

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	203000 A1.02	
	Importance Rating	3.9	

Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) controls including: Reactor pressure

Proposed Question: Common 1

The reactor was scrammed at 1200, EOPs were entered, and plant conditions are as follows.

- Reactor Pressure: 450 psig and lowering
- Reactor Level: (+75) inches and lowering
- Drywell Pressure: 1.6 psig and stable

At 1210 the following conditions exist:

- Reactor Pressure: 365 psig and lowering
- Reactor Level: (+65) inches and lowering
- Drywell Pressure: 1.6 psig and stable

Which ONE of the following describes the status of the RHR system at 1210?

- All RHR pumps are running, LPCI is injecting.
- All RHR pumps are running, LPCI is NOT injecting.
- No RHR pumps are running, LPCI injection valves are open.
- No RHR pumps are running All LPCI injection valves are closed.

Proposed Answer: B

Explanation (Optional):

- Incorrect – No auto open signal was present for the LPCI valves to open (Rx pressure <350 psig).
- Correct – The RHR pumps auto started with reactor level < 82.5 inches for 8 minutes, however the valves will not open until reactor pressure is < 350 psig.
- Incorrect - The RHR pumps auto started with reactor level < 82.5 inches for 8 minutes and the valves will not open until reactor pressure is < 350 psig.
- Incorrect - The RHR pumps auto started with reactor level < 82.5 inches for 8 minutes.

Technical Reference(s): OP2124, Rev.109, pg. 6 – LPCI (Attach if not previously provided)
MODE description.

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	205000 K5.03	
	Importance Rating	2.8	

Knowledge of the operational implications of the following concepts as they apply to SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) : Heat removal mechanisms

Proposed Question: Common 2

The plant is in shutdown cooling.

Which ONE of the following conditions will provide adequate heat removal?

- A. Reactor Cleanup secured and Reactor Water Level less than 185 inches.
- B. Reactor Cleanup secured and Reactor Water Level greater than 185 inches
- C. Reactor Water Level greater than 153 inches with vessel head installed.
- D. Reactor Water Level less than 153 inches with vessel head removed.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – level must be > 185 inches
- B. Correct Response
- C. Incorrect – head must be installed with vessel level > 153 inches
- D. Incorrect – water level must be > 153 inches with head removed

Technical Reference(s): ON 3156, page 7 (Attach if not previously provided)
OP 2124, page 18

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)

New

X

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	205000 K3.05	
	Importance Rating	2.6	

Knowledge of the effect that a loss or malfunction of the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) will have on following: Fuel Pool Cooling Assist

Proposed Question: Common 3

The plant is in a refueling outage with the "C" RHR Pump operating in SDC mode.

- The "A" RHR Pump is tagged out for maintenance.
- All other equipment is operable.

Subsequently RHR-15C goes closed.

Considering both loops of RHR, if RHR-15C can not be opened, what mode of RHR is unavailable?

- Augmented Fuel Pool Cooling.
- Emergency Reactor Vessel Fill.
- Shutdown Cooling
- Suppression Pool Cooling

Proposed Answer: A

Explanation (Optional):

- Correct - Only "A" loop RHR can do Augmented FPC. A & C pumps of RHR are in "A" loop. The 15 valves are required for suction of the fuel pool and vessel.
- Incorrect – different flowpath
- Incorrect – B Loop of RHR is available for SDC
- Incorrect – different flowpath

Technical Reference(s): LOT-00-205, Rev.24, Flowpaths (Attach if not previously provided)
section II.B.

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5621
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	206000 K6.09	
	Importance Rating	3.5	

Knowledge of the effect that a loss or malfunction of the following will have on the HIGH PRESSURE COOLANT INJECTION SYSTEM : Condensate storage and transfer system: BWR-2,3,4

Proposed Question: Common 4

The plant has experienced an event and HPCI is in service providing level control when a loss of power occurs to the HPCI suction valve from the CST.

How will HPCI be affected by this occurrence?

- A. HPCI will immediately trip due to sensing a loss of its suction source.
- B. The Torus suction valves will immediately open and provide a HPCI suction path resulting in the CST and TORUS being cross-tied.
- C. On sensing the loss of power to the HPCI CST suction valve, the Torus suction valves will remain open.
- D. The Torus suction valves will auto open if the low CST level is reached resulting in the CST and TORUS being cross-tied.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – HPCI never lost suction pressure suction valve never closed
- B. Incorrect – CST must reach low level to make up logic to swap
- C. Incorrect – The torus suction valves are not opened initially.
- D. Correct – Once low CST level is reached the Torus suction valves will open and the Torus will be cross-tied with the CST.

Technical Reference(s): OP 2145, App. C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	206000 A3.03	
	Importance Rating	3.9	

Ability to monitor automatic operations of the HIGH PRESSURE COOLANT INJECTION SYSTEM: System Lineup

Proposed Question: Common 5

A plant transient has occurred, and you have been directed to manually initiate HPCI for plant pressure control from its normal standby lineup.

Which ONE of the following statements correctly describes the condition/response of the HPCI Minimum Flow Valve (HPCI-25)?

- A. HPCI-25 will automatically open when the HPCI Steam Supply Valve (HPCI-14) is opened, and must be manually closed when system flow increases to greater than 800 gpm.
- B. HPCI-25 is normally open, and will automatically close when system flow increases to greater than 800 gpm.
- C. HPCI-25 will automatically open when the HPCI Steam Supply Valve (HPCI-14) is opened, and will auto close when system flow increases to greater than 800 gpm.
- D. HPCI-25 is normally closed, must be manually opened prior to opening the HPCI Steam Supply Valve (HPCI-14), and will automatically close when system flow increases to greater than 800 gpm.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - HPCI-25 will NOT auto open when the system is manually initiated, and will AUTO close when flow exceeds 800 gpm.
- B. Incorrect - HPCI-25 is NOT open in a normal standby lineup.
- C. Incorrect - HPCI-25 will NOT auto open when the system is manually initiated.
- D. Correct – valve must be opened manually and will auto close with system flow > 800 gpm.

Technical Reference(s): OP 2120, page 14 & 15 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>209001 K2.03</u>	<u> </u>
	Importance Rating	<u>2.9</u>	<u> </u>

Knowledge of electrical power supplies to the following: Initiation logic

Proposed Question: Common 6

A plant event has resulted in a reactor scram and degrading containment conditions. Additionally, power to BUS DC-2C has been lost.

If a Core Spray initiation setpoint is reached, how will Core Spray be affected by the bus loss?

- A. All Core Spray pumps will start and All injection valves will open.
- B. ONLY Loop 'A' Core Spray pumps will start and their injection valves will open.
- C. ONLY Loop 'B' Core Spray pumps will start and their injection valves will open.
- D. No Core Spray pumps will start and NO injection valves will open.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – Loop 'A' pumps and valves have lost initiation logic power.
- B. Incorrect – Bus DC-2C provides 125 VDC power to 'A' loop pump and valve initiation Logic. Only 'B' loop would have power.
- C. Correct – Only Loop 'B' pumps and valves have initiation logic power.
- D. Incorrect – Loop 'B' pumps and valves still have initiation logic power.

Technical Reference(s): OP2145, App. A & C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	223001 2.1.28	
	Importance Rating	3.2	

Primary Containment System: Knowledge of the purpose and function of major system components and controls.

Proposed Question: Common 7

What is the energy flowpath from the drywell air space to the torus should a high pressure line break occur in the drywell?

- A. The drywell to torus vacuum breakers open to relieve the pressure from the drywell to the torus.
- B. The drywell to torus vent pipes relieve the pressure from the drywell air space to the torus water volume via a ring header and downcomers.
- C. Six-foot vent pipes relieve the pressure from the drywell air space to the torus air space.
- D. Eight vent pipes discharge to the torus water volume via tee-quenchers.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - The drywell to torus vacuum breakers open to prevent the DW pressure from being significantly reduced below Torus pressure following the energy blowdown from the DW to the Torus. During the blowdown these valves will be held closed by the high DP between the DW and the Torus. These valves must be closed during the blowdown phase to ensure the pressure suppression function of the containment is not bypassed.
- B. Correct Response
- C. Incorrect - As described below the 8 vent pipes (which are slightly greater than 6 feet) are attached to the Torus Ring Header and downcomers. The energy transfer is from the DW air through this vent system to the torus water volume.
- D. Incorrect - The eight vent pipes discharge to the Torus ring header. The high energy is then transmitted to the Torus Water Volume by 96 downcomer pipes attached to the Torus Ring Header. These downcomers are straight pipes which blow directly down into the torus water volume (not T-quenchers).

Technical Reference(s): LOT-00-223, Rev. 20 (Attach if not previously provided)

UFSAR, Page 5.2-9, Page
14.6.-0

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3067
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	211000 A2.03	
	Importance Rating	3.2	

Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of AC Power Failures

Proposed Question: Common 8

The plant is experiencing an ATWS when a loss of Bus 9 occurs. The CRS directs SLC initiation.

When the SLC initiation switch is placed to SYS 1, which ONE (1) of the following describes:

- (1) The control room indications for SLC.
 - (2) The required operator actions, if any, per OP 2114 "Operation of the SLC System."
- A. (1) SLC-14A squib valve light will be lit and the "A" SLC pump will start.
(2) The SLC initiation position switch must be taken to SYS 2.
 - B. (1) SLC-14B squib valve light will be out and the "B" SLC pump will start.
(2) No actions are required.
 - C. (1) SLC-14A squib valve light will be out and the "A" SLC pump will not start.
(2) The SLC initiation position switch must be taken to SYS 2.
 - D. (1) SLC-14B squib valve light will be lit and the "B" SLC pump will not start.
(2) No actions are required.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - "A" SLC pump and squib valve are both powered from Bus 9 and will not operate.
- B. Incorrect – The 14B light will still be lit and the B SLC pump will not have started (switch in SYS 2 is required for both).
- C. Correct – Loss of power will prevent pump start and squib valve firing. Placing switch in SYS 2 will initiate the B squib valve and pump.
- D. Incorrect – Switch must be taken to SYS 2.

Technical Reference(s): OP2114, App. B (Attach if not previously provided)
OP2143, App. A

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	212000 K6.01	
	Importance Rating	3.6	

Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR PROTECTION SYSTEM: AC Electrical Distribution

Proposed Question: Common 9

A full scram occurred due to low RPV water level. During the scram a ground caused a loss of RPS Bus "B". RPV water level has been restored. The CRO initiates action to reset the scram.

The SCRAM DISCHARGE INSTRUMENT VOLUME HI LEVEL SCRAM BYPASS switch is then taken to bypass.

Which ONE of the following describes the plant response when the operator attempts to reset the scram?

- A. All eight RPS "A" and "B" solenoid lights will be lit.
- B. Only four RPS "A" solenoid lights will be lit.
- C. Only four RPS "B" solenoid lights will be lit.
- D. No RPS solenoid lights will be lit.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – RPS "B" is not available due to ground.
- B. Incorrect – No lights until the scram is reset.
- C. Incorrect - No lights until the scram is reset.
- D. Correct - Both RPS buses need power to reset the scram and to bypass SDV hi scram.

Technical Reference(s): LOT-00-212 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3515
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	215003 A4.07	_____
	Importance Rating	3.6	_____

(IRMs) Ability to manually operate and/or monitor in the control room: Verification of proper functioning/ operability

Proposed Question: Common 10

IRM "B" is indicating 10 on Range 7. WHICH ONE of the following values will IRM "B" indicate if the range switch is placed on Range 6?

- A. 10
- B. 40
- C. 100
- D. 125

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – not a 1 decade change
- B. Incorrect - not a 1 decade change
- C. Correct – scale changes by 1 decade
- D. Incorrect – not a 1 decade change

Technical Reference(s): LOT-02-215 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # 278
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	215004 K2.01	
	Importance Rating	2.6	

Knowledge of electrical power supplies to the following: SRM channels/detectors

Proposed Question: Common 11

The plant is shutting down when a loss of Bus 1 occurs.

The SRMs _____.

- A. will have detector power but will NOT have the ability to insert or withdraw.
- B. will NOT have detector power but will have the ability to insert or withdraw.
- C. will NOT have detector power OR the ability to insert or withdraw.
- D. will have detector power AND the ability to insert or withdraw.

Proposed Answer: A

Explanation (Optional):

- A. Correct – Bus 1 powers PP-6A which provides power to SRM Drive Motors. The detector has power from 24Vdc.
- B. Incorrect - Detector power is available.
- C. Incorrect – Detector power is available.
- D. Incorrect – Bus 1 powers PP-6A which provides power to SRM Drive Motors

Technical Reference(s): OP 2143, App A (Attach if not previously provided)
OP 2142, App A.

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	217000 A1.01	
	Importance Rating	3.7	

Ability to predict and/or monitor changes in parameters associated with operating the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) controls including: RCIC flow

Proposed Question: Common 13

Which ONE of the following correctly describes the effects on RCIC speed and flow as Reactor Pressure varies?

- A. With the RCIC flow controller in Manual, RCIC flow and speed will rise as reactor pressure rises.
- B. With the RCIC flow controller in Manual, RCIC flow and speed will lower as reactor pressure lowers.
- C. With the RCIC flow controller in Auto, RCIC flow and turbine speed will remain relatively constant as reactor pressure rises and lowers.
- D. With the RCIC flow controller in Auto, RCIC flow will remain relatively constant and turbine speed will vary with reactor pressure.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – In Manual, the controller is affecting speed only, as reactor pressure rises a set speed will be maintained but RCIC flow will lower as the delta between RCIC discharge pressure and reactor pressure increases.
- B. Incorrect - In Manual, the controller is affecting speed only, as reactor pressure lowers a set speed will be maintained but RCIC flow will increase as the delta between RCIC discharge pressure and reactor pressure decreases.
- C. Incorrect – In Auto, ONLY flow remains relatively constant.
- D. Correct – In Auto , Flow remains relatively constant due to the governor increasing or decreasing turbine speed as reactor pressure varies.

Technical Reference(s): LOT-00-217 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	218000 K5.01	
	Importance Rating	3.8	

Knowledge of operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM :
ADS Logic Operation

Proposed Question: Common 14

During a LOCA, a valid ADS signal exists and the ADS system has initiated. With the initiation signal still present both Auto Logic Reset Pushbuttons are depressed and then released.

Which ONE of the following describes the automatic response of all ADS valves?

- A. Remain Open
- B. Close and remain closed.
- C. Close and Reopen after 120 seconds.
- D. Close and Reopen after 8 minutes

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - depressing pushbuttons, closes valves even with initiating signal still present
- B. Incorrect – Once PB is released, with the initiating signs present, the 120 second timer restarts to open valves
- C. Correct – ADS auto initiation timer will reset when this pushbutton is released and the initiating conditions are still present. Once the 120 second timer times out, the valves reopen.
- D. Incorrect – 8 minute timer is sealed in with initiating signal still present. When 120 second timer times out valves will open.

Technical Reference(s): LOT-00-218 (Attach if not previously provided)
OP 2122, page 3

Proposed references to be provided to applicants during examination: NONE

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	223002 A3.02	
	Importance Rating	3.5	

Ability to monitor automatic operations of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF including: Valve closures

Proposed Question: Common 15

The plant was operating at 30% power when a small Reactor Coolant leak developed in containment. Current plant conditions are:

Reactor scrammed

Drywell pressure is 2.0 psig

Reactor water level reached as low as +80 inches following the scram and is currently steady at +135 inches.

Drywell temperatures range between 140 to 185 deg F

All other parameters are normal for post scram conditions.

PCIS Groups 1 and 2 isolated.

Additionally, which other PCIS group isolations should have actuated?

- A. Groups 4 and 6 ONLY.
- B. Groups 3 and 6 ONLY.
- C. Groups 4 and 5 ONLY.
- D. Groups 3, 4 and 5 ONLY.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – Low Low RPV level is +82.5" and affects Groups 1,2,3,4, and 5.
- B. Incorrect – Low Low RPV level is +82.5" and affects Groups 1,2,3,4, and 5.
- C. Incorrect – Low Low RPV level is +82.5" and affects Groups 1,2,3,4, and 5.
- D. Correct Response

Technical Reference(s): EOPs, Table 'A' (Attach if not previously provided)

Proposed references to be provided to applicants during examination: **EOPs – no entries and
WITHOUT TABLE
A,B,S**

Learning Objective: _____ (As available)

Question Source: Bank # #357
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	239002 K3.02	
	Importance Rating	4.2	

Knowledge of the effect that a loss or malfunction of the relief/safety valves will have on the following: Reactor Over pressurization

Proposed Question: Common 16

The amber light above the control switch for SRV-71C on CRP 9-3 is lit. Annunciator 3-B-8, RX RELIEF VLV BELLOWS LEAKAGE, is alarming.

How will this condition affect the operation of SRV-71C?

- A. SRV-71C cannot be opened by an ADS signal.
- B. SRV-71C cannot be opened by the control switch on CRP 9-3.
- C. SRV-71C can only be operated from the alternate shutdown panel.
- D. SRV-71C may not open at its overpressure lift setpoint.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - ADS signal will still open SRV-71C even with a bellows failure present.
- B. Incorrect - Control Switch will still work with a bellows failure present.
- C. Incorrect - SRV-71C can still be operated from the Control Room using the Control
- D. Correct - Valve may not open automatically at the proper set point on high reactor pressure. ADS and manual valve operations by the operator will function correctly.

Technical Reference(s): ARS 3-B-8 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3666
Modified Bank # _____ (Note changes or attach parent)

New _____

Question History:

Last NRC Exam _____

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	259002 K1.03	
	Importance Rating	3.8	

Knowledge of the physical connections and/or cause-effect relationships between REACTOR WATER LEVEL CONTROL and the following: Reactor water level

Proposed Question: Common 17

The reactor is operating at 75% power.

How will reactor vessel level respond if the Main Steam Line 'C' flow transmitter output to the FWLC system fails downscale? (assume no operator action)

- A. Reactor water level would increase and control at a new higher level.
- B. Reactor water level would decrease and control at a new lower level.
- C. Reactor water level would initially decrease and then return to the original level.
- D. Reactor water level would initially increase and then return to the original level.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - Feed flow would decrease causing a lower level.
- B. Correct – per LOT-01-259- Causes FRV closing due to indicated FF > SF, Level controlled low by as much as 15”
- C. Incorrect – Reactor level would control at a new lower level.
- D. Incorrect - Feed flow would decrease causing a lower level.

Technical Reference(s): LOT-01-259 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	259002 K4.01	
	Importance Rating	3.0	

Knowledge of REACTOR WATER LEVEL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following:
Ensuring adequate NPSH for recirculation pumps: Plant-Specific

Proposed Question: Common 18

The plant is operating normally at 100% power, when the feedwater flow summer fails to zero. The 9-5 Operator takes manual control of and quickly restores level to the normal band.

As a result of the failure, what additional automatic action will occur?

- A. Feedwater pumps trip on sensed low flow.
- B. Recirc pumps runback to minimum speed.
- C. Rod Worth Minimizer rod block.
- D. Recirc pumps runback to 40% demand.

Proposed Answer: B

Explanation (Optional): KA match due to interlock related to adequate NPSH for recirc pumps.

- A. Incorrect - The feedwater pump low flow trip signal is not provided by the feed flow summer. Each pump has a flow element on its suction to provide low flow protection.
- B. Correct – FSAR section 7.9.4.3. – the runback setpoint is based on input that feedwater flow is greater than the minimum specified for recirc or jet pump cavitation considerations (reactor recirc system NPSH interlock value).
- C. Incorrect - The RWM only uses the feed flow and steam flow signals to determine when it should actuate blocks for rods that are positioned outside the prescribed sequence.
- D. Incorrect – recirc runs back to minimum.

Technical Reference(s): ARS 4-F-6 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #1800

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History:

Last NRC Exam _____

Question Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis _____

10 CFR Part 55 Content:

55.41 _____

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>261000 2.4.6</u>	<u> </u>
	Importance Rating	<u>3.1</u>	<u> </u>

Emergency Procedures / Plan Knowledge symptom based EOP mitigation strategies.

Proposed Question: Common 19

Which ONE of the following will provide a method to vent that can be throttled and is filtered when required to vent containment IAW EOPs and OE 3107?

- A. Vent to SBGT to Stack.
- B. 4" Sprays to RHR Drain to Radwaste to Stack.
- C. CAD via 1" Vent to SBGT to Stack.
- D. 18" Air Purge RTFs to Stack

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – Cannot be throttled.
- B. Incorrect – Is not filtered.
- C. Correct – May be throttled and is filtered.
- D. Incorrect – Cannot be throttled and is not filtered.

Technical Reference(s): OE 3107, App. HH (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # _____

 Modified Bank # _____ (Note changes or attach parent)

 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	262001 K1.04	_____
	Importance Rating	3.1	_____

Knowledge of the physical connections and/or cause-effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following: Uninterruptible power supply

Proposed Question: Common 20

An electrical fault has occurred on Bus 1 causing all loads from this bus to shed.

IMMEDIATELY following this event ERFIS is supplied by_____?

- A. John Deere Diesel Generator
- B. Bus-11
- C. DC-1A
- D. UPS 2A Batteries

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - A loss of Bus 1 will result in a loss of Bus 11 (and if sustained, an auto start of the JDDG); however, the arrangement with the battery/inverter will result in a seamless transfer to battery power without transfer of the static switch.
- B. Incorrect - A loss of Bus 1 will cause a loss of Bus 11.
- C. Incorrect - DC-1A has no interconnection with the power scheme for ERFIS
- D. Correct - In the event the normal AC input power to the UPS is lost, the UPS battery will continue to supply DC power to the UPS inverter for a minimum of three hours. Distribution panel, DP-UPS-2A, located in the cable vault room, is powered from the UPS-2A and supplies power to ERFIS and other loads.

Technical Reference(s): Op 2148 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	262002 A4.01	
	Importance Rating	2.8	

Ability to manually operate and/or monitor in the control room: Transfer between alternative and preferred sources

Proposed Question: Common 21

The plant is operating at 100% power with the UPS-1B TROUBLE annunciator (3-C-4) in alarm. An investigation of indications at CRP 9-3 reveals the following:

- "UPS-1B" light above UPS-1B MCC-89B Source Transfer Switch is energized
- "MCC-8B" light above UPS-1B MCC-89B Source Transfer Switch is de-energized
- MCC-89B voltage is 450 VAC

Based on these indications, _____.

- MCC-89B is on the Maintenance Tie.
- The UPS has transferred to DC drive.
- The UPS (B) FDR TRIP keylock switch on CRP 9-33 is in BLOCK.
- Bus voltage is below the low voltage operability limit.

Proposed Answer: B

Explanation (Optional):

- Incorrect - If MCC-89B was on the maintenance tie, the "UPS 1B TRIP" light would be out, and the "MCC 8B CLOSED" light would be energized.
- Correct – per OP 2143, Rev. 43 and ARS 3-C-4, Rev. 6
- Incorrect - The UPS (B) FDR TRIP keylock switch on CRP 9-33 in BLOCK would cause the RHR-27B AUTO OPEN/UPS FDR TRIP BLOCK annunciator (3-C-5) to be in alarm, NOT the UPS-1B TROUBLE annunciator
- Incorrect - The low voltage operability limit is 435 VAC.

Technical Reference(s): OP 2143 (Attach if not previously provided)
ARS 3-C-4

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #1478
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	263000 K1.04	
	Importance Rating	2.6	

Knowledge of the physical connections and/or cause- effect relationships between D.C. ELECTRICAL DISTRIBUTION and the following: Ground detection

Proposed Question: Common 22

Which ONE of the following would occur due to a 135 VDC ground on Bus DC-1?

- A. ONLY Charger BC-1-1A output breaker will trip open.
- B. DC-3 will automatically transfer to DC-2.
- C. Only a control room alarm would occur.
- D. The DC-1 output breaker will trip open and Chargers BC-1-1A and BC-1-1C output breakers will trip open.

Proposed Answer: C.

Explanation (Optional):

- A. Incorrect - This is not an automatic breaker action
- B. Incorrect – There are no automatic transfers of DC-3. Interrelations between DC uses is in discussion section of OP2145.
- C. Correct - OP 2145 Rev 24 Note on page 7 - The DC system is designed such that operability is maintained following receipt of a solid ground fault. Any magnitude of ground fault (including a solid fault) can be tolerated without compromising proper operation of the respective 125 VDC circuits. A control room alarm would occur.
- D. Incorrect - This is not an automatic breaker action.

Technical Reference(s): OP2145 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #6170
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	264000 K4.05	_____
	Importance Rating	3.2	_____

Knowledge of EMERGENCY GENERATORS (DIESEL/JET) design feature(s) and/or interlocks which provide for the following: load shedding and sequencing.

Proposed Question: Common 23

Following a loss of normal power to 4KV Bus 3, the "B " Diesel Generator (DG) started and its output breaker closed. The following parameters exist:

- "B" EDG load 1050 KW
- "B" EDG frequency 59.8 Hz
- Bus 3 voltage 4090 VAC
- No ECCS Pumps are running.

Approximately 5 minutes after conditions are stable, a valid high drywell pressure signal is received.

- All plant systems respond as designed.

Upon receipt of the LOCA signal _____?

- A. The EDG will continue to run, but may be overloaded as the bus emergency loads sequence on.
- B. EDG control will swap from "isochronous" to "droop", and the bus emergency loads will sequence on.
- C. All bus loads will be shed to allow the EDG to support the bus emergency loading requirements.
- D. The EDG output breaker will trip and Operator action will be required to re-energize the bus to support emergency loading.

Proposed Answer: A

Explanation (Optional):

- A. Correct – OP2126 Rev.34, Caution at step F.3.c. – “During isochronous operation, if an ECCS initiation occurs with diesel load greater than 800 kW, the diesel may overload when ESF loads sequentially start.”
- B. Incorrect - If the diesels are already powering the emergency buses when an ESF signal occurs, the ESF loads would start sequentially. However, load shedding would not occur because no loss or interruption of voltage to buses 3 or 4 would be detected by the undervoltage relays. No swap to Droop will occur.
- C. Incorrect – same reason as ‘B’
- D. Incorrect – same as ‘B’

Technical Reference(s): OP2126 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # 3911
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	300000 K3.02	_____
	Importance Rating	3.3	_____

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

Proposed Question: Common 24

Given the following plant conditions:

- A reactor startup and heatup is in progress
- Reactor water level is being controlled via RWCU letdown to the main condenser
- The RWCU Demin Bypass Valve (CU-74) is open
- Main condenser vacuum has been established using the Mechanical Vacuum Pump

A loss of instrument air to the RWCU System will have which of the following effects under these conditions?

- A. High letdown flows will cause RWCU to isolate on high Non-Regenerative Heat Exchanger outlet temperature.
- B. The running RWCU Pump will trip on overcurrent due to pump runout.
- C. A loss of RWCU letdown flow will result in rising reactor water level.
- D. The running RWCU Pump will trip on low flow.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – loss of letdown flow does not impact non-regen ht exh outlet temp
- B. Incorrect - pump trip not affected system flow decreases.
- C. Correct - RWCU Dump Flow Regulator fails letdown valve closed on loss of air. Use of cleanup system to lower or control Rx water level will not be available.
- D. Incorrect – pump trips not affected.

Technical Reference(s): ON 3146 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3876
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	400000 A4.01	
	Importance Rating	3.1	

Ability to manually operate and/or monitor in the control room: CCW indications and control

Proposed Question: Common 25

The following conditions exist:

- The plant is operating at full power with the "A" RBCCW Pump running and the "B" RBCCW Pump in AUTO.
- A LOCA occurs and the reactor scrams on Hi Drywell Pressure.
- An LNP occurs due to a fault in the Start-Up Transformers.
- The "A" RBCCW Pump trips due to the LNP.
- Both Diesel Generators start and load simultaneously.

Based on these events, what is the response of the RBCCW pumps?

- A. The "A" pump will remain tripped. The "B" pump will auto-start 60 seconds after Bus 3 is re-energized.
- B. Both the "A" and "B" pumps will auto-start 60 seconds after Bus 3 and 4 are re-energized.
- C. The "A" pump will auto-start 60 seconds after Bus 4 is re-energized. The "B" RBCCW pump will auto-start only if the "A" pump fails to restart.
- D. The "A" pump will remain tripped. The "B" pump will not auto-start due to the LOCA signal.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect -The "A" pump will auto-start 60 seconds after Bus 4 (and therefore Bus 9) is re-energized. Because the busses are re-energized at exactly the same time both pumps should get an auto-start signal because the low RBCCW Header pressure signal will be "seen" by both pumps
- B. Correct - Busses 9 and 8 power RBCCW pumps "A" and "B", respectively. Busses 9 and 8 are powered from Busses 4 & 3, respectively. Busses 9 and 8 remain connected to Busses 4 & 3 following LNP load shedding. RBCCW pumps are sequences on 60 sec. Following the EDG re-powering the busses.
- C. Incorrect -The "B" pump will auto-start 60 seconds after Bus 3 (and therefore Bus 8) is re-energized. Because the busses are re-energized at exactly the same time both pumps should get an auto-start signal because the low RBCCW Header pressure signal will be "seen" by both pumps
- D. Incorrect -Busses 9 and 8 power RBCCW pumps "A" and "B", respectively. Busses 9 and 8 are powered from Busses 4 & 3, respectively. Busses 9 and 8 remain connected to Busses 4 & 3 following LNP load shedding. RBCCW pumps are sequences on 60 sec. following the EDG re-powering the busses, even when a LOCA signal is present..

Technical Reference(s): OP 2182 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #5570
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>400000 A1.04</u>	<u> </u>
	Importance Rating	<u>2.8</u>	<u> </u>

Ability to predict and / or monitor changes in parameters associated with operating the CCWS controls including: Surge Tank Level.

Proposed Question: Common 26

Which ONE of the following is correct in regard to RBCCW surge tank level?

The RBCCW surge tank fill valve (LCV-1) _____.

- A. fails open on a loss of power and surge tank level will rise.
- B. fails as-is on a loss of power and surge tank level will rise or lower dependent on system operating needs.
- C. must be manually operated on a low surge tank level alarm.
- D. will automatically maintain surge tank level in a preset band.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – valve fails closed.
- B. Incorrect – valve fails closed.
- C. Incorrect – the bypass valve around LCV-1 will be auto open prior to low level alarm
- D. Correct - Surge tank level is maintained by automatic makeup from the demineralized water transfer system.

Technical Reference(s): ARS 6-M-8 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	201006 K3.01	
	Importance Rating	3.2	

Knowledge of the effect that a loss or malfunction of the ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) will have on following: Reactor manual control system: P-Spec(Not-BWR6)

Proposed Question: Common 27

Reactor power is at 17% when a failure occurs to the Rod Position Information System (RPIS).

Which ONE of the following describes the effect this will have on the Rod Worth Minimizer (RWM) and Reactor Manual Control Systems (RMCS)?

- A. RPIS will send a select error to the RWM. RMCS will not allow notch in or out rod movement due to the RWM select error.
- B. The RWM will generate rod withdraw and insert blocks preventing notch in or out rod movement with RMCS.
- C. The RWM is above the LPSP therefore RMCS and the RWM will be unaffected.
- D. The RWM will generate a withdraw rod block ONLY and rod insertion will be permitted in RMCS.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - The failure of RPIS will cause a RWM rod block. RPIS will enforce its own select block (it does not send a select error to the RWM).
- B. Correct - The failure of RPIS will cause a RWM rod block. RMCS will not permit normal rod in or out movement with a RWM rod block enforced.
- C. Incorrect - The RWM LPSP is 21%.
- D. Incorrect – Withdraw and Insert blocks are generated by the RWM.

Technical Reference(s): LOT-04-201 (Attach if not previously provided)
OP 2450

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	202001 K2.03	
	Importance Rating	2.7	

Knowledge of electrical power supplies to the following: Recirc System Valves

Proposed Question: Common 28

A loss of power has occurred to MCC-89A.

Which ONE of the following describes the effect on the Recirculation system?

- A. The "A" Recirc Pump discharge valve will have lost power. The "A" recirc pump suction valve will still be able to auto close on a valid combination of LPCI initiation signals.
- B. The "A" Recirc Pump discharge AND suction valves will have lost power.
- C. The "A" Recirc Pump drive motor will have lost power. The "A" recirc pump discharge valve will still be able to auto close on a valid combination of LPCI initiation signals.
- D. The "A" Recirc Pump drive motor will have lost power. The "A" recirc pump suction valve will still be able to auto close on a valid combination of LPCI initiation signals.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – MCC 89A supplies both the suction and discharge valves for "A" recirc pump. The pump discharge valve auto closes, not the suction.
- B. Correct – MCC89A supplies both valves
- C. Incorrect – Bus 1 supplies the drive motor.
- D. Incorrect – Bus 1 supplies the pump motor.

Technical Reference(s): OP 2143, App. A. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	214000 A2.02	
	Importance Rating	3.6	

Ability to (a) predict the impacts of the following on the ROD POSITION INFORMATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Reactor SCRAM.

Proposed Question: Common 30

The reactor has been scrammed due to a plant transient. The full core display indicates that all control rods are at "00" with the exception of two control rods. One is at position "04", the other at position "02"

Which ONE of the following describes reactor status per EOP Table B, and the EOP procedure(s) that must be entered? (Assume all containment and reactor parameters are within normal bands following the scram)

- A. The reactor is shutdown, however, EOP-2 must be entered because all control rods are not at position "00". EOP-1 is not required to be entered.
- B. The reactor is shutdown and ONLY EOP-1 must be entered.
- C. The reactor is not shutdown and EOP-1 and EOP-2 must be entered.
- D. The reactor is not shutdown and ONLY EOP-2 must be entered.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – per table B of EOPs, with more than one rod not at position "00", the reactor is not shutdown.
- B. Incorrect - per table B of EOPs, with more than one rod not at position "00", the reactor is not shutdown.
- C. Correct – the reactor is not shutdown, EOP-1 is entered and then EOP-2 is entered from direction in EOP-1.
- D. Incorrect – EOP-1 must be entered to get to EOP-2.

Technical Reference(s): EOPs 1 &2, Table B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs, no entry conditions , No table A,

B, S.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	219000 A3.01	
	Importance Rating	3.3	

Ability to monitor automatic operations of the RHR/LPCI: Torus/suppression pool cooling mode including: valve operation

Proposed Question: Common 31

Given the following sequence of events:

- 0800 "A" Loop of RHR is started in torus cooling
- 0810 Reactor coolant leak in the drywell occurs
- 0820 Drywell pressure is 2.5 psig and rising
- 0830 Reactor water level is 127" and lowering
- 0840 Reactor water level is 82.5" and lowering
- 0850 Reactor pressure is 350 psig and lowering

Under these conditions, which ONE of the following times is the earliest that the torus cooling/spray valves (RHR 39A/34A) would close at:

- A. 0820
- B. 0830
- C. 0840
- D. 0850

Proposed Answer: A

Explanation (Optional):

- A. Correct - The high drywell signal alone will close all non-LPCI injection paths
- B. Incorrect - If the operator does not know his low versus low low level setpoints, this is a valid distractor.
- C. Incorrect - If the operator is not aware that low low level and low reactor pressure are required this is a valid distractor.
- D. Incorrect - This is a close signal to RHR 34A/39A, but they were already closed at 0820.

Technical Reference(s): OP 2124 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	226001 A4.07	
	Importance Rating	3.5	

RHR/LPCI Cont. Spray: Ability to manually operate and /or monitor in the control room: valve logic reset/bypass/override

Proposed Question: Common 32

The following conditions are present:

- Drywell and Suppression Chamber pressures are 10 psig.
- RPV level is -54 inches on LT-2-3-91A/B (Shroud Level) and slowly rising.
- Both RHR Pumps A and B are injecting through the heat exchangers.
- RHR Pumps C and D have been secured.
- Both loops of Core Spray are injecting.

Having placed S-17B (RHR B/D LOGIC CTMT SPRAY LPCI SIG BYPASS/Pistol Grip) in Manual, you attempt to open the DWL SPRAY OUTBD RHR-26B valve to initiate Drywell spray and it doesn't respond.

Which ONE of the following is a requirement before you can open RHR-26B?

- The LPCI initiation signal must be reset.
- RPV level must be higher than Low-low level.
- HX BYPASS RHR-65B must be closed.
- S-18B (RHR B/D LOGIC CTMT SPRAY VLV SHROUD LVL OVRD) must be placed in Manual Override.

Proposed Answer: D

Explanation (Optional):

- Incorrect – the initiation signal need not be reset
- Incorrect – does not have to be higher than low-low level
- Incorrect – not interlocked with 65B.
- Correct – Per LOT-00-205H, table 3

Technical Reference(s): LOT-00-205H (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #350
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	241000 A4.06	
	Importance Rating	3.9	

Ability to manually operate and/or monitor in the control room: Bypass valves operation

Proposed Question: Common 34

During normal operations with reactor power at 100% and reactor pressure at 1005 psig, the BOP operator inadvertently takes the control switch for the BPVOJ to the RAISE position and holds it there until it is at full stroke.

Which ONE of the following describes the MHC system response to this action?

- A. One bypass valve begins to open and the Control Valves will throttle close in order to maintain reactor pressure stable.
- B. Nothing will happen because the EPR is in control.
- C. Control valves open to the Speed/Load changer setpoint and then bypass valves open.
- D. Bypass valves immediately open, control valves remain as is.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – Control valves do not throttle closed
- B. Incorrect – The Bypass Jack overrides the EPR
- C. Correct Response
- D. Incorrect- Control valves open to the speed/load changer setpoint.

Technical Reference(s): GEK-11277A and GE Drawing 947D627 (rev 1) (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #591
Modified Bank # _____ (Note changes or attach parent)

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.41 7
55.43 _____

Comments:

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 2
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>272000 A3.09</u>	<u> </u>
	Importance Rating	<u>3.6</u>	<u> </u>

Ability to monitor automatic operations of the RADIATION MONITORING SYSTEM including: Containment Isolation Indications.

Proposed Question: Common 36

Which ONE of the following will you observe in regard to the Rx Bldg Vent Radiation Monitor "A" when RPS "A" is placed on its' alternate power supply.

The monitor will_____.

- A. Remain energized.
- B. De-energize without causing a Group III isolation signal and remain de-energized.
- C. De-energize, cause a 1/2 Group III isolation signal and then reenergize.
- D. De-energize, cause a full Group III isolation signal and then reenergize.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – power transfer is break-before-make. The monitor will lose power.
- B. Incorrect – A full group III isolation will occur. The monitor will reenergize from its alternate source.
- C. Incorrect – It will cause a full Group III isolation.
- D. Correct - The transfer of RPS is a break before make so the monitor deenergizes. This causes an isolation signal to be generated. The isolation signals for the "A" and "B" Rx Bldg Vent Rad Monitors are wired in series so it only takes one to cause a full Group III.

Technical Reference(s): OP2134 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3583
Modified Bank # _____ (Note changes or attach parent)

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	288000 K6.03	
	Importance Rating	2.7	

Knowledge of the effect that a loss or malfunction of the following will have on the PLANT VENTILATION SYSTEMS: Plant air systems

Proposed Question: Common 37

Given the following:

- Reactor Building Ventilation is in service with Supply Fan RSF-1A and Exhaust Fan REF-1A running.
- RSF-1B and REF-1B are in their normal standby lineup.

The air supply line to the operator for HVAC-9, Reactor Building Supply Isolation Valve, ruptures and is completely severed from its actuator.

- HVAC-10, Reactor Building Supply Isolation Valve, remains unaffected.

How will the Reactor Building Ventilation System respond to these conditions?

- RSF-1A will trip and RSF-1B will auto start.
- RSF-1A will trip and REF-1A will trip.
- RSF-1A will run and REF-1A will run.
- RSF-1A will run and RSF-1B will receive a trip signal.

Proposed Answer: B

Explanation (Optional):

- Incorrect – No auto starts will occur
- Correct - HVAC 9 and 10 are in series valves in the common HVAC supply line. They fail closed on a loss of air. Either valve closing will shut off the HVAC supply line which will cause the running supply fan to trip and prevent starting of the standby fan.
- Incorrect – Both will trip.
- Incorrect – RSF-1A will trip.

Technical Reference(s): ON 3146
OP 2192

(Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3585
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	290002 K4.01	_____
	Importance Rating	3.7	_____

Knowledge of REACTOR VESSEL INTERNALS design feature(s) and/or interlocks which provide for the following: 2/3 Core Coverage following a DBA LOCA

Proposed Question: Common 38

During the Jet Pump surveillance it was determined that two of the jet pumps are no longer intact. A plant shutdown is required because _____.

- A. this causes excessive carryover of moisture under higher flow conditions.
- B. there is no assurance of a floodable volume during a DBA LOCA.
- C. this causes excessive carryunder of steam under high power conditions.
- D. there is no assurance that the MCPR limits can be met while operating.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – not IAW FSAR description.
- B. Correct Response – FSAR 4.3.5. – the core flooding capability is provided by the jet pump design. If inoperable core re-flood could not be assured.
- C. Correct – not IAW FSAR description.
- D. Incorrect - not IAW FSAR description.

Technical Reference(s): UFSAR Section 4.3.5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5841

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295001 AK3.02	_____
	Importance Rating	3.7	_____

Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : Reactor power response

Proposed Question: Common 39

The Reactor is operating at 90% RTP when the following indications are observed:

Power decreases, steadying out at ~81%

Steam flow decreases, steadying out at 6.5 Mlbs/hr

Condenser backpressure decreases, steadying out at 1.4 inches HG ABS

These conditions indicate that_____.

- A. the EPR has failed and the MPR has taken control.
- B. HPCI has inadvertently started and is injecting at 4200 GPM into the vessel.
- C. a jet pump mixer failure has occurred.
- D. both Recirc Pumps have run back to ~60% core flow.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - EPR failure and the subsequent small pressure rise would not cause power to decrease by 10%
- B. Incorrect - If HPCI had begun injecting the cold water would have raised pressure.
- C. Correct – some core flow is bypassed decreasing power and flow.
- D. Incorrect - Power level for a runback to 60% core flow would cause a power decrease much greater than 10%

Technical Reference(s): ON 3141 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: Power to Flow Map

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295003 AA1.02	_____
	Importance Rating	4.2	_____

Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : Emergency generators

Proposed Question: Common 40

The 'A' EDG has just completed its monthly surveillance test. While the stopping relay is timing out, a Loss of Normal Power occurs.

Which ONE of the following describes the "A" EDG response?

- A. The EDG will auto start and will load.
- B. The EDG will auto start and load after the stopping relay times out.
- C. The EDG will auto start and load after the AT ENGINE/REMOTE switch is placed in AT ENGINE, the shutdown relay is reset locally, the stopping relay times out, and the local AT ENGINE/REMOTE switch is returned to REMOTE.
- D. The EDG will auto start and load after the shutdown relay is reset locally, the stopping relay times out. The position of the AT ENGINE/REMOTE switch has no affect on EDG auto start capabilities under LNP conditions.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – No EDG start occurs when the stopping relay is timing out.
- B. Incorrect – The shutdown relay also needs to be reset and the AT ENGINE/REMOTE switch must be in remote.
- C. Correct
- D. Incorrect – The AT ENGINE/REMOTE switch must be in remote for an auto start.

Technical Reference(s): OP 2126 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295004 AA1.02	_____
	Importance Rating	3.8	_____

Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : systems necessary to assure safe plant shutdown.

Proposed Question: Common 41

The plant has experienced a small break LOCA and the EOPs have been entered.

- Both EDGs are running
- HPCI is in pressure control
- RCIC is level control

How would the loss of DC-1 affect the operation of HPCI, RCIC, and the EDGs?

- A. The HPCI and RCIC high level trip would not function. The control power to "A" EDG would be lost.
- B. The HPCI high level trip would not function, RCIC would be unaffected, and the control power to "A" EDG would be lost.
- C. The RCIC high level trip would not function, HPCI would be unaffected, and the control power to the "B" EDG would be lost.
- D. The HPCI and RCIC high level trip would not function. The control power to the "B" EDG would be lost.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – control power is lost to the "B" EDG not the "A"
- B. Incorrect – RCIC high level trip is also lost and the "B" EDG loses control power.
- C. Incorrect – HPCI high level trip is also lost.
- D. Correct - HPCI and RCIC high level trip would not function. The control power to the "B" EDG would be lost.

Technical Reference(s): ON-3159, Loss of DC-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295005 AA2.03	_____
	Importance Rating	3.1	_____

Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP: Turbine valve position

Proposed Question: Common 42

Which ONE of the following describes the turbine valve response associated with an MTS-1 trip due to a reactor scram?

- A. Bypass Valves, Reverse Current Valves and Control Valves close.
- B. Stop Valves, Control Valves and Bypass Valves close.
- C. Stop Valves, Reverse Current Valves and Intermediate Stop Valves close.
- D. Control Valves and Intermediate Stop Valves close. Reverse Current Valves open

Proposed Answer: C.

Explanation (Optional):

- A. Incorrect – Bypass Valves are closed by MTS-2 or Low Turbine Vacuum.
- B. Incorrect - Bypass Valves are closed by MTS-2 or Low Turbine Vacuum.
- C. Correct Response
- D. Incorrect – Reverse Current Valves close when MTS-1 causes extraction steam dump valve relay to trip.

Technical Reference(s): LOT-00-249 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)

New

X

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41

55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295002 2.4.11	
	Importance Rating	3.4	

Emergency Procedures/Plan: Knowledge of Abnormal Condition procedures

Proposed Question: Common 43

During 100% power operations the following indications are reported to the CRS:

- AOG inlet flow increases
- AOG-100 line pressure has increased
- Main Condenser Low Vacuum alarm is in
- Steam seal pressure is zero

Given these indications, which ONE of the following procedures addresses all four of the above conditions?

- A. ON 3151, Off Gas Explosion
- B. OT 3120, Condenser High Back Pressure
- C. OP 2160, Turbine Generator
- D. OP 2150, AOG/Air Evacuation

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - Off gas explosion is wrong because it will not cause a loss of steam seal pressure.
- B. Correct Response - OT 3120, Loss of Vacuum, contains actions for a loss of vacuum caused by a loss of steam seal pressure.
- C. Incorrect - The Turbine Generator OP contains no actions for these conditions.
- D. Incorrect - OP 2150 contains no actions for a loss of steam seal pressure.

Technical Reference(s): OT 3120 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____

Question Source: Bank # 1055
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295016 AK3.03	
	Importance Rating	3.5	

Knowledge of the reasons for the following responses as they apply to CONTROL ROOM ABANDONMENT : Disabling Control Room Controls.

Proposed Question: Common 44

Which ONE of the following describes the reason that the "A" RHR Pump control switch is placed in Pull-To-Lock while performing initial actions of OP-3126?

- A. To meet the interlock for the RHR Alternate Shutdown Transfer Switches required for local control.
- B. To ensure that the pump does not start and meet the logic for Automatic Depressurization System actuation.
- C. To prevent pump starts until the RHR Shutdown Cooling Isolation Valves (RHR- 17 / 18) are open for a suction path.
- D. To ensure that the pump does not start without minimum flow protection during transfer to local control.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – doesn't provide min flow protection
- B. Incorrect - doesn't provide min flow protection
- C. Incorrect - doesn't provide min flow protection
- D. Correct – per OP 3126, Shutdown Using Alternate Shutdown Methods

Technical Reference(s): OP 3126, OP 2124

(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3941
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295018 AK1.01	
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following: Effects on components/system operations

Proposed Question: Common 45

A SW break has occurred.

SW header pressure gradually falls to 30 psig over the next 10 minutes.

Which of the following loads will automatically isolate as header pressure drops?

- A. RBCCW Heat Exchangers and Generator Hydrogen Coolers.
- B. RR MG Set Lube Oil Coolers and Generator Hydrogen Coolers.
- C. RBCCW Heat Exchangers and Steam Tunnel RRUs.
- D. RR MG Set Lube Oil Coolers and Steam Tunnel RRUs.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - RBCCW Ht Exh. Are not isolated
- B. Correct - Low service header pressure at 50 psig for 27 seconds causes an isolation. The isolation removes only certain components
- C. Incorrect – Steam Tunnel RRU's and RBCCW Ht. Exh. are not isolated.
- D. Incorrect – Steam Tunnel RRU's are not isolated

Technical Reference(s): OP 2181 (Attach if not previously provided)
LOT-00-276

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5624
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295019 AK2.08	
	Importance Rating	2.8	

Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Plant ventilation.

Proposed Question: Common 46

A rupture of the instrument air system occurs with the reactor at 100% power. Instrument air header pressure has dropped to 0 psig.

Initially, which ONE of the following is correct concerning the control room ventilation IAW ON 3146?

- A. Control Room Ventilation has auto swapped to the Recirc mode to maintain habitability.
- B. SAC-1A and 1B automatically are maintaining control room temperature within limits.
- C. Control Room ventilation has been lost and must be manually restored.
- D. Temporary ventilation must be installed to maintain control room habitability.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - Manual operator action is required for this to occur.
- B. Incorrect – SAC-1A and 1B must be secured.
- C. Correct – per procedure note – I&C must be summoned promptly
- D. Incorrect – not noted in the procedure.

Technical Reference(s): ON 3146 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3558
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295021 AK2.03	_____
	Importance Rating	3.6	_____

Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: RHR/shutdown cooling

Proposed Question: Common 47

Given the following conditions:

The plant is in Cold Shutdown
 Reactor coolant temperature is 190°F
 The reactor vessel head is installed
 Initial vessel water level is 165 inches
 The RHR lineup is as follows:

The "A" Loop is in shutdown cooling with the "C" RHR Pump in service
 The "B" Loop is in torus cooling with the "D" RHR Pump in service
 The "A" and "B" RHR Pumps are NOT available

Subsequently, water level drops until it is 77 inches and steady

Assuming no operator actions are taken, what is the response of RHR and RHRSW to these conditions?

- A. All running RHR and RHRSW pumps trip.
- B. The "C" RHR and both RHRSW pumps trip. The "D" RHR pump continues to operate.
- C. The "C" RHR and its associated RHRSW pump trip. The "D" RHR and its associated RHRSW pump continue to operate.
- D. All RHR and RHRSW pumps continue to operate.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – D RHR continues to run it has a suction path from the torus.
- B. Correct - A level of 127" causes a Group IV isolation
 - RHR 17 & 18 valves go closed (C RHR pump suction for SDC)
 - Any RHR pump without a clear suction path trips (RHR C)
 - 82.5" is a LOCA signal if Rx <350#
 - LOCA signal trips RHRSW
- C. Incorrect – both RHRSW pumps trip on the LOCA signal
- D. Incorrect – Only D RHR continues to operate.

Technical Reference(s): LOT-00-205H (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3946
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295023 AK3.02	
	Importance Rating	3.4	

Knowledge of the reasons for the following responses as they apply to REFUELING ACCIDENTS : Interlocks associated with fuel handling equipment.

Proposed Question: Common 48

Given the following conditions:

- The plant is in a refueling outage
- The Mode Switch is in REFUEL
- The refueling platform is over the spent fuel pool
- A fuel bundle has been loaded on the Main Hoist, and has been raised out of the fuel pool storage rack

Which ONE of the following actions will result in a rod block?

- A. The Refueling Platform Operator raises the Main Hoist to the FULL UP position.
- B. The Reactor Operator places the Mode Switch in STARTUP + HOT STBY.
- C. The Refueling Platform Operator moves the platform over the reactor vessel.
- D. The Reactor Operator selects, but does NOT withdraw, a single control rod.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – Condition does result in rod block per OP 1100
- B. Incorrect – Condition does result in rod block per OP 1100
- C. Correct Response
- D. Incorrect – Condition does result in rod block per OP 1100

Technical Reference(s): OP 1100, Rev. 25 (Discussion Section, pg 10) (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5889
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295024 2.4.2	_____
	Importance Rating	3.9	_____

High DW Pressure - Emergency Procedures Plan: Knowledge of system setpoints/interlocks and automatic actions associated with EOP entry conditions.

Proposed Question: Common 49

The plant is at 90% power.

Which ONE of the following describes system response to a Drywell pressure increase to 2.5 psig?

(Assume other containment/reactor parameters are in their normal band when this occurs)

	<u>SYSTEM</u>	<u>AFFECT</u>
A.	PCIS Group 4 EDGs PCIS Group 5 RCIC	Receives Isolation Signal. Start. Isolates. Starts.
B.	HPCI PCIS Group 1 Core Spray PCIS Group 2	Starts. Isolates. All pumps start. Isolates.
C.	RHR Core Spray EDGs PCIS Group 3	All pumps start after 8 minute time delay. All pumps start after 8 minute time delay. Start. Isolates.
D.	PCIS Group 4 Main Generator HPCI SBGT	Receives Isolation Signal. Lockout. Starts. Fans start.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – PCIS Group 5 and RCIC not affected by High DW Pressure signal.
- B. Incorrect – PCIS Group 1 not affected by High DW Pressure signal.
- C. Incorrect – No time delays for RHR and CS.
- D. Correct – Per Table A of EOPs.

Technical Reference(s): EOPs Table A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no Table A, B or S.

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	295025 2.1.32	_____
	Importance Rating	3.4	_____

Conduct of operations: Ability to explain and apply all system limits and precautions.

Proposed Question: Common 50

During a reactor startup, reactor pressure must be maintained below __ (1) __ psig to prevent a high reactor pressure scram until low condenser vacuum isolation bypass switches are in __ (2) __.

- A. (1) 850
(2) Bypass
- B. (1) 950
(2) Bypass
- C. (1) 850
(2) Normal
- D. (1) 950
(2) Normal

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - Low vacuum bypass must be in normal before exceeding 850 psig
- B. Incorrect - 850 psig can not be exceeded with the low vacuum isolation bypassed, procedure requires pressure > 750 and <850 psig to return it to service.
- C. Correct Response - For startup, vacuum trips 1 & 2 are tripped to ensure Tech Spec compliance. Reactor heatup is begun without pressure control. The low vacuum isolation bypass must be returned to service to allow bypass valves to control pressure. If the steps/caution are not followed a high reactor pressure scram will occur.
- D. Incorrect - 850 psig can not be exceeded with the low vacuum isolation bypassed, procedure requires pressure > 750 and <850 psig to return it to service.

Technical Reference(s): OP 0105 Phase 2C. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #5718
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295026 EK2.03	
	Importance Rating	3.2	

Knowledge of the interrelations between SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression Chamber Pressure.

Proposed Question: Common 51

If Torus temperature and RPV pressure cannot be maintained below the Heat Capacity Temperature Limit, RPVED is required IAW EOP-3.

This action is performed to avoid_____.

- A. damaging SRV downstream piping during RPV Emergency Depressurization.
- B. losing reliable indication on RPV level instruments after RPV Emergency Depressurization.
- C. overpressurizing the Primary Containment during RPV Emergency Depressurization.
- D. excessive hydrodynamic loading on downcomer piping during RPV Emergency Depressurization.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - Unrelated to SRV tailpipes.
- B. Incorrect - Level instrumentation affected by drywell temp.
- C. Correct - Highest torus temp which does not exceed PCPL-A on RPVED.
- D. Incorrect - Hydrodynamic loading on downcomers not relevant to HCTL.

Technical Reference(s): EOP 3, Vol. 4, Study Guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no table A, B or S.

Learning Objective: _____ (As available)

Question Source: Bank # #3548
Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295036 EA1.02	
	Importance Rating	3.5	

Ability to operate and/or monitor the following as they apply to High Secondary Containment Sump/Area Water Level: Affected systems so as to isolate damaged portions.

Proposed Question: Common 52

While controlling secondary containment parameters using EOP-4, the operator is directed to isolate all primary systems discharging into secondary containment.

The operator would secure which ONE of the following given the associated conditions?

- A. CRD pump A with a leaking discharge flange. Reactor water level is steady at 75 inches. No other sources of high pressure water are available to feed the reactor.
- B. RHR pump B in drywell spray with 400 GPM leaking out of the pump discharge valve. No power is available to the 'A' RHR pump.
- C. SLC pump A with 15 GPM leaking from the squib valve. An ATWS is in progress and SLC pump B is disassembled.
- D. A fire header leaking 100 GPM into an RHR pump room. The fire header is the only source of water to fight the fire in the HPCI room.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – does not meet the EOP-4 definition of “primary system” discharging into containment.
- B. Correct - As referenced in EOP-4 a "primary System" is a system whose pressure change is directly related to and caused by a change in RPV pressure.
- C. Incorrect – does not meet the EOP-4 definition of “primary system” discharging into containment.
- D. Incorrect – does not meet the EOP-4 definition of “primary system” discharging into containment.

Technical Reference(s): EOP, Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs no entry conditions, no table A,

B or S.

Learning Objective: _____ (As available)

Question Source: Bank # #3203
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295028 EK2.04	
	Importance Rating	3.6	

Knowledge of the interrelations between High Drywell temperature and the following: Drywell ventilation.

Proposed Question: Common 53

The following conditions exist with the plant at 100% power:

- Drywell pressure 2.1 psig
- Annunciator 9-5-C-9, CRD CIRCUM TEMP HI, is lit
- Steam leak detection panel drywell channels 18, 19 and 20 indicate the undervessel temperatures are approximately 165°F
- Drywell RRU Selector Switches are aligned as follows:
 - RRU 1: A & B RUN
 - RRU 2: A RUN
 - RRU 3: A RUN
 - RRU 4: A & B STBY

Assume no operator action has been taken.

Which ONE of the following describes the status of drywell RRU fans?

- A. All RRU fans RUNNING.
- B. 1A, 1B, 2A, 2B, 3A, 3B RUNNING; 4A, 4B OFF.
- C. 1A, 1B, 2A, 3A RUNNING; 2B, 3B, 4A, 4B OFF.
- D. 1A, 1B, 2A, 3A, 4A, 4B RUNNING; 2B, 3B OFF.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect- 2B and 3B are not in standby or Run and will not start.
- B. Incorrect- STBY fans auto start on HI undervessel temp (4A 4B), fans that are OFF do not auto start
- C. Incorrect – 4A and 4B will auto start because they were in Standby.
- D. Correct - RRU will auto start if either of two thermocouples in Control Rod Drive (CRD) area reach 160° with associated "CRD CIRCUM TE-HI" Alarm on CRP 9-5.

Technical Reference(s): LOT-00-288 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3624
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 7
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295030 EA 1.05	
	Importance Rating	3.5	

Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: HPCI

Proposed Question: Common 54

HPCI is in service following a plant event.

Which ONE of the following describes an operating limitation for HPCI as Suppression Pool level lowers?

- A. Continued HPCI operation at a Suppression Pool level of <6.0 feet will result in the loss of HPCI pump NPSH and pump damage.
- B. Continued HPCI operation at a Suppression Pool level of <7.0 feet will result in uncovering the HPCI exhaust line and pressurization of the Torus air space.
- C. Excessive water hammer and exhaust line pipe damage will occur when HPCI is operated at a Suppression Pool level of <6.0 feet.
- D. RHR in Torus Cooling can not adequately dissipate the heat the HPCI turbine exhaust adds to the pool when Suppression Pool level is <7.0 feet.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – not an operational concern given level
- B. Correct – Operation of the HPCI System with its exhaust discharge device not submerged will pressurize the Torus. This occurs at <7.0 feet. The consequences of not doing so [securing HPCI] may extend to failure of the Primary Containment due to over pressurization.
- C. Correct – not an operational concern for the given level
- D. Correct – not an operational concern for the given level

Technical Reference(s): EOP Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #3207
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>295031 EA2.04</u>	
	Importance Rating	<u>4.6</u>	<u> </u>

Ability to interpret and/or determine the following as they apply to REACTOR LOW WATER LEVEL: Adequate Core Cooling.

Proposed Question: Common 55

A LOCA has occurred and all rods are in. Reactor water level is low and can not be maintained in the normal band.

Which ONE of the following ensures Adequate Core Cooling IAW the EOPs?

- A. LPCI injecting at 7,000 gpm and vessel level is at -28".
- B. 'A' Core Spray injecting at 3,300 gpm and vessel level is at -40".
- C. HPCI injecting at 4,000 gpm and vessel level is at -49".
- D. RCIC injecting at 400 gpm and vessel level is at -6".

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - Level must be > - 48" with at least one CS pump @3250 gpm (NOT LPCI)
- B. Correct – level is > -48" and CS flow is > 3250 gpm. (EOP-1, Table S)
- C. Incorrect -Level must be > -48" with CS >3250 gpm.
- D. Incorrect -Level must be > -48" with CS >3250 gpm.

Technical Reference(s): EOP, Vol 4. Study Guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs no entry conditions, no table A, B or S.

Learning Objective: _____ (As available)

Question Source: Bank # #3603

 Modified Bank # _____ (Note changes or attach parent)

 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295037 EK3.03	
	Importance Rating	4.1	

Knowledge of the reasons for the following responses as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : Lowering Reactor Water Level.

Proposed Question: Common 56

During an ATWS condition, the operator is unable to restore and maintain reactor water level > -19". "Terminate and Prevent" is ordered IAW EOP-5 in order to _____?

- A. lower RPV level to lower reactor power.
- B. lower RPV level to concentrate boron in the vessel.
- C. allow RPV level to drop below the Minimum Steam Cooling Pressure.
- D. prevent injection of large amounts of cold, unborated water into the RPV.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – Water level previously lowered in EOP-2 in an attempt to lower power.
- B. Incorrect – not per EOP bases for given conditions.
- C. Incorrect – not per EOP bases for given conditions.
- D. Correct –A large power excursion will occur once pressure < LP ECCS pump shutoff head.

Technical Reference(s): EOP, Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no table A or B.

Learning Objective: _____ (As available)

Question Source: Bank # #1311
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	295038 EK1.02	
	Importance Rating	4.2	

Knowledge of the operational implications of the following concepts as they apply to HIGH OFF-SITE RELEASE RATE : Protection of the general public.

Proposed Question: Common 57

EOP-4, Radioactivity Release Control, contains an Override to restart Turbine Building HVAC, if it is shut down, in order to assure _____.

- A. a controlled and monitored ground release.
- B. that Turbine Building HVAC is able to maintain a positive pressure in the Turbine Building.
- C. a monitored and elevated release.
- D. that any radioactive discharge is contained in secondary containment.

Proposed Answer: C

Explanation (Optional): KA Justification – This EOP step will ensure that any release in the turbine building will be monitored and elevated providing information needed in the event a PAR is required for protection of the public.

- A. Incorrect - TB HVAC discharge is elevated via the plant stack release path.
- B. Incorrect -TB HVAC maintains a negative pressure within the TB.
- C. Correct - TB HVAC is restarted to ensure any release is elevated via the plant stack release path.
- D. Incorrect -If radiation levels are elevated within the TB then the release has already bypassed primary and secondary containments. Starting TB HVAC will have no affect on containing the leak. Isolating a primary system leak is the only path to success in EOP-4 Rad Release.

Technical Reference(s): EOP, Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no table A, B or S.

Learning Objective: _____ (As available)

Question Source: Bank # #2213
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	600000 AK1.02	
	Importance Rating	2.9	

Knowledge of the operations applications of the following concepts as they apply to PLANT FIRE ON SITE: Fire Fighting

Proposed Question: Common 58

An electrical fire is burning in MCC-89A. To use water to fight the fire in MCC-89A, the MCC_____.

- A. MUST be de-energized and the Brigade Commander's permission is required to use water on an electrical fire.
- B. SHOULD be de-energized and the Brigade Commander's permission is required to use water on an electrical fire.
- C. MUST be de-energized and the Shift Manager's permission is required to use water on an electrical fire.
- D. SHOULD be de-energized and the Shift Manager's permission is required to use water on an electrical fire.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – By procedure OP3020, electrical equipment should be de-energized. By procedure OP 2186, SM must approve use of water on an electrical fire.
- B. Incorrect - By procedure OP 2186, SM must approve use of water on an electrical fire.
- C. Incorrect - By procedure OP3020, electrical equipment should be de-energized.
- D. Correct - By procedure OP3020, electrical equipment should be de-energized. By procedure OP 2186, SM must approve use of water on an electrical fire.

Technical Reference(s): OP2186 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: (As available)

Question Source: Bank # #5728
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295019 AK2.03	
	Importance Rating	3.2	

Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Reactor Feedwater.

Proposed Question: Common 59

A complete loss of instrument air has occurred and the reactor has been manually scrammed. Reactor Feed Pumps have been tripped.

IAW ON 3146, Loss of Instrument/Scram Air Header Pressure, control RPV water level with _____ after a reactor feed pump has been started.

- A. FCV-12A Main Feed Reg valve in local manual.
- B. FCV-13 10% Feed Reg valve in manual.
- C. FDW-11A "A" Feed Reg valve blocking valve.
- D. FDW-5 HP Heater Bypass valve.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – Not the correct action per ON 3146 -
- B. Incorrect – Not the correct action per ON 3146
- C. Incorrect – Not the correct action per ON 3146
- D. Correct response per ON 3146

Technical Reference(s): ON 3146 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # 5666
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	295010 2.4.18	_____
	Importance Rating	2.7	_____

Emergency Procedures / Plan: Knowledge of the specific bases for EOPs

Proposed Question: Common 60

Which ONE of the following is the bases for initiating Drywell Spray only when in the SAFE Region of the Drywell Spray Initiation Curve IAW EOP-3?

- A. Prevent overpressurization of containment and exceeding Drywell design internal pressure limits.
- B. Prevent collapsing the downcomers due to excessively high DP with DW pressure higher than Torus pressure.
- C. Prevent Drywell Sprays from flashing to steam.
- D. Prevent failure/deinerting of containment after Drywell Sprays are initiated.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - Overpressurization is not a concern. When drywell sprays are initiated DW pressure will be reduced.
- B. Incorrect - Adherence to the DW spray initiation curve prevents the DW to Torus pressure from becoming excessively negative due to evaporative cooling in the DW.
- C. Incorrect - It is expected that the DW spray droplets will flash into steam while spray is in service.
- D. Correct - The basis of the DWSI Curve is to ensure the ensuing evaporative cooling does not reduce the DW to Torus DP below the capability of the Torus to Drywell vacuum breaker and the containment pressure does not fall below atmospheric pressure.

Technical Reference(s): EOP Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #1291
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295014 AA2.04	
	Importance Rating	4.1	

Ability to determine and/or interpret the following as they apply to INADVERTENT REACTIVITY ADDITION : Violation of fuel thermal limits.

Proposed Question: Common 61

The plant is operating at 100% power when the A Recirc pump ramps up to 100% speed. The thermal limit that is challenged by this event is:

- A. LHGR
- B. MCPR
- C. APLHGR
- D. MAPRAT

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – not challenged by flow increase
- B. Correct – IAW COLR
- C. Incorrect - not challenged by flow increase
- D. Incorrect - not challenged by flow increase

Technical Reference(s): Cycle 25 COLR (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5625
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295012 AA1.01	
	Importance Rating	3.5	

Ability to operate and/or monitor the following as they apply to HIGH DRYWELL TEMPERATURE : Drywell ventilation system

Proposed Question: Common 62

A large reactor coolant leak has occurred in the drywell concurrent with a Loss of Normal Power.

- Primary Containment Control, EOP-3, was entered.
- All equipment operated as designed following the LNP.
- Drywell cooling was maximized as directed by EOP-3.

Several minutes later the Shift Technical Advisor observes all drywell RRUs are off.

All RRUs tripped due to _____?

- Trip of the thermal overloads.
- Low drywell pressure (RHR drywell pressure logic).
- High drywell pressure (RHR drywell pressure logic).
- Loss of MCC power.

Proposed Answer: A

Explanation (Optional):

- Correct - Increased drywell pressure and moisture increase the work done by the RRU motors and cause the thermal overloads to trip at drywell pressures of 10-14 psig.
- Incorrect - Low drywell pressure causes an isolation of the drywell sprays and torus but does not affect RRU operation.
- Incorrect - The operator had already bypassed the RRU high drywell pressure RRU trip to restart them after the large leak caused drywell pressure to exceed 2.5 psig which trips the RRUs and is the entry condition for EOP-3.
- Incorrect – RRUs 1 and 3 auto restarted following the LNP, RRUs 2 and 4 restarted IAW EOP-3 when the operator depressed the DW cooling CTRL A/C BLOCKING RESET pushbutton.

Technical Reference(s): _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5729
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	295015 AA1.01	_____
	Importance Rating	3.8	_____

Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: CRD Hydraulics.

Proposed Question: Common 63

An ATWS has occurred. EOP-2 and OE 3107 Appendix H "Vent the Control Rod drive Overpiston Volume" have been implemented.

Which ONE of the following describes how the actions you take will cause control rod motion?

- A. Reactor pressure will be established in the scram discharge volumes to free any blockage.
- B. A delta P will be established across the drive piston equal to the pressure of the reactor.
- C. Higher CRD pressure will be directed to the HCU overpiston area due to the reseating of charging water header check valve CRD-115.
- D. A higher delta P will be observed to assist the CRD pumps insert the control rods.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect - Reactor pressure is established in the HCU underpiston area, and vented above the piston area, not to the SDV (SDV is already at reactor pressure with the outlet scram valves open).
- B. Correct - Reactor pressure is established under the piston area, and vented above the piston area (SDV is at reactor pressure with the outlet scram valves open).
- C. Incorrect - Appendix H will work regardless of the CRD-115 check valve position.
- D. Incorrect - Appendix H works independently of the CRD pumps. Can function with no CRD pumps.

Technical Reference(s): OE 3107, Appendix H. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #970
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	295033 EK1.03	_____
	Importance Rating	3.9	_____

Knowledge of the operational implications of the following concepts as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Radiation releases

Proposed Question: Common 64

Given the following conditions:

- The plant is operating at 70% power
- HPCI is running for a surveillance test
- The "A" SBTG train is running to support HPCI operation
- The "B" SBTG train was secured after HPCI was started
- A valid Refuel Floor High Radiation signal is received
- All plant systems respond as designed

No Operator actions have been taken.

Which ONE of the following is the SBTG system response to these conditions?

- A. The "B" SBTG Train will not start. The "A" SBTG Train will begin processing the Reactor Building atmosphere after the HPCI Gland Seal Exhauster discharge isolates.
- B. The "B" SBTG Train will not start. The "A" SBTG Train will begin processing the Reactor Building atmosphere along with the HPCI Gland Seal Exhauster discharge.
- C. The "B" SBTG Train starts and begins processing the Reactor Building atmosphere. The "A" SBTG Train will trip and isolate as part of the HPCI Gland Seal Exhauster discharge isolation.
- D. The "B" SBTG Train starts and begins processing the Reactor Building atmosphere. The "A" SBTG Train will divert to process the HPCI Gland Seal Exhauster discharge exclusively.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – The gland seal exhaust does not isolate, it discharges thru SBGT.
 B. Correct - SBGT fans start and the inlet and outlet valves open from the following signal: Start of HPCI gland exhaust blower. The HPCI flowpath does not isolate on a radiation auto start. The only way to shutdown the SBGT train which auto started on the HPCI start is to place in its control in P-T-L. P-T-L then disables all other starts including the refuel floor hi rad.
 C. Incorrect - B train is P-T-L and will not auto start.
 D. Incorrect - B train is P-T-L and will not auto start.

Technical Reference(s): OP 2117 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #5631
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295035 EK2.04	
	Importance Rating	3.3	

Knowledge of the interrelations between SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE and the following:
Blowout Panels: Plant Specific

Proposed Question: Common 65

A malfunction of the Reactor Building Ventilation System has resulted in ONLY RSF-1A "Reactor Building Supply Fan" running.

What is the effect on the Reactor Building to this condition?

- A. The personnel access doors will blow open during an overpressure condition.
- B. SBGT will require manual initiation and will maintain negative pressure.
- C. SBGT automatically initiates and will maintain negative pressure.
- D. The blowout panels in the refuel floor walls blow out.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - Personnel access doors are designed to stay closed to maintain secondary containment integrity and are not designed to provide overpressure protection.
- B. Incorrect – A supply fan running with no exhaust results in positive pressure
- C. Incorrect – not a SBGT auto start signal.
- D. Correct - An overpressure condition will occur with a supply fan running with no exhaust therefore building press will be > Blowout Panels setpoint of 0.5 psig.

Technical Reference(s): FSAR pages 5.3-6, 12.2-10 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # 1166
Modified Bank # _____ (Note changes or attach parent)

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

X

10 CFR Part 55 Content:

55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.1.20	
	Importance Rating	4.3	

Conduct of Operations: Ability to execute procedure steps.

Proposed Question: Common 66

The control room must be evacuated.

Other than scrambling the reactor, which ONE of the following describe steps REQUIRED to be taken in accordance with OP 3126 "Shutdown Using Alternate Shutdown Methods", prior to leaving the control room?

- A. Manually trip the main turbine, place the HPCI aux oil pump control switch in pull-to-lock and place the Reactor Feed Pump control switches in Pull-to-Lock.
- B. Place the HPCI in Inhibit, place the ADS bypass switch to BYPASS and trip both Recirc Pumps.
- C. Place the Reactor Feed Pump control switches in Pull-to-Lock, place the ADS bypass switch to BYPASS and place the HPCI aux oil pump control switch in pull-to-lock.
- D. Manually trip the main turbine, place the ADS bypass switch to BYPASS and trip both Recirc Pumps.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – Main turbine trip is not required
- B. Incorrect – HPCI is not placed in Inhibit.
- C. Correct – per procedure OP 3126 step 3.c.
- D. Incorrect – Main turbine trip is not required.

Technical Reference(s): OP3126 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.1.3	
	Importance Rating	3.0	

Knowledge of shift turnover practices.

Proposed Question: Common 67

Which ONE of the following is in accordance with AP 0152, "Shift Turnover"?

- A. The offgoing Operator At-The-Controls and the Balance of Plant Operator must complete their turnovers at the same time.
- B. The offgoing Balance of Plant Operator may conduct the turnover for both oncoming operators simultaneously.
- C. The offgoing Operator At-The-Controls may conduct the turnover for both oncoming operators simultaneously.
- D. The offgoing Operator At-The-Controls and the Balance of Plant Operator must complete their turnovers separately.

Proposed Answer: B

Explanation (Optional):

- B. Correct Response per AP 0152
- A, C and D. Incorrect – not per procedure.

Technical Reference(s): AP 0152 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	2.1.28	_____
	Importance Rating	3.8	_____

Knowledge of the purpose and/or function of major system components and controls.

Proposed Question: Common 68

During normal operation, the LSO valves in the extraction steam system __ (1) __ . This causes steam to be ported to __ (2) __.

- A. (1) provide air to the Reverse Current and Steam Dump Valves.
(2) the condenser.
- B. (1) vent air from the Reverse Current and Steam Dump Valves.
(2) the condenser.
- C. (1) provide air to the Extraction Steam Supply Valves.
(2) their respective feedwater heaters.
- D. (1) vent air from the Extraction Steam Supply Valves.
(2) their respective feedwater heaters.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – the steam dump valves are shut during normal operation therefore steam can not be directed to the condenser.
- B. Incorrect – the LSO valves do not vent air during normal operation.
- C. Correct Response
- D. Incorrect – the LSO valves do not vent air during normal operation.

Technical Reference(s): LOT-00-243 (Attach if not previously provided)
LOT-00-260

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # 1681
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.2.2	
	Importance Rating	4.0	

Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.

Proposed Question: Common 69

Given the following conditions:

- The plant is operating at 90% power
- RCIC is running in full flow test mode (CST to CST)
- The RCIC Full Flow Test Valve (RCIC-30) is open
- The RCIC Flow Controller is in MANUAL, with 300 gpm returning to the CST

While in this lineup, a loss of feedwater occurs, resulting in RPV level lowering to 75 inches.

What action(s) is (are) required to be taken, if any, for RCIC to inject as designed.

- A. The Full Flow Test Valve (RCIC-30) must be closed before the Pump Discharge Valves (RCIC-20 and 21) will automatically open to allow RCIC as designed.
- B. The RCIC Flow Controller must be placed in AUTO AND the Full Flow Test Valve (RCIC-30) must be closed before RCIC will inject as designed.
- C. The RCIC Flow Controller must be placed in AUTO. RCIC will then inject as designed.
- D. RCIC will automatically realign and inject as designed.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - RCIC-30 will auto close and RCIC-20 & 21 will auto open simultaneously upon receipt of automatic RCIC Initiation signal at RPV Level of 82.5".
- B. Incorrect - RCIC-30 will auto close upon receipt of automatic RCIC Initiation signal at RPV Level of 82.5".
- C. Correct - During testing, the valves will automatically align themselves for ECCS operation if an initiation signal is present except for the RCIC pump suction valves which will stay in the position selected. If the flow controller is in MANUAL, RCIC flow will be determined by the manual setpoint potentiometer. Therefore, the flow controller should be quickly shifted to AUTO.
- D. Incorrect - RCIC will continue to inject at the manual setpoint of 300 gpm unless the GEMAC controller is returned to auto.

Technical Reference(s): OP 4121 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3894
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	2.2.28	_____
	Importance Rating	2.6	_____

Equipment Control: Knowledge of New and Spent fuel movement procedures.

Proposed Question: Common 70

In accordance with OP1101 "Management of Refueling Activities and Fuel Assembly Movement", if refueling has been halted in the event of any unusual or abnormal occurrence, refueling operations may only be re-initiated by the_____.

- A. Shift Manager after receiving concurrence from the Operations Manager.
- B. Shift Manager after receiving concurrence from the Plant Manager.
- C. Operations Manager after receiving concurrence from the Plant Manager.
- D. Shift Manager after receiving concurrence from BOTH the Plant and Operations Managers

Proposed Answer: A

Explanation (Optional):

- A. Correct – Shift Manager after receiving concurrence from the Operations Manager.
- B. Incorrect – Plant Manager concurrence not required by procedure.
- C. Incorrect – Shift Manager is required to be involved in decision by procedure.
- D. Incorrect - Plant Manager concurrence not required by procedure.

Technical Reference(s): OP 1101 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	2.3.2	_____
	Importance Rating	2.5	_____

Knowledge of the ALARA program

Proposed Question: Common 71

An operator will be performing work in an area with the following conditions present.

Airborne Radioactivity Levels are 27% of the DAC values listed in 10 CFR 20

Removable surface contamination is 100 dpm/100 cm² alpha.

Removable surface contamination is 900 dpm/100 cm² beta-gamma.

Radiation levels in the area are at 200 mr/hr.

This area is required to be posted as a _____ .

- A. Radiation Area and Contamination Area.
- B. Radiation Area and High Contamination Area.
- C. High Radiation Area and Contamination Area.
- D. High Radiation and High Contamination Area.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - >100 mr/hr is a High Radiation Area
- B. Incorrect - > 100 mr/hr is a High Radiation Area, > 100,000 dpm/cm is a High Contamination Area.
- C. Correct response
- D. Incorrect - 100,000 dpm/cm is a High Contamination Area.

Technical Reference(s): EN-RP-108 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.3.10	
	Importance Rating	2.9	

Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

Proposed Question: Common 72

An ALARA work analysis (AP 0536) must be performed for a job requiring entry to a High Radiation Area.

- The worker who will perform the job has received 1650 mr TEDE this year.
- The worker has no undocumented quarters this year.
- The work is in a 400 mr/hr field and will take one hour.
- Shielding can be placed by the worker to reduce the dose rate by 50% however 100 mr total would be received while both installing and removing the shielding.
- A special tool is available which will allow the job to be performed further from the radiation source in an area that is 200 mr/hr without shielding. Using the special tool will extend the job time to 1.5 hours.

Which ONE (1) of the following describes?

- (1) The method that would result in the lowest worker dose exposure.
 - (2) Whether the workers routine annual administrative TEDE limit would be exceeded.
- A. (1) Use no shielding but use the special tool.
(2) The TEDE limit would NOT be exceeded.
 - B. (1) Use BOTH the shielding and the special tool.
(2) The TEDE limit would NOT be exceeded.
 - C. (1) Use no shielding but use the special tool.
(2) The TEDE limit would be exceeded.
 - D. (1) Use BOTH the shielding and the special tool.
(2) The TEDE limit would be exceeded.

Proposed Answer: B

Explanation (Optional): Although an ALARA work analysis takes more into account than the question asks, the question itself is part of the analysis and meets the KA statement.

- A. Incorrect – This would result in a 300 mr dose (400 X 50%) + 100.
 B. Correct – This would result in a 250 mr dose: 100 mr to install and remove shielding + 150 mr (200mr X 1.5) by using the special tool.
 C. Incorrect – Routine annual admin limit is 2000 mr and would not be exceeded.
 D. Incorrect – Routine annual admin limit is 2000 mr and would not be exceeded.

Technical Reference(s): EN-RP-201 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	2.4.49	_____
	Importance Rating	4.0	_____

Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Proposed Question: Common 73

An unexplained increase in reactor pressure occurs and your attempt to control pressure with the EPR and MPR is unsuccessful.

Which ONE of the following describes your required immediate actions in accordance with OT 3115 "Reactor Pressure Transients"?

- A. Trip the Main Turbine, Scram the reactor, Enter OT 3100 "Reactor Scram", and control reactor pressure between 800 and 1000 psig with the SRVs.
- B. Trip the Main Turbine, Scram the reactor, Enter OT 3100 "Reactor Scram", and control reactor pressure between 800 and 1000 psig with the Bypass Opening Jack.
- C. Scram the reactor, Enter OT 3100 "Reactor Scram", and control reactor pressure between 800 and 1000 psig with the SRVs.
- D. Scram the reactor, Enter OT 3100 "Reactor Scram", and control reactor pressure between 800 and 1000 psig with the Bypass Opening Jack.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – Turbine trip not required, it will trip on reactor scram. SRVs not an option unless specifically directed.
- B. Incorrect – Turbine trip not required, it will trip on reactor scram.
- C. Incorrect – SRVs not an option unless specifically directed. No indication was given in question stem for SRV use.
- D. Correct – per the Immediate action section of OT3115.

Technical Reference(s): OT 3115 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	G2.4.11	_____
	Importance Rating	3.4	_____

Emergency Procedures/Plan: Knowledge of Abnormal Condition procedures.

Proposed Question: Common 74

A reactor scram has occurred. Approximately one-half of the control rods failed to insert.

The following indications are observed:

- SCRAM DISCHARGE VOLUME HI LVL SCRAM annunciator - Energized
- Approximately 1/2 of the individual white lights on the full core display - Energized
- Both RPS buses are de-energized
- Depressing the ARI/RPT pushbuttons caused the ARI/RPT valves to function as designed

Which ONE of the following EOP Appendices must be used to insert the rods?

- A. Appendix C (De-energize the Scram Solenoids).
- B. Appendix F (Individually Scram Each Rod).
- C. Appendix G (Manually Insert Individual Control Rods).
- D. Appendix D (Venting the Scram Air Header).

Proposed Answer: C

Explanation (Optional): KA justification – must recognize the abnormal indications and take action based on the appropriate EOP appendices for the abnormal condition.

- A. Incorrect – the scram air header was already de-energized with ARI.
- B. Incorrect – RPS is required to be energized to perform this appendix.
- C. Correct – this is independent of the scram air header.
- D. Incorrect – The scram air header was already de-energized with ARI

Technical Reference(s): OE 3107, Appendix C, D, F. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # #3216
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	_____	_____
	K/A #	2.4.10	_____
	Importance Rating	3.0	_____

Knowledge of annunciator response procedures

Proposed Question: Common 75

The following annunciator (6-B-4) is received in the control room.

- CIRC WATER INTAKE LEVEL LO (207')

Which ONE of the following describes the automatic plant response to this annunciator?

- Intake gates start to open and Running Circ Water Pumps trip.
- Intake gates start to open and Running Circ Water Booster Pumps trip.
- Running Circ Water Pumps trip.
- Running Circ Water Booster Pumps trip.

Proposed Answer: C

Explanation (Optional):

- Incorrect – Intake Gates open at 209' (vice 207' setpoint of 6-B-4)
- Incorrect – Intake gates open at 209' and Booster pumps do not trip.
- Correct response
- Incorrect – Booster Pumps do not trip.

Technical Reference(s): ARS 6-B-4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X 10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	295007 2.4.20	
	Importance Rating	_____	4.0

. Emergency Procedures / Plan Knowledge of operational implications of EOP warnings/cautions/notes.

Proposed Question: SRO 76

The plant has scrammed following a seismic event.

The following post scram conditions exist:

- Reactor Pressure is 980# and slowly rising
- Torus Temperature is 145°F and rising
- Torus Level is 12.4 feet and rising slowly
- All control rods are inserted
- RPS "B" is de-energized
- Bus 8 is de-energized
- RHR-34B (RHR Loop "B" Torus Cooling) failed to open
- The Rupture in the CST has completely drained the CST

Which ONE of the following statements is correct regarding how plant pressure will be controlled?

- A. Cool down the RPV at <100°F/hour using bypass valves
- B. Rapidly depressurize the RPV using Bypass valves irrespective of cool down rate
- C. Cool down the RPV at <100°F/hour using SRVs
- D. Cool down the RPV at <100°F/hour using HPCI and/or RCIC

Proposed Answer: C

Explanation (Optional): KA Justification- Question relates to EOP Caution 3

- A. Incorrect- Bypass valves are unavailable due to Both channels of RPS de-energizing causing a group 1 isolation
- B. Incorrect- Incorrect- Bypass valves are unavailable due to Both channels of RPS de-energizing causing a group 1 isolation
- C. Correct Response
- D. Incorrect- Operation of HPCI or RCIC turbines with suction temperatures over 140°F may result in equipment damage IAW Caution 3.

Technical Reference(s): EOP Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	295032 2.4.21	
	Importance Rating	_____	4.0

Emergency Procedures / Plan Knowledge of the parameters and logic used to assess the status of safety functions including: 1 reactivity Control 2. Core Cooling and heat removal. 3. Reactor coolant system integrity 4. Containment conditions. 5. Radioactivity release control. (Hi secondary containment area temps)

Proposed Question: SRO 77

With the plant operating at 100%, a leak in Secondary Containment has resulted in the following plant conditions:

- HPCI Room level is 14" and slowly rising
- Torus Room Level is 9" and slowly rising
- Torus SW 213' 145°F and slowly rising
- Torus NW 213' 127°F and slowly rising
- Torus NE 213' 127°F and slowly rising
- Torus catwalk at 200 mr/hr and slowly rising

Attempts to isolate the leak have been unsuccessful.

What action(s) is (are) REQUIRED to be performed?

- A. Scram the reactor and cooldown the RPV less than 100°F/hour with Bypass Valves.
- B. Scram the reactor and perform an RPV-ED.
- C. Scram the reactor and rapidly depressurize the RPV using Bypass Valves irrespective of the cooldown rate.
- D. Begin a reactor shutdown per OP-0105

Proposed Answer: C

Explanation (Optional):

- A. Incorrect- Operator should anticipate RPV-ED using override in EOP-1 based on Secondary Containment Water Levels rising
- B. Incorrect- Requirements to perform an RPV-ED are not met IAW EOP-4
- C. Correct Response
- D. Incorrect- Based on indications, a primary system is discharging into secondary containment.

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs no entry conditions, no table A or B.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	295023 2.2.29	_____
	Importance Rating	_____	3.8

Knowledge of SRO fuel handling responsibilities.

Proposed Question: SRO 78

You are the Refueling Supervisor.

While loading fuel, a new fuel bundle was dropped over the core.

What actions must you take in accordance with OP 1101 "Management of Refueling Activities And Fuel Assembly Movement"?

- A. Direct the refuel bridge operator to place the dropped bundle back in its correct core location and evacuate the refuel floor.
- B. Direct the refuel bridge operator to place the dropped bundle in any position in the spent fuel pool and evacuate the refuel floor.
- C. Evacuate the refuel floor and the Reactor Building. Notify the RP Manager immediately.
- D. Evacuate the refuel floor and notify DW RP Tech immediately.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect -OP-1101 precaution #16 requires that the refuel floor be evacuated if a fuel assembly (new or spent) is dropped. Also precaution #17 requires DW RP techs be immediately informed. Precaution 4 concerning lowering cavity/pool levels directs bundle placement.
- B. Incorrect – same as 'A' above
- C. Incorrect- same as "A" above
- D. Correct - -OP-1101 precaution #16 requires that the refuel floor be evacuated if a fuel assembly (new or spent) is dropped. Also precaution #17 requires DW RP techs be immediately informed.

Technical Reference(s): OP-1101 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # #1037
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 7

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	295024 EA2.03	
	Importance Rating		3.8

Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Suppression pool level

Proposed Question: SRO 79

Given the following plant conditions:

RPV Pressure: 50 psig
 Drywell temperature: 250 degrees and rising
 Drywell pressure: 10 psig
 Torus temperature: 125 degrees (slowly rising)
 Torus level: 23 feet (steady)

Based on these conditions, which ONE of the following statements is correct?

- A. Drywell spray is permitted because torus level is below the bottom of the torus vent line.
- B. Drywell spray is permitted because torus level is below the SRV Tail Pipe Level Limit.
- C. Drywell spray is not permitted because torus level is above the torus spray nozzles.
- D. Drywell spray is not permitted because torus level is above the torus to drywell vacuum breaker penetrations.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – drywell spray is not permitted due to hi Torus level.
- B. Incorrect - drywell spray is not permitted due to hi Torus level.
- C. Incorrect - drywell spray is not permitted due to hi Torus level.
- D. Correct Although DW parameters are safe to spray. EOP-3 step PC/DT-5 does not permit DW spray due to hi Torus level even though parameters are within the DWSIL graph to permit DW spray.

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, No Table A,

B, S.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	295028 EA 2.03	
	Importance Rating	_____	3.9

Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE : Reactor water level

Proposed Question: SRO 80

The plant has experienced a severe transient and the crew has performed RPV-ED per EOP-1, RPV Control and EOP-5, RPV-ED. The following plant conditions exist:

- ECCS/Transient Level: 80" was steady, now rising
- Shroud level instruments: 10" was steady, now rising erratically
- Wide Range Recorder: 50" was steady, now rising erratically
- RPV pressure: 17 psig
- Drywell pressure: 17 psig
- Average Drywell temperature: 298°F
- Temperature card file:
 - REF LEG A UPPER TE-2-3-80A: 300°F
 - REF LEG A LOWER TE-2-3-80C: 301°F
 - REF LEG B UPPER TE-2-3-80B: 305°F
 - REF LEG B LOWER TE-2-3-80D: 307°F

Injection has remained steady throughout.

Based on these conditions, which ONE of the following statements is correct?

- A. The Shroud level instruments can be used to determine level.
- B. The ECCS/Transient level instruments can be used to determine level.
- C. None of the RPV level instruments can be used to determine level.
- D. The Wide Range Recorder can be used to determine level.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - the reference leg is in the UNSAFE region of the SAT curve
- B. Incorrect -These instruments are in the UNSAFE region on the Minimum Indicated Water Level graph
- C. Correct Response - indications are of all instruments unavailable due to reference leg temperatures in the UNSAFE region of the SAT curve.
- D. Incorrect - the reference leg is in the UNSAFE region of the SAT curve.

Technical Reference(s): EOP Vol 4, study guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no tables A, B, S.

Learning Objective: _____ (As available)

Question Source: Bank # 536
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	295030 EA2.01	
	Importance Rating		4.2

Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL : Suppression pool level

Proposed Question: SRO 81

Due to a weeping SRV and a Torus leak which is unisolable, the reactor has been scrammed. A cooldown and depressurization will begin shortly.

- Torus temperature is 140 deg F and slowly rising.
- Torus level is 8.5 feet and slowly lowering.
- RPV pressure is 900 psig and stable.

With no change in RPV pressure which ONE of the following is required:

- A. The Torus Level Limit is approaching the unsafe region. Immediately RPV-ED.
- B. Before Torus level uncovers the downcomers, RPV-ED will be required.
- C. When Torus temperature rises to 228 deg F., RPV-ED is required.
- D. When Torus temperature rises to 212 deg F., RPV-ED is required.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – Immediate RPV-ED is not required. EOP-3 step PC/L-2
- B. Correct – If torus level cannot be maintained above 7 ft, RPV-ED is required. It is used to prevent uncovering the downcomer vents. EOP-3, step PC/L-6.
- C. Incorrect – per HCTL graph, RPV ED not required.
- D. Incorrect – per HCTL graph, RPV ED not required.

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs, no entries, no tables A, B, S.

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	295031 2.4.7	
	Importance Rating		3.8

Knowledge of Event Based EOP mitigation strategies

Proposed Question: SRO 82

A large break LOCA has occurred.

The following plant conditions exist:

- Torus pressure is 3 psig and steady
- Drywell pressure is 3.5 psig and steady
- Torus water temperature is 160°F and rising
- RPV pressure is 50 psig, and all SRV switches are in "OPEN"
- Both RHR pumps in the "B" loop are injecting at 13,500 gpm
- One RHR pump in the "A" loop is injecting at 7000 gpm. The RHR-65A, HX Bypass valve is stuck OPEN
- Neither Core Spray systems are injecting due to failures of CS-12A and CS-12B to open
- RPV level is at +70 inches and rising slowly

Which one of the following actions is now required to be directed?

- A. Start the second RHR pump in the "A" loop to maximize injection.
- B. Continue injecting with the present lineup until RPV level reaches 127 inches.
- C. Secure one pump in the "B" RHR loop to inject through its heat exchanger and attempt to maintain RPV level above -19 inches.
- D. Secure one pump in the "B" RHR loop and limit the flow on the remaining pumps to maintain NPSH.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - Per Table C, E of EOP-1, RHR flow thru a heat exchanger is preferred. With the "A" RHR Ht exchanger bypass open, starting the second pump would not meet the EOP guidance.
- B. Incorrect – flow thru a heat exchanger is preferred per EOP-1 step RC/L -5 table E.
- C. Correct- RHR flow thru a heat exchanger is preferred per EOP-1, step RC/L -5 table E.
- D. Incorrect – flow thru a heat exchanger is preferred .

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no table A, B, S.

Learning Objective: _____ (As available)

Question Source: Bank # #1266
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	295010 2.4.6	
	Importance Rating		3.4

Emergency Procedures / Plan Knowledge of symptom based EOP mitigation strategies

Proposed Question: SRO 83

The following plant conditions exist:

- All rods are full in
- DW RRU's off

- Reactor Level +70 inches rising
- Reactor Pressure 800 psig lowering

- Drywell Pressure 12.5 psig slowly rising
- Drywell Temp. 190°F stable

- Torus Level 11.0 ft slowly rising
- Torus Pressure 14.0 psig slowly rising

Which ONE of the following actions must be directed?

- A. Spray the Drywell and RPVED.
- B. RPVED.
- C. Spray the Torus ONLY.
- D. Spray BOTH the Torus and Drywell.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect - RPVED is not required unless it is determined that DW temp cannot be restored and maintained below 280 degrees F. It is given that DW temp is stable. (EOP step PC/DT-6)
- B. Incorrect - see "A"
- C. Incorrect - Drywell spray is required due to elevated DW temp (EOP-3 step PC/DT-5)
- D. Correct - Drywell Spray is required due to elevated DW temp (EOP-3 step PC/DT-5) and Torus Spray is required due to elevated PC pressure (EOP-3 step PC/P-4)

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs no entry conditions , no table A or B or S

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	295012 2.1.9	
	Importance Rating		4.0

High Drywell Temperature: Conduct of Operations: Ability to direct personnel activities inside the control room

Proposed Question: SRO 84

The following plant conditions exist.

- All control rods are in
- Drywell temperature is 285°F and rising
- Drywell pressure is 3.0 psig and rising
- Drywell RRUs have been restarted
- Reactor water level is 145"
- Reactor pressure is 920 psig
- Torus level is 11 ft

Which ONE of the following is (are) required?

- A. Recirc pumps secured AND Drywell RRUs secured.
- B. Drywell sprays initiated.
- C. RPV-ED.
- D. RPV-ED and enter RPV Flooding.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - Drywell RRUs are not required to be secured.
- B. Incorrect - Drywell sprays are not allowed, UNSAFE on the DWSIL curve.
- C. Correct – EOP -3 step PC/DT-6.
- D. Incorrect - RPV Flooding is not required. Must determine still safe on RPV Level Instrument Saturation Curve at SRV reclosing pressure of 50 psig.

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry

conditions, no table A,
B, or S.

Learning Objective: _____ (As available)

Question Source: Bank # #5704
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	295003 AA2.04	
	Importance Rating	_____	3.7

Ability to interpret or determine the following as they apply to COMPLETE OR PARTIAL LOSS OF AC POWER: System Lineups.

Proposed Question: SRO 85

Off-site power has been lost (LNP) and a large break LOCA has occurred. The "A" EDG failed to start. Reactor pressure is 50 psig and lowering.

After entering EOP-1, what are your required actions?

- A. Confirm HPCI, RCIC, 2 RHR pumps, 1 CS pump injecting and enter EOP-3
- B. Confirm 4 RHR pumps, 2 CS pumps injecting enter EOP-4
- C. Confirm 2 RHR pumps, 1 CS pump injecting enter EOP-3
- D. Confirm 1 RHR pump, 1 CS pump injecting enter EOP-4

Proposed Answer: C

Explanation (Optional):

- A. Incorrect - HPCI and RCIC have isolated on low steam supply pressure and can not inject.
- B. Incorrect - The "A" EDG start failure causes a loss of 4 KV Bus 4, and 3 of 6 low pressure ECCS pumps are without power.
- C. Correct Response - The "B" EDG starts and powers 4 KV Bus 3. Two RHR and 1 CS pump are powered from this bus. HPCI and RCIC have isolated on low steam supply pressure. EOP 1 is entered on low reactor water level and EOP 3 is entered on high drywell pressure
- D. Incorrect - There is one RHR pump in each RHR loop powered from each EDG, 2 RHR pumps will be running and injecting. There are no entry conditions for EOP 4

Technical Reference(s): OT 2142, App.A. _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE _____

Learning Objective: _____ (As available)

Question Source: Bank # #5716
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	211000 A2.01	_____
	Importance Rating	_____	3.8

Ability to (a) predict the impacts of the following on the SLC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Pump Trip

Proposed Question: SRO 86

The plant has experienced a Loss of Normal Power.

Plant conditions are as follows:

- Reactor power is 45% and steady
- Reactor Water Level is 65 inches and slowly rising
- Reactor Pressure is 1020# and slowly rising
- Drywell Pressure is 8.9# and slowly rising
- Torus Temperature is 118°F and slowly rising
- The "B" EDG Locked out due to an electrical fault on the applicable bus
- The "A" CRD pump is unavailable
- SLC failed to initiate by normal means

The immediate actions of OT-3122 - "Loss of Normal Power" have been completed.

Which of the following statements describes the REQUIRED level and power control?

- A. HPCI and RCIC automatically started and are to be left running as necessary to maintain level at -19" to 177". No means of SLC Injection is available. Power will need to be reduced by inserting control rods IAW OE-3107 Appendices.
- B. HPCI and RCIC are required to be secured and reactor water level be allowed to lower. Commence "Boron Injection using RWCU" IAW OE-3107 Appendix J.
- C. Only HPCI is required to be secured and reactor water level be allowed to lower. Commence Alternate SLC Initiation" IAW OE-3107 Appendix I.
- D. HPCI is required to be secured and reactor water level be allowed to lower. Commence "Boron Injection Using CRD System from SLC Test Tank" IAW OE-3107 Appendix K.

Proposed Answer: C

Explanation (Optional):

- A- Incorrect: With the given conditions, Terminate and Prevent is ordered IAW EOP-2/OE-3107 App. GG. This will secure HPCI and allow level to be intentionally lowered. Also, Appendix I is available for boron injection.
- B- Incorrect: RCIC is not required to be secured IAW EOP-2/OE-3107 App. GG. Also, Appendix J will not work with an LNP present.
- C- Correct Response
- D- Neither CRD pump is available to perform Appendix K

Technical Reference(s): OE 3107, App I, J, K (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New N

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	206000 A2.11	
	Importance Rating		4.2

Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low reactor water level: BWR-2,3,4

Proposed Question: SRO 87

A LOCA has occurred with the following plant conditions:

- RPV water level 100" and slowly lowering
- RPV pressure 800 psig and lowering
- DW pressure 4.0 psig and slowly lowering

HPCI was in normal standby before initiation.

HPCI has initiated with the following parameters:

- HPCI pump flow (FI-23-108) 0 gpm
- HPCI turbine speed (SI-23-2) 2000 rpm
- HPCI pump discharge pressure (PI-23-109) 550 psig
- HPCI min flow valve OPEN

What action must be directed to raise RPV water level ?

- A. IAW EOP-1, allow the LOCA to lower reactor pressure below the HPCI pump discharge pressure.
- B. Raise the auto flow controller setpoint until HPCI discharge pressure is greater than reactor pressure as stated in OP 2120 "HPCI System."
- C. IAW EOP-1, open an SRV to lower reactor pressure below HPCI pump discharge pressure.
- D. Take the flow controller to manual and raise the manual control potentiometer until HPCI discharge pressure is greater than reactor pressure as directed in OP 2120 "HPCI System."

Proposed Answer: D

Explanation (Optional):

- A. Incorrect – no EOP-1 guidance to permit the LOCA to allow pressure to degrade to permit HPCI flow to occur.
- B. Incorrect – the initial conditions stated that HPCI was in its normal standby alignment which in AUTO should have caused HPCI discharge pressure to be > reactor pressure to insure injection. A failure has occurred on HPCI in the auto mode of operation.
- C. Incorrect – no guidance is given in EOP-1 (at this reactor level) to allow HPCI injection by lowering RPV pressure.
- D. Correct – A failure of the AUTO mode of the HPCI controller has occurred on Hi DW pressure initiation. Attempt to place the controller in manual and inject. OP 2120 provides specific direction in Appendix 'B' regarding verification of automatic initiation and steps to be taken if injection fails to occur.

Technical Reference(s): OP 2120, App. B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions, no Table A, B and S.

Learning Objective: _____ (As available)

Question Source: Bank # #3551
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	218000 2.2.25	_____
	Importance Rating	_____	3.7

Equipment Control (ADS) Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Proposed Question: SRO 88

The ADS Technical Specification LCO is based on the ability of ADS to provide a backup to ___(1)___ during a ___(2)___ break LOCA accident.

- A. (1) RCIC
(2) Small
- B. (1) HPCI
(2) Small
- C. (1) RCIC
(2) Large
- D. (1) HPCI
(2) Large

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – HPCI not RCIC.
- B. Correct – TS bases 3.5.F. ADS serves as a backup to HPCI during a small break LOCA accident.
- C. Incorrect – HPCI not RCIC, Small not Large.
- D. Incorrect – Small not Large.

Technical Reference(s): TS Bases 3.5.F. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS sections 3 and 4 only. No bases.

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	262001 2.4.4	
	Importance Rating		4.3

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

Proposed Question: SRO 89

The plant is operating normally at full power when the Northfield Line (381) is damaged and removed from service by automatic breaker action due to a lightning strike. The Northfield Line is expected to remain out of service for at least 12 hours.

Which ONE of the following describes the required action AND reason as a result of this event?

- A. ON 3179 "Grid Instabilities must be entered and Net MWe VARs out must be limited to support the grid stability analysis.
- B. ON 3179 "Grid Instabilities" must be entered and Net MWe Output must be limited to support grid stability analysis.
- C. OT 3122 "Loss of Normal Power" must be entered and both EDGs must be started AND loaded to ensure emergency power capabilities are available.
- D. OT 3122 "Loss of Normal Power" must be entered and both EDGs must be started to ensure emergency power capabilities are available.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – ON 3179 is correct however, VAR output is not a concern per procedure.
- B. Correct – Per ON 3179, under this condition MWE output will be limited based on the limitations of the grid stability analysis.
- C. Incorrect – OT 3122 is not required to entered unless a loss of voltage occurs an 4KV buses 1,2,3 and 4.
- D. Incorrect – OT 3122 is not required to entered unless a loss of voltage occurs an 4KV buses 1,2,3 and 4.

Technical Reference(s): ON 3179 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	204000 A2.13	
	Importance Rating		3.4

Ability to (a) predict the impacts of the following on the REACTOR WATER CLEANUP SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: Signal received which results in a system isolation.

Proposed Question: SRO 90

The following RWCU conditions exist with the plant operating at 100% power:

- RWCU area ambient temperature is reading 130 degree and rising.
- RWCU Precoat ARM is reading 300 mr/hr and rising steadily.

Which ONE of following describes the status of RWCU and required actions?

- RWCU should have isolated and RPV-ED is required IAW EOP-4.
- RWCU should have isolated and entry into EOP-1 is required.
- RWCU should NOT have isolated but entry into EOP-1 is still required.
- RWCU should NOT have isolated but RPV-ED is still required IAW EOP-4.

Proposed Answer: B

Explanation (Optional):

- Incorrect – the requirements for RPV-ED have not been met per EOP-4 step SC/6. The Max Safe Op Limit for 2 areas has not been exceeded.
- Correct – RWCU should have isolated on area ambient high temp > 125 degrees F. and entry to EOP-1 is required per EOP-4 step SC/3.
- Incorrect – RWCU should have isolated on area ambient hi temp >125 degrees F.
- Incorrect – RWCU should have isolated on area ambient hi temp >125 degrees F.

Technical Reference(s): EOPs (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EOPs – no entry conditions , no table A or B.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #	202001 A2.03	
	Importance Rating		3.6

Ability to (a) predict the impacts of the following on the RECIRCULATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Single Recirculation Pump Trip.

Proposed Question: SRO 91

A trip of the "B" Reactor Recirculation Pump has occurred.

- "A" Recirc Pump speed is at 70%
- Core flow is 19.2 Mlbm/hr
- Reactor Power is 63%

Which ONE of the following actions is required to be directed?

- A. Enter OT 3117 "Reactor Instability" and manually scram the reactor.
- B. Enter OT 3118 "Recirculation Pump Trip" and attempt to restart the "B" Reactor Recirculation Pump after the discharge valve has been shut for 5 minutes.
- C. Enter OT 3117 "Reactor Instability" and insert control rods using the Rapid Shutdown Sequence, if available.
- D. Enter OT 3118 "Recirculation Pump Trip" and increase the speed of the "A" Reactor Recirc Pump.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – not directed in the procedure unless indications of instability occur. The stem contains no information in that regard.
- B. Incorrect – restart the idle pump is prohibited when in the exclusion region – OT3117, Followup Actions , caution before step 5.b.
- C. Correct – per OT 3117, Followup Action step 5.1).
- D. Incorrect – per OT3117, running pump cannot be increased above 70% speed, Followup Action step 5.b.

Technical Reference(s): OT3117 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: Power/Flow map

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	215005 2.1.12	
	Importance Rating		4.0

Conduct of Operations: Ability to apply TS for a system – APRM/LPRM

Proposed Question: SRO 92

The reactor is operating under the following conditions:

- 1) Two Recirculation Loops are in operation with Drive Flow of 22,600 gpm per loop
- 2) Core Flow of 45 Mlbm/hr
- 3) Reactor Thermal Power = 800 MWth Average

SELECT the APRM flow biased Scram Setpoint for the given conditions.

- A. $\leq 64.35\%$
- B. $\leq 77.39\%$
- C. $\leq 100.56\%$
- D. $\leq 113.90\%$

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – this is calculated using one loop drive flow as a ratio to two loop 100% drive flow: $S \text{ (setpoint)} \leq 1.07W + 27.23 [1.07(\text{flow} = 22,600/65,000 = 34.7\%) + 27.23 = 64.35\%]$
- B. Incorrect – this is calculated using Core flow/2 in relation to 48Mlbm/hour: $S \text{ (setpoint)} \leq 1.07W + 27.23 [1.07(\text{flow} = 22.5/48 = 46.88\%) + 27.23 = 77.39\%]$
- C. Correct – Per TS table 3.1.1 #4 $S \text{ (setpoint)} \leq 0.55W + 62.34 [.55 (\text{flow} = 22,600/32,500 = 69.5\%) + 62.34 = 100.56\%]$
- D. Incorrect – this is calculated using Core Flow: $S \text{ (setpoint)} \leq 0.55W + 62.34 [.55(\text{flow} = 45/48 = 93.75\%) + 62.34 = 113.90\%]$

Technical Reference(s): TS 2.1, TS Table 3.1.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS – no bases or definitions, sections 3 and 4 only.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	2
	K/A #	256000 2.4.48	_____
	Importance Rating	_____	3.8

Emergency Procedures / Plan Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

Proposed Question: SRO 93

The plant is at 90% power when the following alarms are received

- 6-D-4 "Atmos DRN Tk LVL Hi/Lo"
- 6-D-5 "Atmos DRN Tk LVL CTRL VLV OPEN"

Main condenser vacuum is slowly degrading.

Based on these plant parameter indications you determine that __ (1) __ and INITIALLY direct the operator to __ (2) __?

- A. (1) Tank Level is Low.
(2) Fail the level control valve closed in accordance with the instructions in ARS 6-D-4 to stop the degrading vacuum.
- B. (1) Tank Level is Low.
(2) Immediately reduce power in accordance with OT 3120 "Condenser High Back Pressure", to stop the degrading vacuum.
- C. (1) Tank Level is High.
(2) Fail the level control valve closed in accordance with the instructions in ARS 6-D-4 to stop the degrading vacuum.
- D. (1) Tank Level is High.
(2) Immediately reduce power in accordance with OT 3120 "Condenser High Back Pressure High", to stop the degrading vacuum.

Proposed Answer: A

Explanation (Optional): KA match for system is based on the atmospheric drain tank being considered part of the condensate system.

- A. Correct - This event has happened at the plant and operators had difficulty diagnosing it. When the level control valve sticks open, the tank level goes Low and allows air to be drawn into the main condenser. ARS 9-6-D-4 discusses how to fail the LCV shut and stop the loss of vacuum.
- B. Incorrect - Reduction in power is not initially procedurally directed for this event.
- C. Incorrect - When the tank overfills, vacuum is not affected - vacuum will not be affected.
- D. Incorrect - When the tank overfills, vacuum is not affected. Reduction in power is not initially procedurally directed.

Technical Reference(s): ARS 6-D-4, 6-D-5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
 55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.1.12	_____
	Importance Rating	_____	4.0

Conduct of Operations: Ability to apply technical specifications for a system

Proposed Question: SRO 94

The SLC Pump Operability and Discharge Check Valve Surveillance has just been completed. Your review of test results reveals the following:

- "A" Pump Discharge Pressure: 1330 psig; flow 37 gpm.
- "B" Pump Discharge Pressure: 1335 psig; flow 38 gpm.

Additionally, the RO has just reported the following SLC parameters.

- SLC Tank Volume 4250 gallons.
- SLC Tank Concentration 9% weight %.
- SLC Tank Temperature 60 degrees F.

What is the Tech Spec Action required for these conditions, if any.

- Operation is permissible during the succeeding seven days unless the inoperable component is sooner made operable.
- Commence an orderly reactor shutdown such that the reactor is in cold shutdown within 24 hours.
- No action is required
- Immediately attempt to correct the deficiency. If not corrected within 12 hours, be in cold shutdown within 24 hours from the time of initial discovery

Proposed Answer: D

Explanation (Optional):

- Incorrect – This would be for one inop pump TS 3.4.B
- Incorrect – This would be for TS 3.4.D.
- Incorrect – TS 3.4.C.1. has not been met.
- Correct – TS 3.4.E applies due to volume vs. concentration not being met as required in TS 3.4.C.1.

Technical Reference(s): TS 3.4.C.1. and 3.4.E. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS – no bases or definitions, sections 3 and 4 only.

Learning Objective: _____ (As available)

Question Source: Bank # #3284
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.2.25	_____
	Importance Rating	_____	3.7

Knowledge of bases in TS for LCOs and safety Limits

Proposed Question: SRO 95

Which ONE of the following is a correct Safety Limit?

- A. Pressure shall not exceed 1335 psig only when the reactor is operating.
- B. Reactor Water level shall not be less than 12" above top of active fuel whenever the reactor is shutdown with irradiated fuel in the reactor vessel.
- C. Pressure shall not exceed 1375 psig at any time with irradiated fuel in the reactor vessel.
- D. Reactor Water level shall not be less than 12" above top of enriched fuel whenever the reactor is shutdown with irradiated fuel in the reactor vessel.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect: The pressure Safety Limit is "Pressure shall not exceed 1335 psig at *ANY TIME* with irradiated fuel in the reactor vessel".
- B. Incorrect: The water level Safety Limit is "Reactor Water level shall not be less than 12" above top of *ENRICHED* fuel whenever the reactor is shutdown with irradiated fuel in the reactor vessel".
- C. Incorrect: The pressure Safety Limit is "Pressure shall not exceed 1335 psig at *ANY TIME* with irradiated fuel in the reactor vessel".
- D. Correct Response

Technical Reference(s): TS Safety Limits 1.1.D. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.2.24	_____
	Importance Rating	_____	3.8

Ability to analyze the effect of maintenance activities on LCO status.

Proposed Question: SRO 96

The following are results after completion of calibrating the following 4 KV Bus undervoltage and time delay relays.

- 27/3Z 3725V
- 27/3W 3715V
- 27/4Z 3720V
- 27/4W 3710V

- 62/3W 11.6 seconds
- 62/3Z 11.2 seconds
- 62/4W 10.9 seconds
- 62/4Z 11.0 seconds

What is the effect on the EDG under the above conditions?

- A. The 'A' EDG will start late following an LNP
- B. The 'B' EDG will start late following an LNP
- C. The 'A' EDG will start late with a DBA LOCA and degraded grid voltage.
- D. The 'B' EDG will start late with a DBA LOCA and degraded grid voltage.

Proposed Answer: D

Explanation (Optional):

- A- Incorrect: The relays that are OOS affect degraded voltage and not the LNP response for the B EDG.
- B- Incorrect: The relays that are OOS affect degraded voltage and not the LNP response.
- C- Incorrect: The 'B' EDG is affected.
- D- Correct Response:

Technical Reference(s): TS Table 3.2.8 (Attach if not previously provided)

LOT-00-264

Proposed references to be provided to applicants during examination: TS sections 3 and 4 only.

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>3</u>
	Group #	_____	_____
	K/A #	<u>2.2.26</u>	_____
	Importance Rating	_____	<u>3.7</u>

Knowledge of the refueling administrative requirements

Proposed Question: SRO 97

Which ONE of the following refueling activities is the responsibility of the Refuel Supervisor?

- A. Approving fuel movement without the use of the mast camera or another equivalent camera.
- B. Approving refuel platform operation with the PaR computer out of service.
- C. Verifying completion of daily refueling checks required by OP 4102.
- D. Record SRM readings on the fuel loading schedule

Proposed Answer: C

Explanation (Optional):

- A. Incorrect – per OP1101 this is the responsibility of the Ops Mgr.
- B. Incorrect – per OP1101 this is the responsibility of the Ops Mgr.
- C. Correct – per OP 1101, step A.2.k., pg.13.
- D. Incorrect – per OP1101, this is the control room operator responsibility

Technical Reference(s): OP 1101 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43 7

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.3.4	_____
	Importance Rating	_____	3.1

Knowledge of radiation exposure limits and contamination control including permissible levels in excess of those authorized.

Proposed Question: SRO 98

A 40 year old radiation worker at VY with a lifetime exposure of 1000 mr requires a dose extension for work at VY. The individual has all quarters documented for the current year.

In accordance with EN-RP-201 "Dosimetry Administration", a dose extension to between ___(1)___ is required to be approved by ___(2)___.

NOTE: Assume no designees are available for approval.

- A. (1) 1mr and 1R
(2) ONLY the Radiation Protection Manager.
- B. (1) 3R and 4R
(2) the Radiation Protection Manager AND Plant General Manager.
- C. (1) 2R and 3R
(2) ONLY the Plant General Manager.
- D. (1) 3R and 4R
(2) the Plant General manager AND the Site Vice President.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – the rad pro supervisor must approve
- B. Correct Response.
- C. Incorrect – the RPM must also approve.
- D. Incorrect – the Site VP is not required but the RPM is required.

Technical Reference(s): EN-RP-201 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.4.25	_____
	Importance Rating	_____	3.4

Knowledge of fire protection procedures.

Proposed Question: SRO 99

The following sequence of events has occurred:

- A fire was recorded in the East Switchgear Room at 1426 at which time the Automatic Fire Suppression System began discharging.
- The Fire Brigade commenced fighting the fire at 1432.
- The fire was declared out by the fire brigade leader at 1448.

Which of the following actions are REQUIRED?

- A plant shutdown is immediately commenced IAW OP-0105 due to the fire affecting Safe Shutdown Equipment. Following the discharge of Halon, a 30 minute soak time is required prior to ventilating the switchgear room unless the Fire Brigade leader directs it earlier.
- The plant is scrammed and OT-3100 entered no later than 1436. Following the discharge of CO₂, a 30 minute soak time is required prior to ventilating the switchgear room unless the fire Brigade leader directs it earlier.
- A plant shutdown is immediately commenced IAW OP-0105 due to the fire affecting Safe Shutdown Equipment. Following the discharge of CO₂, a 1 hour soak time is required prior to ventilating the switchgear room unless the Fire Brigade Leader directs it earlier.
- The plant is scrammed and OT-3100 entered no later than 1442. Following the discharge of CO₂, a 1 hour soak time is required prior to ventilating the switchgear room unless the fire Brigade leader directs it earlier.

Proposed Answer: B

Explanation (Optional):

- A- Incorrect: Although a plant shutdown is commenced immediately, Halon is not the automatic Fire Suppression System in the Switchgear Room.
- B- Correct response IAW OP-3020
- C- Incorrect: Although a plant shutdown is commenced immediately, only a 30 minute soak time is required prior to ventilating the Switchgear Room.
- D- Incorrect: The plant is **REQUIRED** to be scrammed 10 minutes from the time the fire has been recorded **NOT** from the time firefighting efforts have commenced. Also, only a 30 minute soak time is required prior to ventilating the Switchgear Room.

Technical Reference(s): OP 2186 (Attach if not previously provided)
OP 3120

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	_____
	K/A #	2.4.41	_____
	Importance Rating	_____	4.1

Knowledge of emergency action level thresholds and classifications.

Proposed Question: SRO 100

The following conditions exist following a Large Break LOCA

- The reactor is shutdown.
- The 'B' Loop of RHR is not available
- Reactor Coolant sample activity is 280 uci/gm I-131 dose equivalent.
- Reactor Water Level is (-65 inches and lowering slowly).
- Reactor Pressure is 15 psig.
- Drywell Pressure is 10.5 psig and stable.

You have just been notified of an ongoing security threat in progress which has the potential of affecting safe plant operation

Based on the above, which ONE of the following describes the highest emergency action level which must be declared and the reason for that classification?

- A. A General Emergency must be declared due to a loss of 2 fission product barriers.
- B. A Site Area Emergency must be declared due to RPV water level being too low.
- C. A Site Area Emergency must be declared due to the security threat.
- D. An Alert must be declared due to the security threat.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect – Only one barrier is lost (RCS) per the fission product barrier matrix on AP 3125.
- B. Correct – AP 3125 (S-2-b) – Inability to maintain RPV level > -48 inches.
- C. Incorrect – The threat results in an Alert, not an SAE (AP3125 A-9-a)
- D. Incorrect – the Alert is correct however, it is not the highest classification for the conditions stated.

Technical Reference(s): AP 3125 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: AP 3125

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments: