

CONFIDENTIAL NRC EXAM MATERIAL

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QUESTION NUMBER: 001

A plant transient has led to a high pressure reactor trip. Following the trip, a pressurizer safety valve opened and did not reclose. The RCS pressure then lowered and PPLS actuation started all of the ECCS pumps. The operators tripped all RCPs.

It is 20 minutes after the trip and current plant conditions are:

- RCS Pressure is steady at 900 psia
- Hot leg and CET temperatures indicate 530°F
- Pressurizer level is 85% and rising
- All HPSI, LPSI and charging pumps are running.

What action should be taken in response to the rising pressurizer level?

- A✓ Continue to provide full injection flow. Allow all ECCS pumps to continue injecting.
- B. Trip one HPSI pump and all LPSI pumps. Continue to provide full charging flow.
- C. Trip all HPSI pumps. Trip charging pumps as required to control pressurizer level.
- D. Trip HPSI pumps as needed to control pressurizer level. Continue to provide full charging flow.

Question 1 K/A # 000008 AA1.06

Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space
Accident:Control of PZR level

RO Importance 3.6 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0715-23 02.06

Explain how the "Stop and Throttle" criteria is used to prevent reducing HPI flow when full HPI flow is required.

Replaced distractors B and C.

KA#: 000008 AA1.06
LP# / Objective: 0715-23 02.06
Cognitive Level: HIGH
Reference: LP 07-15-23

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: STEAM TABLES

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QUESTION NUMBER: 002

A small break LOCA resulted in PPLS actuation. The break has been isolated by closing a PORV block valve and pressurizer level has returned to 60% and is continuing to rise. RCS pressure is at 1650 psia and rising. Containment pressure is 0.5 psig. What action should be taken to allow the letdown isolation valves, HCV-204 and TCV-202 to be opened in this situation per EOP-AOP Attachment 23, "Restoration of Letdown"?

- A. ✓ Reset Engineered Safeguards relays.
- B. Block PPLS, Reset PPLS and CIAS lockout relays
- C. Place the CIAS override switches for the valves in override.
- D. Place the Defeat switch for HCV-204 in the defeat position.

Question 2 K/A # 000009 EA2.08

Ability to determine or interpret the following as they apply to a small break LOCA: Letdown isolation valve position indication

RO Importance 2.9* SRO Importance 2.9* 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0711-02 01.02

EXPLAIN, the manual and automatic functions of control valves in the CVCS.

KA#: 000009 EA2.08

LP# / Objective: 0711-02 01.02

Cognitive Level: HIGH

Reference: EOP-03

Bank Ref #:

Exam Level: RO

Source: NEW

Handout: NONE

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QUESTION NUMBER: 003

Eight and one-half hours following a large loss of coolant accident which resulted in RAS, the HPSI injection flow is split between the cold legs and the pressurizer auxilliary spray. Why is this done?

- A. To minimize the temperature difference between the pressurizer and the RCS loops.
- B. To maintain the RCS pressure low to minimize break flow.
- C. To equalize boron concentration between the pressurizer and the loops.
- D✓ To prevent boron precipitation on the fuel assemblies.

Question 3 K/A # 000011 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0715-23 02.07

EXPLAIN how boric acid precipitation in the reactor vessel is prevented following a Loss of Coolant Accident.

KA#: 000011 2.4.06
LP# / Objective: 0715-23 02.07
Cognitive Level: LOW
Reference: LP 0715-23

Bank Ref #: 07-15-23 1
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 004

Which one of the following conditions will allow the operator to bypass the low RCS flow reactor trip using the zero power mode bypass switch?

- A✓ The wide range nuclear instrumentation level one bistable light is OFF.
- B. The wide range nuclear instrumentation level one bistable light is ON.
- C. The power range nuclear instrumentation level one bistable light is OFF.
- D. The power range nuclear instrumentation level one bistable light is ON.

Question 4 K/A # 000017 AA1.16

Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Low-power reactor trip block status lights

RO Importance 3.2* SRO Importance 3.5* 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0712-25 01.09b

STATE the NSSS parameters and points that enable, disable and/or permit the following RPS trip functions: Low reactor coolant flow

KA#: 000017 AA1.16
LP# / Objective: 0712-25 01.09B
Cognitive Level: LOW
Reference: STM 29 & 38

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 005

The plant is operating at 100% power with normal RCS temperatures, pressure and pressurizer level when all charging pump flow is lost. The operator immediately isolates letdown to conserve pressurizer level. After 30 minutes, 1 charging pump is restarted and continues to operate.

Assuming letdown remains isolated and reactor power and RCS temperatures remain constant, how long will it take the charging pump to restore pressurizer level to normal?

- A. between 1 minute 25 seconds and 1 minute 35 seconds
- B. between 1 minute 40 seconds and 1 minute 50 seconds
- C. between 2 minutes 55 seconds and 3 minutes 5 seconds
- D✓ between 3 minutes 15 seconds and 3 minutes 25 seconds

Question 5 K/A # 000022 AA1.03

Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup:PZR level trend

RO Importance 3.2 SRO Importance 3.2 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0711-02 04.02

EXPLAIN the effects of isolating letdown and charging if reactor coolant pumps are operating.

Changed answer and distractors to represent 36 gpm difference, 40 gpm difference, 72 gpm difference and 80 gpm difference. Correct choice also changes to D when placed in increasing order.

KA#: 000022 AA1.03
LP# / Objective: 0711-02 04.02
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 006

The plant is being cooled down on shutdown cooling using shutdown cooling heat exchanger AC-4A. With the the RCS at 290°F and 235 psia, CCW cooling to AC-4A is lost due to a CCW surge tank rupture.

Which one of the following actions is the preferred method for restoring shutdown cooling?

- A. Place AC-4B in service using the CCW system.
- B✓ Establish Raw Water backup cooling to AC-4A
- C. Start all three HPSI pumps to provide injection into the RCS
- D. Use hoses and line up fire water to the secondary side of AC-4A

Question 6 K/A # 000025 AK2.03

Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: Service water or closed cooling water pumps

RO Importance 2.7 SRO Importance 2.7 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0717-19 01.00

Use the Loss of Shutdown Cooling Procedure to mitigate the consequences of a loss of cooling to the Reactor Coolant System.

KA#: 000025 AK2.03
LP# / Objective: 0717-19 01.00
Cognitive Level: HIGH
Reference: AOP-11

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 007

A CCW system pipe rupture has caused CCW pump discharge pressure to drop to 20 psig.

Which one of the following identifies a plant condition that will automatically close CCW Containment Isolation Valves, HCV-438A/B/C/D?

- A. Instrument air header pressure drops to 55 psig.
- B. Pressurizer pressure drops to 1700 psig.
- C✓ Containment pressure increases to 6 psig.
- D. CCW system pressure continues to fall to 10 psig.

Question 7 K/A # 000026 AK3.02

Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: The automatic actions (alignments) within the CCWS/nuclear service water resulting from the actuation of the ESFAS

RO Importance 3.6 SRO Importance 3.9 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0717-11 01.02

Describe how the plant responds to a Loss of Component Cooling Water in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#: 000026 AK3.02
LP# / Objective: 0717-11 01.02
Cognitive Level: HIGH
Reference: STM 8

Bank Ref #: 07-17-11 003
Exam Level: RO
Source: BANK
Handout: NONE

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QUESTION NUMBER: 008

The Plant is operating at full power. Pressurizer pressure channels PC-103X and PC-103Y are both in automatic. The pressure control channel selector switch, HC-103, is in the "Y" position.

How will the pressurizer pressure control system respond if pressure transmitter PT-103Y fails high?

- A. Only one pressurizer spray valve will open. PORVs will remain closed.
- B. Only one pressurizer spray valve will open and only one PORV will open.
- C✓ Both pressurizer spray valves will open. PORVs will remain closed.
- D. Both pressurizer spray valves and both PORVs will open.

Question # 8 K/A # 000027 AA2.18

Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Operable control channel

RO Importance 3.4 SRO Importance 3.5 10 CFR 50 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0711-20 05.00

DESCRIBE the actions taken by the Control Operator to monitor the RCS Instrumentation.

Original K/A (000027 AA2.18) was rejected and a new K/A was selected.

KA#: 000027 AA2.18
LP# / Objective: 0711-20 05.00
Cognitive Level: HIGH
Reference: STM-37

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 009

A steam generator tube rupture occurred in RC-2A. RC-2A was isolated and a cooldown using RC-2B was in progress when a loss of offsite power occurred resulting in a loss of all reactor coolant pumps. The cooldown and depressurization was continued using natural circulation and periodic auxiliary spray. One charging pump is running and providing flow to the RCS loops. Pressurizer level is 54% and steady.

When the charging flow is directed to auxiliary spray, the pressurizer level begins to increase. The operator notes the following plant conditions:

- RCS pressure indicates 900 psia
- RC-2A pressure indicates 700 psia
- RC-2B pressure indicates 515 psia
- CETs indicate 500°F

Why is the indicated pressurizer level rising?

- A. There is less flow resistance through the auxiliary spray lines than the loop charging lines
- B. The pressurizer level instrumentation is decalibrating due to the cooldown
- C. Natural circulation is stalling causing the RCS to heatup
- D✓ Voids are forming in the reactor vessel head or S/G tubes

Question 9 K/A # 000038 EK1.03

Knowledge of the operational implications of the following concepts as they apply to the SGTR: Natural circulation

RO Importance 3.9 SRO Importance 4.2 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0715-33 02.07

EXPLAIN how natural circulation would complicate a steam generator tube rupture event.

Distractor B has been replaced.

KA#: 000038 EK1.03
LP# / Objective: 0715-33 02.07
Cognitive Level: HIGH
Reference: LP 07-15-33

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 010

Which one of the following conditions will cause the "FW-10 Turbine Driven Feedwater Trouble" annunciator to alarm on AI-66B?

- A. Low cooling water flow to FW-10.
- B. YCV-1045A override switch in "Override" position.
- C. FW-10 high discharge temperature.
- D✓ FW-10 DC oil pump overload.

Question 10 K/A # 000054 2.4.50

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

RO Importance 3.3 SRO Importance 3.3 10 CFR 55 Section 45.3

FCS Lesson Plan / Objective 0711-11 02.00

DESCRIBE the indications and controls available and EXPLAIN the control system automatic protective features, interlocks and tracking circuits.

Replaced original question.

KA#: 000054 2.4.50

Bank Ref #: 07-11-01 037

LP# / Objective: 0711-11 02.00

Exam Level: BOTH

Cognitive Level: LOW

Source: MODIFIED

Reference: ARP AI-66B

Handout: NONE

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QUESTION NUMBER: 011

The following plant conditions exist:

- A station blackout has occurred.
- The diesel engines have both failed to start.
- Natural circulation cooling has been established.

Assuming no change in conditions, which one of the following courses of action should be taken by the operators?

- A. Cooldown at the maximum rate possible to the point at which shutdown cooling entry conditions are satisfied.
- B. Cooldown at 100°F/hr until shutdown cooling entry conditions are met.
- C. Establish once through cooling.
- D✓ Maintain RCS at or near no load temperature until some electrical power is restored.

Question 11 K/A # 000055 2.1.23

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

RO Importance 3.9 SRO Importance 4.0 10 CFR 55 Section 45.2 / 45.6

FCS Lesson Plan / Objective 0718-17 01.01

EXPLAIN the major strategy used to mitigate the consequences of a SBO.

KA#: 000055 2.1.23

Bank Ref #: 07-18-17 005

LP# / Objective: 0718-17 01.01

Exam Level: RO

Cognitive Level: HIGH

Source: NRC 95 EXAM

Reference: EOP-07

Handout: NONE

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QUESTION NUMBER: 012

Following a loss of offsite power, power must be restored to island bus, 1B3B-4B. In order to close bus tie breaker BT-1B3B, the breaker control switch is turned to the close position. Which of the following conditions must be met in order for this breaker to close?

- A. The synchroscope must be turned ON for breaker 1A33.
- B. The synchroscope must be turned ON for breaker 1A44.
- C✓ Bus Tie Breaker BT-1B4B must be open with its control switch in TRIP or AFTER TRIP.
- D. Bus Tie Breaker BT-1B4B must be closed with its control switch in CLOSE or AFTER CLOSE.

Question 12 K/A # 000056 AA1.02

Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: ESF bus synchronization select switch to close bus tie breakers

RO Importance 4.0* SRO Importance 3.9 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0713-03 01.05

Explain the principles of normal operation of the 480 VAC Electrical Distribution System in terms of major parameters, alarms and control devices.

KA#: 000056 AA1.02
LP# / Objective: 0713-03 01.05
Cognitive Level: HIGH
Reference: STM 14

Bank Ref #: 07-13-03 005
Exam Level: RO
Source: BANK
Handout: NONE

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QUESTION NUMBER: 013

How will the reactor trip and pre-trip annunciators on CB-4 respond to a loss of voltage on one of the vital instrument buses?

- A✓ The trip and pre-trip annunciators will all be in alarm.
- B. The trip annunciators will be in alarm, the pre-trip annunciators will stay off.
- C. The trip annunciators will be off, the pre-trip annunciators will be in alarm.
- D. The trip and pre-trip annunciators will be off.

Question # 13 K/A # 000057 AA2.03

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:RPS panel alarm annunciators and trip indicators

RO Importance 3.7 SRO Importance 3.9 10 CFR 50 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0712-25 01.06

EXPLAIN the methods for an auxiliary and a bistable trip unit in a trip condition.

Original K/A (000057 AA2.03) was rejected and a new K/A was selected.

KA#: 000057 AA2.03

Bank Ref #:

LP# / Objective: 0712-25 01.06

Exam Level: RO

Cognitive Level: HIGH

Source: NEW

Reference: AOP-16

Handout: NONE

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QUESTION NUMBER: 014

Which one of the following is a plant indication that would occur as a result of a loss of DC bus #1 and would be an entry condition for AOP-16?

- A. A loss of control power to breaker 1B4A.
- B. ☒ Bus Power Failure DC Distribution Panel 1 Light is out.
- C. DC Bus #1 voltage indicates 112V.
- D. A loss of control power to DG-2.

Question 14 K/A # 000058 2.4.04

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

RO Importance 4.0 SRO Importance 4.3 10 CFR 55 Section 41.10 / 43.2 / 45.6

FCS Lesson Plan / Objective 0717-16 01.01

Discuss the purpose of the AOP.

Original question replaced with one that is more appropriate for RO level.

KA#: 000058 2.4.04

Bank Ref #:

LP# / Objective: 0717-16 01.01

Exam Level: RO

Cognitive Level: LOW

Source: NEW

Reference: AOP-16

Handout: NONE

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QUESTION NUMBER: 015

What is the automatic response of Raw Water system valves to a safeguards actuation due to concurrent PPLS and CPHS signals.

- A. Raw water valves to non-essential heat loads will close.
- B. ☒ Raw water valves to the RW/CCW heat exchangers will open.
- C. RW/CCW interface valves to the RW/CCW heat exchanger will open.
- D. RW/CCW interface valves to the containment coolers will open.

Question 15 K/A # 000062 AK3.02

Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS

RO Importance 3.6 SRO Importance 3.9 10 CFR 55 Section 41.4, 41.8/45.7

FCS Lesson Plan / Objective 0711-19 01.05

EXPLAIN the automatic start features associated with the raw water pumps.

Original question was replaced with new question.

KA#: 000062 AK3.02
LP# / Objective: 0711-19 01.05
Cognitive Level: HIGH
Reference: STM 35

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 016

AOP-17, Loss of Instrument Air, directs the operators to verify that PCV-1753 is _____ .

- A✓ closed to isolate a leak from the service air system
- B. closed to isolate a leak from an air dryer
- C. open to allow service air to pressurize the instrument air system.
- D. open to allow backup nitrogen to pressurize the instrument air system.

Question 16 K/A # 000065 AK3.08

Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Actions contained in EOP for loss of instrument air

RO Importance 3.7 SRO Importance 3.9 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0717-17 01.02

Describe how the plant responds to a loss of instrument air in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Valve noun name was removed from stem. "a" changed to "an" in choice B.

KA#: 000065 AK3.08
LP# / Objective: 0717-17 01.02
Cognitive Level: LOW
Reference: AOP-17

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 017

Step 2 of EOP-00, "Reactor Trip Procedure", states, "Trip Turbine and verify all turbine stop and intercept valves closed."

If this condition is not met, why is the contingency action of tripping the EHC pumps preferred over closing the MSIVs and MSIV bypass valves?

- A. To ensure that steam flow from the moisture separators to the low pressure turbines is also isolated.
- ☒ B. To retain the use of the steam dump and bypass valves
- C. To reduce the probability of an EHC fluid leak
- D. To ensure that the feedwater heater non-return air check valves close

Question 17 K/A # CE-E02 EK3.01

Knowledge of the reasons for the following responses as they apply to the (Reactor Trip Recovery) Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and

RO Importance 3.2 SRO Importance 3.7 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0718-10 01.08

GIVEN a copy of the latest revision of the Technical Basis Documents (TBDs), IDENTIFY the basis for specific steps of the Emergency Operating Procedures in use during various accident events.

Replaced distractor A

KA#: CE-E02 EK3.01
LP# / Objective: 0718-10 01.08
Cognitive Level: HIGH
Reference: TDB EOP-00

Bank Ref #: 07-18-10 053
Exam Level: RO
Source: FCS BANK
Handout: NONE

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QUESTION NUMBER: 018

The technical specifications require that main steam isolation valves be capable of closing within 4 seconds. This requirement is based on the analysis of:

- A. A steam generator tube rupture from full power.
- B. A steam generator tube rupture from zero power.
- C. A steam line break inside containment.
- D✓ A steam line break outside containment.

Question 18 K/A # CE-E05 EK1.01

Knowledge of the operational implications of the following concepts as they apply to the (Excess Steam Demand)Components, capacity, and function of emergency systems.

RO Importance 3.0 SRO Importance 3.3 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0715-20 03.05

EXPLAIN how the steam line break is used in determining the basis for Technical Specification requirements.

KA#: CE-E05 EK1.01
LP# / Objective: 0715-20 03.05
Cognitive Level: HIGH
Reference: LP 0715-20

Bank Ref #: 07-15-20 001
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 019

With the group 4 CEAs partially inserted, a failure within the system caused several of the group 4 CEAs to begin withdrawing. During this event, the group 4 primary rod position indication synchro meter will indicate:

- A. ✓ the position of the CEA selected by the group rotary switch
- B. the position of the most withdrawn CEA in the group
- C. The average position of all of the CEAs in the group
- D. the position of the most inserted CEA in the group

Question 19 K/A # 000001 AK2.08

Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: Individual rod display lights and indications

RO Importance 3.1 SRO Importance 3.0 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0712-26 01.07

Describe the methods of control rod position indication. Include the readouts and displays associated with each method. (CID No. 931191/02)

KA#: 000001 AK2.08
LP# / Objective: 0712-26 01.07
Cognitive Level: LOW
Reference: STM 11

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 020

What is the reason for keeping the temperature of the Boric Acid Storage Tanks above the low temperature limits?

- A. To prevent excessive thermal stress at the pipe connections to the tanks.
- B. To prevent an excessive deviation between the tanks' actual and indicated levels.
- C✓ To ensure all of the boric acid inside the tanks remains in solution.
- D. To ensure that the boron in the tanks remains in "mono-borate" form

Question 20 K/A #000024 AK1.04

Knowledge of the operational implications of the following concepts as they apply to Emergency
Boration: Low temperature limits for boron concentration

RO Importance 2.8 SRO Importance 3.6 10 CFR 55 Section 41.8 / 41.10 / 45.3

FCS Lesson Plan / Objective 0762-08 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Replaced with new question

KA#: 000024 AK1.04
LP# / Objective: 0762-08 05.00
Cognitive Level: LOW
Reference: TS 2.2.7 BASIS

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 021

A high radiation alarm on S/G A blowdown radiation monitor RM-054A will automatically:

- A. Isolate blowdown from Steam Generator RC-2A only and realign blowdown sample flow to radwaste.
- B. Isolate blowdown from Steam Generator RC-2A only but not realign blowdown sample flow.
- C. Isolate blowdown from both Steam Generators and realign blowdown sample flow to radwaste.
- ☒ D. Isolate blowdown from both Steam Generators but not realign blowdown sample flow.

Question 21 K/A # 000037 AA1.13

Ability to operate and / or monitor the following as they apply to the Steam Generator Tube Leak: S/G blowdown radiation monitors

RO Importance 3.9 SRO Importance 4.0 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0712-03 04.01

LIST radiation monitors with automatic actuations and STATE the automatic actuations that occur.

KA#: 000037 AA1.13
LP# / Objective: 0712-03 04.01
Cognitive Level: LOW
Reference: STM 33

Bank Ref #: 07-12-03 034
Exam Level: RO
Source: FCS BANK (REWORD)
Handout: NONE

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QUESTION NUMBER: 022

Why does AOP-09 direct that only one Auxiliary Building exhaust fan and no Auxiliary Building supply fans be operated when high radioactivity is detected in the Auxiliary Building?

- A. To achieve the maximum available negative pressure in the Auxiliary Building.
- B. To prevent exceeding the flow capacity of VA-66
- ☒ C. To minimize the radiation release to the environment while providing a monitored release path.
- D. To minimize the number of fans that will need to be decontaminated.

Question 22 K/A # 000060 AK2.02

Knowledge of the interrelations between the Accidental Gaseous Radwaste Release and the following: Auxiliary building ventilation system

RO Importance 2.7 SRO Importance 3.1 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0717-09 01.03

Describe the major recovery actions of this AOP.

Replaced distractor D.

KA#: 000060 AK2.02
LP# / Objective: 0717-09 01.03
Cognitive Level: HIGH
Reference: TDB AOP-09

Bank Ref #: 07-17-09 003
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 023

What actions are taken to trip the reactor and turbine during an AOP-06, "Fire Emergency", control room evacuation?

- A. Prior to evacuation, the reactor and the main generator are manually tripped. The turbine is tripped from the front standard.
- B. ☒ Prior to evacuation, the reactor is manually tripped and the clutch power supply breakers are opened. The turbine is tripped from the front standard.
- C. Prior to evacuation, the reactor is manually tripped and the EHC pumps are placed in pull-out.
- D. Prior to evacuation, the reactor is manually tripped and the MSIV's and the MSIV bypass valves are closed.

Question 23 K/A # 000068 AK2.02

Knowledge of the interrelations between the Control Room Evacuation and the following: Reactor trip system

RO Importance 3.7 SRO Importance 3.9 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0717-06 01.03

Describe the major recovery actions of this AOP.

KA#: 000068 AK2.02
LP# / Objective: 0717-06 01.03
Cognitive Level: LOW
Reference: AOP-06

Bank Ref #: 07-17-06 012
Exam Level: RO
Source: NRC 02 EXAM
Handout: NONE

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QUESTION NUMBER: 024

Which one of the following describes the consequences of late initiation of once-through-cooling during conditions when it is required?

- A. The flow rate through the PORVs may no longer be adequate to remove decay heat which may lead to core damage.
- B. The higher RCS temperature may lead to damage of the RCP seals.
- C✓ The HPSI flow rate may no longer be adequate to maintain RCS inventory high enough to prevent core damage.
- D. The higher RCS temperature may increase hydraulic forces on the fuel assemblies, which may lead to core damage.

Question 24 K/A # 000074 EA1.05

Ability to operate and monitor the following as they apply to a Inadequate Core Cooling:PORV

RO Importance 3.9 SRO Importance 4.1 10 CFR 55 Section 41.7 / 45.5 / 45.6

FCS Lesson Plan / Objective 0715-17 02.05

EXPLAIN the potential consequences of late initiation of once through cooling.

Changed distractor B.

KA#: 000074 EA1.05
LP# / Objective: 0715-17 02.05
Cognitive Level: HIGH
Reference: LP 0715-17

Bank Ref #: 07-15-17 004
Exam Level: RO
Source: NRC 01 EXAM #2
Handout: NONE

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QUESTION NUMBER: 025

According to Tech Specs and TDB-IX, "RCS Pressure and Temperature Limits Report", the maximum allowable RCS cooldown rate is _____ above 178°F and _____ below 178°F.

- A. 100°F in an hour; 75°F in an hour
- B✓ 100°F in an hour; 50°F in an hour
- C. 75°F in an hour; 75°F in an hour
- D. 75°F in an hour; 50°F in an hour

Question 25 K/A # CE-A11 2.2.22

Knowledge of limiting conditions for operations and safety limits.

RO Importance 3.4 SRO Importance 4.1 10 CFR 55 Section 43.2 / 45.2

FCS Lesson Plan / Objective 0711-20 02.02

EXPLAIN the basis for the RCS heatup and cooldown curves and STATE the limits.

Changed value in choice C

KA#: CE-A11 2.2.22
LP# / Objective: 0711-20 02.02
Cognitive Level: LOW
Reference: TDB-IX

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 026

In Section III of AOP-22, "Reactor Coolant Leak" , after verifying RCS pressure less than 1700 psia the operator is directed to block PPLS.

Why is PPLS blocked?

- A✓ To enable Low Temperature Overpressure Protection circuitry.
- B. To allow better RCS pressure control by preventing the injection of cold SIRWT water.
- C. To maintain the normal boration path available during Steam Generator depressurization.
- D. To prevent initiation of safety injection with HPSI stop-and-throttle criteria already met.

Question 26 K/A # CE-A16 2.1.30

Ability to locate and operate components, including local controls.

RO Importance 3.9 SRO Importance 3.4 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0717-22 01.02

Describe how the plant responds to a Reactor Coolant Leak in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#: CE-A16 2.1.30
LP# / Objective: 0717-22 01.02
Cognitive Level: LOW
Reference: AOP-22

Bank Ref #: 07-17-22 004
Exam Level: RO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 027

While at full power, the plant experienced a loss of all main and auxilliary feedwater pumps. Using EOP-06, "Loss of all Feedwater", why do the operators rapidly cooldown and depressurize the steam generators to 500 psia following a loss of all main and auxilliary feedwater pumps?

- A✓ To allow the steam generators to be fed by the condensate pumps.
- B. To reach the conditions where shutdown cooling can be placed into service.
- C. To remove as much heat as possible from the RCS before the steam generators dry out.
- D. To cooldown and depressurize the RCS to reduce RCP seal leakage flow.

Question 27 K/A # CE-E06 EK3.02

Knowledge of the reasons for the following responses as they apply to the (Loss of Feedwater)Normal, abnormal and emergency operating procedures associated with (Loss of Feedwater).

RO Importance 3.2 SRO Importance 3.7 10 CFR 55 Section 41.5 / 41.10 / 45.6 / 45.13

FCS Lesson Plan / Objective 0715-17 02.03

EXPLAIN the operator actions required during a total loss of feedwater event.

Replaced original question with a new question.

KA#: CE-E06 EK3.02

Bank Ref #:

LP# / Objective: 0715-17 02.03

Exam Level: RO

Cognitive Level: LOW

Source: NEW

Reference: EOP-06

Handout: NONE

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QUESTION NUMBER: 028

Which one of the following would require tripping an operating Reactor Coolant Pump.

- A. Motor radial and thrust shoe temperature is 150°F
- B. Intermittent vibration alarms at .002 inches
- C. RCP motor amps indicate 350 amps
- D✓ Lower seal temperature is 250°F

Question 28 K/A # 003000 A1.08

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCPS controls including: Seal water temperature

RO Importance 2.5 SRO Importance 2.6 10 CFR 55 Section 41.5 / 45.5

FCS Lesson Plan / Objective 0717-35 objective 1.3

DESCRIBE the major recovery actions of this AOP.

KA#: 003000 A1.08
LP# / Objective: 0717-35 01.03
Cognitive Level: LOW
Reference: AOP-35

Bank Ref #: 07-11-20 129
Exam Level: RO
Source: FCS BANK
Handout: NONE

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QUESTION NUMBER: 029

What will the flow through RC-3A and RC-3B be several minutes after RC-3A is tripped? (Assume that RC-3A is the only RCP that is tripped.)

- A. The flow through RC-3A will be in the forward direction and the flow through RC-3B will be less than it was before RC-3A was tripped.
- B. The flow through RC-3A will be in the forward direction and the flow through RC-3B will be greater than it was before RC-3A was tripped.
- C. The flow through RC-3A will be in the reverse direction and the flow through RC-3B will be less than it was before RC-3A was tripped.
- D✓** The flow through RC-3A will be in the reverse direction and the flow through RC-3B will be greater than it was before RC-3A was tripped.

Question 29 K/A # 003000 A3.04

Ability to monitor automatic operation of the RCPS, including: RCS flow

RO Importance 3.6 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0715-16 01.02

EXPLAIN the response of primary and secondary parameters to a partial loss of flow event.

Question was modified. Significant stem change and all four choices changed.

KA#: 003000 A3.04
LP# / Objective: 0715-16 01.02
Cognitive Level: HIGH
Reference: LP 07-15-16

Bank Ref #: 07-15-16 011
Exam Level: RO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 030

The plant was operating at full power. Two charging pumps were operating to increase flow through the ion exchangers at the request of chemistry.

A dropped CEA resulted in a mismatch between RCS T-cold and the programmed T-cold. How will the CVCS initially respond to this event?

- A✓ Letdown flow will lower and a third charging pump will start.
- B. Letdown flow will lower and the ion exchanger will be automatically bypassed.
- C. Letdown will isolate and a third charging pump will start.
- D. Letdown will isolate and charging pump suction will switch to the SIRWT.

Question 30 K/A # 004000 A2.16

Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: T-ave. and T-ref. deviations

RO Importance 3.2 SRO Importance 3.6 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5

FCS Lesson Plan / Objective 0711-02 02.05

EXPLAIN the effects of improper filter or ion exchanger valve lineup.

Replaced original question.

KA#: 004000 A2.16
LP# / Objective: 0711-02 02.05
Cognitive Level: HIGH
Reference: OI-CH-2

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 031

In a normal boration, with HC-269, "Makeup Water Mode Selector Switch", in the "BORATE" position:

- A. Boric Acid from the BASTs is directed to the suction of the charging pumps. Following the boration, the lines are kept full of boric acid solution.
- B. Boric Acid from the BASTs is directed to the volume control tank. Following the boration, the lines are kept full of boric acid solution.
- C. Boric Acid from the BASTs is directed to the suction of the charging pumps. Following the boration, the lines are flushed with demineralized water.
- ☒ D. Boric Acid from the BASTs is directed to the volume control tank. Following the boration, the lines are flushed with demineralized water.

Question 31 K/A # 004000 A4.12

Ability to manually operate and/or monitor in the control room: Boration/dilution batch control

RO Importance 3.8 SRO Importance 3.3 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0711-02 02.01

EXPLAIN the operation of the CVCS for boration, dilution and blended makeup of the Reactor Coolant System during normal power operation and when depressurized.

KA#: 004000 A4.12
LP# / Objective: 0711-02 02.01
Cognitive Level: LOW
Reference: OI-CH-4

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 032

Which one of the following interlocks must be met or overridden before HCV-347 and HCV-348, "Shutdown Cooling Containment Isolation Valves", can be opened to allow operating the LPSI pumps in shutdown cooling mode?

- A✓ RCS pressure must be less than 250 psia.
- B. RCS temperature must be less than 300°F
- C. At least one of the LPSI pumps must be running.
- D. The CCW inlet and outlet valves to at least one of the shutdown cooling heat exchangers must be open.

Question 32 K/A # 005000 K4.02

Knowledge of RHRS design feature(s) and/or interlock(s) which provide or the following: Modes of operation

RO Importance 3.2 SRO Importance 3.5* 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-22 01.18

Given a current copy of OI-SC-1, explain the major steps, prerequisites and precautions for placing the Shutdown Cooling System in service.

KA#: 005000 K4.02
LP# / Objective: 0711-22 01.18
Cognitive Level: LOW
Reference: STM-15

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 033

According to SO-O-21, "Shutdown Operations Protection Plan", with the RCS open and fuel in the reactor vessel, the capability to close containment in less time than the calculated time to boil shall be maintained. What is the basis for this requirement?

- A. Boiling in the RCS will result in the immediate release of fission products.
- B✓ Containment pressure increase due to boiling may prevent closing the equipment hatch.
- C. Steam produced by boiling in the RCS may make portions of the auxiliary building uninhabitable unless containment integrity is set.
- D. With a positive void coefficient, boiling may result in criticality.

Question 33 K/A # 005000 K5.02

Knowledge of the operational implications of the following concepts as they apply the RHRS:Need for adequate subcooling

RO Importance 3.4 SRO Importance 3.5 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0707-42 03.06

Containment pressure response and different scenarios

Changed distractor C to more credible choice.

KA#: 005000 K5.02
LP# / Objective: 0707-42 03.06
Cognitive Level: HIGH
Reference: LP 0707-42

Bank Ref #: 07-07-42 001
Exam Level: RO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 034

What is the expected position of ECCS pump recirculation valves, HCV-385 and HCV-386, following a Recirculation Actuation Signal (RAS)

- A. Open, to ensure adequate flow for cooling the ECCS pumps.
- B. Open, to provide makeup flow to the SIRWT in case the containment sump strainer clogs.
- ☒ C. Closed, to prevent containment sump water from being pumped to the SIRWT.
- D. Closed, to ensure adequate flow is being provided to the containment spray header.

Question 34 K/A # 006000 A3.06

Ability to monitor automatic operation of the ECCS, including: Valve lineups

RO Importance 3.9 SRO Importance 4.2 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0711-22 01.08c

Explain overall system response to actuation of automatic engineered safeguards signals: Recirculation Actuation Signal (RAS).

KA#: 006000 A3.06
LP# / Objective: 0711-22 01.08C
Cognitive Level: HIGH
Reference: EOP-03

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 035

What method is used to form a steam bubble in the pressurizer following a refueling outage?

- A✓ With the pressurizer level at approximately 50%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are vented to the PQT or VCT.
- B. With the pressurizer level at approximately 50%, pressurizer heaters are used to heat the water to saturation. Non-condensable gases are allowed to dissolve in the water.
- C. The pressurizer is filled as non-condensable gases are vented to the PQT. With the pressurizer solid, the pressurizer heaters are used heat the water in the pressurizer. The pressurizer level is then lowered until a steam bubble forms.
- D. The pressurizer is filled as non-condensable gases are vented to the VCT. With the pressurizer solid, the pressurizer heaters are used heat the water in the pressurizer. The pressurizer level is then lowered until a steam bubble forms.

Question 35 K/A # 007000 K5.02

Knowledge of the operational implications of the following concepts as they apply to PRTS: Method of forming a steam bubble in the PZR

RO Importance 3.1 SRO Importance 3.4 10 CFR 55 Section 41.5 / 45.7

FCS Lesson Plan / Objective 0711-20 03.05

LIST the major steps for starting up the Reactor Coolant System per OP-2A.

KA#: 007000 K5.02
LP# / Objective: 0711-20 03.05
Cognitive Level: LOW
Reference: OP-2A, OI-CH-3

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 036

If component cooling water flow to the Control Element Drive Mechanisms is lost, there will be no cooling for:

- A. The CEDM trip clutches.
- B. The CEDM anti-reverse rotation clutches
- C✓ The CEDM mechanical seals.
- D. The CEDM drive motors.

Question 36 K/A # 008000 K3.02

Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: CRDS

RO Importance 2.9 SRO Importance 3.1 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0712-26 01.02

Describe the interface/interaction between the CRDS and the following systems/components:

Changed question wording and verified that CCW cools seals and not just seal leakoff. (A cooling jacket is used.)

KA#: 008000 K3.02
LP# / Objective: 0712-26 01.02
Cognitive Level: LOW
Reference: STM-11

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 037

The operator suspects that an open Pressurizer PORV is the cause of ongoing RCS pressure reduction. Prior to shutting a PORV block valve, his most reliable set of indications of an open PORV would be:

- A. PORV position indicator, increasing quench tank level.
- B. Tail pipe temperature, PORV position indicator.
- C✓ Acoustic monitor, Tail Pipe temperature.
- D. Quench tank temperature, Acoustic monitor.

Question 37 K/A # 010000 A1.09

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: Tail pipe temperature and acoustic monitors

RO Importance 3.4 SRO Importance 3.7 10 CFR 55 Section 41.5 / 45.5

FCS Lesson Plan / Objective 0711-20 04.02H

Using the applicable P&ID, IDENTIFY each of the following RCS Instrumentation Subsystems:
Acoustic monitors for the PORVs and safety valves

Verified that references confirm that PORV position indicator comes from pilot solenoid valve and not from actual PORV. (STM 37 pg 104) Also verified that There are other inputs to quench tank. (STM 36 pg 39)

KA#: 010000 A1.09
LP# / Objective: 0711-20 04.02H
Cognitive Level: LOW
Reference:

Bank Ref #: 07-11-20 098
Exam Level: RO
Source: FCS BANK
Handout: NONE

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QUESTION NUMBER: 038

The RPS DVM readings are as follows:

	<u>NI Power</u>	<u>Delta-T Power</u>
RPS Channel A	99.9%	99.8%
RPS Channel B	99.3%	99.8%
RPS Channel C	99.9%	99.6%
RPS Channel D	99.3%	99.6%

If XC-105 is not available, what power level should be entered in the control room log?

- A. 99.6%
- B. ☒ 99.7%
- C. 99.8%
- D. 99.9%

Question 38 K/A # 012000 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0712-25 04.00

Given all applicable reference materials, DISCUSS the administrative requirements regarding off-normal operation of the RPS.

Original question replaced with new question.

KA#: 012000 2.1.32
LP# / Objective: 0712-25 04.00
Cognitive Level: HIGH
Reference: OI-RPS-1

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 039

According to OPD 4-11, "Policy for When and by What Authority it is Appropriate to Bypass Engineered Safeguards", what are the restrictions on bypassing Engineered Safeguards during EOP events?

- A. Engineered Safeguards may not be bypassed unless specifically directed by procedure.
- B. ☒ Engineered Safeguards may not be bypassed unless the Operators have control of the process to be bypassed.
- C. Engineered Safeguards may not be bypassed unless authorized by the Manager - Operations or Manager - Shift Operations.
- D. Only one train of Engineered Safeguards may be bypassed at a time.

Question 39 K/A # 013000 2.1.02

Knowledge of operator responsibilities during all modes of plant operation.

RO Importance 3.0 SRO Importance 4.0 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0717-23 01.00

Use the Reset of Engineered Safeguards Procedure to mitigate the consequences of an inadvertent safeguards actuation.

Distractor C was changed. Original suggested change (Shift Manager) would not work because it would have resulted in two correct answers.

KA#: 013000 2.1.02
LP# / Objective: 0717-23 01.00
Cognitive Level: LOW
Reference: OPD 4-11

Bank Ref #: 07-17-23 008
Exam Level: RO
Source: NRC 02 EXAM
Handout: NONE

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QUESTION NUMBER: 040

The plant is operating at 100% power when a LOCA occurs. The reactor trips automatically, bus fast transfer fails and Buses 1A1 and 1A2 become de-energized. PPLS and CPHS initiate and all equipment operates as designed.

Select the answer that correctly describes the automatic system response.

- A. OPLS initiates load shed and starts both emergency diesel generators.
- B. OPLS does not actuate, the emergency diesel generators do not start, and safeguards motors are started by the sequencers.
- C. OPLS does not actuate, but the emergency diesel generators start and re-energize Buses 1A1 and 1A2.
- ☒ D. OPLS does not actuate, the emergency diesel generators run at idle speed, and safeguards motors are started by the sequencers.

Question 40 K/A # 013000 K1.12

Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems:ED/G

RO Importance 4.1 SRO Importance 4.4 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0712-14 01.00

APPLY operating principles to predict Engineered Safeguards Control (ESC) System response when given specific plant conditions.

KA#: 013000 K1.12
LP# / Objective: 0712-14 01.00
Cognitive Level: HIGH
Reference: STM 19

Bank Ref #: 07-12-14 010
Exam Level: RO
Source: NRC 99 EXAM
Handout: NONE

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QUESTION NUMBER: 041

The reactor was operating at full power when a total loss of Raw Water occurred due to a major system rupture. The reactor has been tripped and no other malfunctions have occurred. How will a heat sink for containment cooling be established following the loss of the Raw Water system?

- A. Containment purge would be initiated to provide containment cooling.
- B. Containment hydrogen purge and makeup would be operated as needed to provide containment cooling.
- C✓ Hoses would be used to supply Fire Protection system water to the RW/CCW heat exchangers.
- D. Hoses would be used to supply Fire Protection system water to the Containment Cooling heat exchangers.

Question 41 K/A # 022000 A2.04

Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of service water

RO Importance 2.9* SRO Importance 3.2 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13

FCS Lesson Plan / Objective 0717-18 01.03

Describe the major recovery actions of this AOP.

Distractor B was changed. Verified that distractor D is an incorrect response.

KA#: 022000 A2.04
LP# / Objective: 0717-18 01.03
Cognitive Level: HIGH
Reference: AOP-18

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 042

A loss of coolant accident has occurred coincident with a loss of offsite power. Both PPLS and CPHS actuations have occurred. All systems are operating as designed.

When will CCW first be supplied to the shutdown cooling heat exchangers to provide cooling for the containment spray water?

- A. When the diesel-generator breakers close.
- B. When the first CCW pump is started by the sequencers
- C✓ When the SIRWT level reaches 16 inches
- D. When the containment sump level reaches 16 feet

Question 42 K/A # 026000 K1.02

Knowledge of the physical connections and/or cause-effect relationships between the CSS and the following systems: Cooling water

RO Importance 4.1 SRO Importance 4.1 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0718-13 01.01

EXPLAIN the major strategy used to mitigate the consequences of a LOCA.

Changed to modified, corrected typo.

KA#: 026000 K1.02
LP# / Objective: 0718-13 01.01
Cognitive Level: HIGH
Reference: STM 08

Bank Ref #: 07-18-13 067
Exam Level: RO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 043

The following conditions exist:

- A plant heatup is in progress.
- SGLS has been blocked.
- Steam generator pressure has risen to 650 psia
- A malfunctioning steam dump then causes steam generator pressure to drop to 490 psia.

Which one of the following will occur as a result of these events?

- A. SGLS will not actuate and no other steam or feed system isolations will occur.
- B. SGLS will not actuate but the MSIVs will close on High Steam Flow.
- C. SGLS will actuate but only the MSIVs will close.
- D. SGLS will actuate and the MSIVs and Feedwater Isolation valves will close**

Question 43 K/A # 039000 K4.05

Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following: Automatic isolation of steam line

RO Importance 3.7 SRO Importance 3.7 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0712-14 01.05

EXPLAIN the functions performed by each Engineered Safeguards Control Signal.

KA#: 039000 K4.05
LP# / Objective: 0712-14 01.05
Cognitive Level: HIGH
Reference: STM 19

Bank Ref #: 07-12-14 002
Exam Level: RO
Source: NRC 95 EXAM
Handout: NONE

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QUESTION NUMBER: 044

The plant is being cooled down. Feedwater flow is being supplied through the feedwater regulating bypass valves, HCV-1105 and HCV-1106, from FW-54. SGLS has been blocked on steam generator RC-2A, but has not yet been blocked on RC-2B.

A steam line break in containment results in the pressure in steam generator RC-2A falling below the SGLS setpoint and containment pressure rising above the CPHS setpoint. How will the feedwater bypass valves, HCV-1105 and HCV-1106 respond?

- A✓ HCV-1105 and HCV-1106 will both be isolated
- B. Only HCV-1105 will be isolated
- C. Only HCV-1106 will be isolated
- D. Neither HCV-1105 or HCV-1106 will be isolated.

Question 44 K/A # 059000 A3.06

Ability to monitor automatic operation of the MFW, including:Feedwater isolation

RO Importance 3.2* SRO Importance 3.3 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0711-11 02.03

EXPLAIN the automatic features and interlocks associated with the feedwater components.

KA#: 059000 A3.06
LP# / Objective: 0711-11 02.03
Cognitive Level: HIGH
Reference: STM-19

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 045

Which one of the following conditions would prevent the feedwater regulating valves from ramping down following a reactor trip from full power?

- A✓ The steam dump valve AUTO/INHIBIT switch has been placed in INHIBIT.
- B. An Auxiliary Feedwater Actuation Signal (AFAS)
- C. Feedwater Override switches have been placed in OVERRIDE
- D. The FW/43 switch is placed in the OFF position

Question 45 K/A # 059000 K4.18

Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Automatic feedwater reduction on plant trip

RO Importance 2.8* SRO Importance 3.0* 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-11 02.06

EXPLAIN the operation of the feedwater control system during a Steam Generator High Downcomer Level condition.

Changed to Bank (2004 exam) question. Corrected typo in distractor D.

KA#: 059000 K4.18
LP# / Objective: 0711-11 02.06
Cognitive Level: HIGH
Reference: STM 20

Bank Ref #: 07-11-11 001
Exam Level: RO
Source: 2004 EXAM
Handout: NONE

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QUESTION NUMBER: 046

During a plant cooldown, all offsite power was lost. The CRS entered EOP-07 and the following plant conditions existed:

- Both D/G's failed to start
- FW-54 is not available
- FW-10 is supplying 100 gpm to each S/G
- EFWST level is 70 inches

If the present rate of feed is maintained to both S/Gs, how long will it take to empty the EFWST?

- A. 0.0 - 1.0 hours
- B✓ 1.5 - 2.5 hours
- C. 3.0 - 4.0 hours
- D. 6.5 - 7.5 hours

Question 46 K/A # 061000 A1.04

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including: AFW source tank level

RO Importance 3.9 SRO Importance 3.9 10 CFR 55 Section 41.5 / 45.5

FCS Lesson Plan / Objective 0717-30 01.02

Describe what plant conditions would require emergency makeup to the EFWST.

Choices changed to provide ranges.

No change required. Verified that B is correct answer (100 gpm to each S/G = 200 gpm)

KA#: 061000 A1.04
LP# / Objective: 0717-30 01.02
Cognitive Level: HIGH
Reference: AOP-30

Bank Ref #: 07-17-30 002
Exam Level: RO
Source: NRC 01 EXAM #2
Handout: AOP-30

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QUESTION NUMBER: 047

Which one of the following conditions will result in a "INVERTER 1 TROUBLE" alarm?

- A. Instrument Bus 1 voltage less than 118V.
- B. Smoke detected inside Inverter 1 cabinet.
- C. Inverter 1 temperature greater than 105°F.
- D✓ Instrument Bus 1 is supplied by its bypass transformer.

Question 47 K/A # 062000 2.4.50

Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

RO Importance 3.3 SRO Importance 3.3 10 CFR 55 Section 45.3

FCS Lesson Plan / Objective 0713-04 01.04

Explain the Control Room indications for the systems and list the normal values for these indications.

Changed distractor B. Corrected its' to its.

KA#: 062000 2.4.50
LP# / Objective: 0713-04 01.04
Cognitive Level: LOW
Reference:

Bank Ref #: 07-13-04 009
Exam Level: RO
Source: FCS BANK
Handout: NONE

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QUESTION NUMBER: 048

The station batteries at FCS are designed to supply DC power for _____.

- A. 8 hours with no operator action.
- ☒ B. 8 hours if non-essential DC loads are removed.
- C. 12 hours with no operator action.
- D. 12 hours if non-essential DC loads are removed.

Question 48 K/A # 063000 A4.03

Ability to manually operate and/or monitor in the control room: Battery discharge rate

RO Importance 3.0* SRO Importance 3.1 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0713-04 01.01

State the function of each major component.

KA#: 063000 A4.03
LP# / Objective: 0713-04 01.01
Cognitive Level: LOW
Reference: STM 14

Bank Ref #: 07-13-04 012
Exam Level: RO
Source: FCS BANK
Handout: NONE

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QUESTION NUMBER: 049

Due to a loss of a DC bus, control power is not available to the breaker for LPSI pump, SI-1A. What action is required to be able to close SI-1A's breaker from the control room?

- A. Press the PB-2/1B3A-4A-MTS manual transfer pushbutton on 1B3A
- B. ✓ Press the PB-2/1A1-1A3-MTS manual transfer pushbutton on the 1A1-1A3 Aux Power Compartment
- C. Press the PB-2/1B3B-4B-MTS manual transfer pushbutton on 1B4B
- D. Press the PB-2/1A2-1A4-MTS manual transfer pushbutton on the 1A2-1A4 Aux Power Compartment

Question 49 K/A # 063000 K1.02

Knowledge of the physical connections and/or cause-effect relationships between the dc electrical system and the following systems: AC electrical system

RO Importance 2.7 SRO Importance 3.2 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0718-18 01.06

EXPLAIN how the Resource Assessment Trees are used in terms of Safety Function priority and success path priority within each tree.

Original question replaced with new question.

KA#: 063000 K1.02
LP# / Objective: 0718-18 01.06
Cognitive Level: HIGH
Reference: EOP-20

Bank Ref #: 07-18-18 005
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 050

To shutdown the EDG, the load is reduced to approximately _____ prior to opening the output breaker to prevent reverse powering the diesel.

- A✓ 300 KW
- B. 100 KW
- C. 40 KW
- D. 30 KW

Question 50 K/A # 064000 A2.11

Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Conditions (minimum load) required for unloading an ED/G

RO Importance 2.6 SRO Importance 2.9 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13

FCS Lesson Plan / Objective 0713-05 01.14

Explain normal operation of the EDG.

Changed source from bank to 2002 exam

KA#: 064000 A2.11
LP# / Objective: 0713-05 01.14
Cognitive Level: LOW
Reference: OI-DG-1

Bank Ref #: 07-13-05 027
Exam Level: RO
Source: 2002 EXAM
Handout: NONE

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QUESTION NUMBER: 051

The primary air receivers for Diesel Generator # 1 have depressurized due to a large air leak. How will this leak affect the ability of D/G #1 to start on a loss of offsite power?

- A✓ There will be no affect, the Diesel Generator will be started by its secondary air system.
- B. There will be no affect, the Diesel Generator will be started by its emergency compressor.
- C. The Diesel Generator will not start until the primary air system is isolated and the secondary air system is valved in.
- D. The Diesel Generator will not start until the primary air system is isolated and the emergency compressor is placed in service.

Question 51 K/A # 064000 K6.07

Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Air receivers

RO Importance 2.7 SRO Importance 2.9 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0713-05 01.10

Explain an emergency start of the EDG. Include in your explanation the following:

KA#: 064000 K6.07

LP# / Objective: 0713-05 01.10

Cognitive Level: HIGH

Reference: STM 16

Bank Ref #:

Exam Level: RO

Source: NEW

Handout: NONE

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QUESTION NUMBER: 052

During a source check of a process radiation monitor performed in the control room per OI-RM-1:

- A. The monitor is considered operable due to the short time that it takes to do a source check.
- B. The monitor is considered operable provided the operator is stationed at the monitor during the check.
- ☒ C. The monitor is considered inoperable, however no physical logging of inoperability is required provided the operator is stationed at the monitor during the check.
- D. The monitor is considered inoperable and formal logging of monitor inoperability is required when performing this check.

Question 52 K/A # 073000 A4.03

Ability to manually operate and/or monitor in the control room: Check source for operability demonstration

RO Importance 3.1 SRO Importance 3.2 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0712-03 06.00

DISCUSS the watch standing requirements for the Radiation Monitoring System as they pertain to log keeping and surveillance requirements.

KA#: 073000 A4.03
LP# / Objective: 0712-03 06.00
Cognitive Level: HIGH
Reference: OI-RM-1

Bank Ref #: 07-12-03 002
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 053

Which one of the following buses directly provides power to Raw Water Pump, AC-10C.

A. 4160V Bus 1A1

B. ☒ 4160V Bus 1A3

C. 480V Bus 1B3C

D. 480V Bus 1B3C-4C

Question 53 K/A # 076000 K2.01

Knowledge of bus power supplies to the following: Service water

RO Importance 2.7* SRO Importance 2.7 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-19 01.00

When given specific plant conditions APPLY operating principles to diagnose Raw Water System response.

KA#: 076000 K2.01
LP# / Objective: 0711-19 01.00
Cognitive Level: LOW
Reference:

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 054

What effect will a total loss of instrument air header pressure have on SIRWT level indication?

Assume that there is no actual change in SIRWT level and that the loss of pressure is of short enough duration that local air accumulators maintain pressure.

- A. Low level will not be indicated, low level alarms will not be received, STLS actuation will not occur.
- ☒ B. Low level will be indicated, low level alarms will be received, STLS actuation will not occur.
- C. Low level will be indicated, low level alarms will not be received, STLS actuation will not occur.
- D. Low level will be indicated, low level alarms will be received, STLS actuation will occur.

Question 54 K/A # 078000 K3.02

Knowledge of the effect that a loss or malfunction of the IAS will have on the following: Systems having pneumatic valves and controls

RO Importance 3.4 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0717-17 01.02

Describe how the plant responds to a loss of instrument air in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

KA#: 078000 K3.02

Bank Ref #: 07-17-17 002

LP# / Objective: 0717-17 01.02

Exam Level: RO

Cognitive Level: HIGH

Source: NRC 97 EXAM

Reference: AOP-17

Handout: NONE

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QUESTION NUMBER: 055

Which one of the following will result in a Containment Isolation Actuation Signal (CIAS)?

- A✓ Inadvertent actuation of ESF relay, 86A/CPHS.
- B. Pressure in both steam generators drops below 500 psia due to a steam line break downstream of the MSIVs.
- C. Pressurizer pressure channel B/PIA-102Y fails low.
- D. Containment Radiation Monitor, RM-050, fails high and alarms.

Question 55 K/A # 103000 A3.01

Ability to monitor automatic operation of the containment system, including: Containment isolation

RO Importance 3.9 SRO Importance 4.2 10 CFR 55 Section 41.7 / 45.5

FCS Lesson Plan / Objective 0712-14 01.04

EXPLAIN how each prime and backup actuation signal is developed.

KA#: 103000 A3.01
LP# / Objective: 0712-14 01.04
Cognitive Level: HIGH
Reference: STM 19

Bank Ref #: 07-12-14 017
Exam Level: RO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 056

The plant is operating at 20% power. Group 4 CEAs are being withdrawn for ASI control when CEA motion is stopped due to a rod withdrawal prohibit condition. Which one of the following instrumentation failures would cause the rod withdrawal prohibit condition?

- A. A Wide Range NI channel failed high causing a high SUR pretrip.
- B. A Power Range NI detector failed low causing an APD pretrip.
- C✓ A Hot Leg RTD failed high causing a high power level pretrip.
- D. A Pressurizer Pressure detector failed low causing a TM/LP pretrip.

Question 56 K/A # 001000 K1.05

Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems: NIS and RPS

RO Importance 4.5 SRO Importance 4.4 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0712-26 01.02B

Describe the interface/interaction between the CRDS and the following systems/components:
Secondary CEA Position Indication (SCEAPIS).

Original question replaced with new question.

KA#: 001000 K1.05
LP# / Objective: 0712-26 01.02B
Cognitive Level: HIGH
Reference: STM 38

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 057

RVLMS must be 43% or greater prior to performing HPSI stop and throttle during a LOCA. The EOP basis for maintaining RVLMS 43% or greater ensures that:

- A. The water level in the reactor vessel downcomer is sufficient to provide core reflood.
- B. The core exit thermocouple are covered with water and will respond properly.
- C. The reactor vessel level is above the critical vessel welds reducing the likelihood of Pressurized Thermal Shock.
- D✓ The hot legs are covered providing sufficient inventory to support natural circulation if the S/G's are providing a heat sink.

Question 57 K/A # 002000 K6.03

Knowledge of the effect or a loss or malfunction on the following RCS components: Reactor vessel level indication

RO Importance 3.1 SRO Importance 3.6 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0718-13 01.08

GIVEN a copy of the Safety Function Status Checklist and a set of plant conditions,
DETERMINE whether or not each Safety Function meets the acceptance criteria listed.

Changed distractor A.

KA#: 002000 K6.03
LP# / Objective: 0718-13 01.08
Cognitive Level: HIGH
Reference: TDB EOP-03

Bank Ref #: 07-18-13 003
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 058

The plant was operating at full power with CH-1B tagged out of service.

The plant experienced a loss of all offsite power. D/G #1 started normally but D/G #2 failed to start. Assuming that no action is taken to cross tie busses, what is the maximum available charging flow capacity in this condition?

- A. 0 gpm.
- B✓ 40 gpm.
- C. 80 gpm.
- D. 120 gpm.

Question 58 K/A # 011000 K2.01

Knowledge of bus power supplies to the following: Charging pumps

RO Importance 3.1 SRO Importance 3.2 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-02 01.03

EXPLAIN the automatic and manual controls associated with the charging pumps and boric acid pumps.

Added condition in stem to make distractor A more credible.

KA#: 011000 K2.01
LP# / Objective: 0711-02 01.03
Cognitive Level: HIGH
Reference: STM 12

Bank Ref #: 07-11-02 004
Exam Level: RO
Source: NRC 97 EXAM
Handout: NONE

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QUESTION NUMBER: 059

During a reactor startup, as group 4 CEAs are being withdrawn with the Control Rod Drive Mode Selector switch in the "Manual-Sequential" position, an automatic reactor trip occurred due to high startup rate. One group 4 CEA failed to insert because its clutch failed to disengage. How will the CEA Rod Rundown (RRD) feature function in this situation?

- A. The RRD function will immediately begin to insert the withdrawn CEA.
- B. The RRD function will begin to insert the withdrawn CEA as soon as the mode selector switch is placed in the "Manual Individual" position.
- C. The RRD function will NOT insert the withdrawn CEA due to the zero power mode bypass being enabled.
- D✓ The RRD function will NOT insert the withdrawn CEA due to the CEA position deviation.

Question 59 K/A # 014000 A4.02

Ability to manually operate and/or monitor in the control room:Control rod mode-select switch

RO Importance 3.4 SRO Importance 3.2 10 CFR 55 Section 41.7 / 45.5 to 45.8

FCS Lesson Plan / Objective 0717-02 01.00

Use the CEA and Control System Malfunctions Procedure to mitigate the consequences of a malfunction of a CEA, the CEA control system or CEA position indication.

Replaced original question with new question.

KA#: 014000 A4.02
LP# / Objective: 0717-02 01.00
Cognitive Level: HIGH
Reference: STM 11

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 060

Representative Core Exit Thermocouple temperature is _____ and can be read _____ when the ERF computer is not working.

- A. The highest reading CET temperature for a designated group of CETs, on the QSPDS.
- B. The highest reading CET temperature for a designated group of CETs, on CB-1/2/3.
- ☒ C. The average CET temperature for a designated group of CETs excluding invalid CETs, on the QSPDS.
- D. The average CET temperature for a designated group of CETs excluding invalid CETs, on CB-1/2/3.

Question 60 K/A # 017000 K1.01

Knowledge of the physical connections and/or cause-effect relationships between the ITM system and the following systems: Plant computer

RO Importance 3.2* SRO Importance 3.2* 10 CFR 55 Section 41.2 to 41.9 / 45.7 to 45.8

FCS Lesson Plan / Objective 0753-02 01.03

STATE the function of each major component of the QSPDS System.

KA#: 017000 K1.01
LP# / Objective: 0753-02 01.03
Cognitive Level: LOW
Reference: STM 08

Bank Ref #: 07-53-02 001
Exam Level: RO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 061

The following conditions exist:

- Fuel handling operations are in progress.
- Personnel are working both in Containment and the Aux Building.
- An Aux Building stack monitor alarms.
- This initiates VIAS.
- Area Monitor (RM-087) Spent Fuel Pool Wall alarms.

Which one of the following actions should be taken?

- A. Place Control Room Ventilation in the RECIRC mode.
- B. Verify Containment integrity is set.
- C✓ Evacuate the Aux Building.
- D. Trip all Aux Building Exhaust Fans.

Question 61 K/A # 033000 A1.02

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Spent Fuel Pool Cooling System operating the controls including: Radiation monitoring systems

RO Importance 2.8 SRO Importance 3.3 10 CFR 55 Section 41.5 / 45.5

FCS Lesson Plan / Objective 0717-08 01.03

Describe the major recovery actions of this AOP.

Replaced distractor A.

KA#: 033000 A1.02
LP# / Objective: 0717-08 01.03
Cognitive Level: HIGH
Reference: AOP-08

Bank Ref #: 07-17-08 001
Exam Level: RO
Source: NRC 95 EXAM
Handout: NONE

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QUESTION NUMBER: 062

A small break LOCA has occurred. The following plant conditions exist:

- RCS pressure: 905 psia and steady
- Pressurizer level: 0%
- Reactor Vessel level: 43%
- All charging pumps are running.
- All three HPSI pumps failed to start.
- All LPSI and CS pumps are running.
- S/G pressures: 900 psia and steady
- S/G levels: 20% NR
- FW being supplied to both S/Gs by FW-10
- Containment pressure: 4 psig

Which one of the following actions should be taken immediately?

- A. Initiate Once-through-Cooling
- B. Terminate containment spray flow.
- C✓ Increase steam flow from the steam generators
- D. Perform LPSI stop and throttle

Question 62 K/A # 035000 A2.06

Ability to (a) predict the impacts of the following malfunctions or operations on the SG; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Small break LOCA

RO Importance 4.5 SRO Importance 4.6 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5

FCS Lesson Plan / Objective 0715-23 01.02

EXPLAIN how the decay heat removal capacity of the break affects plant response.

Replaced original question.

KA#: 035000 A2.06
LP# / Objective: 0715-23 01.02
Cognitive Level: HIGH
Reference: SHB 0715-23

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 063

The reactor coolant system is being cooled down using procedure OP-3A, "Plant Shutdown". The RCS is at 505°F and 2060 psia, when a condenser steam dump valve fails open and RCS temperature and pressure begin to lower continuously.

Which one of the following procedures should be entered directly as a result of this event?

- A✓ AOP-03, "Emergency Boration"
- B. EOP-05, "Excessive Heat Removal Event"
- C. EOP-20, "Functional Recovery"
- D. This event is covered by actions in OP-3A, "Plant Shutdown".

Question 63 K/A # 041000 2.4.04

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

RO Importance 4.0 SRO Importance 4.3 10 CFR 55 Section 41.10 / 43.2 / 45.6

FCS Lesson Plan / Objective 0717-03 01.04

Describe the entry conditions for this AOP.

Distractor D changed

KA#: 041000 2.4.04
LP# / Objective: 0717-03 01.04
Cognitive Level: HIGH
Reference: AOP-03

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 064

The reactor is operating at 35% power when an EHC malfunction causes the turbine control valves to close fully. The turbine and the reactor do not trip. Which of the following valves will open in this situation?

- A. The steam dump valves (TCV-909s) and the turbine bypass valve (PCV-910)
- B✓ The turbine bypass valve (PCV-910) and some of the S/G safety valves
- C. The steam dump valves (TCV-909s) and some of the S/G safety valves
- D. Only S/G safety valves

Question 64 K/A # 045000 K3.01

Knowledge of the effect that a loss or malfunction of the MT/G system will have on the following: Remainder of the plant

RO Importance 2.9 SRO Importance 3.2 10 CFR 55 Section 41.7 / 45.6

FCS Lesson Plan / Objective 0711-18 01.01a

State the functional relationship between the turbine and the following systems: Main Steam System.

Changed distractor D. Reworded stem slightly to also fit new distractor.

KA#: 045000 K3.01
LP# / Objective: 0711-18 01.01A
Cognitive Level: HIGH
Reference: STM 36

Bank Ref #: 07-11-18 002
Exam Level: RO
Source: NRC 01 EXAM #2
Handout: NONE

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QUESTION NUMBER: 065

A widespread fire in D/G Room #2 produced flame, heat and smoke. The Electric Fire Pump and the Diesel Driven fire pump both failed to start. What fire protection systems would automatically act to mitigate the fire as a result of the fire detector signals?

- A. CO₂ would be discharged into the D/G room.
- B. Halon would be discharged into the D/G room.
- C. Water would be sprayed into the D/G room from the screen wash pumps.
- ☒ D. The only result would be alarms.

Question 65 K/A # 086000 K6.04

Knowledge of the effect of a loss or malfunction on the Fire Protection System following will have on the :Fire, smoke, and heat detectors

RO Importance 2.6 SRO Importance 2.9 10 CFR 55 Section 41.7 / 45.7

FCS Lesson Plan / Objective 0711-12 01.05

EXPLAIN the controls associated with Fire Protection System equipment manipulated from the Control Room.

Original question replaced with new question.

KA#: 086000 K6.04

LP# / Objective: 0711-12 01.05

Cognitive Level: HIGH

Reference: STM 21

Bank Ref #:

Exam Level: RO

Source: NEW

Handout: NONE

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QUESTION NUMBER: 066

Which one of the following tasks is the Control Room Operator assigned as the ATCO (At the Controls Operator) **NOT** allowed to perform?

- A. Take Control Room Logs and OP-ST-SHIFT-0001.
- B. ☒ Perform control room surveillance tests of the ESF systems.
- C. Hang control room caution tags.
- D. Give system checkouts to trainees in the control room.

Question 66 K/A # 000000 2.1.02

Knowledge of operator responsibilities during all modes of plant operation.

RO Importance 3.0 SRO Importance 4.0 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0767-05 04.00b

Personnel Presence and Conduct in the Control Room

No change to question. Expanded reference to include next page of OPD which states that ATCO may not conduct surveillance test other than OP-ST-SHIFT-0001.

KA#: 000000 2.1.02
LP# / Objective: 0767-05 04.00B
Cognitive Level: LOW
Reference: OPD-3-02

Bank Ref #: ADM-OPS NEW
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 067

As a part of the shift turnover, the Secondary Plant RO is required to perform a detailed walkdown of _____.

- A. CB-10/11, CB-20, AI-65A and AI-65B.
- B. ✓ CB-10/11, CB-20, AI-66A and AI-66B.
- C. CB-1,2,3, CB-4, CB-10/11 and CB-20.
- D. CB-20, AI-65A, AI-65B, AI-66A and AI-66B.

Question 67 K/A # 000000 2.1.03

Knowledge of shift turnover practices.

RO Importance 3.0 SRO Importance 3.4 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0762-01 01.00

STATE the major sections of the Standing Orders.

Replaced original question with new question.

KA#: 000000 2.1.03
LP# / Objective: 0762-01 01.00
Cognitive Level: LOW
Reference: SO-O-1

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 068

In the course of conducting a Valve Alignment Verification Checklist, the operator discovers that a particular valve is not in the position called for in the checklist. Which one of the following actions should be taken concerning this valve?

- A. Reposition the valve to the position specified in the checklist.
- B. Place a Caution Tag on the valve.
- C. Notify the Operations Control Center (OCC)
- D✓ Contact the Shift Manager or CRS**

Question 68 K/A # 000000 2.1.29

Knowledge of how to conduct and verify valve lineups.

RO Importance 3.4 SRO Importance 3.3 10 CFR 55 Section 41.10 / 45.1 / 45.12

FCS Lesson Plan / Objective 0406-01 01.00

EXPLAIN the proper use of tagging at Fort Calhoun Station and explain personnel responsibilities associated with tagging.

Changed distractor C.

KA#: 000000 2.1.29
LP# / Objective: 0406-01 01.00
Cognitive Level: HIGH
Reference: SO-O-1

Bank Ref #: ADM-OPS 003
Exam Level: RO
Source: NRC 95 EXAM
Handout: NONE

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QUESTION NUMBER: 069

AC-3A has been tagged out for repairs. A Temporary/Testing Release was done to allow testing. Following the testing, it was determined that additional repairs were required. Identify the proper sequence for removing the Temporary/Testing Release.

- A. Remove the Temporary/Testing Release tags, Independently verify equipment positions, and rehang the Danger tags.
- B. Remove the Temporary/Testing Release tags and rehang the Danger tags.
- C✓ Remove the Temporary/Testing Release tags, reposition equipment as necessary, Rehang Danger tags, and Independently verify equipment positions.
- D. Reposition equipment as necessary, Rehang Danger tags, Independently verify equipment positions, and Remove the Temporary/Testing Release tags.

Question 69 K/A # 000000 2.2.13

Knowledge of tagging and clearance procedures.

RO Importance 3.6 SRO Importance 3.8 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0406-01 01.22

EXPLAIN the process for issuing and clearing both individual and group "Temporary/Testing Clearances", the information provided on the "Temporary/Testing Clearance Supplement", and proper method of hanging and removing "Temporary/Testing Clearance" tags.

KA#: 000000 2.2.13

Bank Ref #: ADM-CONTROL 003

LP# / Objective: 0406-01 01.22

Exam Level: RO

Cognitive Level: LOW

Source: NRC 97 EXAM

Reference: SO G-20A

Handout: NONE

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QUESTION NUMBER: 070

You are the Control Room Operator during refueling. WR NI channels "B" and "C" are inoperable. WR NI channels "A" and "D" are being used to monitor count rate during fuel movement.

What action are you required to take per OP-12, if you receive the "NON-OP" alarm on NI WR Channel "D" and the channel "D" indication goes full scale?
(WR Channel "A" indication is steady)

- A✓ Notify the Refueling SRO that refueling operations must be stopped.
- B. Emergency borate as directed by AOP-03.
- C. Dispatch an Operator to the Auxilliary Shutdown Panels to verify the WR NI Channel "D" indication on AI-212.
- D. Contact chemistry to verify RCS boron concentration.

Question 70 K/A # 000000 2.2.30

Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

RO Importance 3.5 SRO Importance 3.3 10 CFR 55 Section 45.12

FCS Lesson Plan / Objective 0711-13 03.00

List the responsibilities of the Control Room during a refueling.

Replaced original question with new question.

KA#: 000000 2.2.30
LP# / Objective: 0711-13 03.00
Cognitive Level: HIGH
Reference: OP-12

Bank Ref #: ADM-CONTROL NEW
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 071

A person performed a job in a mixed neutron-gamma radiation field. He received a gamma dose of 80 mrad and a neutron dose of 20 mrad. What is the total dose equivalent (mrem) that this person received? (The neutron energy is unknown)

- A. 100 mrem
- B. 140 mrem
- C. 180 mrem
- ☒ D. 280 mrem

Question 71 K/A # 000000 2.3.01

Knowledge of 10CFR20 and related facility radiation control requirements.

RO Importance 2.6 SRO Importance 3.0 10 CFR 55 Section 41.12 / 43.4 / 45.9 / 45.10

FCS Lesson Plan / Objective 1924-03A 04.05

EXPLAIN the theory behind the dose equivalent quality factors and STATE the quality factors for different types of radiation.

Original question replaced.

KA#: 000000 2.3.01
LP# / Objective: 1924-03A 04.05
Cognitive Level: HIGH
Reference: 10 CFR 20

Bank Ref #: ADM-RAD 004
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 072

You need to perform a valve lineup in the RCA that requires opening a valve that is nine feet above the floor. Who must you contact per SO-G-101 and why must you contact them?

- A. You must contact Radiation Protection to determine if radiological conditions change after you open the valve.
- B✓ You must contact Radiation Protection to conduct a radiological/contamination survey before you open the valve.
- C. You must contact Industrial Safety to ensure you have adequate fall protection equipment before you open the valve.
- D. You must contact Chemistry to to sample the air for adequate oxygen content before opening the valve.

Question 72 K/A # 000000 2.3.02

Knowledge of facility ALARA program.

RO Importance 2.5 SRO Importance 2.9 10 CFR 55 Section 41.12 / 43.4 / 45.9 / 45.10

FCS Lesson Plan / Objective 1924-03 01.13

STATE the purpose of a radiation work permit (RWP).

Changed the stem and two distractors.

KA#: 000000 2.3.02

LP# / Objective: 1924-03 01.13

Cognitive Level: LOW

Reference: SO-G-101

Bank Ref #:

Exam Level: RO

Source: NEW

Handout: NONE

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QUESTION NUMBER: 073

An ATWS event has occurred. EOP-00 standard post-trip actions have been completed and the Reactivity Control Safety Function is still not satisfied.

After entering EOP-20, which one of the following actions will be performed that was not attempted using EOP-00?

- A✓ Borating from the safety injection and refueling water storage tank
- B. Manually opening the clutch power supply breakers
- C. Borating from the boric acid storage tanks
- D. Manually actuating the DSS trip switches

Question 73 K/A # 000000 2.4.06

Knowledge symptom based EOP mitigation strategies.

RO Importance 3.1 SRO Importance 4.0 10 CFR 55 Section 41.10 / 43.5 / 45.13

FCS Lesson Plan / Objective 0718-18 01.05

Given the Resource Assessment Trees, basically DESCRIBE the Method, Path and Acceptance Criteria for each success path.

Replaced original question with new question (original question 91)

KA#: 000000 2.4.06
LP# / Objective: 0718-18 01.05
Cognitive Level: HIGH
Reference: EOP-00,EOP-20

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 074

Whose permission is required to use the "Master Silence" button to enhance control room communications following a reactor trip?

- A✓ The Control Room Supervisor OR the Shift Manager
- B. The Shift Technical Advisor OR the Control Room Supervisor
- C. The Shift Technical Advisor AND the Control Room Supervisor
- D. The Control Room Supervisor AND The Shift Manager

Question 74 K/A # 000000 2.4.15

Knowledge of communications procedures associated with EOP implementation.

RO Importance 3.0 SRO Importance 3.5 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0762-11 01.01

DESCRIBE the operator actions for an annunciator in alarm.

Minor wording change in stem.

KA#: 000000 2.4.15

LP# / Objective: 0762-11 01.01

Cognitive Level: LOW

Reference: ARP-1

Bank Ref #: ADM-EP 023

Exam Level: RO

Source: MODIFIED

Handout: NONE

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QUESTION NUMBER: 075

A plant event has occurred resulting in a reactor trip with equipment failures. Several safety functions are not being satisfied. EOP-20 provides actions that can be taken to attempt to satisfy these safety functions? Which actions should be taken first?

- A. The actions associated with first safety function that was determined not to be satisfied.
- B. The actions associated with the safety function that can be satisfied quickest.
- C✓ The actions associated with first unsatisfied safety function listed in the procedure.
- D. The actions associated with the safety function whose plant parameters deviate from the acceptance criteria by the greatest amount.

Question 75 K/A # 000000 2.4.23

Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.

RO Importance 2.8 SRO Importance 3.8 10 CFR 55 Section 41.10 / 45.13

FCS Lesson Plan / Objective 0718-10 01.01

DEFINE the term Critical Safety Function (CSF).

Question source corrected to new.

KA#: 000000 2.4.23
LP# / Objective: 0718-10 01.01
Cognitive Level: LOW
Reference: TDB EOP-20

Bank Ref #:
Exam Level: RO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 076

The plant is operating at 40% power with a cold leg temperature of 538°F. ASI is 0.0. What should the TM/LP pressure setpoint be for these conditions per Technical Specifications and the COLR?

- A. 1600 psia
- B✓ 1750 psia
- C. 1900 psia
- D. 2100 psia

Question 76 K/A # 000009 EA2.25

Ability to determine or interpret the following as they apply to a small break LOCA:Reactor trip setpoints

RO Importance 3.9 SRO Importance 4.1 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0712-25 01.03

LIST the reactor trips and trip setpoints provided by the RPS and STATE the source of the signal(s) supplied to each trip.

Original question replaced with new question.

KA#: 000009 EA2.25
LP# / Objective: 0717-22 01.03
Cognitive Level: HIGH
Reference: TECH SPECS

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 077

The RO reports the following plant conditions:

- The reactor is at 100% power
- RCS pressure is 2100 psia
- The RC-3A "SEAL LEAKAGE FLOW HI" annunciator is in alarm
- VCT pressure is 50 psia.
- RC-3A middle seal inlet pressure is 110 psia
- RC-3A upper seal inlet pressure is 80 psia

What actions should you direct your crew to take?

- A. Monitor the RC-3A's seals on the ERF computer. Continue full power operation.
- B. Perform a normal plant shutdown using OP-3A, then shutdown RC-3A.
- C✓ Perform an emergency plant shutdown using AOP-05, then shutdown RC-3A.
- D. Trip the reactor, then shutdown RC-3A and enter EOP-00.

Question 77 K/A # 000015/17 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0717-35 01.03

Describe the major recovery actions of this AOP.

Redesignated KA event as 000015/17 to be consistent with examiner standards.

KA#: 000015/17 2.1.32
LP# / Objective: 0717-35 01.03
Cognitive Level: HIGH
Reference: AOP-35

Bank Ref #: 07-11-20 014 020
Exam Level: SRO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 078

The plant is on shutdown cooling with the RCS at mid-loop. The following plant conditions exist.

- RCS pressure: 25 psia
- RCS temperature: 120°F
- RCS level is steady at 1006 ft
- The RCS is intact.
- LPSI pump SI-1B is operating

Suddenly, current on LPSI pump SI-1B becomes erratic.

What procedure should you enter to provide operational guidance for this situation?

- A✓ AOP-19, "Loss of Shutdown Cooling"
- B. AOP-22, "Reactor Coolant Leak"
- C. SO-O-21, "Shutdown Operations Protection Plan"
- D. ARP-AI-30B-A34-1, D7, "LPSI Pump SI-1B Off Normal"

Question 78 K/A # 000025 AA2.07

Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Pump cavitation

RO Importance 3.4 SRO Importance 3.7 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0717-19 01.01

Describe the Entry Conditions for this AOP.

Original question replaced with new question.

KA#: 000025 AA2.07
LP# / Objective: 0717-19 01.03
Cognitive Level: HIGH
Reference: AOP-19

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 079

The following plant conditions exist:

The reactor is operating at full power. The CCW surge tank low level alarm has been received. CCW, Surge Tank Makeup Valve, LCV-2801, has opened automatically and is maintaining surge tank level at 38 inches. CCW pump discharge pressure and surge tank pressure are normal. All RCP CCW Seal Cooler temperatures are 102°F and rising slowly.

What procedure should you enter and what direction will be given per the procedure?

- A. Enter AOP-05. You will immediately direct your operators to perform an emergency plant shutdown.
- B. Enter EOP-00. You will immediately direct your operators to trip the reactor and then trip the RCPs.
- ☒ C. Enter AOP-11. You will eventually direct your operators to isolate CCW to the ECCS pump coolers inlet valve, HCV-474
- D. Enter AOP-11. You will eventually direct your operators to isolate CCW to containment by closing HCV-438A,B,C,D.

Question 79 K/A # 000026 AA2.02

Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The cause of possible CCW loss

RO Importance 2.9 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0717-11 01.03

Describe the major recovery actions of this AOP.

Modified question to fit 55.43(b)(5)

KA#: 000026 AA2.02
LP# / Objective: 0717-11 01.03
Cognitive Level: HIGH
Reference: AOP-11

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 080

A 200 gpm steam generator tube rupture has occurred in RC-2A. All plant systems operated as designed. EOP actions have been taken and RC-2A has been isolated. The Shift Manager has entered the E-Plan and classified the event as an "Alert".

Which one of the following additional failures would require notifying the NRC, States and Counties that the event has been upgraded to a "Site Area Emergency"?

- A. Feedwater control valve, LCV-1101 fails open
- B. ✓ Steam Safety valve, MS-291 fails open
- C. A loss of 345 KV offsite power to the plant.
- D. The atmospheric stability class changes from "C" to "F".

Question 80 K/A # 000038 2.4.30

Knowledge of which events related to system operations/status should be reported to outside agencies.

RO Importance 2.2 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.11

FCS Lesson Plan / Objective 0717-24 01.07

Given EPIP-OSC-1, explain how the event would be classified. (SRO ONLY)

KA#: 000038 2.4.30

Bank Ref #:

LP# / Objective: 0717-24 01.07

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: EPIP-OSC-1

Handout: NONE

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QUESTION NUMBER: 081

In the performance of EOP-01, "Reactor Trip Recovery," the reactor is verified to have adequate Shutdown Margin.

The required shutdown margin is based on the analysis of:

- A. An uncontrolled CEA withdrawal accident at BOC.
- B. An uncontrolled CEA withdrawal accident at EOC.
- C. A major steam line break accident at BOC
- ☒ D. A major steam line break accident at EOC

Question 81 K/A # CE-E02 2.2.25

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

RO Importance 2.5 SRO Importance 3.7 10 CFR 55 Section 43.2

FCS Lesson Plan / Objective 0718-11 01.04

GIVEN a copy of the Technical Basis Documents (TBDs), EXPLAIN the bases behind the recovery actions contained in EOP-01, Reactor Trip Recovery.

KA#: CE-E02 2.2.25
LP# / Objective: 0718-11 01.04
Cognitive Level: LOW
Reference: TECH SPECS

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 082

The plant is operating at 75% power when a "Nuclear Instrumentation Channel Inoperative" annunciator alarms on CB-4, A20. Investigation determines that the alarm is due to a power supply failure on WR NI channel "D".

Which one of the following actions, if any, is required by Technical Specifications?

- A. Reduce power to less than 70%.
- B✓ Enter a 7 day LCO due to lost indication at the alternate shutdown panels.
- C. Bypass the Channel "D" high SUR trip unit within one hour.
- D. No action is required at this power level.

Question 82 K/A # 000068 AA2.10

Ability to determine and interpret the following as they apply to the Control Room
Evacuation:Source range count rate

RO Importance 4.2* SRO Importance 4.4* 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0712-18 02.13

Explain the indication provided on AI-212 provided by WR NIS.

Replaced the original question.

WR NI Channel D provides the only NI indication at AI-212

KA#: 000068 AA2.10

Bank Ref #:

LP# / Objective: 0712-18 02.13

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: T.S. 2.15

Handout: NONE

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QUESTION NUMBER: 083

The plant was operating at full power when FW-6 and FW-10 were both discovered to be inoperable. Which one of the following conditions must be met for continued operation per Technical Specification 2.5?

- A. Restore one of the AFW pumps to operable status within 24 hours. Restore the other within 7 days.
- B. Restore both AFW pumps to operable status within 24 hours.
- C✓ Initiate actions to restore one of the pumps to operable status immediately. Operation may continue until one AFW pump is restored.
- D. Initiate actions to restore one of the pumps to operable status immediately. If FW-54 is available, place the unit in Mode 2 within 6 hours.

Question 83 K/A # 000074 EA2.02

Ability to determine or interpret the following as they apply to a Inadequate Core Cooling: Availability of main or auxiliary feedwater

RO Importance 4.3 SRO Importance 4.6 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0711-01 01.05

Given a copy of the Technical Specifications, INTERPRET the requirements for the AFW System.

Replaced original question with new question.

KA#: 000074 EA2.02
LP# / Objective: 0711-01 01.05
Cognitive Level: HIGH
Reference: T.S. 2.5

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 084

A GENERAL EMERGENCY has been declared due to a plant event involving fuel damage and other conditions. There is no offsite release and none is expected within the next two hours. The wind is blowing from the West.

What direction should be given to onsite non-emergency response personnel?

- A✓ Evacuate to the North Omaha Power Station using the primary route.
- B. Evacuate to the North Omaha Power Station using the alternate route
- C. Evacuate to the Administration Building using the South Security Access Point
- D. Evacuate to the Training Building using the South Security Access Point

Question 84 K/A # 000076 2.1.14

Knowledge of system status criteria which require the notification of plant personnel.

RO Importance 2.5 SRO Importance 3.3 10 CFR 55 Section 43.5 / 45.12

Replaced original question with new question.

KA#: 000076 2.1.14
LP# / Objective:
Cognitive Level: HIGH
Reference: EPIP-OSC-2

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 085

You, as CRS, have entered EOP-20 due to multiple events. When are you required to notify the Shift Chemist to sample the steam generators using CH-SMP-SE-015, "Steam Generator Sampling - Room 60" ?

- A. During any entry into EOP-20.
- B. During an entry into EOP-20 where secondary radiation monitors are in alarm.
- C. During an entry into EOP-20 where SGIS has actuated.
- ☒ D. During an entry into EOP-20 where CIAS has actuated.

Question 85 K/A # CE-E09 EA2.01

Ability to determine and interpret the following as they apply to the (Functional Recovery) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

RO Importance 3.2 SRO Importance 4.4 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0718-18 01.03

STATE the entry conditions for EOP-20.

KA#: CE-E09 EA2.01
LP# / Objective: 0718-18 01.03
Cognitive Level: LOW
Reference: EOP-20

Bank Ref #: 07-18-18 009
Exam Level: SRO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 086

The plant is operating at full power. Instrument air pressure is 48 psig and lowering. What action should be taken?

- A. Enter AOP-17, Loss of Instrument Air. Continue plant operation.
- B. Trip the reactor and enter EOP-00. After Standard Post Trip Actions are complete, enter AOP-17. Enter EOP-01 after instrument air pressure is restored.
- C✓ Trip the reactor and enter EOP-00. After Standard Post Trip Actions are complete, enter EOP-01 and AOP-17.
- D. Trip the reactor and enter EOP-00. After Standard Post Trip Actions are complete, enter EOP-20, MVA.

Question 86 K/A # 004000 A2.11

Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of IAS

RO Importance 3.6 SRO Importance 4.2 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.5

FCS Lesson Plan / Objective 0717-17 01.02

Describe how the plant responds to a loss of instrument air in terms of how specific equipment is affected and how it affects overall plant operation and reliability.

Replaced original question with new question.

KA#: 004000 A2.11
LP# / Objective: 0717-17 01.02
Cognitive Level: HIGH
Reference: AOP-17

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 087

The reactor is operating at full power. The burnup is 1200 MWD/MTU. RCS boron concentration is equal to the predicted boron concentration for this time in life.

What is the minimum volume of TSP required to be in the containment baskets per Technical Specifications?

- A✓ 126.2 ft³
- B. 121.3 ft³
- C. 120.0 ft³
- D. 116.9 ft³

Question 87 K/A # 006000 2.1.33

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

RO Importance 3.4 SRO Importance 4.0 10 CFR 55 Section 43.2 / 43.3 / 45.3

FCS Lesson Plan / Objective 0711-22 01.12

Given a copy of Technical Specifications, apply the applicable Limiting Conditions for Operation (LCO).

Replaced original question with new question.

KA#: 006000 2.1.33
LP# / Objective: 0711-22 01.12
Cognitive Level: HIGH
Reference: TS 2.3, TDB

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: TS 2.3, TDB FIG

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QUESTION NUMBER: 088

The plant is operating at 100% power and an ice storm has caused fast transfer of buses 1A3 and 1A4 to 22 KV.

What procedure should you enter to determine actions to be taken for this situation?

- A. Direct the operators to trip the reactor and enter EOP-00.
- B. Enter AOP-5, "Emergency Shutdown" and direct the operators to reduce power to less than 50%.
- C✓ Enter AOP-31, "161 KV Grid Malfunctions", and take actions to balance loads on transformers.
- D. Enter AOP-32, "Loss of 4160 Volt or 480 Volt Bus Power", and take actions to restore normal power supply to buses.

Question 88 K/A # 062000 A.2.09

Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Consequences of exceeding current limitations.

RO Importance 3.3 SRO Importance 3.3 10 CFR 55 Section 45.3

FCS Lesson Plan / Objective 0713-02 01.07

State any special limitations on the 4160 Volt System.

KA#: 062000 A.2.09
LP# / Objective: 0713-02 01.07
Cognitive Level: HIGH
Reference: AOP-31

Bank Ref #: 07-13-02 014
Exam Level: SRO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 089

The plant is operating at full power. At 0600 on April 1, DC distribution panel AI-41B is declared to be inoperable due to a condition reported under 10 CFR Part 21. AI-41A is not affected. If Panel AI-41B is not restored to operability, when must the plant be in "cold shutdown" per technical specifications?

- A. 0600 on April 2.
- B. 1800 on April 2.
- C. 0600 on April 3.
- D✓ 1400 on April 3.**

Question 89 K/A # 063000 2.2.22

Knowledge of limiting conditions for operations and safety limits.

RO Importance 3.4 SRO Importance 4.1 10 CFR 55 Section 43.2 / 45.2

FCS Lesson Plan / Objective 0713-04 01.05

State and explain the Technical Specifications and bases applicable to the systems and major components.

KA#: 063000 2.2.22

LP# / Objective: 0713-04 01.05

Cognitive Level: HIGH

Reference: TS 2.7

Bank Ref #:

Exam Level: SRO

Source: NEW

Handout: TS 2.7

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QUESTION NUMBER: 090

During containment closeout, maintenance has requested that you allow them to store 10 aluminum ladders inside containment during the next operational cycle.

What action, if any, must be taken before this request can be approved.?

- A. A fire hazards analysis must be conducted to determine if the probability of a fire inside containment is increased during operation.
- B. A chemistry analysis must be conducted to determine if the probability of galvanic corrosion inside containment is increased during operation.
- C✓ A 50.59 analysis must be performed to determine if the additional aluminum will affect the USAR analysis of containment hydrogen.
- D. This request may be approved with no additional action.

Question 90 K/A # 103000 2.1.32

Ability to explain and apply all system limits and precautions.

RO Importance 3.4 SRO Importance 3.8 10 CFR 55 Section 41.10 / 43.2 / 45.12

FCS Lesson Plan / Objective 0715-28 01.13b

EXPLAIN the production of H₂ from other sources in containment

Question reworded to clarify connection to 55.43(b)(3)

KA#: 103000 2.1.32

Bank Ref #:

LP# / Objective: 0715-28 01.13B

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: LP 07-15-28

Handout: NONE

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QUESTION NUMBER: 091

The reactor has tripped after six months of operation at full power. The following plant conditions exist 10 minutes after the reactor trip:

- All trippable CEAs are fully inserted.
- RCS cold leg temperature is 532°F and steady.
- Pressurizer pressure is 2000 psia and rising.
- All WR NI channels indicate $5 \times 10^{-2}\%$ Power with a SUR of 0.0 dpm.

What procedure should be entered after EOP-00 is complete?

- A. AOP-03, Emergency Boration.
- B. AOP-15, Loss of Flux Indication or Flow Streaming
- C. EOP-01, Reactor Trip Recovery
- D✓ EOP-20, Functional Recovery Procedure**

Question 91 K/A # 001000 A2.13

Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: ATWS

RO Importance 4.4 SRO Importance 4.6 10 CFR 55 Section 41.5 / 43.5 / 45.3 / 45.13

Original question used as RO question 73.

Wrote new question.

KA#: 001000 A2.13

Bank Ref #:

LP# / Objective: 0718-18 01.05

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: EOP-00

Handout: NONE

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QUESTION NUMBER: 092

According to technical specifications, if the allowable cooldown rate is exceeded, what corrective action must be taken before the plant can be returned to power?

- A. A report must be submitted to the NRC. The NRC must give approval for plant restart.
- B✓ An analysis must be performed to determine the effects of the out of limits condition on the fracture toughness properties of the RCS.
- C. Vessel weld material samples (coupons) must be removed from capsules and tested for fracture toughness properties.
- D. The plant must be maintained (soak) in hot shutdown for at least 36 hours to allow thermal stresses to be relieved.

Question 92 K/A # 002000 2.2.22

Knowledge of limiting conditions for operations and safety limits.

RO Importance 3.4 SRO Importance 4.1 10 CFR 55 Section 43.2 / 45.2

FCS Lesson Plan / Objective 0762-08 05.00

Given a copy of Technical Specifications, APPLY the requirements to a given condition covered by an LCO.

Question reworded considerably.

KA#: 002000 2.2.22

LP# / Objective: 0762-08 05.00

Cognitive Level: LOW

Reference: TS 2.1.2(1)

Bank Ref #: 07-62-08 001

Exam Level: SRO

Source: NRC 01 EXAM #1

Handout: NONE

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QUESTION NUMBER: 093

A fuel assembly is being inserted into the core. After it has been inserted half way into the core, it binds on some adjacent bowed fuel assemblies. What action should the Fuel Handling Coordinator direct the Fuel Handlers to take?

- A. Extend the fuel spreader to unbind the fuel assembly. Retract the fuel spreader as soon as the fuel assembly unbinds.
- B. Extend the fuel spreader to unbind the fuel assembly. Retract the fuel spreader when the fuel assembly is fully inserted.
- C✓ Withdraw the partially inserted fuel assembly from the core. Extend the fuel spreader, then reinsert the fuel assembly into the core.
- D. Withdraw the partially inserted fuel assembly from the core, rotate it 90°, then reinsert it.

Question 93 K/A # 034000 K4.01

Knowledge of design feature(s) and/or interlock(s) which provide for the following: Fuel protection from binding and dropping

RO Importance 2.6 SRO Importance 3.4 10 CFR 55 Section 41.7

FCS Lesson Plan / Objective 0711-13 02.03

Discuss the normal operation of the refueling machine, and how component failures affect operation.

KA#: 034000 K4.01
LP# / Objective: 0711-13 02.03
Cognitive Level: LOW
Reference: OI-FH-1

Bank Ref #:
Exam Level: SRO
Source: NEW
Handout: NONE

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QUESTION NUMBER: 094

You are the Shift Manager. You are 10.5 hours into your shift with the plant in cold shutdown when the Shift Technical Advisor slipped on a turbine building stairway and broke his ankle. An ambulance has taken him to the emergency room at the Blair hospital. What action is required as a result of this event?

- A. You must notify the Reactor Engineer within one hour
- B. You must notify the Manager-Operations within one hour
- C. You must have another qualified STA on-site within one hour
- ☒ D. No action required. You may finish the shift without an STA

Question 94 K/A # 000000 2.1.04

Knowledge of shift staffing requirements.

RO Importance 2.3 SRO Importance 3.4 10 CFR 55 Section 41.10 / 43.2

FCS Lesson Plan / Objective 0762-08 10.01

Operations and STA staffing requirements (SRO only)

Changed hot shutdown to cold shutdown in the stem to make choice D correct.

KA#: 000000 2.1.04

Bank Ref #: ADM-OPS 008

LP# / Objective: 0762-08 10.01

Exam Level: SRO

Cognitive Level: HIGH

Source: BANK

Reference: LP 0762.08

Handout: NONE

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QUESTION NUMBER: 095

The plant is operating at full power. The latest chemistry sample shows that the RCS coolant oxygen concentration is 0.12 ppm.

What action, if any, should you direct be taken as a result of this sample?

- A. No action required, this value is within the acceptable range.
- B. Place an ion exchanger in service that has fresher resin.
- C✓ Raise VCT pressure using hydrogen.
- D. Raise charging and letdown flow.

Question 95 K/A # 000000 2.1.34

Ability to maintain primary and secondary plant chemistry within allowable limits.

RO Importance 2.3 SRO Importance 2.9 10 CFR 55 Section 41.10 / 43.5 / 45.12

FCS Lesson Plan / Objective 0711-02 05.03

Given a copy of the Control Room Log, EXPLAIN normal CVCS parameters such as pressure, temperature and flowrate.

Removed sentence from stem.

KA#: 000000 2.1.34
LP# / Objective: 0711-02 05.03
Cognitive Level: HIGH
Reference: TS 2.1.5

Bank Ref #: SECH-01 002
Exam Level: SRO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 096

In the design of the cycle 23 core, the end of life moderator temperature coefficient is more negative than in any previous cycle.

Which one of the USAR Chapter 14 events must be reanalyzed as a result?

- A. The CEA Withdrawal Accident.
- ☒ B. The Steam Line Break accident
- C. The Loss of Feedwater Accident
- D. The Loss of Coolant Accident

Question 96 K/A # 000000 2.2.05

Knowledge of the process for making changes in the facility as described in the safety analysis report.

RO Importance 1.6 SRO Importance 2.7 10 CFR 55 Section 43.3 / 45.13

FCS Lesson Plan / Objective 0715-31 01.02

EXPLAIN how the assumptions used in the chapter 14 safety analysis are related to the Technical Specification limiting conditions for operation.

KA#: 000000 2.2.05

Bank Ref #:

LP# / Objective: 0715-31 01.02

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: USAR 14.12

Handout: NONE

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QUESTION NUMBER: 097

Due to the failure of some plant components, repair activities are required at 0300. The Work Week Manager is not available. Who should you contact to perform a risk assessment for the emergent maintenance activities?

- A. The Manager-Shift Operations
- B. The Manager-Maintenance
- C✓ The Shift Technical Advisor.
- D. The System Reliability Group Supervisor.

Question 97 K/A # 000000 2.2.19

Knowledge of maintenance work order requirements.

RO Importance 2.1 SRO Importance 3.1 10 CFR 55 Section 43.5 / 45.13

FCS Lesson Plan / Objective 0762-01 01.00

STATE the major sections of the Standing Orders.

Corrected K/A reference to match outline.

KA#: 000000 2.2.19
LP# / Objective: 0762-01 01.00
Cognitive Level: LOW
Reference: SO M-101

Bank Ref #: ADM-CONTROL 013
Exam Level: SRO
Source: BANK
Handout: NONE

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QUESTION NUMBER: 098

Which one of the following activities should be scheduled outside of normal working hours due to the increased radiation levels outside of the plant?

- A✓ Transferring a spent resin filled HIC to a shipping cask.
- B. Releasing a waste monitor tank.
- C. Transferring water between Waste Holdup Tanks.
- D. Releasing a waste gas decay tank.

Question 98 K/A # 000000 2.3.10
Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure

RO Importance 2.9 SRO Importance 3.3 10 CFR 55 Section 43.4 / 45.10

FCS Lesson Plan / Objective 0711-32 01.00

When given specific plant conditions, apply operating principles to predict response of the Waste Disposal Liquid System (WDLS).

Corrected K/A reference to match outline.

KA#: 000000 2.3.10
LP# / Objective: 0711-32 01.00
Cognitive Level: HIGH
Reference: PLANT HISTORY

Bank Ref #: 07-11-32 003
Exam Level: SRO
Source: MODIFIED
Handout: NONE

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QUESTION NUMBER: 099

A General Emergency has been declared at Fort Calhoun Station. The TSC and EOF are both fully staffed and operational. The Shift Manager is in the Command and Control Position at this time. Which one of the following duties can the Shift Manager delegate to his CRS?

- A. Ensuring that the event is classified properly.
- B. Ensuring appropriate Protective Action Recommendations are provided to offsite officials.
- C✓ Authorizing deviations from Technical Specifications needed to mitigate the event.
- D. Authorizing the issuance of Potassium Iodide to OPPD emergency workers.

Question 99 K/A # 000000 2.4.29

Knowledge of the emergency plan.

RO Importance 2.6 SRO Importance 4.0 10 CFR 55 Section 43.5 / 45.11

FCS Lesson Plan / Objective 1070-001 00.00

Generic Objective - allows for linking Task or KA to Lesson Plan

KA#: 000000 2.4.29
LP# / Objective: 1070-001 00.00
Cognitive Level: LOW
Reference: EPIP-OSC-2

Bank Ref #: ADM-EP 018
Exam Level: SRO
Source: NRC 01 EXAM #1
Handout: NONE

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QUESTION NUMBER: 100

The plant is in hot shutdown. Spent fuel assemblies are being relocated in the spent fuel pool. RM-052 is aligned to the stack. Condenser Evacuation is aligned to the Stack.

An event occurs that causes the following annunciators on AI-33 to go into alarm:

- RM-050 CNTMT PARTICULATE TROUBLE
- RM-051 CNTMT NOBLE GAS TROUBLE
- RM-052 STACK.CNTMT NOBLE GAS HIGH RADIATION
- RM-062 AUX BLDG VENT STACK HIGH RADIATION
- RM-053 COMP CLG WATER HIGH RADIATION
- RM-085 THRU RM-089 AUX BLDG LEVEL 1025'/1036' HIGH RADIATION

Which one of the following AOPs should be entered as a result of these alarms?

(Assume that only one event occurs)

- A. AOP-08, "Fuel Handling Incident"
- B. AOP-12, "Loss of Containment Integrity"
- C✓ AOP-22, "Reactor Coolant Leak"
- D. AOP-24, "Steam Generator Tube Rupture (Reactor Shutdown)"

Question 100 K/A # 000000 2.4.45

Ability to prioritize and interpret the significance of each annunciator or alarm.

RO Importance 3.3 SRO Importance 3.6 10 CFR 55 Section 43.5 / 45.3 / 45.12

FCS Lesson Plan / Objective 0767-05 01.00

DISCUSS:

Original question replaced with new question.

This combination of alarms will be caused by RCP seal cooler leakage (RCS-CCW) causing CCW surge tank to rupture. Fuel handling incident and SGTR would not cause RM-053 alarm.

KA#: 000000 2.4.45

Bank Ref #:

LP# / Objective: 0767-05 01.00

Exam Level: SRO

Cognitive Level: HIGH

Source: NEW

Reference: AOP-11 AND AOP-22

Handout: NONE

2005 Fort Calhoun NRC Reactor Operator Exam KEY

1	A	39	B
2	A or B	40	D
3	D	41	C
4	A	42	C
5	D	43	D
6	B	44	A
7	C	45	A
8	C	46	B
9	D	47	D
10	D	48	B
11	D	49	B
12	C	50	A
13	A	51	A
14	B	52	C
15	B	53	B
16	A	54	B
17	B	55	A
18	D	56	C
19	A	57	D
20	C	58	B
21	D	59	D
22	C	60	C
23	B	61	C
24	C	62	C
25	B	63	A
26	A	64	B
27	A	65	D
28	D	66	B
29	D	67	B
30	A	68	D
31	D	69	C
32	A	70	A
33	B	71	D
34	C	72	B
35	A	73	A
36	C	74	A
37	C	75	C
38	B		

2005 Fort Calhoun NRC Senior Reactor Operator Exam KEY

1	A	39	B	76	B
2	A or B	40	D	77	C
3	D	41	C	78	A
4	A	42	C	79	C
5	D	43	D	80	B
6	B	44	A	81	D
7	C	45	A	82	B
8	C	46	B	83	C
9	D	47	D	84	A
10	D	48	B	85	D
11	D	49	B	86	C
12	C	50	A	87	A
13	A	51	A	88	C
14	B	52	C	89	D
15	B	53	B	90	C
16	A	54	B	91	D
17	B	55	A	92	B
18	D	56	C	93	C
19	A	57	D	94	C
20	C	58	B	95	C
21	D	59	D	96	B
22	C	60	C	97	C
23	B	61	C	98	A
24	C	62	C	99	C
25	B	63	A	100	C
26	A	64	B		
27	A	65	D		
28	D	66	B		
29	D	67	B		
30	A	68	D		
31	D	69	C		
32	A	70	A		
33	B	71	D		
34	C	72	B		
35	A	73	A		
36	C	74	A		
37	C	75	C		
38	B				