, and depress E1150-F015A Seal In Reset pushbutton.

D. (1) 20.205.01 LOSS OF SHUTDOWN COOLING, 29.100.01SH 1 RPV CONTROL, 29.100.01 SH 5 SEC CONT/RAD RELEASE
(2) Raise level above 220", reset NSSS logic, and depress E1150-F015A Seal In Reset pushbutton.

Answer: C

Answer Explanation:

You are below entry conditions for sheet 5, but are in 20.205.01 and sheet 1 because of level 3. Actions are contained in condition C of 20.205.01.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26741
User-Defined ID:	SO4
Cross Reference Number:	NEW
Topic:	Select appropriate EOP / AOP and direct actions for Loss of Shutdown Cooling.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you meet entry conditions for sheet 1. This directs you to raise level as does the AOP. B. is incorrect because you do not meet entry conditions for sheet 5, you meet entry conditions for sheet 1. This directs you to raise level as does the AOP. D. is incorrect because you do not meet entry conditions for sheet 5. Reference: 20.205.01, page 5

Question 4 Table-Item Links

Plant Procedures

20.205.01

29.100.01 SH 1

29.100.01 SH 5

NUREG 1123 KA Catalog Rev. 2

295021 AA2.03 3.5/3.6 Reactor water level

Associated objective(s):

Select the appropriate EOP / AOP based on plant conditions.

5 **ID: S05** **Points: 1.00**

The plant was shut down due to a leak in the drywell. The following conditions exist:

- All rods inserted.
- RPV level 150 inches and recovering with HPCI, and Standby Feedwater injecting.
- Both Reactor Feed Pumps are tripped, Heater Feed Pumps are available.
- RPV Pressure is 890 psig and slowly lowering.
- Drywell Pressure is 9 psig and rising.
- Drywell Temperature is 130°F and rising.
- Torus Pressure is 7.5 psig and rising.

As CRS, you should direct which of the following?

A. Initiate Torus Cooling and Torus Sprays.

B. Isolate EECW TO and FROM the Drywell.

C. Operate all available Drywell Cooling using 29.ESP.08.

D. Lower primary pressure using turbine bypass to allow Heater Feed Pumps to recover level to 173-214 inches.

Answer: A

Answer Explanation:

Per 29.100.01 SH 2, step PCP-4, you must spray the torus prior to torus pressure reaching 9 psig. The standard order is place in torus cooling /torus spray.

Question 5 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:	26743
User-Defined ID:	SO5
Cross Reference Number:	NEW
Topic:	Direct action for PC Control.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because you have not exceeded 242°F drywell temperature. You will however isolate EECW to the drywell in step PCP-3. C. is incorrect because you have not exceeded 145°F. You will however operate all available drywell cooling, but not use 29.ESP.08. D. is incorrect because with level recovering, your priority would be addressing containment. This would be a strategy if level was not recovering. Reference: 29.100.01 SH 2, PCP-4

Question 5 Table-Item Links

Plant Procedures

29.100.01 SH 2

NUREG 1123 KA Catalog Rev. 2

295024 EA2.04 3.9/3.9 Suppression chamber pressure: Plant-Specific

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

6 **ID: S06** **Points: 1.00**

With the plant operating at 100% power, the following occur:

- 8D41, DIV I DRYWELL TEMPERATURE HIGH, alarms.
- T47-R803A, Drywell Cooling System Area Temperatures, Div 1, point 24, Drywell Average Temperature indicates 147°F (stable).
- 3D81, PRIMARY CONTAINMENT PRESSURE HIGH / LOW, alarms.
- T50-R802A, Div 1 PC Pressure Recorder indicates 1.60 psig (stable).
- 3D156, REACTOR WATER LEVEL LOW, alarms.
- C32-R614, RPV Narrow Range Level indicates 190 inches (stable).
- 8D46, DIV 1 REACTOR BLDG PRESSURE HIGH / LOW, alarms.
- T41-R800A, Div 1 CR and RB Diff Press Recorder indicates RB D/P indicates -0.125 (minus 0.125) inches water column.

With these indications the CRS will FIRST direct entry into _____

A. 29.100.01 Sheet 1, "RPV Control" ONLY.

B. 29.100.01 Sheet 2, "Primary Containment Control" ONLY.

C. 29.100.01 Sheet 5, "Secondary Containment Control and Rad Release" ONLY.

D. 29.100.01 Sheet 1, "RPV Control" AND 29.100.01 Sheet 2, "Primary Containment Control."

Answer: **B**

Answer Explanation:

The only EOP entry condition is high drywell temperature.

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:	3.00
System ID:	26745
User-Defined ID:	S06
Cross Reference Number:	802-3004-000-0004-006
Topic:	Select appropriate EOP based on plant conditions.
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because you have not exceeded 1.68psig. C. is incorrect because RB d/p is negative. D. is incorrect because you have not exceeded 1.68psig. Reference: 29.100.01 SH 2, entry conditions

Question 6 Table-Item Links

Plant Procedures

29.100.01 SH 2

NUREG 1123 KA Catalog Rev. 2

295028 EA2.01 4.0*/4.1* Drywell temperature

Associated objective(s):

Select the appropriate EOP / AOP based on plant conditions.

7 **ID: S07** **Points: 1.00**

The plant is operating at 100%, when a confirmed fire develops in the HPCI Quad. Ten minutes later, Fire Brigade Leader reports the fire is out and requests to isolate the sprinklers in the HPCI room. ARP 2D105 REAC BLDG CORNER ROOMS/HPCI ROOM FLOOD LEVEL is alarming. After isolating the sprinklers, Fire Brigade Leader reports that there is **NO** apparent damage to any HPCI components due to the fire, but there is about 2 feet of water on the floor.

What is the operability status of HPCI and reason for this status?

A. OPERABLE, as long as the sprinkler system is declared inoperable and an hourly fire watch is stationed.

B. OPERABLE, as long as the sprinkler system is declared inoperable and a continuous fire watch is stationed.

C. NOT OPERABLE due to the sprinkler system being inoperable with the isolation valve closed.

D. NOT OPERABLE due to flooding in the HPCI room.

Answer: D

Answer Explanation:

2D105 states **IF** flooding is apparent in the HPCI Room, declare HPCI inoperable.

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:	26747
User-Defined ID:	S07
Cross Reference Number:	NEW
Topic:	Operability of HPCI during HPCI Room Flooding.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because this would be true if there were no flooding and the HPCI pump was in a different Zone per TR 3.12.3. B. is incorrect because this would be true if there were no flooding per TR 3.12.3. C. is incorrect because this would be true if you could not meet Condition A of TR3.12.3 and there was no flooding. Reference: 2D105

Question 7 Table-Item Links

Plant Procedures

02D105

NUREG 1123 KA Catalog Rev. 2

600000 AA2.14 3/3.6 Equipment that will be affected by fire suppression activities in each zone

G2.2.37 3.6/4.6 Ability to determine operability and/or availability of safety related equipment

Associated objective(s):

Given plant conditions that constitute non-compliance with any LCO, apply Technical Specifications and Bases to determine the applicable Condition(s), Required Action(s), and associated Completion Time(s).

8 **ID: S08** **Points: 1.00**

The plant is operating at 60% power. Digital Feedwater Level Control is in 3-Element control with the Reactor Level Select Switch in A. 3D164, FEEDWATER CONTROL DCS TROUBLE has alarmed, and both Reactor Feedwater Pump Controllers have switched to Emergency Bypass. RPV Level is 196 inches and slowly lowering.

What action is required by procedure?

A. Perform SOP 23.107. PLACE the Level Control Mode Switch in 1 ELEM, and continue power operation in Single Element Control.

B. Perform SOP 23.107. PLACE both Emergency Bypass switches in position "M", manually adjust Reactor Feedwater Pump Controllers to match Feed Pump speeds, and continue power operation in 3 Element Control.

C. Enter AOP 20.107.01. North and South Reactor Feedwater Pump speeds will lower. Adequate Pumping capacity is NOT available. The Reactor Mode Switch must be placed in Shutdown.

D. Enter AOP 20.107.01. PLACE both Emergency Bypass switches in position "M", manually adjust Reactor Feedwater Pump Controllers to match Feed Flow with Steam Flow, and continue power operation with manual feed pump speed control.

Answer: D

Answer Explanation:

With both Reactor Feed Pump Controllers in EMERGENCY BYPASS, manual feedwater control is required by the AOP to maintain level.

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:	26778
User-Defined ID:	S08
Cross Reference Number:	2011 LOR EXAM #2
Topic:	Direct actions for Loss of Feedwater Control
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A is plausible; would be true for a loss of one feed flow or two steam flow inputs, if NOT in Emergency Bypass. B is a plausible misconception in that matching RFP speeds would be effective vice matching steam flow and feed flow. C is plausible misconception; testing knowledge of pumping capacity with controllers in Emergency Bypass. References: 20.107.01, page 9; 23.107, page 8

Question 8 Table-Item Links

Plant Procedures

20.107.01

23.107

NUREG 1123 KA Catalog Rev. 2

295009 AA2.02 3.6/3.7 Steam flow/feed flow mismatch

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

9 **ID: S09** **Points: 1.00**

During a reactor startup control rods are being withdrawn and reactor pressure is being raised to 944 psig when the running CRD pump trips due to low suction pressure. The plant conditions are as follows:

- RPV water level ..... 190 inches
- RPV pressure ..... 850 psig slowly rising
- 3D10, CRD ACCUMULATOR TROUBLE, actuates on a Control Rod at full in position.

Given these plant conditions, which of the following is first directed by plant procedures?

A. Place CRD Flow Controller in MANUAL, and close CRD Flow Control Valve.

B. Within 20 minutes, place the Reactor Mode switch in SHUTDOWN.

C. Immediately place the Reactor Mode switch in SHUTDOWN.

D. Start the Standby CRD Pump.

Answer: A

Answer Explanation:

This is the first action required, overrides do not apply.

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:	26819
User-Defined ID:	S09
Cross Reference Number:	315-0109-000-0006-007
Topic:	Actions for Loss of CRD Hydraulics
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because this is an override action if Reactor Pressure >900 psig, more than one accumulator trouble light received(at least one on a withdrawn control rod), and no CRD Pump running. C. is incorrect because this is an override action with Reactor pressure less than 900 psig, and a CRD accumulator trouble on a withdrawn control rod. D. is incorrect because this action is done after placing CRD Flow Controller in MANUAL and close CRD Flow Control Valve Reference: 20.106.01, page 3

Question 9 Table-Item Links

Plant Procedures

03D010

20.106.01

NUREG 1123 KA Catalog Rev. 2

295022 AA2.02 3.3/3.4 CRD system status

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

10 **ID: S10** **Points: 1.00**

The plant is operating at 85% power.

At 1355, a seismic event occurs.

At 1400, 1D66 Steam Leak Detection Ambient Temp High alarms. Steam tunnel temperature is 170°F and rising 5°F/Min. RWCU indicates isolated. RWCU Hx room temperature is 175°F and increasing 2°F/min.

As CRS, what action shall you direct **FIRST,** and reason for this action?

A. After a brief, place the Reactor Mode switch in SHUTDOWN. This will reduce the energy being discharged into secondary containment and prevent automatic scram on MSIV closure.

B. Immediately shut MSIVs. This will prevent a primary system from discharging into secondary containment.

C. At 1408, place the Reactor Mode Switch in SHUTDOWN. Required action due to exceeding max safe temperature, protecting plant equipment.

D. At 1420, open 5 SRVs (ADS preferred). This will reduce the energy being discharged into secondary containment (two area temperatures greater than max safe).

Answer: A

Answer Explanation:

Indications give two area temperatures greater then max normal, which requires isolation of any primary system discharging into secondary. MSIVs shutting automatically scram the reactor. The mode switch is taken to shutdown prior to shutting the MSIVs.

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:	2.50
System ID:	26820
User-Defined ID:	S10
Cross Reference Number:	NEW
Topic:	Actions on Steam Leak Detection alarms.
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is plausible; this is a valid action, but would cause an automatic scram, so the mode switch is taken to shutdown prior to this action. C. is plausible; based on the leak rate, steam tunnel temperate would be 210°F. This is the max safe temperature. EOPs direct you to place mode switch in shutdown prior to reaching this temperature. You would also get a MSIV isolation at this time. D. is plausible; at 1408, the reactor would scram on MSIV closure. At 1420, you would get your second area temperature >max safe, requiring an ED. Reference: 29.100.01 SH 5, SC-3

Question 10 Table-Item Links

Plant Procedures

29.100.01 SH 5

NUREG 1123 KA Catalog Rev. 2

295032 EK3.02 3.6/3.8 Reactor SCRAM

G2.4.21 4.0/4.6 Knowledge of the parameters and logic used to assess the status of safety functions such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

11 **ID: S11** **Points: 1.00**

The plant is operating in Mode 2 when the following alarms occur:

- 1D6, DIV 1 CSS LOGIC POWER FAILURE
- 1D13, TESTABILITY DIV 1 ECCS LOGIC/POWER FAILURE

Which one of the following describes the impact of this indication on the Core Spray System and what action is required?

A. Automatic operation of Div 1 CSS will be inhibited but manual injection remains functional. Core Spray Loop A is NOT required because Core Spray Loop B satisfies the Technical Specification LCO 3.5.1 indefinitely in the present mode.

B. Automatic and manual operation of Div 1 CSS will be inhibited. Core Spray is required to be OPERABLE in the present MODE. Div 1 CSS must be restored within 7 days.

C. Automatic and manual operation of Div 1 CSS remain functional. Core Spray Loop A is assured to produce the required flow and satisfies the Technical Specification LCO 3.5.1 indefinitely.

D. Automatic and manual operation of Div 1 CSS remain functional but E2150-F031A, DIV 1 CS Pumps MM Flow Valve, Auto closes. Core Spray Loop A is NOT assured to produce the required flow. Div 1 CSS must be restored in 72 hours.

Answer: B

Answer Explanation:

The alarms indicate that the DC power to CSS Logic A has had a failure. This will prevent Automatic and Manual injection of Div 1 CSS. The pumps can be manually started but the injection valves are incapable of opening. Both divisions of CSS are required to be operable in Mode 2 and a 7 day LCO must be entered.

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:	2.50
System ID:	26878
User-Defined ID:	Sll
Cross Reference Number:	NEW
Topic:	Impact of Loss of DC Power to CS Logic A
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because the injection valves FOO4A and FOO5A are interlocked closed and require a signal from CSS Logic A to open. C. is incorrect because DC Logic power has been lost and both Auto and Manual injection will be inhibited. D. is incorrect because DC Logic power has been lost and both Auto and Manual injection will be inhibited. Reference: Tech Spec 3.5.1

Question 11 Table-Item Links

Plant Procedures

01D06

NUREG 1123 KA Catalog Rev. 2

209001 A2.04 2.9/3 D.C. failures

Technical Specifications

3.5.1 ECCS Operating

Associated objective(s):

Discuss failure modes of Core Spray System controls and vital instruments, including design features that could result in erroneous operation or indication.

12 **ID: S12** **Points: 1.00**

A reactor startup is in progress with Intermediate Range Monitor (IRM) Channel A **INOPERABLE** and **BYPASSED,** when the following occurs:

- IRM Channel D indicates upscale at 125/125, irrespective of Range Switch position.
- IRM Channels B, C, E, F, G, and H indicate 32/40 on Range 7.
- **ALL** Average Power Range Monitors (APRMs) are **DOWNSCALE.**

Which one of the following actions shall be directed?

A. **PLACE** IRM Channel D in a **TRIPPED** condition, and continue the Reactor Startup.

B. **SHUTDOWN** per GOP 22.000.04, Plant Shutdown from 25% power because **REQUIRED** Intermediate Range Monitors are **INOPERABLE.**

C. **BYPASS** the IRM Channel D using the bypass joystick per 23.603, Intermediate Range Monitors. RESET the Half Scram, and CONTINUE the Reactor Startup.

D. **BYPASS IRM** Channel D by placing the Reactor Mode Switch in **RUN** per GOP 22.000.02, Plant Startup from 25% power. **RESET** the Half Scram, and **CONTINUE** the Reactor Startup.

Answer: C

Answer Explanation:

3 IRMs per RPS Trip System are OPERABLE. Directed actions include BYPASSING the IRM Channel D ROD BLOCK using the joystick per 23.603; RESETTING the Half SCRAM, and continuing the Reactor Startup.

Question 12 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:	26879
User-Defined ID:	S12
Cross Reference Number:	315-0023-000-0013-001
Topic:	IRM Tech Spec Operability during Startup
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43 (b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because IRM is in a TRIPPED condition, needs to be BPASSED to continue startup. B. is incorrect would be true with an additional IRM in either TRIP system INOPERABLE. D. is incorrect because Reactor Power is too low to place Mode Switch in RUN. Reference: 23.603, page 3

Question 12 Table-Item Links

Plant Procedures

23.603

03D060

NUREG 1123 KA Catalog Rev. 2

215003 A2.04 3.7/3.8 Up scale or down scale trips

Technical Specifications

3.3.1.1 Reactor Protection System (RPS) Instrumentation

Associated objective(s):

Identify Intermediate Range Monitoring System related technical specifications, with emphasis on action statements requiring prompt actions (for example, one hour or less).

13 **ID: S13** **Points: 1.00**

The plant is being shutdown using 22.000.04 PLANT SHUTDOWN FROM 25% POWER. Step 6.2.12 states "Record time the SRM channel functional test is due." When is this surveillance required to be done during a GOP shutdown?

SRM Channel Functional Test must be performed within __(1)__ of IRMs on Range __(2)__ or below.

A. (1) 1 hour
(2) 4

B. (1) 8 hours
(2) 2

C. (1) 12 hours
(2) 2

D. (1) 24 hours
(2) 4

Answer: C

Answer Explanation:

SRM Channel Functional Test must be performed within 12 hours of IRMs on Range 2 or below.

Question 13 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:	26880
User-Defined ID:	S13
Cross Reference Number:	NEW
Topic:	SRM Channel Functional Test requirements
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: A/B/D. SRM Channel Functional Test must be performed within 12 hours of IRMs on Range 2 or below. The other listed times (1, 8, 24) is a possible operator misunderstanding. The IRM ranges can also be confused with other IRM range requirements. Reference: 22.000.04, page 30

Question 13 Table-Item Links

Plant Procedures

22.000.04

NUREG 1123 KA Catalog Rev. 2

215004 A4.07 3.4/3.6 Verification of proper functioning/ operability

G2.1.20 4.6/4.6 Ability to execute procedure steps

Technical Specifications

3.3.1.2 Source Range Monitor (SRM) Instrumentation

Associated objective(s):

Describe the Source Range Monitoring System technical specification limiting conditions for operation, their bases, the associated surveillance requirement(s), and their relationship to operability.

14 **ID: S14** **Points: 1.00**

The plant is stable at 75% power, control rods are being withdrawn. Control rod 22-23 is selected for withdraw. If APRM Channel 2, RECIRCULATION FLOW PROCESSING UNIT fails downscale, what protective functions automatically occur (1) ? What procedure-driven actions, if any, would allow continued operations (2) ?

A. (1) **No** protective functions occur.
(2) Continued rod withdraw in accordance with 23.623, "Reactor Manual Control System."

B. (1) **Only** a Control Rod Block due to APRM 2 Simulated Thermal Power Upscale.
(2) Bypass the affected RBM in accordance with 23.607, "Rod Block Monitoring System."

C. (1) Half SCRAM **and** Control Rod Block due to APRM 2 Simulated Thermal Power Upscale and Trip.
(2) Reset the Half SCRAM and bypass the affected APRM in accordance with 23.605 "Average Power Range Monitoring System."

D. (1) RBM Trouble Alarm **and** Control Rod Block due to APRM 2 Simulated Thermal Power Upscale and Trip.
(2) Bypass the affected APRM in accordance with 23.605 "Average Power Range Monitoring System."

Answer: D

Answer Explanation:

Recirculation flow processing unit failing low would result in APRM STP upscale trip setpoint being less than the current power level (61.4% < 75%). This would result in a RBM trouble alarm, Control Rod block and APRM STP upscale trip. TS allows operation with 3 APRMs and bypassing APRM 2 would allow continued operation.

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	26881
User-Defined ID:	S14
Cross Reference Number:	315-0124-000-0001-007
Topic:	APRM Recirc Flow Unit failure
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because a APRM STP upscale trip would occur as a result of the flow processing unit failing low. B. is incorrect because in addition to a control rod block, a RBM Trouble alarm would occur as a result of flow deviation between any two flow signals. C. is incorrect because 2 or more APRMs indicating an upscale trip would cause a Reactor Scram and not a Half Scram. Reference: 23.605 Enclosure A

Question 14 Table-Item Links

Plant Procedures

23.605

03D101

NUREG 1123 KA Catalog Rev. 2

215005 A2.05 3.5/3.6 Loss of recirculation flow signal

Associated objective(s):

Discuss failure modes of Power Range Neutron Monitoring System controls and vital instruments, including design features that could result in erroneous operation or indication.

15 **ID: S15** **Points: 1.00**

The plant was operating at 100% power when an earthquake occurs resulting in a Station Blackout and reactor recirculation loop leak. (1) What action shall be prioritized and (2) the bases for this action?

A. (1) Place HPCI Logic A/B keylock switches in TEST.
(2) To prevent HPCI isolation as a result of high room temperature.

B. (1) Confirm initiation of EECW.
(2) To ensure adequate cooling of safety related equipment.

C. (1) Open 13.2 kV Pos A6.
(2) Allows for SST 64 alternate power to energize SST 64.

D. (1) Verify CTG 11-1 Blackstart Unit Auto starts.
(2) CTG11 Unit 1 operation will allow energizing SST 64, SST 66 and SST 68.

Answer: A

Answer Explanation:

Both the HPCI and RCIC rooms have equipment area high temperature sensors, which are capable of causing isolation of the HPCI or RCIC systems.

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26976
User-Defined ID:	S15
Cross Reference Number:	NEW
Topic:	SBO HPCI hi temp override
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because EECW has no power and is incapable of fulfilling its purpose. C. is incorrect because CTG-11-1 would have to be started and position A6 would have to be closed. D. is incorrect because CTG-11-1 is not capable of auto starting. Reference: 20.300.SBO, page 3

Question 15 Table-Item Links

Plant Procedures

20.300. SBO

NUREG 1123 KA Catalog Rev. 2

G2.4.22 3.6/4.4 Knowledge of the bases for prioritizing safety functions during emergency operations

262001 A2.03 3.9/4.3 Loss of off-site power

Associated objective(s):

Given a copy of electrical AOPs, analyze and determine which equipment has the highest priority for restoration.

16 **ID: S16** **Points: 1.00**

The operating crew is currently performing a Rod Pattern Adjustment from Group 10 to Group 9 Control Rods. While withdrawing a Control Rod, alarm 3D80, Control Rod Drift, is received for a single Control Rod.

What impact does this have on the Reactor Manual Control System, and what actions shall be ordered?

A. A rod block is enforced. The Control Rod should be disarmed at its current position.

B. The ability to move control rods remains functional. The Control Rod should be fully inserted and disarmed.

C. Only the RONOR switch can be used to move control rods. The Control Rod should be individually scrammed.

D. Only the "Emergency In" position of the RONOR switch is functional. Place the Reactor Mode switch in SHUTDOWN.

Answer: **B**

Answer Explanation:

Only a Control Rod Drift occurred. The RMCS remains functional, and the Control Rod should be fully inserted and disarmed.

Question 16 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:	26882
User-Defined ID:	S16
Cross Reference Number:	NEW
Topic:	Actions for Control Rod Drift
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because a Rod Block alarm is not received. C. is incorrect because although the RONOR switch is functional the RMCS is also functional, the rod is not scrammed unless it drifts after it has been disarmed. D. is incorrect because the RMCS is functional and the mode switch is only placed in SHUTDOWN if 2 or more rods are drifting. Reference: 20.106.07, pages 5 & 6

Question 16 Table-Item Links

Plant Procedures

20.106.07

NUREG 1123 KA Catalog Rev. 2

201002 A2.02 3.2/3.3 Rod drift alarm

Associated objective(s):

Direct and Monitor the shift team during performance of an emergency / abnormal operating procedures.

17 **ID: S17** **Points: 1.00**

Following an Emergency Depressurization under ATWS conditions the following conditions exist:

- RPV Water Level indications are UPSCALE due to High Drywell and Reactor Building Temperatures.
- Injection has been Terminated and Prevented.
- 3 Safety Relief Valves are OPEN.
- Reactor Pressure is 300 psig.
- Reactor Power is 20%.

Under these conditions, which one of the following describes the status of Core Cooling?

Table 8	MINIMUM STEAM COOLING PRESSURE (MSCP)
No of open SRVs	MSCP (PSIG)
5 or more 4 3 2	230 290 392 595

Adequate Core Cooling is:

A. ASSURED by core submergence.

B. ASSURED by sufficient steam flow through OPEN Safety Relief Valves.

C. NOT ASSURED because injection is insufficient to cool the core.

D. NOT ASSURED because an inadequate number of Safety Relief Valves are OPEN.

Answer:

Answer Explanation:

Justification- with Reactor pressure above 290 psig and 4 SRVs have to be open to assure ACC by sufficient steam flow through the SRVs.

Question 17 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:	26961
User-Defined ID:	S17
Cross Reference Number:	802-3003-000-0004-008(M)
Topic:	ACC with given conditions
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is plausible; it would be true if level was valid upscale. B. is incorrect, but would be true if there were 5 SRVs open. C. is incorrect, with injection being terminated and prevented and no level indication, ACC is not assured through submergence. Reference: 29.100.01 SH 3A, Table 21

Question 17 Table-Item Links

Plant Procedures

29.100.01 SH 3A

NUREG 1123 KA Catalog Rev. 2

216000 K3.24 3.9/4.1 Vessel level monitoring

G2.2.44 4.2/4.4 Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions

Associated objective(s):

Describe the two methods of assuring adequate core cooling.

18 **ID: S18** **Points: 1.00**

Following a reactor scram due to a turbine trip, the following conditions exist:

- Reactor Power is 2% and slowly lowering.
- Torus Temperature is 115°F and rising.
- Drywell Pressure is 1.4 psig and steady.
- SLC is injecting.
- Division 2 RHR is in Torus Cooling and Torus Spray.
- RPV water level is currently 63 inches with a level band of 50 to 100 inches.

The CRNSO reports he is out of his water level band **LOW.**

- 1D29 RHR INIT REAC VESSEL H2O LEVEL Ll alarms

(1) What is the specific effect on DIV 2 RHR, and (2) what actions would you direct to recover DIV 2 RHR to Torus Cooling and Spray?

A. (1) E1150-F028B, Div 2 RHR Torus Iso Vlv. closes.
(2) DIV 2 RHR must be filled and vented before restoring per SOP 20.205.

B. (1) E1150-F027B, Div 2 RHR Torus Spray Iso and E1150-F024B, Div 2 RHR Torus Clg Iso, close.
(2) Containment Spray Mode Select Switch must be placed in MANUAL, and F027B and F024B opened.

C. (1) E1150-F027B, Div 2 RHR Torus Spray Iso and E1150-F024B, Div 2 RHR Torus Clg Iso, close.
(2) Containment Spray 2/3 Core Height Override Switch must be placed in MANUAL OVERRIDE, and F027B and F024B opened.

D. (1) E1150-F027B, Div 2 RHR Torus Spray Iso and E1150-F024B, Div 2 RHR Torus Clg Iso, close. .
(2) Containment Spray 2/3 Core Height Override Switch must be placed in MANUAL OVERRIDE, Containment Spray Mode Select Switch must be placed in MANUAL, and F027B and F024B opened.

Answer: B

Answer Explanation:

Justification- Due to level going below level 1, E1150-F027 B, Div 2 RHR Torus Spray Iso and E1150-F024 B, Div 2 RHR Torus Clg Iso, close. This would be prevented if Containment Spray Mode Select Switch was placed in MANUAL. This is not done unless there is a DW Presure >1.68 or Ll which is not present in the initial conditions. To restore, these valves must be re-opened after Containment Spray Mode Select Switch is placed in MANUAL.

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	26981
User-Defined ID:	S18
Cross Reference Number:	NEW
Topic:	Torus cooiling/sprays affect with Ll
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 10
Text Field:	2012 ILO Exam
Comments:	Plausible Distractors: A. is plausible; Justification: A. is plausible; E1150-F028 B, Div 2 RHR Torus Iso Vlv has a key lock to open, but does not shut automatically (student misconception). C. is plausible you do not place Containment Spray 2/3 Core Height Override Switch in MANUAL OVERRIDE until RPV level is below Level 0. D. is plausible you do not place Containment Spray 2/3 Core Height Override Switch in MANUAL OVERRIDE until RPV level isbelow Level 0. Reference: 23.205, Enclosure A

Question 18 Table-Item Links

Plant Procedures

23.205

NUREG 1123 KA Catalog Rev. 2

230000 A2.03 2.9/3.2 Valve closures

Associated objective(s):

List the automatic features of RHR System operations.

19 **ID: S19** **Points: 1.00**

The plant is operating at 100%. The SM is reviewing the POD for the upcoming week. Which one of the following evolutions would require coverage from a Reactivity Management SRO (RMSRO)?

A. HPCI surveillance

B. Turbine Valve Testing surveillance

C. Power change required for CRD Operability

D. Down power to support removal of Reactor Feed Pump from service

Answer: D

Answer Explanation:

Per MOP-19, Reactivity changes requiring a Reactivity Management Senior Reactor Operator (RMSRO) are planned changes to Control Rod position or Recirculation pump speed including load drops of greater than 30% and restoration with major BOP equipment manipulations.

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	27058
User-Defined ID:	S19
Cross Reference Number:	NEW
Topic:	Requirement For Reactivity Management Coverage
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43b) 3
Text Field:	2012 ILO Exam
Comments:	Justification: A/B/C Is incorrect because these are identified in ODE-1 as examples of minor reactivity manipulations not requiring a RMSRO. Reference: MOP19, pages 3 & 5

Question 19 Table-Item Links

Plant Procedures

ODE-01 Reactivity Management

MOP19

NUREG 1123 KA Catalog Rev. 2

G2.1.15 2.7/3.4 Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc.

Associated objective(s):

Define the Roles and Responsibilities established at Fermi 2 regarding Reactivity Management.

20 **ID: S20** **Points: 1.00**

During core alterations with fuel movements, in addition to minimum shift complements per MOP 3 Policies and Practices, what is the **minimum** shift complement required per MOP 13?

1 Refuel Floor Supervisor, 1 Fuel Handler, _____

A. and no others required

B. and 1 Fuel Movement Verifier

C. 1 Fuel Movement Verifier, and 1 Reactor Engineer

D. 1 Fuel Movement Verifier, 1 Reactor Engineer, and 1 Refuel Floor Coordinator

Answer: B

Answer Explanation:

The minimum shift complement for core alterations shall consist of those positions listed in MOP03, "Policies and Practices," plus one Refuel Floor Supervisor, and During fuel movements, additional positions requirement of one (1) fuel handler, and one (1) Fuel Movement Verifier.

Question 20 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:	27039
User-Defined ID:	S20
Cross Reference Number:	NEW
Topic:	Fuel Movement Shift Compliment
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 7
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because there is no Fuel Movement Verifier C. is incorrect because Reactor Engineer is not required D. is incorrect because Reactor Engineer and Refuel Floor Coordinator are not required Reference: MOP13, page 2

Question 20 Table-Item Links

Plant Procedures

MOP13

NUREG 1123 KA Catalog Rev. 2

G2.1.42 2.5/3.4 Knowledge of new and spent fuel movement procedures

Associated objective(s):

Describe methods used to control Operation's activities during refueling outages, including:

a. Refuel Floor Supervisor's responsibilities during refueling outages.
b. Minimum Refuel Floor complement during core alterations.
c. Access control for the Refuel Floor when core alterations are in progress.
d. Methods for controlling refuel floor activities during non-refuel outage conditions.

21 **ID: S21** **Points: 1.00**

With the plant operating at 95% power, the B21-N091A Wide Range Reactor Water Level Instrument Transmitter **FAILED LOW.**

Which one of the following Technical Specification required instrument functions is **NOT** affected?

A. RPV Water Level Low L3, Reactor Scram.

B. RPV Water Level Low L2, ATWS Initiation.

C. RPV Water Level High L8, RCIC Turbine Trip.

D. RPV Water Level Low Ll, Core Spray / LPCI / EDG Start.

Answer: A

Answer Explanation:

The B21-N091A Wide Range Reactor Water Level Instrument Transmitter inputs to trip units B21-N91A(L10, N692A(L2), & N693A(L8). Only level function not affected is L3. See 23.601, pages 16-19.

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.50
System ID:	27038
User-Defined ID:	S21
Cross Reference Number:	315-0121-000-A008-010
Topic:	Tech Spec Level Instrument Failure
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 2
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because B21-N692A inputs to ATWS L2 trip. C. is incorrect because B21-N693 A& B are required for RCIC L8 trip. D. is incorrect because B21-N693A inputs to Ll, Core Spray/LPCl/EDG Start. Reference: 23.601, pages 16-19

Question 21 Table-Item Links

Plant Procedures

23.601

NUREG 1123 KA Catalog Rev. 2

G2.2.40 3.4/4.7 Ability to apply technical specifications for a system

Associated objective(s):

At the completion of this training, the licensed operator candidate will recognize conditions, apply the rules and terminology, and properly implement actions for conditions of plant equipment that are impacted by the Fermi 2 Technical Specifications.

22 **ID: S22** **Points: 1.00**

A discharge permit has been submitted to the Shift Manager for approval. The permit indicates, the water to be discharged is potentially contaminated and will be discharged from an area subject to radiological restrictions. The actions required by MRP18, Release of Potentially Clean Fluids, have been completed.

Upon deciding to approve the discharge permit, the Shift Manager shall assign an expiration not to exceed:

A. 4 hours

B. end of scheduled shift

C. 24 hours

D. 5 days

Answer: C

Answer Explanation:

Per MCE 06 NON-RADIOLOGICAL ENVIRONMENTAL PROTECTION, Pumping of sources within an area subject to radiological restrictions should be assigned an expiration not to exceed 24 hours from the time the permit is approved.

Question 22 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:	27019
User-Defined ID:	S22
Cross Reference Number:	802-4101-000-0003-007
Topic:	Discharge Permit Expiration Time
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 4
Text Field:	2012 ILO Exam
Comments:	Justification: A/B/D. is incorrect because Pumping of sources within an area subject to radiological restrictions should be assigned an expiration not to exceed 24 hours from the time the permit is approved. Reference: MCE06, page 15

Question 22 Table-Item Links

Plant Procedures

MCE06

NUREG 1123 KA Catalog Rev. 2

G2.3.6 2.0/3.8 Ability to approve release permits

Associated objective(s):

Describe the methods used at Fermi 2 to protect the environment, including:

a. Conditions that would indicate an NPDES Non-Compliance, and actions required in the event of a non-compliance.
b. The different Environmental Protection Plan documents used at Fermi 2.
c. Notifications required for Unusual or Important Environment Events.
d. Actions that must be taken when a Non-Radiological Environmental Spill occurs.
e. Actions taken when finding unidentified/unattended waste.

23 **ID: S23** **Points: 1.00**

A loss of drywell cooling occurs followed by a large LOCA. Several hours after the LOCA the following conditions exist:

- Reactor power ..... <3% (all rods full in)
- RPV pressure ..... 50 psig (stable)
- Drywell temperature ..... 250°F (stable)
- Drywell pressure ..... 42 psig(rising)
- Torus pressure ..... 45 psig (rising)
- Primary containment water level ..... 565 feet elev

As CRS, what action shall you direct, and reason for this action?

A. Initiate Drywell Sprays to maintain primary containment integrity.

B. Vent the torus, only if release rates remain below radioactivity release limits to minimize dose to public.

C. Vent the drywell to maintain primary containment integrity.

D. Vent the torus to reduce radioactivity released by the scrubbing action of the Torus water.

Answer: D

Answer Explanation:

Because you vent the torus if water level is less than 570 feet, the reason you choose the torus is because of the scrubbing action. This is done regardless of offsite release rates..

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.50
System ID:	27018
User-Defined ID:	S23
Cross Reference Number:	NEW
Topic:	Venting Torus
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A. is incorrect because torus water level is above +45 inches thus questioning the operability of the vacuum breakers. Step PCP-7 of 29.100.01 SH 2. B. is incorrect because you vent the torus regardless of the release rate. C. is incorrect because the DW is vented if torus water level is greater than 570 feet or the torus cannot be kept below the PCPL. Reference: 29.100.01 SH 2, PCP-15

Question 23 Table-Item Links

Plant Procedures

29.100.01 SH 2

NUREG 1123 KA Catalog Rev. 2

G2.3.11 3.8/4.3 Ability to control radiation releases

Associated objective(s):

Describe plant conditions that would require use of the alternative actions contained in 29.100.01 Sh 2 and Sh 4, Primary Containment Control, including:

a. Emergency Depressurization
b. Torus Spray
c. Drywell Spray
d. Venting the Drywell
e. Venting the Torus

24 **ID: S24** **Points: 1.00**

An ALERT Emergency Action Level has been declared. Which facilities must be activated?

A. TSC only

B. TSC and OSC only

C. TSC, OSC, and EOF only

D. TSC, OSC, EOF, and JIC

Answer: C

Answer Explanation:

Per EP-103, TSC, OSC, and EOF must be activated on step 4 of the Alert —Checklist for Immediate Actions.

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	Yes
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	27080
User-Defined ID:	S24
Cross Reference Number:	NEW
Topic:	Activate Facilities in ALERT
Num Field 1:	LOK L
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: A/B. is incorrect because the EOF must be activated for an ALERT per EP-103. D. is incorrect because the JIC is not activated until a SAE. Reference: EP-103, page 3, section 4.3, and ALERT checklist

Question 24 Table-Item Links

Plant Procedures

EP-103

NUREG 1123 KA Catalog Rev. 2

G2.4.38 2.4/4.4 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required

Associated objective(s):

Given a plant condition requiring event classification, determine protective measures for on-site personnel in accordance with emergency plan procedures.

25 **ID: S25** **Points: 1.00**

The plant is operating at 50% power and a transient has occurred. The following plant conditions exist 10 seconds later **without** any operator actions having been taken:

- 4D121, 345KV BKR POS CF OPEN alarms.
- 4D123, 345KV BKR POS CM OPEN alarms.
- Generator Field Breaker 41CS is **TRIPPED.**
- Main Turbine Bypass Valves indicate **FULL OPEN.**
- 1D61, SRV OPEN alarms.

Which one of the following actions is required **FIRST?**

A. **ENTER** 29.100.01 Sheet 1, RPV CONTROL **and MANUALLY** Scram the reactor.

B. **ENTER** 29.100.01 Sheet 1, RPV CONTROL, **ENTER** 29.100.01 Sheet 1A, ATWS RPV CONTROL, **and INHIBIT** ADS.

C. **ENTER** 29.100.01 Sheet 1, RPV CONTROL **and MANUALLY OPEN** additional Safety Relief Valves to lower pressure to 960 psig.

D. **ENTER** 29.100.01 Sheet 1, RPV CONTROL, **ENTER** 29.100.01 Sheet 1A, ATWS RPV CONTROL, **and LOWER** Recirculation MG Set Speeds to MINIMUM.

Answer: A

Answer Explanation:

The turbine trip at the given power should result in a scram. When a scram signal is present and above 3%, sheet 1 entry is required. The first action is to insert a manual reactor scram.

Question 25 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:	27098
User-Defined ID:	S25
Cross Reference Number:	802-3003-000-0003-015
Topic:	When to Scram Reactor
Num Field 1:	LOK H
Num Field 2:	10 CFR 55.43(b) 5
Text Field:	2012 ILO Exam
Comments:	Justification: B. is incorrect because this action would be if a manual scram was unsuccessful. C. is incorrect because this would be true if a normal scram condition with an SRV actuated. D. is incorrect because this action would be if a manual scram was unsuccessful. Reference: 29.100.01 SH 1, RC-1

Question 25 Table-Item Links

Plant Procedures

29.100.01 SH 1

NUREG 1123 KA Catalog Rev. 2

G2.4.4 4.5/4.7 Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures

Associated objective(s):

Given a set of plant conditions/actions taken and a current copy of 29.100.01 Sh 1 through 6, determine which step(s) is (are) to be directed by the CRS.