

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 1	ILT	0	01/03/01	Main Turbine Generator Trip / 3	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		COR002-21-02

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR001-14-01-4.b	OP-4.5, T. S. 3.3.1	295005 AA2.03	41(b)6, 41(b).7

***K/A Text:***

AA2.03 – Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP: Trip Valve Position

***Question:***

Which of the following describes the arrangement of the turbine stop valve limit switches which input into the REACTOR PROTECTION SYSTEM (RPS).

- There is one limit switch on each valve. The switches are connected such that one valve less than 90% open will cause a half scram.
- There is one limit switch on each valve. The switches are connected such that one valve less than 10% open will cause a full scram.
- There are two limit switches on each valve. The switches are connected such that one valve less than 90% open will cause a half scram.
- There are two limit switches on each valve. The switches are connected such that one valve less than 10% open will cause a full scram.

***Answer:***

ANSWER: c.

REFERENCE: OP 4.5, T.S. 3.3.1

K/A System: 295005

K/A Number: AA2.03

K/A Value: 3.1

Cognitive Level: 1

Justification: There are two limit switches on each valve. The switches are connected such that one valve less than 90% open will cause a half scram.

Distracter a: There are two limit switches per valve

Distracter b: There are two limit switches per valve, positions are from full open not full closed.

Distracter d: Valve logic is from full open not full closed

SOURCE: Cooper Exam Bank

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 2	ILT	0	01/03/01	SCRAM	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR002-32-02-6.f	Reactor Vessel Level Control Text	295006 AK3.01	41(b).7

**K/A Text:**

AK3.01 – Knowledge of the reasons for the following responses as they apply to SCRAM: Reactor Water Level Response

**Question:**

The reactor is operating at 100% power and the Reactor Vessel Level Control (RVLC) System is maintaining RPV water level at 35 inches. Five (5) minutes after a reactor scram, which one of the following levels will the RVLC system maintain as indicated on Narrow Range instruments? **Assume NO Operator Action and Reactor Feed Pumps remain operating.**

- a. 15 inches
- b. 25 inches
- c. 35 inches
- d. 45 inches

**Answer:**

ANSWER: b. 25"

REFERENCE: Reactor Vessel Level Control Text

K/A System: 295006

K/A Number: AK3.01

K/A Value: 3.8

Cognitive Level: 1

Justification: Following a scram level control resets to control at 25 inches

Distracter a. All values selected ending in 5 and separated by 10"

Distracter c. All values selected ending in 5 and separated by 10"

Distracter d. All values selected ending in 5 and separated by 10"

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO3	ILT	0	01/03/01	HIGH REACTOR PRESSURE	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-14-02-7.a	COR002-14-02, Page 22, IV.C.5.b	295007 AA1.05	41(b).5, 41(b).7

***K/A Text:***

AA1.05 – Ability to operate and monitor the following as they apply to HIGH REACTOR PRESSURE: Reactor/turbine pressure regulating system.

***Question:***

The plant is operating at 100% power when the in-service DEH pressure controller fails such that controller output INCREASES slowly. Which one of the following describes the plant response? **Assume NO operator action.**

- a. The reactor will scram when reactor pressure rises to approximately 1050 psig.
- b. The MSIV will isolate when reactor pressure lowers to approximately 835 psig.
- c. Turbine throttle pressure will be controlled approximately 4 psig lower than before the failure.
- d. Turbine throttle pressure will be controlled approximately 4 psig higher than before the failure.

***Answer:***

ANSWER: b. the MSIV will isolate when reactor pressure lowers to approximately 835 psig.

REFERENCE: COR002-14-02, Page 22, IV.C.5.b, rev. 12

K/A System: 295007

K/A Number: AA1.05

K/A Value: 3.7

Cognitive Level: 2

Justification: the MSIV will isolate when reactor pressure lowers to approximately 835 psig.

Distracter a: Reactor pressure will lower as controller output signals the TCVs to OPEN.

Distracter c: The backup pressure regulator is set for a pressure 4 psi higher.

Distracter d: Reactor pressure will lower as controller output signals the TCVs to OPEN.

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 4	ILT	0	2/2001	REACTOR WATER LEVEL CONTROL	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-32-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
5, 7	2.4.5.1, Section 4.4, 6.3	295009, AK2.02	41(b)(7)

***K/A Text:***

AK2.02 – Knowledge of the interrelations between LOW REACTOR WATER LEVEL and the following: Reactor water level control

***Question:***

The plant is operating at power with the following reactor vessel level control alignment:

- RFC-LC-83, MASTER LEVEL CONTROLLER in balance
- RFC-MA-84A, FW CONTROLLER STATION A in balance
- RFC-MA-84B, FW CONTROLLER STATION B in balance

Feedwater flow is approximately  $9.6 \times 10^6$  lbm/hr. Steam flow is approximately  $9.6 \times 10^6$  lbm/hr. RPV water level is +35 inches.

The Master Controller OUTPUT slowly fails downscale. RPV water level lowers to +27 inches when the operator places the "A" and "B" RFP controllers to MANUAL.

Assuming **NO** additional action is taken by the operator, which one of the following describes the response of Feedwater Flow and RPV water level?

**Feedwater flow will ...**

- rise to  $9.6 \times 10^6$  lbm/hr. Level will rise to +42 inches.
- rise to  $9.6 \times 10^6$  lbm/hr. Level will remain at +27 inches.
- rise above  $9.6 \times 10^6$  lbm/hr. Level will rise to +42 inches.
- remain below  $9.6 \times 10^6$  lbm/hr. Level will continue to lower.

***Answer:***

ANSWER: b.

REFERENCE: 2.4.5.1, Section 4.4, 6.3

Tier: 1  
 Group: 1  
 K/A System: 295009  
 K/A Number: AK2.02  
 K/A Value: 3.9  
 Cognitive Level: 2  
 Bank/Mod/New: Bank

Distracter a: Level will not rise.

Distracter c: Feed flow will not rise above  $9.6 \times 10^6$  lbm/hr. Level will not rise.

Distracter d: Feed flow rises to  $9.6 \times 10^6$  lbm/hr. Level does not lower.

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



<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO6	ILT	0	01/03/01	HIGH DRYWELL PRESSURE	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	EOP Bases EOP/SAG Graphs, Graphs 7 & 10	295010 AK1.01	41(b).5, 41(b).8

***K/A Text:***

AK1.01 – Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE:  
Downcomer Submergence: Mark I & II

***Question:***

After a transient, the following parameter values are noted:

- Drywell pressure 4.5 psig rising
- Drywell air temperature 140°F rising
- Torus pressure 4.5 psig rising
- Torus water temperature 82°F stable

Which one of the following is causing this response?

- a. A safety relief valve has opened and its tailpipe vacuum breaker is open
- b. The containment is functioning normally following a water break LOCA
- c. A high energy discharge into the drywell with torus-to-drywell vacuum breakers closed.
- d. High energy discharge into the drywell and PC water level has lowered to less than 9.6 feet

***Answer:***

ANSWER: d. PC water level has lowered to less than 9.6 feet

REFERENCE: EOP Bases EOP/SAG Graphs, Graphs 7 and 10

K/A System: 295010

K/A Number: AK1.01

K/A Value: 3.0

Cognitive Level: 2

Justification: At water levels of less than 9.6 feet drywell atmosphere will pass through the downcomers directly into the torus free air space.

Distracter a: This would pressurize the drywell and eventually the torus but torus pressure would be lower than drywell pressure because steam would be condensed in the torus and the downcomers would maintain a drywell torus d/p.

Distracter b: For normal function during a LOCA, the downcomers would maintain a d/p between the drywell and torus.

Distracter c: This is normal and drywell pressure would be higher than torus pressure.

SOURCE: New

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 7	ILT	0	2/2001	FEEDWATER	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR002-02-02-9.a	2.4.9.4.7	295014, AK2.06	41(b)(10)

**K/A Text:**

AK2.06 – Knowledge of the interrelations between INADVERTENT REACTIVITY ADDITION and the following: Moderator temperature.

**Question:**

Following a loss of feedwater heating, the LOSS OF FW HEATING REGION of the Loss of Feedwater Heating Curve (attached) is entered.

Per 2.4.9.4.7, "Loss of Feedwater Heating," which one of the following describes the required action?

- Lower reactor power below 25% RTP within 4 hours.
- Restore operation to the normal region within 2 hours.
- Immediately place the reactor mode switch to SHUTDOWN.
- Immediately perform an emergency power reduction per 2.1.5.

**Answer:**

ANSWER: b.

REFERENCE: 2.4.9.4.7

Tier: 1  
 Group: 1  
 K/A System: 295014  
 K/A Number: AK2.06  
 K/A Value: 3.4  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: Misinterpretation of the requirement for lowering reactor power. If performed, it must be completed within 2 hours.  
 Distracter c: This condition requires restoring feedwater temperature to the normal feedwater heating range, not a reactor scram.  
 Distracter d: This condition requires restoring feedwater temperature to the normal feedwater heating range, not a reactor scram.

Proposed references to be provided to applicants during the examination:  
**2.4.9.4.7, Attachment 1 (LOSS OF FEEDWATER HEATING CURVE)**

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO8	ILT	0	02/15/01	INCOMPLETE SCRAM	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	EOP-6A	295015 AA1.07	41.6, 41.7, 41.10

***K/A Text:***

AA1.07 – Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: Neutron Monitoring System.

***Question:***

The plant has scrammed and all the control rods have NOT fully inserted. EOP-6A has been entered.

- The main turbine has tripped
- RPV pressure control is on the turbine bypass valves
- Feedwater control is maintaining RPV water level
- Drywell pressure is 0.4 psig
- APRM downscale lights are not lit

Which one of the following actions is required at this time?

- a. Initiate boron injection.
- b. Trip the recirculation pumps.
- c. Prevent injection from ECCS systems NOT required for core cooling.
- d. Exit EOP-6A and enter 2.1.5, "Emergency Shutdown and Scram Response".

***Answer:***

ANSWER: b. Trip the recirculation pumps

REFERENCE: EOP-6A

K/A System: 295015

K/A Number: AA1.07

K/A Value: 3.6

Cognitive Level: 2

Justification: At power levels above 3% the recirc pumps must be tripped, APRM downscale are ON below 3% and power levels above 3% are possible on Range 8 of the IRMs

Distracter a: Not required, heat is not being added to the torus

Distracter c: Pressure is above 350 psig, this is not required

Distracter d: Entry conditions are still met for EOP-6A

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO9	ILT	0	02/15/01	HIGH DRYWELL PRESSURE	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	EOP-3A and EOP-Graph 10	295024 2.4.6	41(b) 10

***K/A Text:***

2.4.6 – Knowledge of symptom-based EOP mitigation strategies.

***Question:***

Following a Loss of Coolant Accident the following conditions exist:

- Torus Pressure 25 psig
- Containment Water Level 12.0 feet
- Torus Water Temperature 145°F
- Drywell Pressure 27 psig
- Drywell Temperature 245°F and stable
- Reactor Pressure 50 psig
- RPV Water Level (Wide Range) -34 inches

Which one of the following actions is required at this time?

- a. Perform RPV Flooding.
- b. Vent the Torus using SBTG..
- c. Anticipate Emergency Depressurization
- a. Conduct an Emergency RPV Depressurization.

***Answer:***

ANSWER: d. Conduct an Emergency RPV Depressurization

REFERENCE: EOP-3A, PC/P-4, Figure 9, EOP/SAG Graphs, Graph 10

K/A System: 295024

K/A Number: 2.4.6

K/A Value: 3.1

Cognitive Level: 2

Justification: PSP has been exceeded Emergency Depressurization is required.

Distracter a: RPV Flooding is not required water level instruments are operable with these conditions.

Distracter b: Drywell Pressure is not high enough to require emergency venting and Emergency Depressurization is required.

Distracter c: Emergency Depressurization is required because PSP has been exceeded. Anticipation of Emergency Depressurization is incorrect when the requirements to ED have already been met.

SOURCE: New

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO10	ILT		01/03/01	HIGH REACTOR PRESSURE	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR002-16-02-1.a	COR002-16-02	295025 EK3.09	41(b).7

***K/A Text:***

EK3.09 – Knowledge of the reasons for the following as they apply to HIGH REACTOR PRESSURE: Low low set initiation.

***Question:***

Which one of the following is the basis for the LOW LOW SET SRV logic?

- a. Mitigate thrust loading on SRV discharge piping.
- b. Eliminate cyclic stresses on the reactor pressure vessel.
- c. Limit the reactivity effects caused by large pressure variations.
- d. Prevent relief valve actuation if reactor water level is below the top of active fuel.

***Answer:***

ANSWER: a.

REFERENCE: COR002-16-02,

K/A System: 295025

K/A Number: EK3.09

K/A Value: 3.7

Cognitive Level: 1

Justification: Reduce high frequency loadings on the containment caused by SRV cycling.

Distracter b: Not a valid concern

Distracter c: Not a valid concern

Distracter d: Not a valid concern

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 11	ILT	0	2/2001	REACTOR LOW WATER LEVEL	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				INT008-06-18

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
8	EOP-1A, 6A	295031, EA1.08	41(b)(8) 41(b)(10)

***K/A Text:***

EA1.08 – Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL: Alternate Injection Systems

***Question:***

**Note: All RPV levels are as INDICATED on the Fuel Zone instruments.**

Which one of the following conditions assures adequate core cooling?

- All control rods are fully inserted, Reactor Pressure 128 psig, RPV level -40 inches, **NO** SRVs open, the only available injection is ECCS pressure maintenance.
- All control rods are fully inserted, Reactor Pressure 200 psig, RPV level -50 inches, **NO** SRVs open, the only available injection is one (1) Core Spray pump.
- ATWS with reactor power at 5%, Reactor Pressure 60 psig, RPV level -20 inches, Three (3) SRVs open, the only available injection is one (1) RHR pump.
- ATWS with reactor power at 14%, Reactor Pressure 385 psig, RPV level -50 inches, One (1) SRV open, the only available injection is (1) Condensate pump.

***Answer:***

ANSWER: c.

Level is above -30 inches for adequate steam cooling and 3 SRVs are open with Minimum Alternate RPV Flooding Pressure met.

REFERENCE: EOP-1A, 6A

Tier: 1  
Group: 1  
K/A System: 295031  
K/A Number: EA1.08  
K/A Value: 3.8  
Cognitive Level: 3  
Bank/Mod/New: Bank

Distracter a: -40 inches is too low for adequate steam cooling RC/L-16.

Distracter b: -50 inches corrected is below minimum steam cooling level.

Distracter d: -50 inches corrected is below minimum steam cooling level but above old minimum steam cooling level.

Proposed references to be provided to applicants during the examination: All the EOP graphs, EOPS 1A, 6A, and 7A.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 12	ILT	0	2/2001	ATWS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				INT008-06-10

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
3	EOP-7A	295037, 2.4.20	41(b)(10)

***K/A Text:***

2.4.20 – Knowledge of operational implications of EOP warnings/cautions and notes.

***Question:***

While performing EOP-7A, "RPV Level/Failure to Scram," with power below 3%, which one of the following CAUTIONS applies as reactor water level is lowered?

**Lowering RPV water level to ...**

- 42 inches will result in an ADS initiation if ADS is **NOT** inhibited.
- 110 will result in low pressure ECCS injection unless it is stopped and prevented.
- 110 inches will result in an MSIV isolation and loss of the main condenser as a heat sink.
- 42 inches will result in injection from low pressure ECCS systems **NOT** required for RPV level control.

***Answer:***

ANSWER: c.

REFERENCE: EOP-7A

Tier: 1  
 Group: 1  
 K/A System: 295037  
 K/A Number: 2.4.20  
 K/A Value: 3.3  
 Cognitive Level: 1  
 Bank/Mod/New: Bank

Distracter a: Caution does not exist in EOP-7A.  
 Distracter b: Caution does not exist in EOP-7A.  
 Distracter d: Caution does not exist in EOP-7A.

Proposed references to be provided to applicants during the examination: EOP 7A with all CAUTIONS blanked out.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 13	ILT	0	2/2001	CONTAINMENT	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				INT008-06-13 COR002-03-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
INT008-06-13, 4 COR002-03-02, 14e	EOP-3A	500000, EA2.03	41(b)(7)

***K/A Text:***

EA2.03 – Ability to determine and/or interpret the following concepts as they apply to HIGH CONTAINMENT HYDROGEN CONCENTRATIONS: Combustible Limits for Drywell

***Question:***

A LOCA has occurred and the following conditions exist:

- Drywell H2 concentration is 7%
- Torus H2 concentration is 4%
- Drywell O2 concentration is 4%
- Torus O2 concentration is 6%

In accordance with the EOPs, which one of the following describes the Primary Containment H2/O2 combustible limit status (above or below the combustible limit) and the required actions?

**The Primary Containment H2/O2 concentration is ...**

- a. below the combustible limit. Reactor scram and emergency depressurization is required.
- b. below the combustible limit. Reactor scram and emergency depressurization is **NOT** required.
- c. above the combustible limit. Reactor scram and emergency depressurization is required.
- d. above the combustible limit. Reactor scram and emergency depressurization is **NOT** required.

***Answer:***

ANSWER: c.

The limits, 6%, H2 and 5%, O2 in either torus or drywell are the limits for the primary containment. Combustible limit exceeded requires a reactor scram and emergency depressurization.

REFERENCE: EOP-3A

Tier: 1  
Group: 1  
K/A System: 500000  
K/A Number: EA2.03  
K/A Value: 3.3  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: See justification above.  
Distracter b: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: **EOP-1A & EOP-3A.**

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO14	ILT		01/03/01	LOSS OF CORE FLOW	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR002-22-02-6.e	2.4.2.2.1, T.S. 3.0 Bases C.1	295001 AK3.04	41(b).1, 41(b).10

**K/A Text:**

EK3.09 – Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Reactor SCRAM.

**Question:**

A plant startup is in progress with RPV level in the normal band. The reactor operator has just placed the Reactor Mode Switch in RUN per the startup procedure when both Reactor Recirculation Pumps TRIP.

Assuming **NO** other plant transient occurs, which one of the following actions is required and why?

- RPV level must be raised to ensure adequate core flow prior to restarting the first recirculation pump.
- The reactor must be scrammed before a recirculation pump can be started to prevent a reactivity insertion accident.
- Control rods must be inserted and the reactor cooled down before either of the recirculation pumps may be started to prevent thermal shock to the reactor vessel.
- Bottom vessel drain, recirculation loop and the vessel saturation temperature must be within limits to prevent a cold water accident prior to starting each recirculation pump.

**Answer:**

ANSWER: b.

REFERENCE: 2.4.2.2.1, Trip of Reactor Recirculation Pumps, Sect. 3.0, Tech. Spec. Bases C.1.

K/A System: 295001

K/A Number: aK3.04

K/A Value: 3.4

Cognitive Level: 1

Justification: The reactor must be scrammed before a recirculation pump can be started to prevent a reactivity insertion accident.

Distracter a: Recirculation pumps may not be started, a scram is required first.

Distracter c: There is no requirement to cooldown prior to starting the recirculation pumps and the bases for the scram is reactivity NOT thermal shock.

Distracter d: Recirculation pumps may not be started, a scram is required first.

SOURCE: Modified Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO15	ILT		01/03/01	LOSS OF CONDENSER VACUUM	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.9.3.5,	295002 AK2.07	41(b).5, 41(b).13

***K/A Text:***

AK2.07 – Knowledge of the interrelations between LOSS OF MAIN CONDENSER VACUUM and the following: Offgas system

***Question:***

The plant has been operating at 100% power for several days.

Over the last several hours Main Condenser Backpressure has risen from 2.5" Hg to 3.5" Hg and Offgas flow on AR-FR-47 has risen from 18 scfm to 30 scfm. There have been **NO** alarms during this time.

Which one of the following is the cause for these indications?

- a. Circulating water temperature has risen.
- b. A feedwater heater drain valve has failed open.
- c. A detonation has occurred in the offgas system.
- d. Air leakage into the main condenser has increased.

***Answer:***

ANSWER: d.

REFERENCE: 2.4.9.3.5, Loss of Condenser Vacuum, Section 4.8

K/A System: 295002

K/A Number: AK2.07

K/A Value: 3.1

Cognitive Level: 2

Justification: Air leakage into the main condenser has increased off gas flow

Distracter a: This would not cause offgas flow to rise

Distracter b: This would cause an alarm and not cause a loss of vacuum because the feedwater heaters are vented to the main condenser.

Distracter c: This would cause an alarm and not cause these changes in parameters, ie offgas would isolate and if not recovered backpressure would rise more significantly.

SOURCE: New question

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO16	ILT	0.	01/03/01	Partial or Complete Loss of AC Power	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-23-02-8.a	COR002-23-02, COR001-01-01	295003 AK1.03	41(b).7

***K/A Text:***

AK1.03 – Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER. Under voltage/degraded voltage effects on electrical loads.

***Question:***

Given the following conditions:

- The Plant is in cold shutdown
- The C Residual Heat Removal (RHR) Pump is running in shutdown cooling
- ALL plant systems respond as designed

A fault on the electrical system lowers 1G 4160 VAC Switchgear Bus voltage to 1000 volts for one (1) second then recovers

Which one of the following statements below describes the response of the C RHR Pump to these conditions?

**The C RHR Pump will...**

- a. trip on undervoltage, **BUT** will automatically restart.
- b. trip on undervoltage, **BUT** will NOT automatically restart.
- c. continue to run because bus voltage recovers within 3 seconds.
- d. continue to run because the bus fast transfers in less than 0.25 seconds.

***Answer:***

ANSWER: b. trip on undervoltage, **BUT** will NOT automatically restart.

REFERENCE: COR002-23-02, Residual Heat Removal, page 14, section II.C, rev. 13  
COR001-01-01, AC Electrical Distribution, page 45, section IV.F, rev. 11

K/A System: 295003  
K/A Number: AK1.03  
K/A Value: 2.9  
Cognitive Level: 2

Justification: A low voltage on the 1G Buss (less than 2300 V) will trip the C RHR Pump breaker. When voltage is restored the UV relays automatically reset. The Anti-Pump feature is only active if the breaker trips with a sustained START signal present. Since no start signal was present at the time of the transient, the Anti-Pump feature does not need to be reset, and any subsequent LPCI signal will automatically start the pump.

Distracters a: The pump breaker will **not** reclose attempting a re-start because a LPCI signal was **not** present.

Distracter c& d: Bus voltage will drop below 2300 V, tripping all pump breakers

SOURCE: Modified Cooper Question

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 17	ILT	0	2/2001	DC DISTRIBUTION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				SKL012-42-03

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
02	2.6.1, section 6.1.1 2.2.25, section 2.2.6	295004, AA1.02	41(b)(6) 41(b)(7)

***K/A Text:***

AA1.02 – Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER:  
Systems necessary to assure safe plant shutdown.

***Question:***

Given the following conditions:

- ALL 4160 volt busses are de-energized
- VBD-H Manual Transfer switch is in ALTERNATE
- ALL Division I DC power sources are unavailable

Which one of the following describes the indicators available to assess Suppression Pool Temperature **WITHOUT** reliance on other indications?

- PMIS/SPDS only.
- Alternate Shutdown Panel instruments only.
- PMIS/SPDS and one (1) of the Suppression Chamber Water Temperature recorders.
- Alternate Shutdown Panel instruments and one (1) of the Suppression Chamber Water Temperature recorders.

***Answer:***

ANSWER: b.

REFERENCE: 2.6.1, section 6.1.1; 2.2.25, section 2.2.6, 2,4,6,9

Tier: 1  
Group: 2  
K/A System: 295004  
K/A Number: AA1.02  
K/A Value: 3.8  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: PMIS cannot be used as a sole source.

Distracter c: NBPP is not available as DIV I DC is de-energized and no AC power is available to the temperature recorder, PMIS cannot be used as a sole source.

Distracter d: NBPP is not available as DIV I DC is de-energized and no AC power is available.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO18	ILT	1	02/24/01		

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-18-02-8.d	COR002-18-02	295008 AK3.08	41(b).7

***K/A Text:***

AK3.08 – Knowledge of the reasons for the following responses as they apply to HIGH REACTOR WATER LEVEL: RCIC steam supply valve closure.

***Question:***

Which one of the following explains why the Reactor Core Isolation Cooling (RCIC) system is automatically shutdown on high RPV water level?

- a. Prevents tripping the feedwater pumps to allow them to be used for level control.
- b. Protects the RCIC steam line piping from damage and flooding by isolating the steam line.
- c. Protects RCIC turbine blades from damage caused by low quality steam due to moisture carryover.
- d. Prevents tripping the main turbine on high level to maximize use of the main condenser as a heat sink.

***Answer:***

ANSWER: c. Protects RCIC turbine blades from damage caused by low quality steam due to moisture carryover

REFERENCE: COR002-18-02

K/A System: 295008

K/A Number: AK3.08

K/A Value: 3.4

Cognitive Level: 1

**Justification:**

Distracter a: This does not prevent a feed pump trip.

Distracter b: Does not protect the steam lines, if level rose high enough to flood the steam lines there would be water in the line up to the valve.

Distracter d: Does not prevent tripping the main turbine.

SOURCE: SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO19	ILT	0	02/15/01	HIGH DRYWELL PRESSURE	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	Figure 9, EOP/SAG Graphs	295012 AA2.02	41(b).10

***K/A Text:***

AA2.02 – Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell pressure.

***Question:***

A steam line break in the drywell has occurred while at power. Drywell temperature is approaching 280°F. The SRO is trying to determine if Drywell Sprays can be initiated per the DW Temperature leg of EOP-3A.

Which one of the following **parameter** values will the SRO need to make this determination?

- a. Torus Temperature
- b. RPV Pressure
- c. Torus Pressure
- d. Drywell pressure

***Answer:***

ANSWER: d. Drywell pressure

REFERENCE: Figure 9, EOP/SAG Graphs

K/A System: 295012

K/A Number: AA2.02

K/A Value: 3.9

Cognitive Level: 1

Justification: The SRO must check the drywell spray initiation limit curve, which plots containment pressure against drywell temperature.

Distracter a: not needed

Distracter b: not needed

Distracter c: not needed

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO20	ILT		01/03/01	HIGH SUPPRESSION POOL TEMP	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	STOMT0080613 Flowchart 3A	295013 2.4.18	41(b).10

***K/A Text:***

2.4.18 – Knowledge of the specific bases for EOPs

***Question:***

While performing the Torus Temperature Control leg of EOP-3A, Primary Containment Control, the operator is directed to enter EOP-1A, RPV Control, AND execute it concurrently before Torus Temperature reaches 110°F

Which one of the following is the bases for entering EOP-1A, RPV Control, AND executing it concurrently without a specific entry condition being met?

- a. This ensures Torus temperature is maintained below 120°F while the reactor is being shutdown.
- b. This directs a scram and removes the source of a potential energy addition to the Torus before conditions warrant injection of boron.
- c. This assumes the high drywell temperatures are from a primary system break that will require emergency core cooling systems for RPV level control.
- d. This provides direction for reactor pressure control and a path for emergency depressurization using the turbine Bypass Valves if temperatures continue to rise.

***Answer:***

ANSWER: b. This directs a scram and removes the source of a potential energy addition to the Torus before conditions warrant injection of boron.

REFERENCE: STOMT0080613 Flowchart 3A – Primary Containment Control, Page 20, Section II.J.3, Rev 9

K/A System: 295013

K/A Number: 2.4.18

K/A Value: 2.7

Cognitive Level: 1

Justification: Ensures a scram is initiated because EOP-3A does NOT require a scram

Distracter a: There is no guarantee this temperature will NOT be exceeded

Distracter c: Entry conditions for RPV control ensure RPV level control

Distracter d: Pressure control becomes the bases is the reactor scram is NOT successful

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO21	ILT	0	01/03/01	Control Room Abandonment	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		COR002-34-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-11-02-13	5.2.1, COR002-34-02	295016 2.4.2	41(b).7, 41(b).8, 41(b).10

***K/A Text:***

2.4.2 – Knowledge of system setpoints/interlocks and automatic actions associated with EOP entry conditions.

***Question:***

Given the following conditions:

- The Control Room is abandoned
- ALL Immediate Actions of Procedure 5.2.1, "Shutdown from Outside the Control Room", are complete, **NO** further actions have been taken.
- Reactor water level is 35 inches (Wide Range)
- Drywell pressure is 0.3 psig

Which one of the following statements below describes the **CURRENT** status of the High Pressure Coolant Injection (HPCI) system?

- HPCI can only be started from the ASD room and will be available for automatic initiation.
- HPCI can only be started from the control room and will be available for automatic initiation.
- HPCI can only be started from the ASD room and will NOT be available for automatic initiation.
- HPCI can only be started from the control room and will NOT be available for automatic initiation.

***Answer:***

ANSWER: b.

REFERENCE: EP 5.2.1, COR0023402 ASD

K/A System: 295016

K/A Number: 2.4.2

K/A Value: 3.9

Cognitive Level: 1

Justification: HPCI control is not shifted in the immediate actions and remains operable from the control room with full auto functions.

Distracter a: HPCI CANNOT be started from the ASD panel and auto functions are operable.

Distracter c: HPCI CANNOT be started from the ASD panel.

Distracter d: HPCI CANNOT be started from the HPCI panel and auto functions are operable.

SOURCE: NEW

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO22	ILT	0	01/03/01	High Off-site Release Rate	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR0011802001050Q COR0011802001080B	Radiation Monitoring Text	295017 AK3.01	41(b).7, 41(b).11, 41(b).13

***K/A Text:***

AK3.01 – Knowledge of the reasons for the following responses as they apply to HIGH OFF-SITE RELEASE RATE: System Isolations

***Question:***

Which one of the following describes the radwaste liquid effluent process radiation monitor protective function?

- a. Closes the Radwaste effluent valve before federal limits are exceeded.
- b. Trips the discharge pump and closes the radwaste effluent valve when federal limits are reached.
- c. Provides an alarm only to alert control room and radwaste operators before federal limits are exceeded.
- d. Trips the discharge and dilution pumps and closes the radwaste effluent valve when federal limits are reached.

***Answer:***

ANSWER: a. Closes the Radwaste effluent valve before federal limits are exceeded.

REFERENCE: Radiation Monitoring Text

K/A System: 295017

K/A Number: AK3.01

K/A Value: 3.6

Cognitive Level: 1

Justification: Closes the valve to isolate and stop the discharge

Distracter b: Does not trip any pumps and initiates prior to reaching federal limits.

Distracter c: Provides an effluent valve trip

Distracter d: Does not trip any pumps and initiates prior to reaching federal limits.

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO23	ILT	0	02/14/01	Partial or Complete Loss of CCW	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	5.2.4	295018 2.4.24	41.4, 41.7, 41.10

***K/A Text:***

2.4.24 – Knowledge of loss of cooling water procedures.

***Question:***

The unit is operating at 100% power when the following alarms are energized:

- M-1/A-1, REC SYSTEM LOW PRESSURE
- M-1/A-3, REC SURGE TANK LOW LEVEL

Three (3) REC pumps are operating but REC pressure is lowering. Which one of the following actions is required immediately?

- a. Shutdown both reactor recirculation pumps.
- b. Isolate the RWCU System to raise the cooling capacity of the REC system.
- c. Shutdown the REC Pumps and Scram the reactor anticipating a loss of REC.
- d. Close REC-MO-711, NORTH CRITICAL LOOP SUPPLY to conserve pressure.

***Answer:***

ANSWER: c. Shutdown the REC Pumps and Scram the reactor anticipating a loss of REC.

REFERENCE: 5.2.4

K/A System: 295018

K/A Number: 2.4.24

K/A Value: 3.3

Cognitive Level: 1

Justification: These alarms indicate a break in the REC piping that will exceed makeup capacity and result in a loss of ability to cool the recirc pumps and reactor auxiliary equipment. The system must be shutdown, the reactor scrammed, and then limited cooling may be accomplished with one pump.

Distracter a: Starting a fourth pump is necessary if pressure is low, but, with a low tank level a break is indicated and starting a fourth pump would raise the leak rate.

Distracter b: This is a subsequent action after the reactor has been shutdown

Distracter d: This valve automatically isolates when REC pressure falls to 40 psig, there are no immediate actions to close it.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO24	ILT	0	01/05/01	Part. or Comp. Loss of Instr. Air	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	EP-5.2.8,	295019 AA1.01	41(b).7

***K/A Text:***

AA1.01 – Ability to operate and monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR:  
Backup air supply

***Question:***

A malfunction of the Instrument Air Dryers has raised their d/p high enough to restrict instrument air flow and cause a lowering of instrument air pressure. Which one of the following actions is required to restore instrument air pressure?

- a. Open SA-MO-81, SA to IA CROSSTIE.
- b. Open SA-14, AIR RECEIVER 1A 6" OUTLET.
- c. Close SA-PCV-609, SERVICE AIR SYSTEM ISOLATION.
- d. Close IA-MO-80, NON CRITICAL INSTRUMENT AIR ISOLATION.

***Answer:***

ANSWER: a. Open SA-MO-81, SA to IA CROSSTIE.

REFERENCE: EP-5.2.8, Loss of Instrument Air

K/A System: 295019

K/A Number: AA1.01

K/A Value: 3.5

Cognitive Level: 1

Justification: SA-MO-81, SA to IA CROSSTIE allow Service Air to bypass the Instrument Air Dryers and re-supply IA.

Distracter b: This is a normally open valve

Distracter c: This valve automatically closes on low air pressure (77 psig) and would not raise or restore pressure.

Distracter d: This valve is manually closed to isolate non-essential loads and would not raise or restore pressure.

SOURCE: New

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 25	ILT	0	2/2001	HPCI	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-11-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
8	2.1.22	295020, AK2.06	41(b)(7) 41(b)(8)

***K/A Text:***

AK2.06 – Knowledge of the interrelations between INADVERTENT CONTAINMENT ISOLATION and the following: HPCI

***Question:***

A false high drywell pressure signal caused an automatic initiation of HPCI. An operator then depresses the Manual Isolate pushbutton instead of the Turbine Trip pushbutton on the 9-3 panel when attempting to secure HPCI.

Which one of the following describes the HPCI system response?

- HPCI Inboard Steam Isolation valve, HPCI-MO-15 closes, the ECST Suction valve HPCI-MO-17 receives a close signal and the HPCI turbine trips.
- HPCI Outboard Steam Isolation valve, HPCI-MO-16 closes, the Suppression Pool suction valve HPCI-MO-58, receives a close signal and the HPCI turbine trips.
- Both HPCI Inboard and Outboard Steam Isolation valves, HPCI-MO-15 and HPCI-MO-16, close and both HPCI Suction valves, HPCI-MO-17 and HPCI-MO-58 receive a close signal and the HPCI turbine trips.
- Both HPCI Inboard and Outboard Steam Isolation valves, HPCI-MO-15 and HPCI-MO-16, close and both HPCI Suction valves, HPCI-MO-17 and HPCI-MO-58 receive a close signal, HPCI turbine coasts down but does **NOT** trip.

***Answer:***

ANSWER: b.

REFERENCE: 2.1.22

Tier: 1  
Group: 2  
K/A System: 295020  
K/A Number: AK2.06  
K/A Value: 3.8  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: This is logic A which is not tripped by the manual pushbutton.

Distracter c: The manual pushbutton only trips logic B.

Distracter d: The manual pushbutton only trips logic B and the turbine trips on an isolation signal.

Proposed references to be provided to applicants during the examination: None.

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO26	ILT	0	02/13/01	High Suppression Pool Water Temp	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	EOP/SAG Graphs, Graph 5	295026 EK2.03	41.5, 41.14, 45.7, 45.8

***K/A Text:***

EK2.03 – Knowledge of the interrelations between SUPPRESSION POOL HIGH WATER TEMPERATURE and the following:  
Suppression chamber pressure: Mark I & II

***Question:***

A LOCA resulted in the following conditions:

- RPV level –135 inches and steady (Wide Range)
- Drywell pressure 8 psig
- Drywell temperature 225°F
- Torus pressure 6 psig
- Suppression Pool Temperature 215°F
- Containment Level 14 feet
- RHR Pump "A" flow into the RPV 8000 gpm

Which one of the following describes the effect of using of "A" RHR pump for torus sprays at this time?

- a. Adequate core cooling is NOT assured.
- b. The primary containment boundary will fail.
- c. RHR Pump "A" NPSH requirement will NOT be met.
- d. Reactor Building to Torus Vacuum Breakers will open.

***Answer:***

ANSWER: c. RHR Pump A NPSH requirement will NOT be met.

REFERENCE: EOP/SAG Graphs, Graph 5

K/A System: 295026

K/A Number: EK2.03

K/A Value: 3.2

Cognitive Level: 3

Justification: Torus sprays would lower torus pressure, which would lower torus overpressure, which would lower NPSH below the limit in Graph 5 of the EOP.

Distracter a: Adequate core cooling is assured – water level is above TAF

Distracter b: Torus sprays require very little flow, there is plenty available.

Distracter d: Reactor Building to Torus Vacuum Breakers would NOT open.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO27	ILT	0	01/05/01	High Drywell Temperature	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.8.4.2	295028 EK3.05	41.7, 45.3

***K/A Text:***

EK3.05 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERAURE: Reactor SCRAM.

***Question:***

Following a loss of Drywell Cooling which one of the following requires a reactor scram?

- a. Drywell cooling is lost and cannot be restored.
- b. Wide range level indication run temperatures reach 197°F.
- c. Drywell temperature reaches 150°F and EOP entry is required.
- d. Reactor water level indications are effected by drywell temperature.

***Answer:***

ANSWER: a. Drywell cooling is lost and is unavailable.

REFERENCE: Abnormal Procedure 2.4.8.4.2, Ventilation System Failure - Loss of Drywell Cooling

K/A System: 295028

K/A Number: EK3.05

K/A Value: 3.6

Cognitive Level: 1

Justification: Rising Drywell temperatures will cause a high drywell pressure and Scram and ECCS initiation, 2.4.8.4.2 requires entry into 2.1.5, Reactor Scram, when drywell cooling cannot be restored.

Distracter b: At this temperature wide range level is not effected, and no scram is required.

Distracter c: EOP entry (EOP-3A) does not require a scram

Distracter d: Although this is a major concern, it does not require a scram for these conditions.

SOURCE: New

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO28	ILT	0	01/03/01	High Suppression Pool Water Level	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	INT0080613, EOP-3A	295029 EK2.01	41.5, 41.7, 45.5

***K/A Text:***

EK2.01 – Knowledge of the interrelations between HIGH SUPPRESSION POOL WATER LEVEL and the following: RHR/LPCI

***Question:***

A loss of coolant accident has occurred with the following conditions:

- Reactor pressure                    590 psig
- Drywell pressure                   6.5 psig **AND** rising
- Drywell temperature              200°F
- Torus Temperature                160°F and rising
- Containment level                16.8 feet **AND** rising
- Torus spray is in service
- Drywell Spray is in service

Which one of the following actions is required and what are the reasons for those actions?

- a. Terminate Drywell Spray to stop the water addition to the Torus.
- b. Terminate Torus Spray since the Torus Spray Header is submerged.
- c. Terminate Torus Spray to raise Torus pressure to drive non-condensable gases into the Drywell.
- d. Terminate Drywell Spray because the primary containment vacuum relief is inoperable.

***Answer:***

ANSWER:            d. Terminate Drywell Spray because the primary containment vacuum relief system capacity has been exceeded.

REFERENCE:        INT0080613, page 9-11, section II.F.3, rev. 9., EOP-3A

K/A System:        295029

K/A Number:        EK2.01

K/A Value:           3.0

Cognitive Level:    2

Justification:        Torus vacuum Breakers are submerged at 16.5' and will not pass sufficient flow to the Drywell.

Distracter a:         Drywell Spray water is taken from the Torus.

Distracter b:         The Spray header is submerged at 26.5'.

Distracter c:         The Vacuum Breakers will not pass sufficient flow when covered.

MATERIAL REQUIRED FOR EXAMINATION: Flowchart 3A – Primary Containment Control

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 29	ILT	0	2/2001	SEC CONT CONTROL	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				INT008-06-17

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
4	EOP-5A, INT008-06-17	295033, EK1.02	41(b)(10) 41(b)(12)

***K/A Text:***

EK1.02 – Knowledge of the operational implications of the following concepts as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: Personnel protection.

***Question:***

Which one of the following describes the EOP-5A, "Secondary Containment Control," basis for isolating a system discharging into the secondary containment?

- a. To minimize reactor coolant losses.
- b. To backup PCIS automatic functions.
- c. To maintain the Recirc MG set room accessible.
- d. To terminate rising temperatures and radiation levels.

***Answer:***

ANSWER: d.

REFERENCE: EOP-5A, INT008-06-17

Tier: 1  
 Group: 2  
 K/A System: 295033  
 K/A Number: EK1.02  
 K/A Value: 3.9  
 Cognitive Level: 1  
 Bank/Mod/New: Bank

Distracter a: This is covered by other EOPs

Distracter b: PCIS automatic actions may not have been required

Distracter c: Secondary Containment Control does not maintain habitability for all areas. The Max Safe values are based on equipment operability and personnel access necessary for EOP actions. the Recirc MG set room is not one of the areas requiring access.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO30	ILT	0	01/03/10	Sec Containment Vent. Rad. High	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		COR002-28-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.73	295034 EA1.04	41.7, 41.11

***K/A Text:***

EA1.04 – Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT VENTILATION HIGH RADIATION: SBGR/FRVS

***Question:***

During surveillance testing of the Reactor Building Exhaust Radiation Monitors, the Mode Switches for "A" and "C" trip units where **NOT** returned to the OPERATE position.

Later, while moving contaminated refueling equipment, radiation levels in the area of the Reactor Building Exhaust Plenum rise to sixty (60) mr/hr. Standby Gas Treatment is in a normal lineup. Which one of the following describes the effects on SGT?

- a. SBGT receives one half of an initiation signal and will **NOT** start.
- b. SGT train B will automatically start and Secondary containment will isolate.
- c. SGT train B will automatically start but Secondary containment will **NOT** isolate.
- d. SGT trains A and B will automatically start and Secondary containment will isolate.

***Answer:***

ANSWER: d.

REFERENCE: 2.2.73

K/A System: 295034

K/A Number: EA1.04

K/A Value: 4.1

Cognitive Level: 2

Justification: The switches out of operate will produce one of the two signals necessary for complete system initiation. They will NOT effect the operability of the SBGT trains.

Distracter a: One half the signal is created by the switches out of operate, the other by the high radiation

Distracter b: Both trains start

Distracter c: Both trains start

MATERIAL REQUIRED FOR EXAMINATION: N/A

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO31	ILT	1	02/24/01	High Off-Site Release	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	4.7.4	295038 EK2.06	41.4, 41.5, 41.11

***K/A Text:***

EK2.06 – Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Process liquid radiation monitoring system.

***Question:***

During an outage it is necessary to operate the "B" Residual Heat Removal Heat Exchanger (RHR HX) without Service Water Booster Pumps (SWBP) running. While in this lineup which one of the following would alert operators to a tube leak in the RHR HX?

- a. RPV high water level alarm.
- b. Operators observe SWBP flow rising.
- c. SW Liquid Process Radiation Monitor alarm
- c. Chemistry reports deteriorating RPV water chemistry.

***Answer:***

ANSWER: c. SW Liquid Process Radiation Monitor alarm

REFERENCE: 4.7.4

K/A System: 295038

K/A Number: EK2.06

K/A Value: 3.4

Cognitive Level: 2

Justification: In this lineup where RHR Pressure will exceed the SW Pressure and any tube leak in the HX would allow a radioactive discharge to the river. This discharge would be detected by the SW Liquid Process Radiation Monitor.

Distracter a: Leakage would be from the RPV into the SW , RPV level would not rise.

Distracter b: SWBP flow is measured by a flow element on the inlet to the RHR HX, any leakage occurring in the HX would not be detected by the flow element.

Distracter d: Leakage would be from the RPV into the SW , RPV chemistry would not change.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO32	ILT	1	02/24/01	Plant Fire On Site	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
INT0320134B0B0200	2.3.2.37	600000 AA2.03	41.4, 41.10

***K/A Text:***

AA2.03 – Ability to determine and interpret the following as they apply to PLANT FIRE ON SITE: Fire alarm

***Question:***

Which one of the following is indicated by annunciator FP-1/D-4, RX BLDG S.W. QUAD ZONE 20 in alarm?

- One detector has activated and the deluge system has initiated.
- Two fire detectors have activated and the deluge system has initiated.
- Floor drain sump area drain valves for ALL the corner rooms have isolated.
- Floor drain sump area drain valves for ONLY the S.W. Corner room have isolated.

***Answer:***

ANSWER: c. Floor drain sump area drain valves for ALL the corner rooms have isolated.

REFERENCE: 2.3.2.37

K/A System: 600000

K/A Number: AA2.03

K/A Value: 2.8

Cognitive Level: 1

Justification: All corner room drains are isolated to prevent flooding, there are NO automatic actions associated with the deluge system.

Distracter a: There are NO automatic actions associated with the deluge system.

Distracter b: There are NO automatic actions associated with the deluge system.

Distracter d: All corner room drains isolate.

SOURCE: New

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 33	ILT	0	2/2001	SHUTDOWN COOLING	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-22-02, 5 COR002-23-02, 9

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-22-02, 5 COR002-23-02, 9	2.4.2.4.1, Attachment 4	295021, AK3.05	41(b)(5) 41(b)(7)

***K/A Text:***

AK3.05 – Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING: Establishing alternate heat removal flow paths.

***Question:***

The reactor has been shutdown for 18 hours and is currently in Cold Shutdown (MODE 4). A cooldown is in progress with reactor coolant temperature at 162 °F. RHR Loop "A" is in Shutdown Cooling with both reactor recirculation pumps tripped.

Subsequently, a Group 2 isolation signal trips the RHR system and RHR **CANNOT** be restarted.

Which one of the following describes where RPV water level is required to be maintained for the current conditions and why?

- At least +48 inches on the narrow range RPV water level instruments to promote natural circulation.
- At 0.0 inches on the wide range RPV water level instruments to support alternate heat removal using RWCU.
- Flooded (solid) on the shutdown range RPV water level instruments to support alternate heat removal using the SRVs.
- Between +27.5 inches and +42.5 inches on the narrow range RPV water level instruments to minimize thermal stratification in the reactor pressure vessel.

***Answer:***

ANSWER: a.

REFERENCE: 2.4.2.4.1, Attachment 4

Tier: 1  
Group: 3  
K/A System: 295021  
K/A Number: AK3.05  
K/A Value: 3.7  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter b: Water level is not high enough to support this method of heat removal.  
Distracter c: Not an approved method of heat removal.  
Distracter d: Circulation is needed to minimize thermal stratification.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 34	ILT	0	2/2001	REFUELING	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				SKL010-01-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
A4	10.25 section 4.1.2.5 2.4.2.4.1 Section 4.2 2.4.8.6 T.S. 3.3.1.1	295023, 2.2.27	41(b)(13)

***K/A Text:***

2.2.27 – Knowledge of the refueling process.

***Question:***

Refueling activities are in progress with a new fuel bundle being lowered into reactor core location 21-40.

Per 10.25, "Refueling - Core Unload, Reload, and Shuffle," which one of the following conditions requires the Control Room Monitor to direct fuel loading be **immediately** terminated?

- Failure of two (2) or more APRMs within the same trip system.
- SRM "A" and SRM "B" count rates rise by a factor of ten (10) to 300 cps.
- Shutdown Cooling is lost with less than 24 hours estimated for "time to boil."
- Fuel Pool Cooling is lost with less than 24 hours estimated for "time to boil."

***Answer:***

ANSWER: b. Note below step 4.1.2.4 states "SRM count rates normally do not exceed 100 cps."

REFERENCE: 2.4.2.4.1, Attachment 4

Tier: 1  
Group: 3  
K/A System: 295023  
K/A Number: 2.2.27  
K/A Value: 2.6  
Cognitive Level: 3  
Bank/Mod/New: Bank

a, c, d - None of these conditions require fuel loading be terminated per 10.25.

Distracter a: APRM are not referenced in 10.25 and are not required to be operable for fuel handling.

Distracter c: Subsequent action of 2.4.2.4.1

Distracter d: Similar to "c," but not required. 2.4.8.6 does not specifically call for terminating fuel handling, but does have refuel floor evacuation required as a subsequent action if fuel pool cooling cannot be established.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO35	ILT	0	02/15/01	High Secondary Cont. Area Temp.	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	COR001-11-02	295032 EA1.01	41(b).7, 45(b)6

***K/A Text:***

EA1.01 – Ability to operate and/or monitor the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE: Area temperature monitoring system

***Question:***

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

- 9-3-1/E-10 AREA HIGH TEMPERATURE

Which one of the following is required to check the temperature and setpoint of the alarm?

**At the Control Room 9-21 panel...**

- a. depress the TEMP pushbutton, release and then depress the ALARM pushbutton for the channel with the illuminated LED
- b. check the meter with the illuminated LED, its setpoint is indicated by a yellow arrow on the meter.
- c. locate the module with the flashing LED, check the module meter, its setpoint is listed on the adjacent chart.
- d. rotate the CHANNEL SELECTOR switch to the channel with the flashing LED and depress the SETPOINT button.

***Answer:***

ANSWER: a. depress the TEMP pushbutton, release and then depress the ALARM pushbutton for the channel with the illuminated LED

REFERENCE: COR001-11-02, Pages 14 and 15

K/A System: 295032

K/A Number: EA1.01

K/A Value: 3.6

Cognitive Level: 1

Justification: A common meter is read by depressing the buttons on the alarming channel

Distracter b: Buttons must be depressed and no arrows exist.

Distracter c: Buttons must be depressed and no charts exist.

Distracter d: Buttons must be depressed, there are no switches to rotate.

SOURCE: NEW

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 36	ILT	0	2/2001	SEC CONT CONTROL	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				COR001-11-02

Objective #	Reference	K/A #	10CFR 55 41/43/45
2,5	2.2.27, Section 4.2, 2.2.27, step 1.2.1.3	295036, EK2.03	41(b).4, 41(b).7, 41(b).13

**K/A Text:**

EK2.03 – Knowledge of the interrelations between SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL and the following: Radwaste.

**Question:**

Given the following for Reactor Building Equipment Drain Sump E alignment:

- SUMP PUMPS DRAIN SELECTOR switch in AUTO
- SUMP PUMP E1 and SUMP PUMP E2 switches are in AUTO
- The last Reactor Building Equipment Drain Sump to operate was pump E2.

Subsequently:

- Time = zero (0) seconds: Sump reaches HI level
- Time = thirty (30) seconds: Sump reaches HI-HI level
- Time = forty (40) seconds: Sump temperature reaches 141°F

Which one of the following describes the CURRENT status of the sump pumps E1 and E2 and the discharge to radwaste?

- Only SUMP PUMP E1 is operating and there is flow from the sump to radwaste. Water is **NOT** recirculated through the heat exchanger.
- Only SUMP PUMP E2 is operating and water is recirculated through the heat exchanger. There is **NO** flow from the sump to radwaste.
- Both SUMP PUMP E1 and SUMP PUMP E2 are operating and there is flow from the sump to radwaste. Water is **NOT** recirculated through the heat exchanger
- Both SUMP PUMP E1 and SUMP PUMP E2 are operating and water is recirculated through the heat exchanger. There is **NO** flow from the sump to radwaste.

**Answer:**

ANSWER: d.

When the HI-HI level is reached, both pumps start. When the hi temperature is reached, the discharge to radwaste closes and water is recirculated to the heat exchanger until below 140°F and a 5-minute timer times out.

REFERENCE: 2.2.27, Section 4.2, and Att. 3, step 1.2.1.3

Tier: 1

Group: 3

K/A System: 295036

K/A Number: EK2.03

K/A Value: 2.8

Cognitive Level: 3

Bank/Mod/New: New

Distracter a. Both pumps start when the hi-hi level is received. The recirculation valve opens and the discharge to Radwaste closes on high temperature.

Distracter b. Both pumps start when the hi-hi level is reached.

Distracter c. The recirculation valve opens and the discharge to Radwaste closes on high temperature.

Proposed references to be provided to applicants during the examination: None.

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 37	ILT	0	2/2001	CRD HYDRAULIC	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				COR002-04-02

Objective #	Reference	K/A #	10CFR 55 41/43/45
8, 10, 13	2.4.1.1.4, Section 6.1	201001, K6.05	41(b)(5) 41(b)(10)

**K/A Text:**

K6.05 – Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROD DRIVE HYDRAULIC SYSTEM: A.C. Power.

**Question:**

A plant startup is in progress. The reactor mode switch is just placed into RUN when the following annunciator alarms:

- 9-5-2/A-6, CRD PUMP A BREAKER TRIP
- Per 2.4.1.1.4, Loss of CRD Pump, the immediate operator actions are taken and are successful

At the completion of the immediate operator actions for 2.4.1.1.4, which one of the following describes the rod motion capability using RMCS (available or not available) and how the control rod scram times are affected (will exceed or will be within technical specification limits)?

RMCS is:

- Available. Scram times will exceed technical specification limits.
- Available. Scram times will be within technical specification limits.
- NOT** available. Scram times will exceed technical specification limits.
- NOT** available. Scram times will be within technical specification limits.

**Answer:**

ANSWER: b.

The reactor is at operating pressure and scram times are okay as long as the accumulators are charged. Per 2.4.1.1.4, The standby CRD pump is started to restore CRD system pressure and maintaining rod motion capability.

REFERENCE: 2.4.2.4.1, Attachment 4

Tier: 2

Group: 1

K/A System: 201001

K/A Number: K6.05

K/A Value: 3.3

Cognitive Level: 1

Bank/Mod/New: Modified. The previous question used a reactor pressure of 850 psig and stated that both CRD pumps are lost. The modified question uses a startup condition where the applicant must assess the associated reactor pressure and also states that the immediate operator actions of the AP for a loss of CRD pump are taken. Per the AP, the standby pump is started maintaining rod motion capability. This changes the answer to "b". Because the correct answer changed, no distracters were changed since this meets the criteria for a significantly modified question.

Distracter a: Scram times are OK as long as accumulators are charged.

Distracter c: The other CRD pump is started per the immediate operator actions to maintain rod motion capability. Scram times are OK as long as accumulators are charged.

Distracter d: The other CRD pump is started per the immediate operator actions to maintain rod motion capability.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 38	ILT	0	2/2001	RMCS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-20-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
4, 7	IOP 4.3, Step 4.4 note	201002, 2.1.32	41(b)(5) 41(b)(6)

***K/A Text:***

2.1.32 – Ability to explain and apply system limits and precautions.

***Question:***

During the approach to criticality, a control rod is to be single notch withdrawn from notch 08 to notch 10. After the control rod is selected, the operator places the ROD MOVEMENT CONTROL SWITCH to NOTCH OUT and holds the switch in this position.

Which one of the following describes the final position of this control rod?

- a. Notch 00.
- b. Notch 10.
- c. Notch 12.
- d. Notch 48.

***Answer:***

ANSWER: b. The control rod stops at position 10 but the RMCS timer does not reset until the switch is released.

REFERENCE: IOP 4.3, Step 4.4 note

Tier: 2  
Group: 1  
K/A System: 201002  
K/A Number: 2.1.32  
K/A Value: 3.4  
Cognitive Level: 1  
Bank/Mod/New: New

Distracter a: A Rx scram will not occur because the control rod stops at position 10.

Distracter c: This would be the correct response if the master timer also failed. The rod would be deselected after 2 seconds, 1/2 second longer than the normal timer, causing the rod to be move to position 12.

Distracter d: This would be correct if the EMERGENCY NOTCH OVERRIDE switch was also positioned to OVERRIDE when withdrawing the control rod.

Proposed references to be provided to applicants during the examination: None.

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 39	ILT	0	2/2001	RECIRC FLOW CONTROL	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				COR002-22-02

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
5, 6, 10	2.2.68, COR002-22-02	202002, A1.07	41(b)(6) 41(b)(7)

**K/A Text:**

A1.07 – Ability to predict and/or monitor changes in parameters associated with operating the RECIRCULATION FLOW CONTROL SYSTEM controls including: Recirculation loop flow.

**Question:**

Following the completion of a plant startup, the "A" recirculation pump MG set field breaker trips causing the following conditions:

- Reactor power is 39%
- "B" recirculation pump is operating
- Both recirculation MG sets M/A transfer stations are in MANUAL set at 57 % demand

What is the resulting speed demand signal to the "A" scoop tube positioner? (**Assume** the operator actions for the tripped recirculation pump are complete.)

- a. 0 %
- b. 22%
- c. 45%
- d. 57%

**Answer:**

ANSWER: b.  
Pump speed is limited by the dual limiter to 22% speed because the discharge valve is closed on the tripped ("A") pump.

REFERENCE: 2.2.68

Tier: 2  
Group: 1  
K/A System: 202002  
K/A Number: A1.07  
K/A Value: 3.1  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: Speed is limited by the dual limiter to 22% speed since the discharge valve is closed on the tripped ("A") pump.  
Distracter c: Speed is limited by the dual limiter to 22% speed since the discharge valve is closed on the tripped ("A") pump.  
Distracter d: Speed is limited by the dual limiter to 22% speed since the discharge valve is closed on the tripped ("A") pump.

Proposed references to be provided to applicants during the examination: None.

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO40	ILT		02/15/01	RHR/LPCI Injection Mode	

Q type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C		1		

Objective #	Reference	K/A #	10CFR 55 41/43/45
VOR002-23-02-3.a	2.2.69.1 and COR002-23-02	203000 K1.17	41(b).7, 41(b).8

**K/A Text:**

K1.17 – Knowledge of the physical connections and/or cause effect relationships between RHR/LPCI INJECTION MODE (PLANT SPECIFIC) Reactor pressure

**Question:**

The plant was operating at 100% power with the "A" Residual Heat Removal (RHR) system aligned for suppression pool cooling. A LOCA occurs. The following conditions exist:

- Drywell Pressure 2.5 psig
- RPV Water Level -45 inches (Wide Range)
- RPV Pressure 600 psig

Which one of the following is the CURRENT status of the RHR valves listed below?

	Inboard Injection Valve RHR-MO-25A	Outboard Injection Valve RHR-MO-27A	Minimum Flow Valve RHR-MO-16A	Supp. Pool Cooling Valve RHR-MO-39A
a.	Open	Closed	Closed	Open
b.	Closed	Open	Open	Closed
c.	Open	Open	Closed	Closed
d.	Closed	Closed	Open	Open

**Answer:**

ANSWER: b.

REFERENCE: 2.2.69.1 and COR002-23-02

K/A System: 203000

K/A Number: K1.17

K/A Value: 4.0

Cognitive Level: 2

**Justification:**

Distracter a: 27A is a normally open valve, 39A closed on LOCA causing 16A to open on low flow

Distracter c: 25A will NOT open until 436 psig so 16A is open for min flow

Distracter d: 27A is a normally open valve, 39A went closed on the LOCA

SOURCE: Cooper Exam Bank

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO41	ILT	1	02/24/01	HPCI	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	OP 2.2.33	206000 A2.09	41(b).7, 41(b).8

***K/A Text:***

A2.09 – Ability to (a) predict the impacts of the following on 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 condensate storage tank level.

***Question:***

Following a small break LOCA the following conditions exist:

- Drywell pressure is 4.1 psig
- HPCI is injecting into the RPV with its flow controller in AUTO
- HPCI-MO-17, ECST Pump Suction Valve is OPEN
- Both Emergency Condensate Storage Tank (ECST) levels are at 2.0 feet and lowering
- Containment level is 13.0 feet

Which one of the following automatic actions will occur as ECST level continues to lower?

- a. HPCI will lose suction pressure and trip.
- b. HPCI injection valve, HPCI-MO-19, closes.
- c. HPCI speed will rise attempting to maintain flow.
- d. HPCI suction will transfer to the Suppression Pool.

***Answer:***

ANSWER: d. HPCI suction will transfer to the Suppression Pool.

REFERENCE: OP-2.2.33  
K/A System: 206000  
K/A Number: A2.09  
K/A Value: 3.5  
Cognitive Level: 2

Justification: When ECST level lowers below 23 inches HPCI suction will automatically transfer to the suppression pool.

Distracter a: HPCI suction will automatically transfer, suction will not be lost.

Distracter b: There are no auto closures of HPCI-19 for loss of suction. HPCI suction will automatically transfer.

Distracter c: HPCI suction will automatically transfer speed will not be affected.

SOURCE: New

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO42	ILT		01/03/01	LPCSI	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		COR002-06-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-06-02-9.d	2.3_9-3-3, COR002-06-02	209001 A4.11	41(b).7, 41(b).8

***K/A Text:***

A4.11 – Ability to manually operate and/or monitor in the control room: System flow.

***Question:***

During operation at full power the following annunciator is received:

9-3-3/A-5, CORE SPRAY B BREAK DETECTION

NO other annunciators alarm. A station operator sent to the d/p indicating switch reports that the d/p is +4.0 psid.

Which one of the following states the significance of this alarm and d/p indication on core spray flow during a subsequent Core Spray initiation?

**Core spray flow will...**

- a flood the Drywell through the broken pipe.
- b flow inside the core shroud and out the broken pipe.
- c flood the secondary containment because of a broken pipe.
- d enter the annulus region of the reactor through the broken pipe.

***Answer:***

ANSWER: d.

REFERENCE: 2.3\_9-3-3, COR002-06-02  
K/A System: 209001  
K/A Number: A4.11  
K/A Value: 3.7  
Cognitive Level: 2

Justification: The alarm and d/p reading indicate the break is outside the shroud but inside the reactor.

Distracter a: The indicated d/p would be pegged high (+1000 psig).

Distracter b: The indicated d/p would be low -3.5 psig.

Distracter c: The instrument measures d/p downstream of the check valve inside the primary containment.

SOURCE: Cooper Exam Bank Modified

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO43	ILT		02/15/01	Standby Liquid Control	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	Figure 7 of COR002-29-02	211000 K3.02	41(b).2, 41(b).3, 41(b).7

***K/A Text:***

K3.02 – Knowledge of the effect that a loss or malfunction of the STANDBY LIQUID CONTROL SYSTEM will have on the following:  
Core plate differential pressure indication (Plant Specific)

***Question:***

During operation at full power the Standby Liquid Control (SLC) system piping entering the reactor vessel breaks upstream of the core plate d/p instrument tap (see drawing provided). Which one of the following describes the effect of this break on CORE PLATE D/P indication?

**Core Plate d/p indication will indicate...**

- a lower because the low pressure line has broken.
- b higher because the low pressure line has broken.
- c lower because the high pressure line has broken.
- d higher because the high pressure line has broken.

***Answer:***

ANSWER: c. lower because the high pressure line has broken.

REFERENCE: Figure 7 of COR002-29-02

K/A System: 211000

K/A Number: K3.02

K/A Value: 2.6

Cognitive Level: 2

Justification: The d/p would indicate lower since the high pressure (under the core plate) side has broken.

Distracter a: The high pressure side (under the core plate) has broken

Distracter b: The high pressure side (under the core plate) has broken

Distracter d: The d/p would indicate lower since the high pressure side has broken.

SOURCE: NEW

Proposed references to be provided to applicants during the examination: COR002-29-02 Figure 7 marked for break location.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 44	ILT	0	2/2001	SLC	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-29-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
5	2.2.74, Step 11.3.1 COR002-29-02	211000, A3.07	41(b)(6)

***K/A Text:***

A3.07 – Ability to monitor automatic operations of the STANDBY LIQUID CONTROL SYSTEM including: Lights and alarms: Plant-Specific.

***Question:***

The keylock switch for Standby Liquid Control (SLC) Pump "A" is turned to the START position.

In addition to starting the "A" SLC pump, which one of the following describes the SLC squib valve(s) and the Reactor Water Cleanup (RWCU) valve(s) that change state in response to the SLC start signal?

- Only the "A" squib valve fires, only RWCU-MO-15 isolates.
- Both "A" and "B" squib valves fire, only RWCU-MO-18 isolates.
- Only the "A" squib valve fires, both RWCU-MO-15 and RWCU-MO-18 isolate.
- Both "A" and "B" squib valves fire, both RWCU-MO-15 and RWCU-MO-18 isolate.

***Answer:***

ANSWER: a.

REFERENCE: 2.2.74, Step 11.3.1

Tier: 2  
Group: 1  
K/A System: 211000  
K/A Number: A3.07  
K/A Value: 3.7  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter b: Only the "A" squib fires, RWCU-MO-15 closes, RWCU-MO-18 does not close.

Distracter c: Only the RWCU-MO-15 isolates.

Distracter d: Only the "A" squib fires, Only the RWCU-MO-15 isolates.

Proposed references to be provided to applicants during the examination: None.

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 45	ILT	0	2/2001	RPS	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				COR002-21-02

Objective #	Reference	K/A #	10CFR 55 41/43/45
5	2.3.2.28 COR002-21-02, Figure 3	212000, A1.07	41(b)(6) 41(b)(7)

**K/A Text:**

A1.07 – Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: Reactor power.

**Question:**

While operating at 100% power a power excursion to 125% occurs and the following annunciators are received:

- 9-5-2/A-3, REACTOR SCRAM CHANNEL B
- 9-5-2/B-1, NEUTRON MONITORING TRIP

**NO** control rods moved. At the 9-5 vertical panel, you observe the following:

- White Scram Solenoid Group lights for RPS Trip System "A" are **ON**
- White Scram Solenoid Group lights for RPS Trip System "B" are **OFF**

**NO** operator actions have been taken in response to the conditions stated above.

If the 5A-K15A and the 5A-K15C relays will **NOT** change state, which one of the following operator actions will cause **ALL** control rods to fully insert?

- Depressing the "A" manual scram pushbutton.
- Placing the Reactor Mode Switch to SHUTDOWN.
- Resetting RPS and then inserting a manual reactor scram.
- Placing "A" or "C" RPS trip channel test switches to TRIP.

**Answer:**

ANSWER: d.

REFERENCE: 2.3.2.28

Tier: 2  
Group: 1  
K/A System: 212000  
K/A Number: A1.07  
K/A Value: 4.2  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: K15A and K15C must both actuate to insert all control rods.  
Distracter b: K15A and K15C must both actuate to insert all control rods.  
Distracter c: K15A and K15C must both actuate to insert all control rods.

Proposed references to be provided to applicants during the examination:  
**RPS Trip System A GE 791E256 sht. 11**

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO46	ILT		02/16/01	IRMs	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	4.5 (also in 4.1.2 and 4.1.3)	215003 K3.05	41(b).2, 41(b).5, 41(b).7

***K/A Text:***

K3.05 – Knowledge of the effect that a loss or malfunction of the INTERMEDIATE RANGE MONITORING SYSTEM will have on the following: APRM (Plant Specific)

***Question:***

During a plant shutdown the following conditions exist:

- Reactor Mode Switch is in **RUN**
- All **APRMs** are **DOWNSCALE**

IRMs "E" and "H" go UPSCALE. Which one of the following will occur?

- a Half scram on RPS "A".
- b Half scram on RPS "B".
- c Full scram.
- d Neither a half scram nor a full scram.

***Answer:***

ANSWER: c Full scram due to APRM downscale and companion IRM upscale in both RPS channels.

REFERENCE: 4.5  
K/A System: 215003  
K/A Number: K3.05  
K/A Value: 3.7  
Cognitive Level: 2

Justification: An APRM downscale with it's companion IRM upscale is a scram signal in RUN. IRM E is associated with APRM E in RPS Channel A, IRM H is associated with APRM B in RPS Channel B. With these two signals a full scram occurs.

Distracter a, b, d: A full scram occurs because both trip channels are activated.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 47	ILT	0	2/2001	SRM	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-30-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
3, 5	2.4.CRD	215004, 2.2.2	41(b)(1) 41(b)(2)

***K/A Text:***

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

***Question:***

During a reactor startup with the reactor close to criticality, control rod 18-19 is withdrawn from position 08 to 12. During movement of the Control Rod Drive Mechanism (CRDM), **ALL** of the SRM count rate meters remain at  $4 \times 10^4$  cps.

Which one of the following is the cause of this indication?

- a. The SRM detectors have been withdrawn too far out of the core.
- b. The source neutron contribution is insignificant at this power level.
- c. This control rod is uncoupled from its control rod drive and is stuck.
- d. This control rod is located too far from any SRM for this movement to be detected.

***Answer:***

ANSWER: c.

REFERENCE: 4.1.1, 2.4.1.1.2

Tier: 2  
Group: 1  
K/A System: 215004  
K/A Number: 2.2.2  
K/A Value: 4.0  
Cognitive Level: 1  
Bank/Mod/New: Bank

- Distracter a: This would not prevent an indicated flux change from occurring.  $4 \times 10^4$  cps is within the required value for detection of changes.
- Distracter b: Source neutrons are the major contributor at this power level.
- Distracter d: This control rod is right next to the SRM. Any rod movement near criticality would be detected by at least one SRM detector.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 48	ILT	0	2/2001	APRM/LPRM	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-22-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
5, 7, 15	2.4.1.6	215005, 2.1.25	41(b).2, 41(b).3

***K/A Text:***

2.1.25 – Ability to obtain and interpret station reference materials such as graphs/monographs/and tables which contain performance data.

***Question:***

The plant is at 100% power with the "B" RRMG scoop tube locked because its controller failed upscale. Subsequently, a loss of 4160V Bus 1C occurs. Conditions after the power loss are:

- Reactor power is 45%
- Core Flow is 25 mlb/hr
- APRM indication show increasing oscillations without a corresponding increase in thermal power
- Thirty (30) seconds after the power loss, LPRM upscale alarms occur every 2 seconds

Per 2.4.1.6, ABNORMAL NEUTRON FLUX OSCILLATIONS OR OPERATIONS IN THE STABILITY EXCULSION REGION, which one of the following describes the action(s) to be taken NEXT?

- a. Immediately insert a manual reactor scram.
- b. Immediately raise operating Recirc pump speed at Panel 9-4.
- c. Continue to monitor nuclear instruments and insert control rods.
- d. Scram the reactor when LPRM upscale and downscale alarms occur.

***Answer:***

ANSWER: c.

The indicated power oscillations do not require a reactor scram.

REFERENCE: 2.4.1.6, 2.1.10

Tier: 2

Group: 1

K/A System: 215005

K/A Number: 2.1.25

K/A Value: 2.8

Cognitive Level: 2

Bank/Mod/New: Modified. The APRM indications were changes to indicate power oscillations are occurring. Previously the indications were not indicative of power oscillations.

Distracter b: This action is appropriate if power oscillations are not present to exit the restricted area. Power oscillations are present requiring a reactor scram.

Distracter c: This action is appropriate if power oscillations are not present to exit the restricted area is recirc pump speed cannot be raised. Recirc pump speed can be raised however power oscillations are present requiring a reactor scram.

Distracter d: This action is appropriate if power oscillations are not present as the core is monitored. Power oscillations are present requiring a reactor scram.

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

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO49	ILT		02/16/01	APRM/LPRM	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	4.1.3	215005 A2.02	41(b).2, 41(b).5, 41(b).7

***K/A Text:***

A2.02 – Ability to predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/ LOCAL POWER RANGE MONITOR SYSTEM; and based on those predictions, use procedures to correct control or mitigate the consequences of those abnormal conditions or operations: Upscale or downscale trips

***Question:***

With the plant at 100% power, APRM "C" is observed at 115% power and constant at this level. All other APRMs are indicating 100%.

Which one of the following describes the automatic plant response and required action to correct this situation?

- Only a rod block. Bypass APRM "C" at Panel 9-5.
- Only a rod block. Bypass APRM "C" at the APRM drawer.
- A rod block and 1/2 scram. Bypass APRM "C" at Panel 9-5 then reset the 1/2 scram.
- A rod block and 1/2 scram. Bypass APRM "C" at the APRM drawer then reset the 1/2 scram.

***Answer:***

ANSWER: a. Rod block occurs at 107.5%. 1/2 scram occurs at 117.5%. Per 2.3.2.27 (9-5-1, A-7 step 2.4) bypass the affected channel.

REFERENCE: 4.5  
K/A System: 215005  
K/A Number: A2.02  
K/A Value: 3.6  
Cognitive Level: 2

Distracter b: APRM cannot be bypassed at the drawer. APRM is bypassed at Panel 9-5.

Distracter c: A 1/2 scram is not received.

Distracter d: APRM cannot be bypassed at the drawer. APRM is bypassed at Panel 9-5. A 1/2 scram is not received.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 50	ILT	0	2/2001	RPV INSTRUMENTATION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-15-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
2, 4, 5, 6	4.6.1, Section 4.1 COR002-15-02	216000, A1.07	41(b)(5) 41(b)(7)

***K/A Text:***

A1.07 – Ability to predict and/or monitor changes in parameters associated with operating the NUCLEAR BOILER controls including: Removing or returning a sensor (transmitter) to service

***Question:***

The plant is at 100% power with NBI-LT-52C level transmitter (Narrow Range Reactor Water level instrument) failed upscale.

Prior to removing the NBI-LT-52C level transmitter from service, the equalizing valve for NBI-LT-52A is fully opened by I&C.

Assume **NO** operator actions are taken.

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

- a. The RFPs and the Main Turbine will trip.
- b. Only a low reactor water level alarm is received.
- c. Only a high reactor water level alarm is received.
- d. Only a half scram is received on RPS trip system "A".

***Answer:***

ANSWER: a.

REFERENCE: 2.4.1.6, 2.1.10

Tier: 2  
Group: 1  
K/A System: 216000  
K/A Number: A1.07  
K/A Value: 3.4  
Cognitive Level: 3  
Bank/Mod/New: Bank

Distracter b: A full scram is received.  
Distracter c: A high level trip occurs.  
Distracter d: A full scram is received.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO51	ILT		02/16/01	Nuclear Boiler Instrumentation	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.5.4	216000 A4.03	41(b).10, 45(b).3, 45(b).4

***K/A Text:***

A4.03 – Ability to manually operate and/or monitor in the control room: Process Computer

***Question:***

During a plant startup, prior to going critical the following conditions occur:

- The time display has stopped updating on the primary systems PMIS displays.
- There are no responses from any PMIS display consoles.

Which one of the following has occurred and what actions are required?

- a. The process computer has failed, contact Nuclear Information Services (NIS) and continue the startup.
- b. The process computer has failed, halt the startup and place the current rod group at the same notch position.
- c. The RWM/RPIS computer has failed, halt the startup and if it cannot be returned to service, insert the control rods.
- d. The 3D Monicore system has failed, contact Reactor Engineering (RE) and with their permission continue the startup.

***Answer:***

ANSWER: b. The process computer has failed, halt the startup and place the current rod group at the same notch position.

REFERENCE: 2.4.5.4

K/A System: 216000

K/A Number: A4.03

K/A Value: 3.0

Cognitive Level: 1

Justification: Symptoms and Immediate Actions from Abnormal Procedure 2.4.5.4

Distracter a: The startup may not continue.

Distracter c: Failure of the RWM/RPIS computer is not indicated. The process computer has failed and there are no requirements to insert the control rods.

Distracter d: Failure of 3D Monicore is not indicated. The process computer has failed and there are no provisions in the procedure for RE permitting the startup to continue.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO52	ILT		02/16/01	Reactor Core Isolation Cooling	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.3_9-4-1, COR002-18-02	217000 K2.02	41(b).7, 45(b).3, 45(b).4

***K/A Text:***

K2.02 – Knowledge of the electrical power supplies to the following: RCIC initiation signals (logic)

***Question:***

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

- 9-4-1/A-3, RCIC LOGIC POWER FAILURE

After investigation it is determined that 125V DC Panel AA2 has been lost. Which one of the following effects does this power failure have on the Reactor Core Isolation Cooling (RCIC) system?

- a. RCIC is NOT operable and CANNOT be manually started from the control room.
- b. RCIC has automatically started and must be manually shutdown from the control room.
- c. RCIC will NOT automatically start, but it can be manually started from the control room.
- d. RCIC will start with only one half an initiation signal and can be manually started from the control room.

***Answer:***

ANSWER: a. RCIC is NOT operable and CANNOT be manually started from the control room.

REFERENCE: 2.3\_9-4-1, COR002-18-02

K/A System: 217000

K/A Number: K2.02

K/A Value: 2.8

Cognitive Level: 2

Justification: RCIC initiation logic has lost power and it cannot be started because power was also lost to the flow controller.

Distracter b: RCIC will not start power was lost to relay which opens MO-131.

Distracter c: RCIC cannot be started because power was lost to the flow controller.

Distracter d: RCIC will not start power was lost to relay which opens MO-131 and it cannot be manually started because power was lost to the flow controller.

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO53	ILT		02/16/01	Reactor Core Isolation Cooling	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.67	217000 K4.02	41(b).5, 41(b).7, 45(b).4

***K/A Text:***

K4.02 – Knowledge of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) design feature(s) and/or interlocks which provide for the following: Prevent overfilling reactor vessel.

***Question:***

Following a Group 1 isolation signal and automatic reactor scram, the Reactor Core Isolation Cooling (RCIC) system automatically started and injected as designed. When an operator verifies RCIC performance the following indications are noted:

- RCIC-MO-131, STM SUPP TO TURB VLV, is CLOSED
- RCIC turbine speed is 100 rpm and lowering
- RCIC discharge pressure is ZERO (0)
- RCIC turbine inlet pressure is 900 psig

Which one of the following is the cause of these indications?

- a. Turbine overspeed
- b. High RPV water level
- c. Ramp generator failed low
- d. RCIC high exhaust pressure

***Answer:***

ANSWER: b. High RPV water level

REFERENCE: 2.2.67  
K/A System: 217000  
K/A Number: K4.02  
K/A Value: 3.2  
Cognitive Level: 2

Justification: High RPV level closed the steam admission valve to shutdown RCIC.

Distracter a: This would not close the steam admission valve.

Distracter c: This would not close the steam admission valve.

Distracter d: This would not close the steam admission valve.

SOURCE: Modified

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO54	ILT	0	02/16/01	Automatic Depressurization System	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.1, 2.4CSCS	218000 K5.01	41(b).5, 41(b).7, 41(b).8

***K/A Text:***

K5.01 – Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM: ADS logic operation

***Question:***

The following conditions have been present two (2) minutes:

- RPV water level -114 inches
- RPV pressure 458 psig
- All low pressure ECCS pumps are operating

Which one of the following is the current status of the ADS valves and the actions necessary to close or maintain them closed?

- a. OPEN – Either ADS inhibit switch must be placed in INHIBIT.
- b. OPEN – Both ADS inhibit switches must be placed in INHIBIT.
- c. CLOSED – Either ADS inhibit switch must be placed in INHIBIT.
- d. CLOSED – Both ADS inhibit switches must be placed in INHIBIT.

***Answer:***

ANSWER: b. OPEN – Both ADS inhibit switches must be placed in INHIBIT.

REFERENCE: 2.2.1, 2.4CSCS

K/A System: 218000

K/A Number: K5.01

K/A Value: 3.8

Cognitive Level: 2

Justification: All the conditions are met for ADS auto initiation, -113", 109 second timer, RHR and CS pumps are running. Both switches must be placed in INHIBIT.

Distracter a: Both switches must be placed in INHIBIT.

Distracter c: Valves are open

Distracter d: Valves are open

SOURCE: NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 55	ILT	0	2/2001	TECH SPECS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	TECH SPEC 3.6.4.3	223001, 2.1.12	41(b)(13) 43(b)(2)

***K/A Text:***

2.1.12 – Ability to apply technical specifications for a system.

***Question:***

A core offload is in progress. The "A" train of SGT is declared inoperable at 1200 on 5/1. The "B" train is in STANDBY and is OPERABLE. At 1200 on 5/8, the "A" train is still inoperable.

Which one of the following describes if the CORE ALTERATIONS can be continued including why or why not?

- Yes. CORE ALTERATIONS can be continued provided the OPERABLE train of SGT is placed into operation before continuing.
- Yes. CORE ALTERATIONS can be continued because at least one train is still OPERABLE and will start automatically if required.
- No. Both trains of SGT are required to be OPERABLE prior to and during the performance of any CORE ALTERATIONS.
- No. The inoperable train was required to be OPERABLE in the 7 day Completion Time to continue CORE ALTERATIONS.

***Answer:***

ANSWER: a.

The 7-day allowed outage time for Condition A expires at 1200 on 5/8. Upon expiration Condition C is entered which allows fuel movement to continue if the OPERABLE SGT train is placed into operation.

REFERENCE: TECH SPEC 3.6.4.3

Tier: 2  
Group: 1  
K/A System: 223001  
K/A Number: 2.1.12  
K/A Value: 2.9  
Cognitive Level: 2  
Bank/Mod/New: New

Distracter b: The OPERABLE SGT train must be placed into operation before continuing fuel movements.  
Distracter c: Fuel movement can be continued if the OPERABLE SGT train is placed into operation.  
Distracter d: Fuel movement can be continued if the OPERABLE SGT train is placed into operation.

Proposed references to be provided to applicants during the examination:

**TECH SPEC 3.6.4.2 and Bases, Section 1.0 (all), Section 3.0 (all)**

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 56	ILT	0	2/2001	MAIN STEAM	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-14-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
7f	2.4.2.3.3, Section 6.1	223002, K3.09	41(b)(5) 41(b)(7)

***K/A Text:***

K3.09 – Knowledge of the effect that a loss or malfunction of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUTOFF will have on following: Main steam system

***Question:***

While operating at 100% power, outboard MSIV AO-86B closes.  
Which one of the following describes the likely cause of the resultant reactor scram?

- a. Low reactor pressure.
- b. Low reactor water level.
- c. High reactor pressure.
- d. High reactor water level.

***Answer:***

ANSWER: c.

Inadvertent closing of one MSIV while at high power will initiate a small but rapid pressure increase resulting in a scram on either high neutron flux or high reactor pressure.

REFERENCE: 2.4.2.3.3, Section 6.1

Tier: 2

Group: 1

K/A System: 223002

K/A Number: K3.09

K/A Value: 3.4

Cognitive Level: 1

Bank/Mod/New: Modified. The original question was at 70% power where a reactor scram will not occur. At 100% it will. The question was changed to ask the cause of the resultant scram. Previous answer was high neutron flux. New answer is high reactor pressure which may also be the cause.

Distracter a: The pressure rise will cause a reactor scram on high reactor pressure or high neutron flux.

Distracter b: The pressure rise will cause a reactor scram on high reactor pressure or high neutron flux.

Distracter d: The pressure rise will cause a reactor scram on high reactor pressure or high neutron flux.

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

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO57	ILT	0	02/16/01	Safety Relief Valves	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.1 and COR002-16-02	239000 K1.05	41(b).3, 41(b).7

***K/A Text:***

K5.01 – Knowledge of the physical connections and/or cause-effect relationships between SAFETY RELIEF VALVES and the following: Plant air systems (Plant Specific)

***Question:***

The reactor has scrammed following a loss of DEH fluid pressure. Safety Relief Valve "D" (RV-71D) is maintaining RPV pressure between 875 and 1015 psig. The following annunciators have alarmed:

- 9-3-1/C-2, DRYWELL PNEUMATIC HDR LOW PRESSURE
- 9-3-1/D-2, RELIEF VALVE ACCUMULATOR LOW PRESSURE

Which one of the following actions is necessary to restore and/or maintain the Low Low Set (LLS) function?

- a. Press the LLS Logic Reset Pushbuttons on Panel 9-3.
- b. Open IA-SOV-21, Instrument Air Backup to the Nitrogen system.
- c. Verify the control switches for RV-71D and RV-71F are in AUTO.
- d. Cycle the control switches for RV-71D and RV-71F to OPEN and back TO AUTO.

***Answer:***

ANSWER:        b.        Open IA-SOV-21, Instrument Air Backup to the Nitrogen system.

REFERENCE:    2.2.1 and COR002-16-02

K/A System:    239000

K/A Number:    K1.05

K/A Value:      3,1

Cognitive Level: 2

Justification:   Loss of pneumatic pressure will prevent LLS operation to restore LLS the Instrument Air Supply to the Drywell Nitrogen system must be opened

Distracter a:    This will not restore LLS if pneumatic pressure is lost

Distracter c:    The control switches had to be in AUTO for LLS to function initially. Switch position has no affect on pneumatic supply.

Distracter d:    This will deplete the pneumatic supply further, not restore it.

SOURCE:        NEW

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO58	ILT	0		Reactor/Turbine Pressure Regulator	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		COR002-22-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-09-02-4.b	COR002-09-02	241000 A3.17	41(b)(6) 41(b)(7)

***K/A Text:***

A3.17 – Ability to monitor automatic operations of the REACTOR/TURBINE PRESSURE REGULATING SYSTEM including: Turbine runback.

***Question:***

The plant was at 100% power when the "B" Reactor Recirculation pump received a runback signal and its speed lowered as designed. Which one of the following is a plant condition present while the "B" Reactor Recirculation pump speed was lowering?

- Main Turbine speed lowering slowly.
- Reactor Steam Dome pressure rising slowly.
- Main Steam Equalizing Header pressure will be lower.
- Flow Comparator Offnormal annunciator alarmed and then cleared.

***Answer:***

ANSWER: c.  
Main Steam Equalizing Header pressure will be slightly lower due to the decrease in reactor power and pressure.

REFERENCE: COR002-09-02

K/A System: 241000  
K/A Number: A3.17  
K/A Value: 3.3  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter a: Speed remains at 1800 rpm.  
Distracter b: Reactor pressure remains the same.  
Distracter d: Conditions for this alarm are not met.

Proposed references to be provided to the applicants during the exam: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO59	ILT	0		Reactor/Turbine Pressure Regulator	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.77.1, Att. 1, 1.2.37	241000 K4.06	41(b)(7)

***K/A Text:***

K4.06 – Knowledge of REACTOR/TURBINE PRESSURE REGULATING SYSTEM design feature(s) and/or interlocks which provide for the following: Turbine trip.

***Question:***

During a Main Turbine startup, the DEH Overspeed Protection Control (OPC) circuit is actuated and the OPC solenoid valves de-energize.

Which one of the following describes the position of the Main Turbine Governor, Intercept, and Bypass Valves BEFORE the OPC circuit actuated and AFTER the OPC actuation and resultant functions are complete?

	Governor Valves	Intercept Valves	Bypass Valves
a.	Open and then closed.	Open and then closed.	Open and remain open.
b.	Open and then closed.	Open and then closed.	Open and then closed.
c.	Open and remain open.	Closed and remain closed.	Closed and then open.
d.	Open and remain open.	Closed and then open.	Open and then closed.

***Answer:***

ANSWER: a

When OPC activates, the OPC solenoid valves de-energize to drain the governor emergency trip header. The governor and intercept valves trip closed and the bypass valves throttle to maintain reactor pressure. During the main turbine startup (roll), the governor and intercept valves are open and the bypass valves are throttled to maintain reactor pressure according to changes in turbine steam demand during the roll up.

REFERENCE: 2.2.77.1, Att. 1, 1.2.37

K/A System: 241000

K/A Number: K4.06

K/A Value: 3.6

Cognitive Level: 2

Bank/Mod/New: New

Distracter b, c, d: See explanation above.

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 60	ILT	0	2/2001	EDG	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				COR002-02-02

Objective #	Reference	K/A #	10CFR 55 41/43/45
3, 4, 8	2.2.28.1	259001, A2.03	41(b)(7)

**K/A Text:**

A2.03 - Ability to (a) predict the impacts of the following on the REACTOR FEEDWATER SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of condensate pump(s).

**Question:**

The plant is at 100% power when a loss of ALL Condensate Pumps occurs. Reactor Feedwater Pump (RFP) suction pressure just lowered below 260 psig (*referenced as T= 0 seconds*) and continues to lower.

Assuming NO operator action is taken, which one of the following describes when both RFPs will be in the tripped state?

- Both are tripped at T= 0 seconds.
- Both are tripped at T= 5 seconds.
- Both are tripped by T= 10 seconds.
- Both are tripped by T= 15 seconds.

**Answer:**

ANSWER: d.

RFP "A" trips in 10 seconds and RFP "B" trips in 15 seconds after RFP suction pressure lowers below 260 psig.

REFERENCE: 2.2.28.1, 2.4.9.4.2

Tier: 2

Group: 1

K/A System: 259001

K/A Number: A2.03

K/A Value: 3.6

Cognitive Level: 1

Bank/Mod/New: Modified. Although evaluating the same knowledge as a current bank question, the question was reworded with a time reference for when the low suction pressure trip signal is met. Because of this time reference, all distracters were changed to a time reference from T=0 in the question.

Distracter a: See justification above.

Distracter b: See justification above.

Distracter c: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO61	ILT	0		Reactor Water Level Control	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-32-02-6.i	COR002-32-02	295002 A3.03	41(b)(7)

***K/A Text:***

A3.03 – Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYSTEM including:  
Changes in main steam flow.

***Question:***

The plant is at 100% power. The Reactor Level Control system is maintaining RPV level at +35 inches in three (3) element control. The "C" main steam flow transmitter output goes to ZERO and remains at zero.

Which one of the following describes the change in RPV level and the magnitude of the change?

- a. RPV level lowers and the reactor scrams on low level.
- b. RPV level rises and stabilizes at approximately +47 inches.
- c. RPV level lowers and stabilizes at approximately +23 inches.
- d. RPV level rises and the reactor scrams when the main turbine trips.

***Answer:***

ANSWER: c. Level lowers until it stabilizes at 23 inches. A reactor scram will not occur.

REFERENCE: COR002-32-02

K/A System: 295002

K/A Number: A3.03

K/A Value: 3.2

Cognitive Level: 2

Bank/Mod/New: Bank

Distracter a: The reactor will not scram.

Distracter b: Level lowers. It will rise if a feedwater transmitter failed low.

Distracter d: Level lowers. It will rise if a feedwater transmitter failed low.

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO62	ILT	0		Standby Gas Treatment System	

<b>Q type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C		1		COR002-28-02

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	2.2.73, Att. 2, 1.3.12.2	261000, K4.01	41(b)(7)

**K/A Text:**

K4.01 – Knowledge of STANDBY GAS TREATMENT SYSTEM design feature(s) and/or interlocks which provide for the following: Automatic system initiation.

**Question:**

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

- Standby Gas Treatment (SGT) Exhaust Train 1A is being placed in service to support a surveillance test
- SGT Train 1B is aligned for STBY operation
- The control switch for SGT Fan 1A is placed in RUN

If SGT-AO-251, SGT Train 1A Outlet Valve remains closed, which one of the following describes the response of SGT trains 1A and 1B in the next one (1) minute?

- a. Train 1A automatically shuts down. Train 1B remains off.
- b. Train 1A automatically shuts down. Train 1B starts on low flow.
- c. Train 1A runs until manually shutdown. Train 1B remains off.
- d. Train 1A runs until manually shutdown. Train 1B starts on low flow.

**Answer:**

ANSWER: c.

Low flow in a train will cause the standby fan to start if it is in STBY provided the operating train flow is <800 scfm, and a group 6 isolation signal is present or sealed in. There is no group 6 isolation signal for the conditions presented.

REFERENCE: 2.2.73, Att. 2, 1.3.1.2.2

K/A System: 261000

K/A Number: K4.01

K/A Value: 3.7

Cognitive Level: 2

Bank/Mod/New: New

Distracter a: No conditions will develop on the operating train to cause it to trip within 1 minute.

Distracter b: No conditions will develop on the operating train to cause it to trip within 1 minute.

Distracter d: A group 6 isolation is required, the 1B train will NOT automatically start.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 63	ILT	0	2/2001	EDG	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-27-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
3, 4, 8	2.2.71, Section 4.0 5.2.5, Section 2.7 COR002-27-02	264000, K1.04	41(b)(7) 41(b)(8)

***K/A Text:***

K1.04 Knowledge of the physical connections and/or cause-effect relationships between EMERGENCY GENERATORS (DIESEL/Jet) INCLUDING: Emergency generator cooling water system.

***Question:***

The unit is operating at 100% reactor power. SW pump alignment is as follows:

- SW pumps "A," "B" and "C" are operating
- Mode Selector switches for the "A" and "B" SW pumps are in STANDBY
- Mode Selector switches for the "C" and "D" SW pumps are in AUTO

A loss of offsite power occurs. Both DGs start and energize busses 1F and 1G.

Assume **NO** operator actions are taken.

Which one of the following describes the Service Water pumps that will be operating by design two (2) minutes after offsite power was lost?

- a. A and B
- b. A and C
- c. B and D
- d. C and D

***Answer:***

ANSWER: a.

Only the SW pumps selected to STANDBY start 13 seconds after buses 1F and 1G are energized from an emergency power source.

REFERENCE: 2.2.71, Section 4.0  
5.2.5, Section 2.7

Tier: 2  
Group: 1  
K/A System: 264000  
K/A Number: K1.04  
K/A Value: 3.2  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter b: See justification above.  
Distracter c: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 64	ILT	0	2/2001	EDG	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-08-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
9, 13	COR002-08-02	264000, A1.03	41(b)(7) 41(b)(8)

***K/A Text:***

A1.03 – Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/ JET) controls including: Operating voltages, currents, and temperatures.

***Question:***

DG2 has been started and loaded to 3850 KW for the monthly surveillance when a reactor scram due to high drywell pressure occurs. Two (2) minutes following the LOCA, **ALL** offsite sources are lost.

Which one of the following describes the effect the above conditions will have on DG2 and 4160 Bus 1G?

- DG2 engine **AND** output breaker will **NOT** trip. DG2 will remain connected to Bus 1G.
- DG2 output breaker will trip when offsite power is lost. DG2 is **NOT** available until the Diesel Generator over current lockout is manually reset.
- DG2 engine **AND** output breaker will trip when the LOCA signal is received. DG2 will automatically start and re-connect to Bus 1G when offsite power is lost.
- DG2 output breaker will trip when the LOCA signal is received. DG2 output breaker will close when offsite power is lost.

***Answer:***

ANSWER: d.

The DG output breaker receives a trip signal opening the breaker when the LOCA signal occurs. The DG would then run unloaded. The DG will pick up 4160 Bus 1G when it is de-energized (LOOP).

REFERENCE: COR002-08-02

Tier: 2  
Group: 1  
K/A System: 264000  
K/A Number: A1.03  
K/A Value: 2.8  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: See justification above.  
Distracter b: See justification above.  
Distracter c: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 65	ILT	0	2/2001	CRDM	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-05-02, 11 COR002-04-02, 12

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
COR002-05-02, 11	COR002-08-02	201003, A2.05	41(b)(1)
COR002-04-02, 12	COR002-04-02		41(b)(5)

***K/A Text:***

A2.05 – Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Reactor scram.

***Question:***

The plant is operating at 100% power near the end of cycle with all control rods fully withdrawn.  
The scram inlet valve (CRD-AOV-126) for control rod 30-31 opens.

Which one of the following describes the response of the plant over the next five (5) minutes, including why?

**Reactor power will ...**

- be downscale on APRMs. The reactor will scram due to high Scram Discharge Volume level.
- remain at 100% reactor power. **NO** control rod motion will occur. **NO** leakage into the Scram Discharge Volume will occur.
- lower, but the plant will continue to operate at power. The associated control rod will insert. **NO** leakage into the Scram Discharge Volume will occur.
- lower, but the plant will continue to operate at power. The associated control rod will insert. The scram valve will leak into the Scram Discharge Volume, but **NO** scram will occur as the Scram Discharge Volume drain capacity exceeds the leakage from the scram valve.

***Answer:***

ANSWER: c.

REFERENCE: 2.4.1.1.3, Section 4.4

Tier: 2  
Group: 1  
K/A System: 201003  
K/A Number: A2.05  
K/A Value: 4.1  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: A reactor scram will not occur. The SDV level will not change.  
Distracter b: The control rod will insert into the core. A single control scram will reduce reactor power.  
Distracter d: No leakage will occur into the SDV.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 66	ILT	0	2/2001	CRDM	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-26-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
8, 9	2.4.1.1.3 4.2	201006, K3.01	41(b)(7)

***K/A Text:***

K3.01 – Knowledge of the effect that a loss or malfunction of the ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) will have on the following: Reactor manual control system.

***Question:***

The plant is operating at 9% reactor power. All control rods in the current rod group are at their insert limit of 36. One of the control rods in the current group drifts in from position 36 to position 00.

Which one of the following describes the effect on the Rod Worth Minimizer (RWM) if the drifting control rod is selected?

- Insert Error only. A control rod block will **NOT** be enforced.
- Withdrawal Error only. A control rod block will **NOT** be enforced.
- Insert Error and Select Error. A control rod block will be enforced.
- Insert Error and Withdrawal Error. A control rod block will be enforced.

***Answer:***

ANSWER: a.

A Select Error occurs when a non-error rod is selected. The drifting rod is an error rod. The rod will not be a Withdrawal Error at position 00. A rod past its' insert limit is an insert error. No rod block occurs for a single insert error.

REFERENCE: 2.4.1.1.3  
4.2

Tier: 2  
Group: 2  
K/A System: 201006  
K/A Number: K3.01  
K/A Value: 3.2  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter b: See justification above.  
Distracter c: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO67	ILT	0	2/20/01	Recirculation System	

<i>Q type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C		1		

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.2.2.1, 2.3.2.26, 2.4.2.2.4	202001 K1.18	41.2 to 41.9 / 45.7 to 45.8

***K/A Text:***

K1.18 – Knowledge of the physical connections and/or cause-effect relationships between RECIRCULATION SYSTEM and the following: RHR shutdown cooling mode.

***Question:***

A Reactor shutdown has just been completed, and preparations are being made to put "B" loop of RHR in Shutdown Cooling. "A" Reactor Recirculation pump is running and "B" Reactor Recirculation pump is secured. The following annunciators have alarmed:

- 9-4-3/E-2, RRMG A FIELD GROUND
- 9-4-3/A-1, RRMG A BKR 1CS TRIP

Which one of the following will minimize Reactor Vessel Bottom Head Temperature Gradients?

- a. Maximize CRD flow and minimize RWCU blowdown.
- b. Terminate RWCU blowdown and maximize CRD cooling flow.
- c. Maximize CRD flow and raise RPV water level to at least +48 inches.
- d. Maximize RWCU blowdown and raise RPV level to at least +48 inches.

***Answer:***

ANSWER: d. Maximize RWCU blowdown and raise RPV level to at least +48 inches.

REFERENCE: 2.4.2.2.1, 2.3.2.26, 2.4.2.2.4

K/A System: 202001

K/A Number: K1.18

K/A Value: 3.3

Cognitive Level: 1

Justification: Reducing CRD flow lowers the amount of cold water in the lower RPV head while raising RPV water level promotes natural circulation. Increasing RWCU blowdown helps prevent stratification in the RPV lower head.

Distracter a, b, c: Maximizing CRD flow will increase the introduction of cold water into the RPV bottom head.

SOURCE: Cooper Exam Bank

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 68	ILT	0	2/2001	RWCU	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				COR001-20-02

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
4, 7	2.2.68.1 COR001-20-02	204000, A3.03	41(b)(5) 41(b)(7)

**K/A Text:**

A3.03 – Ability to monitor automatic operations of the REACTOR WATER CLEANUP SYSTEM including: Response to system isolations.

**Question:**

The unit is in MODE 2 with a startup in progress. Reactor pressure is being maintained at 300 psig using the main turbine bypass valves. The "A" reactor recirculation pump trips and then an inadvertent Group 3 isolation signal is received.

Assume **NO** operator action is taken. Which one of the following describes the consequence on the plant?

- Reactor water level will rise to the high level trip setpoint.
- Reactor water level will lower and a reactor scram will be received.
- "A" Reactor Recirculation Pump cannot be restarted under present plant conditions.
- RWCU non-regenerative heat exchanger outlet temperature will rise, damaging the demineralizer resin.

**Answer:**

ANSWER: c.

REFERENCE: 2.2.68.1

Tier: 2  
Group: 2  
K/A System: 204000  
K/A Number: A3.03  
K/A Value: 3.6  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: Reactor water level will rise but will be within the required band (a shutdown is not required based on water level)  
Distracter b: Reactor water level will rise.  
Distracter d: Temperature will lower.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 69	ILT	0	2/2001	RPIS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.5.6, Step 6.1	214000, K5.01	41(b)(6) 41(b)(2)

***K/A Text:***

K5.01 – Knowledge of the operational implications of the following concepts as they apply to ROD POSITION INFORMATION SYSTEM: Reed switches.

***Question:***

During a control rod sequence exchange at power (currently 75% power), it is determined that the Rod Position Information System (RPIS) reed switch at position 40 for control rod 30-33 is failed.

Which one of the following describes the plant condition necessary to repair the failed reed switch for control rod 30-33?

- Shutdown with a drywell entry.
- Shutdown without a drywell entry.
- At power but power must be lowered to 50%.
- At power and can be performed at the current power.

***Answer:***

ANSWER: a.

Repairs to replace a CRDM position probe (reed switch) must be deferred until a drywell entry may be made.

REFERENCE: 2.4.5.6, Step 6.1

Tier: 2  
Group: 2  
K/A System: 214000  
K/A Number: K5.01  
K/A Value: 2.7  
Cognitive Level: 1  
Bank/Mod/New: New

Distracter b: Drywell entry is required.  
Distracter c: Not permitted in MODE 1.  
Distracter d: Not permitted in MODE 1.

Proposed references to be provided to applicants during the examination: None

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 70	ILT	0	2/2001	RHR	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				COR002-23-02

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
	2.2.19.A, Att. 2, MCC-Q	219000, A2.05	41(b)(7)

**K/A Text:**

A2.05 – Ability to (a) predict the impacts of the following on: RHR/LPCI: TORUS/ SUPPRESSION POOL COOLING MODE and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. electrical failures.

**Question:**

The plant was at 100% power when a loss of MCC-Q occurred. With MCC-Q still de-energized, an ATWS occurs and the CRS directs maximizing suppression pool cooling.

Which one of the following describes how a loss of MCC-Q affects the ability to maximize suppression pool cooling?

- Only the "A" loop of RHR can be used.
- Only the "B" loop of RHR can be used.
- RHR Service Water is not available to either loop.
- Only one Service Water Booster Pump per loop is operable.

**Answer:**

ANSWER: b.

Power is lost to RHR-MO-34A, LOOP A TORUS COOLING INBD THROTTLE VLV. Only the "B" loop can be used.

REFERENCE: 2.2.19.A, Att. 2, MCC-Q

Tier: 2  
 Group: 2  
 K/A System: 219000  
 K/A Number: A3.05  
 K/A Value: 3.3  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: The "A" loop cannot be used. Power is lost to RHR-MO-34A, LOOP A TORUS COOLING INBD THROTTLE VLV.

Distracter c, d: Loss of MCC Q does not affect the SWBPs, however power is lost to SW-MO-89A in the A loop. The B loop of RHR Service Water is unaffected.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 71	ILT	0	2/2001	RHR	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-23-02 INT008-06-13

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	INT008-06-13	226001, K6.05	41(b)(7) 41(b)(8)

***K/A Text:***

K6.05 - Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE: Suppression pool (temperature level and pressure).

***Question:***

Per the Emergency Operating Procedure Bases, which one of the following is the basis for initiating Drywell Spray when Torus Pressure reaches 10 psig?

- To prevent damage to the SRV tailpipes.
- To prevent failure of the containment downcomer piping.
- To prevent damage to the SRV T-quenchers and supports.
- To prevent non-condensable gases from collecting in the drywell.

***Answer:***

ANSWER: b.

Drywell spray is initiated when torus pressure reaches 10 psig to prevent chugging in the downcomers which can lead to cyclic failure of the downcomer to ring header junction. The other distracters are consequences associated with failure to perform other EOP steps or to comply with the EOP curves.

REFERENCE: INT008-06-13

Tier: 2  
Group: 2  
K/A System: 226001  
K/A Number: K6.05  
K/A Value: 3.4  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter a: See justification above.  
Distracter c: See justification above  
Distracter d: See justification above

Proposed references to be provided to applicants during the examination: None

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 72	ILT	0	2/2001	MAIN STEAM	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				INT008-06-06

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
2	EOP-6A	239001, K3.08	41(b)(5) 41(b)(10)

**K/A Text:**

K3.08 – Knowledge of the effect that a loss of the MAIN AND REHEAT STEAM SYSTEM will have on the following: Decay heat removal.

**Question:**

Following a scram from full power several control rods failed to insert. Plant conditions are:

- MSIVs are closed
- APRMs indicate 4% power
- SRVs have opened but are currently closed
- RPV level is being controlled using HPCI
- RPV pressure is 950 psig and slowly rising
- There are **NO** indications of fuel failure or a steam line break
- Suppression pool temperature has reached the BIIT
- Main condenser is available

Per the EOPs, which one of the following describes the action to be taken to control RPV pressure?

- a. Initiate RCIC in the test mode with suction from the ECST.
- b. Open the MSIVs and maintain pressure below 1050 psig using the turbine bypass valves.
- c. Open SRVs in any order as needed to maintain pressure below the Heat Capacity Temperature Limit.
- d. Open SRVs to maintain pressure below 940 psig. The opening sequence for the valves should be followed.

**Answer:**

ANSWER: b.

REFERENCE: EOP-6A

Tier: 2  
 Group: 2  
 K/A System: 239001  
 K/A Number: K3.08  
 K/A Value: 3.4  
 Cognitive Level: 2  
 Bank/Mod/New: Bank

Distracter a: Only used if the MSIVs are not available.

Distracter c: Not required until the suppression pool water temperature cannot be maintained below the HCTL.

Distracter d: Not required at this time since the SRVs are not cycling.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 73	ILT	0	2/2001	MAIN TURBINE AUXILIARIES	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-14-01

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.9.1.7, Section 3	245000, A2.02	41(b)(7)

***K/A Text:***

A2.02 - Ability to (a) predict the impacts of the following on MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of lube oil.

***Question:***

With the plant at 100% power, the Main Turbine Bearing Oil Pump fails. Per 2.4.9.1.7, "Main Turbine Bearing Oil Pump Failure," which one of the following describes the immediate operator action(s)?

- Insert a manual reactor scram and then trip the turbine.
- Trip the turbine and then insert a manual reactor scram.
- Verify started or manually start the DC powered bearing oil pump.
- Reduce recirculation flow to 35 mlbm/hr and monitor turbine vibration.

***Answer:***

ANSWER: c.

The immediate operator action is to verify the emergency bearing oil pump running.

REFERENCE: 2.4.9.1.7, Section 3

Tier: 2  
 Group: 2  
 K/A System: 245000  
 K/A Number: A2.02  
 K/A Value: 3.3  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: If the emergency bearing oil pump cannot be started, then a turbine trip is required. The turbine is tripped first.  
 Distracter b: If the emergency bearing oil pump cannot be started, then a turbine trip is required. The turbine is tripped first.  
 Distracter d: There is no requirement in 2.4.9.1.7 to reduce recirculation flow. The immediate operator action is to verify the emergency bearing oil pump running.

Proposed references to be provided to applicants during the examination: None

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 74	ILT	0	2/2001	CONDENSATE	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				COR002-02-02

Objective #	Reference	K/A #	10CFR 55 41/43/45
	2.3.2.2, Step 1.1, 2.5	256000, K1.06	41(b)(7)

**K/A Text:**

K1.06 – Knowledge of the physical connections and/or cause-effect relationships between REACTOR CONDENSATE SYSTEM and the following: Extraction steam system.

**Question:**

The plant is at 65% power with the following annunciators in alarm:

- A-2 / C-5, HEATER HIGH LEVEL
- A-2 / C-6, HEATER HIGH LEVEL TRIP

Which one of the following describes the state (open/closed/tripped) of the steam and condensate valves for the affected heater A3?

	CD-AO-LCV-62A Heater-To-Heater Valve	CD-AO-LCV-62B Heater-To-Condenser Valve	ES-AO-NRV5 / NRV6 Turbine-To-Heater Valves	ES-AO-DV1 / DV2 Steam Dump Valves
a.	Open	Open	Tripped	Open
b.	Closed	Closed	Open	Closed
c.	Closed	Open	Tripped	Open
d.	Open	Open	Tripped	Closed

**Answer:**

ANSWER: a.

The condensate valves (CD) remain open, the ES NRV is tripped (open or closed depending on steam flow), and Steam Dump Valve (DV) opens.

REFERENCE: 2.3.2.2, Step 1.1, 2.5

Tier: 2  
 Group: 2  
 K/A System: 256000  
 K/A Number: K1.06  
 K/A Value: 2.7  
 Cognitive Level: 2  
 Bank/Mod/New: New

Distracter b: See justification above.

Distracter c: See justification above.

Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None.

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 75	ILT	0	2/2001	AC DISTRIBUTION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-01-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
6, 7, 13	2.2.13 COR001-01-02	262001, A1.05	41(b)(7)

***K/A Text:***

A1.05 – Ability to predict and monitor changes in parameters associated with operating the ELECTRICAL DISTRIBUTION controls including: Breaker lineups.

***Question:***

The reactor is operating at 100% power when the Auto-Transformer becomes de-energized.

Which one of the following will occur?

**Power will be lost to ...**

- one (1) of the Reactor Recirculation pumps, requiring single loop operation.
- the intake structure equipment, requiring a shutdown in accordance with GOP 2.1.5.
- the 12.5 KV system, requiring the system to be restored from the Cornfield substation.
- one (1) Condensate and one (1) Condensate Booster pump, resulting in a low RPV water level reactor scram.

***Answer:***

ANSWER: c.

REFERENCE: 2.2.13

Tier: 2  
Group: 2  
K/A System: 262001  
K/A Number: A1.05  
K/A Value: 3.2  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: The startup transformer will be supplied by the 161KV Auburn line.

Distracter b: The intake structure is not effected.

Distracter d: The normal transformer is NOT effected.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 76	ILT	0	2/2001	UPS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.4.6.7, Section 6	262002, 2.1.31	41(b)(6) 41(b)(7)

***K/A Text:***

2.1.31 – Ability to locate control room switches/ controls and indications and to determine that they are correctly reflecting the desired plant lineup.

***Question:***

The Reactor Operator observes the following indicators and components have LOST power:

- Neutron monitoring recorders
- Reactor vessel level controllers
- Rod Select power
- Rod Position Information System

Which one of the following describes the single power source loss that caused these observations?

- a. MCC-R
- b. 250 VDC A
- c. Vital Instrument Power.
- d. No Break Power Panel.

***Answer:***

ANSWER: d.

NBPP is lost. 250 VDC A is the normal supply to the NBPP. If 250 VDC A is lost, the internal static switch will automatically transfer to MCC-R. MCC-R is the NBPP alternate supply and its loss will not result in a loss of the NNBP.

REFERENCE: 2.4.6.7, Section 6

Tier: 2  
Group: 2  
K/A System: 262002, 2.1.31  
K/A Number: A1.05  
K/A Value: 4.2  
Cognitive Level: 2  
Bank/Mod/New: New

Distracter a: MCC-R is the NBPP alternate supply and its loss will not result in a loss of the NBPP.

Distracter b: NBPP is lost. 250 VDC A is the normal supply to the NBPP. If 250 VDC A is lost, the internal static switch will automatically transfer to MCC-R.

Distracter c: Vital instrument power does not power these instruments and components.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 77	ILT	0	2/2001	DC DISTRIBUTION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-16-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
2, 8	2.4.2.3.1, Section 4.8 2.3.2.21, 9-3-1/E-1, E-2 COR002-16-02	263000, K4.01	41(b)(7)

***K/A Text:***

K4.01 – Knowledge of D.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following:  
Manual/automatic transfers of control: Plant-Specific.

***Question:***

During normal operation at 100% power, 125 VDC panel "A" is lost. Which one of the following describes the effect on the Low-Low Set SRV solenoids?

- Remain powered from their normal power supply.
- Automatically transfer to their alternate power supply.
- Are **de-energized** without any other power supply available.
- Are **de-energized** and must be manually transferred to their alternate power supply.

***Answer:***

ANSWER: b.

Both LLS logic channels are normally powered from 125 VDC panel AA2, with an alternate supply from 125 VDC panel BB2. On a loss of power (panel AA2), both channels will automatically transfer to the alternate supply.

REFERENCE: 2.4.2.3.1, Section 4.8  
2.3.2.21, 9-3-1/E-1, E-2

Tier: 2  
Group: 2  
K/A System: 263000  
K/A Number: K4.01  
K/A Value: 3.1  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter a: See justification above.  
Distracter c: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 78	ILT	0	2/2001	OFFGAS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-16-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
8, 10	2.3.2.24, 9-4-1/C-4 2.4.7.1, Section 7.1	271000, A3.07	41(b)(7) 41(b)(13)

***K/A Text:***

A3.07 – Ability to monitor automatic operations of the OFFGAS SYSTEM including: Process radiation monitoring system indications.

***Question:***

The plant is operating at 75% power when the following indications are received:

- 9-4-1/C-5, OFFGAS HIGH RAD alarm
- 9-4-1/C-4, OFFGAS TIMER INITIATED alarm
- K-1/A-4, OFFGAS FILTER HIGH D/P alarm
- Off-gas flow indicates 100 cfm on Recorder AR-FR-47, SJAЕ AIR FLOW

If the above conditions are sustained for twenty (20) minutes, which one of the following automatic actions will occur?

- a. AOG-AO-901 "AOG Supply valve" closes.
- b. AOG-AO-902 "AOG Return valve" closes.
- c. OG-AO-254 "Offgas System Isolation valve" opens.
- d. AR-AO-12 "30 Minute Holdup Pipe Drain valve" opens.

***Answer:***

ANSWER: b.

REFERENCE: 2.3.2.24, 9-4-1/C-4  
2.4.7.1, Section 7.1

Tier: 2  
Group: 2  
K/A System: 271000  
K/A Number: A3.07  
K/A Value: 3.4  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter a: AOG-AO-901 remains open.  
Distracter c: OG-AO-254 closes.  
Distracter d: AR-AO-12 closes.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 79	ILT	0	2/2001	FIRE PROTECTION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.2, Section 13, Note 1 2.2.2, Att. 2, 1.2.4, 2.2, 2.3	286000, K1.06	41(b)(10)

***K/A Text:***

K1.06 – Knowledge of the physical connections and/or cause-effect relationships between FIRE PROTECTION SYSTEM and the following: Emergency generator rooms: Plant-Specific.

***Question:***

Which one of the following describes how manual initiation of carbon dioxide (CO<sub>2</sub>) into the DG-1 room is affected if DG-1 is already running following a start on a LOCA signal?

- CO<sub>2</sub> will be discharged into the room and flood the room because the DG HVAC is interlocked off.
- CO<sub>2</sub> will be discharged into the room with some of it exhausted to atmosphere because the DG HVAC continues to run.
- CO<sub>2</sub> will be blocked from discharging into the room but will flood the room if a fire detection initiation signal is received.
- CO<sub>2</sub> will be blocked from discharging into the room and will remain blocked even if a fire detection initiation signal is received.

***Answer:***

ANSWER: b.

Following an emergency start of DG1, manual initiation of DG-1 CO<sub>2</sub> system will result in CO<sub>2</sub> being exhausted to atmosphere due to DG HVAC system interlock which continues to run because the CO<sub>2</sub> discharge signal is bypassed.

REFERENCE: 2.2.2, Section 13, Note 1; 2.2.2, Att. 2, 1.2.4, 2.2, 2.3

Tier: 2  
Group: 2  
K/A System: 286000  
K/A Number: K1.06  
K/A Value: 3.2  
Cognitive Level: 1  
Bank/Mod/New: New

Distracter a: DG HVAC remains running. CO<sub>2</sub> is exhausted to atmosphere.

Distracter c: CO<sub>2</sub> discharge will occur.

Distracter d: CO<sub>2</sub> discharge will occur.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 80	ILT	0	2/2001	SEC CONT	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-08-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
13	2.2.47 COR001-08-02	290001, A4.10	41(b)(9)

***K/A Text:***

A4.10 – Ability to manually operate and/or monitor in the control room: System lineups.

***Question:***

Which one of the following describes how the Reactor Building Ventilation System maintains the required 0.25 inches of negative water pressure in the Reactor Building during normal operation of the system (aligned per 2.2.47, "HVAC Reactor Building")?

- At least one (1) more exhaust fan than supply fan is operated.
- A d/p controller regulates the operating supply fans vortex damper position.
- A d/p controller regulates the operating exhaust fans vortex damper position.
- The capacity of the exhaust fans is greater than the capacity of the supply fans.

***Answer:***

ANSWER: c.

REFERENCE: 2.2.47

Tier: 2  
Group: 2  
K/A System: 290001  
K/A Number: A4.10  
K/A Value: 3.4  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter a: Capacity is not used to maintain d/p.  
Distracter b: D/p controller on suction dampers maintain flow through the filters.  
Distracter d: Not in accordance with system design.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 81	ILT	0	2/2001	CONTROL ROOM HVAC	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.38, 1.b.v	290003, K4.01	41(b)(7)

***K/A Text:***

K4.01 – Knowledge CONTROL ROOM HVAC design feature(s) and/or interlocks which provide for the following: System initiations/reconfiguration: Plant-Specific.

***Question:***

Automatic initiation of BF-C-1A, EMER BSTR FAN, is a result of which of the following conditions?

- Smoke in the cable spreading room.
- Chlorine gas sensed near the control room ventilation intake louvers.
- High radiation sensed near the control room ventilation intake louvers.
- Low differential pressure between the control room and control building.

***Answer:***

ANSWER: c.

REFERENCE: 2.2.38, 1.b.v

Tier: 2  
 Group: 2  
 K/A System: 290003  
 K/A Number: K4.01  
 K/A Value: 3.1  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: Smoke in the cable spreading room will trip the ventilation dampers but will not start the fan..  
 Distracter b: Fan initiation results from detecting anhydrous ammonia, not chlorine.  
 Distracter d: Low control room to control building differential pressure is an alarm function only.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 82	ILT	0	2/2001	INSTRUMENT AIR	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-17-01

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
5, 6, 11	5.2.8, Step 4.2.3	300000, 2.4.11	41(b)(7) 41(b)(10)

***K/A Text:***

2.4.11 – Knowledge of abnormal condition procedures.

***Question:***

The plant is at 100% power when an Instrument Air pipe in the turbine building breaks.

Per 5.2.8, "Loss of Instrument Air," which one of the following actions is required if air pressure decreases to 75 psig?

- Immediately insert a manual reactor scram.
- Perform a rapid shutdown per 2.1.4.1, "RAPID SHUTDOWN."
- Confirm that the scram air header pressure remains above 80 psig.
- Ensure SA-PCV-609, SERVICE AIR SYSTEM ISOLATION, automatically opens.

***Answer:***

ANSWER: a.

When instrument air pressure lowers to the point that IA-MO-80 is required to be closed (77 psig), then a reactor scram is also required.

REFERENCE: 5.2.8, Step 4.2.3

Tier: 2  
Group: 2  
K/A System: 300000  
K/A Number: 2.4.11  
K/A Value: 3.4  
Cognitive Level: 1  
Bank/Mod/New: Bank

Distracter b: A reactor scram is required.

Distracter c: There is no procedural requirement to perform this action at this time.

Distracter d: SA-PCV-609 auto closes below 77 psig service air pressure, not instrument air pressure.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 83	ILT	0	2/2001	COMPONENT COOLING WATER	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-19-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
2, 4, 5, 6	5.2.4	400000, K2.01	41(b)(7) 41(b)(8)

***K/A Text:***

K2.01 – Knowledge of electrical power supplies to the following: CCW pumps.

***Question:***

The plant is at 85% power with REC pumps "A", "B" and "C" operating. REC pump control switches are positioned as follows:

- "A" REC pump                      STANDBY
- "B" REC pump                      NORMAL
- "C" REC pump                      STANDBY
- "D" REC pump                      NORMAL

An operator mistakenly de-energizes MCC-K and ten (10) seconds later re-energizes MCC-K.

Twenty (20) seconds after MCC-K is re-energized, which one of the following will restore REC cooling with three (3) REC pumps in operation?

- a. Manually start two (2) REC pumps only ("A," "B" and/or "D").
- b. Manually start "A" or "B" REC pumps and verify REC pump "D" automatically starts.
- c. Manually start two (2) REC pumps ("A," "B" and/or "D") and then open the non-critical header supply, drywell supply isolation, HX outlet, and augmented radwaste supply.
- d. Manually start "A" or "B" REC pumps, verify REC pump "D" automatically starts, and then open the non-critical header supply, drywell supply isolation, HX outlet, and augmented radwaste supply.

***Answer:***

ANSWER: a.

No pumps auto start. If two of "A," "B" and or "D" pumps are started within 40 seconds of the pump trips, no header isolation valves close.

REFERENCE: 5.2.4

Tier: 2  
Group: 2  
K/A System: 400000  
K/A Number: K2.01  
K/A Value: 2.9  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter b: See justification above.  
Distracter c: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 84	ILT	0	2/2001	TIP	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-31-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
9	2.1.22, COR002-31-02	215001, A4.03	41(b)(9)

***K/A Text:***

A4.03 – Ability to manually operate and/or monitor in the control room: Isolation valves.

***Question:***

Which one of the following describes the design response of a TIP detector that is in the reactor core when a Group 2 and a Group 6 isolation signal is received?

- Group 2** Isolation will cause the TIP to withdraw. **Group 6** closes the ball valve.
- Group 6** Isolation will cause the TIP to withdraw. **Group 6** closes the ball valve.
- Group 2 or Group 6** Isolation will cause the TIP to withdraw and close the ball valve.
- Group 2** Isolation will cause the TIP to withdraw. Ball valve closure is initiated by the withdraw signal.

***Answer:***

ANSWER: d.

The group 2 isolation will cause a group 6 isolation, however, a group 6 isolation has no effect on TIPs. Ball valve closure is automatic when the withdraw signal is initiated.

REFERENCE: 2.1.22, COR002-31-02

Tier: 2  
 Group: 3  
 K/A System: 215001  
 K/A Number: A4.03  
 K/A Value: 3.3  
 Cognitive Level: 1  
 Bank/Mod/New: Bank

Distracter a: See justification above.  
 Distracter b: See justification above.  
 Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 85	ILT	0	2/2001	FUEL POOL COOLING	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
9	2.4.8.6	233000, K1.02	41(b)(9)

***K/A Text:***

K1.02 – Knowledge of the physical connections and/or cause-effect relationships between FUEL POOL COOLING AND CLEAN-UP and the following: Residual heat removal system: Plant-Specific.

***Question:***

The plant is in a refueling outage. Conditions are:

- Time since shutdown is 25 hours
- "B" Fuel Pool Cooling pump is out of service

The "A" Fuel Pool Cooling pump trips and **CANNOT** be started. The fuel pool temperature is currently at 110°F.

How much time is available to re-start a fuel pool cooling pump before boiling starts in the fuel pool?

- 3 hours
- 4 hours
- 5 hours
- 6 hours

***Answer:***

ANSWER: d

Using the Time to Boiling curves from 2.4.8.6, with an initial pool temperature of 110 degrees, boiling will be reached in 6 hours.

REFERENCE: 2.4.8.6 Att. 4 and 5

Tier: 2  
 Group: 3  
 K/A System: 233000  
 K/A Number: K1.02  
 K/A Value: 2.9  
 Cognitive Level: 3  
 Bank/Mod/New: New

Distracter a, b, d: Using the Time to Boiling curves from 2.4.8.6, with an initial pool temperature of 90 degrees, boiling will be reached in just over 5 hours.

Proposed references to be provided to applicants during the examination:  
**Time to boil curves from 2.4.8.6 (Att. 4 and Att. 5)**

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 86	ILT	0	2/28/01	PLANT HVAC	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR001-08-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
11	2.2.47, 2.3.2.19	288000, A3.01	41(b)(7) 41(b)(9)

***K/A Text:***

A3.01 – Ability to monitor automatic operations of the PLANT VENTILATION SYSTEMS including: Isolation/initiation signals.

***Question:***

The unit is at 100% power with the following Reactor Building Ventilation Lineup:

- Exhaust Fan EF-R-1A and Supply Fan SF-R-1A are in AUTO
- Exhaust Fan EF-R-1B and Supply Fan SF-R-1B are in STBY

The reactor building differential pressure controller fails causing Annunciator R-2/A-4, REACTOR BLDG HIGH PRESSURE to alarm.

Which one of the following describes the Reactor Building Ventilation system response over the next five minutes?

- a. EF-R-1A and SF-R-1A will continue to run.  
EF-R-1B and SF-R-1B will **NOT** start.
- b. EF-R-1A and SF-R-1A will continue to run.  
EF-R-1B and SF-R-1B will start.
- c. EF-R-1A and SF-R-1A will trip.  
EF-R-1B and SF-R-1B will **NOT** start.
- d. EF-R-1A and SF-R-1A will trip.  
EF-R-1B and SF-R-1B will start.

***Answer:***

ANSWER: c.

REFERENCE: 2.2.47, 2.3.2.19

Tier: 2  
Group: 3  
K/A System: 288000  
K/A Number: A3.01  
K/A Value: 3.8  
Cognitive Level: 2  
Bank/Mod/New: Bank No. 5227

Distracter a: The fans will trip on high reactor building pressure and it will block starting any fans in standby.  
Distracter b: The fans will trip on high reactor building pressure and it will block starting any fans in standby.  
Distracter d: The fans will trip on high reactor building pressure and it will block starting any fans in standby.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 87	ILT	0	2/2001	RPV INTERNALS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-22-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
6	2.4.1.7, Section 6.2	290002, K2.03	41(b)(1) 41(b)(2)

***K/A Text:***

K3.03 – Knowledge of the effect that a loss or malfunction of the REACTOR VESSEL INTERNALS will have on the following: Reactor power.

***Question:***

While operating steady state the following indications are observed:

- Reactor power lowers
- Narrow Range reactor water level rises
- Indicated core plate d/p lowers
- Indicated core flow rises
- "A" and "B" recirculation loop flows rise

Which one of the following failures caused the above conditions?

- a. One (1) of the Jet pumps has failed.
- b. A shroud support access hole cover has failed.
- c. One (1) recirculation pump's speed has raised to maximum.
- d. Flow through a control cell (four fuel bundles) has been blocked.

***Answer:***

ANSWER: b.

REFERENCE: 2.4.1.7, Section 6.2

Tier: 2  
Group: 3  
K/A System: 290002  
K/A Number: K2.03  
K/A Value: 3.3  
Cognitive Level: 2  
Bank/Mod/New: Bank

Distracter a: Loop flows will only rise in one loop and reactor water level change would not be discernible.  
Distracter c: Would not provide these indications.  
Distracter d: This would lower core flow.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 88	ILT	0	2/2001	CONDUCT OF OPERATIONS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				SKL010-10-01

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
A3	OI-7	2.1.1	41(b)(10)

***K/A Text:***

2.1.1 - Knowledge of conduct of operations requirements.

***Question:***

During an ATWS, the Reactor Operator is directed to perform alternate control rod insertion. The Reactor Operator will be performing the actions to insert control rods by resetting RPS and inserting a manual reactor scram.

Assume the CRS has **NOT** suspended any peer check requirements.

Which one of the following describes the peer checking requirements to perform this task?

- Required for all steps of the task.
- Required for all steps except for panel 9-5 actions only.
- Required for all steps except for jumper installation only.
- Required for the jumper installation, and is waived for all other steps.

***Answer:***

ANSWER: c. Jumper installation is waived in accordance with OI-7 as it is a back panel action. Peer check will be performed by operators in the Control Room for front panel manipulations prior to manipulating controls. This verification will be consistently performed during steady state manipulations and whenever reasonably possible during abnormal and transient conditions. Immediate operator actions shall not be delayed to wait for peer check. Peer check can be suspended for specific tasks during transients by the CRS as he deems reasonable and necessary.

REFERENCE: OI-7

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.1.1  
 K/A Value: 3.7  
 Cognitive Level: 2  
 Bank/Mod/New: Bank

Distracter a: See justification above.  
 Distracter b: See justification above.  
 Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 89	ILT	0	2/2001	CONDUCT OF OPERATIONS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.0.4, step 3.2.2.6	2.1.3	41(b)(10)

***K/A Text:***

2.1.3 - Knowledge of shift turnover practices.

***Question:***

Given the following watch standing information for a 12-hour shift rotation:

- The most recent watch you stood was BOP on Monday dayshift (3/5/2001)
- You are preparing to assume the BOP watch on dayshift on Wednesday (3/7/2001)

Per 2.0.4, "Relief Personnel and Shift Turnover," which one of the following describes the log entries that you are required to review PRIOR to assuming the shift?

	Dayshift Monday (0700 3/5 to 1900 3/5)	Nightshift Monday (1900 3/5 to 0700 3/6)	Dayshift Tuesday (0700 3/6 to 1900 3/6)	Nightshift Tuesday (1900 3/6 to 0700 3/7)
a.	NOT required	NOT required	NOT required	Must review
b.	NOT required	NOT required	Must review	Must review
c.	NOT required	Must review	Must review	Must review
d.	Must review	Must review	Must review	Must review

***Answer:***

ANSWER: c.

Review of logs for which the individual is responsible back to the entries of the last shift that the individual stood or 24 hours, whichever is longer. It is not necessary to review the logs on Monday dayshift which are entries the individual made.

REFERENCE: 2.0.4, 3.2.2.6

Tier: 3  
Group: -  
K/A System: Generic  
K/A Number: 2.1.3  
K/A Value: 3.0  
Cognitive Level: 2  
Bank/Mod/New: New

Distracter a: See justification above.  
Distracter b: See justification above.  
Distracter d: See justification above.

Proposed references to be provided to applicants during the examination: None

Q#	Question Description	Rev #	Rev Date	Topic Area	Diff
RO 90	ILT	0	2/2001	TECH SPECS	

Q Type	Response Time	Max Point Value	Passing Point Value	Lesson #
M/C				INT007-05-06

Objective #	Reference	K/A #	10CFR 55 41/43/45
1, 3	TECH SPEC 3.5.1	2.1.12	41(b)(7) 43(b)(2)

**K/A Text:**

2.1.12 - Ability to apply technical specifications for a system.

**Question:**

The unit is operating at 100% power when the following Technical Specification conditions are discovered (Systems declared inoperable at time of discovery):

- March 1, 2001 at 1200 the "A" RHR pump is declared inoperable.
- March 5, 2001 at 0800 the HPCI system is declared inoperable.

Apply any extensions that are permitted by Technical Specifications.  
Assume the inoperable equipment will **NOT** be restored to OPERABLE status.

Which one of the following describes the LATEST time and date when the unit shall be in MODE 3?

- March 5 at 2100.
- March 8 at 2000.
- March 8 at 2400.
- March 9 at 2000.

**Answer:**

ANSWER: b.

When HPCI is declared inoperable, entry into Condition D is required. After 72 hours (3/8 at 0800), entry into Condition G is required. The unit shall be in MODE 3 within the next 12 hours (3/8 at 2000).

REFERENCE: TECH SPEC 3.5.1

Tier: 3

Group: -

K/A System: Generic

K/A Number: 2.1.12

K/A Value: 2.9

Cognitive Level: 2

Bank/Mod/New: Modified. Changed the dates and times and deleted one of the inoperable components. This caused the answer (time and date) to change.

Distracter a: Assumes entry into Condition H and LCO 3.0.3 when HPCI is declared inoperable requiring MODE 3 within 13 hours (3/5 at 2100). This is not the latest time to be in MODE 3.

Distracter c: Assumes entry into Condition B following the 7-day allowed outage time for the first inoperable pump requiring MODE 3 in 12 hours (3/5 at 2400). This is longer than the permitted time to be in MODE 3.

Distracter d: Assumes an extension of 24 hours is applied to HPCI. The completion time extension will never apply to HPCI. This is longer than the permitted time to be in MODE 3.

Proposed references to be provided to applicants during the examination:

**Provide Technical Specification 1.0, 3.0, and 3.5.1 Do not provide the Bases.**

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 91	ILT	0	2/2001	EQUIPMENT CONTROL	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				SKL008-01-02, 10 SKL010-01-02, A.4

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
SKL008-01-02, 10 SKL010-01-02, A.4	0.31, Section 8.2	2.1.29	41(b)(10)

***K/A Text:***

2.1.29 - Knowledge of how to conduct and verify valve lineups.

***Question:***

In accordance with Administrative Procedure 0.31, "Equipment Status Control," which one of the following set of conditions permit the concurrent verification for a procedure step to be waived?

- The valve requires the use of a ladder so that it is accessible.
- The valve location makes egress difficult should the valve malfunction.
- The valve is required to be locked and is locked in position by the performer.
- The verification will result in a radiation exposure of 12 mrem to the verifier.

***Answer:***

ANSWER: d.

REFERENCE: 0.31, Section 8.2

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.1.29  
 K/A Value: 3.4  
 Cognitive Level: 1  
 Bank/Mod/New: Bank

Distracter a: Not a permitted waiver for procedure steps.  
 Distracter b: Not a permitted waiver for procedure steps.  
 Distracter c: Not a permitted waiver for procedure steps.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 92	ILT	0	2/2001	RECIRCULATION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-22-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.68, step 2.1.2 2.3.2.26, step 2.4	2.1.32, 3.4	41(b)(10)

***K/A Text:***

2.1.32 - Ability to explain and apply system limits and precautions.

***Question:***

The plant is at 100% power. Annunciator 9-4-3 / C-3, RECIRC A PUMP MOTOR HI VIBRATION, alarms. Initially one vibration point is in the ALERT status. An operator is dispatched to investigate. NO other actions have been taken. One (1) minute following receipt of the high vibration annunciator, RONAN CRTs display the following information:

- (1831) RECIRC A LOWER MOTOR VIBRATION ALERT
- (1832) RECIRC A UPPER MOTOR VELOCITY DANGER
- (1825) RECIRC A PUMP VIBRATION DANGER

Which one of the following describes the required action?

- a. Perform a rapid shutdown per 2.1.4.1, 'Rapid Shutdown.'
- b. Trip Recirc Pump A and enter 2.4.2.2.1, "Trip of Reactor Recirculation Pumps."
- c. Reduce Recirc Pump A and B speeds to 45% per 2.1.10, "Station Power Changes."
- d. Perform an emergency shutdown per 2.1.5, "Emergency Shutdown and Scram Response."

***Answer:***

ANSWER: b.

If two or more RR pump/motor vibration monitors for a given pump exceed the danger setpoint, the affected recirc pump must be tripped.

REFERENCE: 2.2.68, step 2.1.2  
2.3.2.26, step 2.4

Tier: 3  
Group: -  
K/A System: Generic  
K/A Number: 2.1.32  
K/A Value: 3.4  
Cognitive Level: 2  
Bank/Mod/New: New

Distracter a: A rapid shutdown is not required. The recirc pump must be tripped, then single loop operation entered.

Distracter c: The recirc pump must be tripped.

Distracter d: An emergency shutdown (scram) is not required. The recirc pump must be tripped, then single loop operation entered.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 93	ILT	0	2/2001	SURVEILLANCE PROCEDURES	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	6.SC.201, Section 6 and Att. 1	2.2.12, 3.0	41(b)(10)

***K/A Text:***

2.2.12 – Knowledge of surveillance procedures.

***Question:***

The plant is at 100% power. Surveillance 6.SC.201, Secondary Containment (Reactor Building H&V) Valve Operability Test, is in progress. The first damper (HV-AO-257) is tested satisfactorily. The second damper (HV-AO-259) is tested as follows:

- First stroke time for HV-AO-259 is 8.8 seconds.
- HV-AO-259 is tested again and the retest stroke time is 7.1 seconds.

Which one of the following describes damper HV-AO-259 status (INOPERABLE or OPERABLE) and why?

- INOPERABLE. Both stroke times were excessive.
- INOPERABLE. Only the first stroke time was excessive.
- OPERABLE. Both stroke times were acceptable.
- OPERABLE. Only the retest stroke time was acceptable.

***Answer:***

ANSWER: d.

Per Step 6.4, if step 6.2 is not satisfied, immediately retest the valve and perform step 6.5 (so the valve can be retested). The retest time of 7.1 seconds is within the IST RETEST STROKE TIME limit. Per step 6.5, which is referenced from step 6.4, if the IST RETEST STROKE TIME is met, then the apparent cause of initial test failure is documented on the Discrepancy Sheet and the damper is OPERABLE.

REFERENCE: 6.SC.201, Section 6 and Att. 1

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.2.12  
 K/A Value: 3.0  
 Cognitive Level: 2  
 Bank/Mod/New: New

Distracter a: The retest stroke time was within the IST RETEST STROKE LIMIT, therefore the damper is still OPERABLE.  
 Distracter b: Because the retest stroke time was within the IST RETEST STROKE LIMIT, the damper is still OPERABLE.  
 Distracter c: The initial stroke time was excessive (above the operability limit). Only the retest stroke time was acceptable (within the IST RETEST STROKE LIMIT).

Proposed references to be provided to applicants during the examination: **6.SC.201; Section 6 (all) and Attachment 1 (all)**

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 94	ILT	0	2/2001	SAFETY LIMITS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	TS 2.0, 2.1.1.2	2.2.22	41(b)(10)

***K/A Text:***

2.2.22 – Knowledge of limiting conditions for operation and safety limits.

***Question:***

The plant is at 75% power following an inadvertent reactivity addition (cold water). The cause of the reactivity event has been identified and is being corrected. When checking thermal limits, MCPR is noted at 1.07.

Which one of the following is a consequence for the conditions above?

- Transition boiling was experienced for several fuel assemblies in the reactor core.
- Pellet-cladding interaction exceeded 1% strain for several fuel assemblies in the reactor core.
- All control rods must be inserted and permission received from the commission before startup.
- Thermal power must be derated 10% and permission received from the plant manager before raising power.

***Answer:***

ANSWER: c.

The MCPR safety limit has been exceeded. All control rods must be inserted within 2 hours. Per the code of federal regulations the NRC must authorize restart when a safety limit has been exceeded.

REFERENCE: TS 2.0, 2.1.1.2

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.2.22  
 K/A Value: 3.4  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: The threshold for transition boiling has not been achieved.  
 Distracter b: This is a consequence of exceeding the LHGR thermal limit (MFLDP).  
 Distracter d: All control rods must be inserted within 2 hours.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 95	ILT	0	2/2001	SAFETY LIMITS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	10.13, Att. 1	2.2.34	41(b)(5)

***K/A Text:***

2.2.34 - Knowledge of the process for determining the internal and external effects on core reactivity.

***Question:***

A reactor startup will be performed with Groups 1 and 2 control rods being withdrawn first. The initial reading for each SRM is 200 counts per second (cps).

Per 10.13, "Control Rod Sequence And Movement Control," which one of the following describes the criteria used to determine when the Estimated Critical Position (ECP) is to be compared to actual core conditions by Reactor Engineering?

- When any SRM count rate has doubled five times.
- When any SRM indication is 2000 counts per second.
- After withdrawing the last control rod in Group 1 to position 48.
- After withdrawing the last control rod in Group 2 to position 48.

***Answer:***

ANSWER: b.

Prior to initial control rod withdrawal the initial SRM readings are recorded. Then the continuous withdraw limits, which are 10 times the initial readings are calculated. This corresponds to approximately three doublings. When any SRM reaches 10 times its initial value, the ECP will be compared to core conditions.

REFERENCE: 10.13, Att. 1

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.2.34  
 K/A Value: 2.8  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: Three doubles. Five doubles indicates when reactor criticality is expected.

Distracter c: Based on SRM count rate not rod withdrawal status.

Distracter d: Based on SRM count rate not rod withdrawal status. Reactor should be critical with Group 2 control rods.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 96	ILT	0	2/2001	RADIATION PROTECTION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	9.ALARA.1, Section 6.2.1.3	2.3.4	41(b)(12)

***K/A Text:***

2.3.4 – Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.

***Question:***

A station operator has an accumulated TEDE of 1.5 rem for the year. Because of dose projections for assigned work in the outage, the operator is expected to receive an **additional** TEDE of 1.8 rem.

Per 9.ALARA.1, "Personnel Dosimetry and Occupational Radiation Exposure Program," which one of the following describes the authorization required for the worker to receive the expected dose?

- a. Plant Manager.
- b. Outage Manager.
- c. Radiological Manager.
- d. Site Vice President – Nuclear.

***Answer:***

ANSWER: d.

Approvals are required by the Radiological Manager above 2000 mrem and by the Site Vice President – Nuclear above 3000 mrem.

REFERENCE: 9.ALARA.1, Section 6.2.1.3

Tier: 3

Group: -

K/A System: Generic

K/A Number: 2.3.4

K/A Value: 2.5

Cognitive Level: 2

Bank/Mod/New: Modified. The previous question asked the approval for an accumulated TEDE of 2.4 rem. The question was changed to 1.5 rem TEDE and an additional 1.8 rem TEDE. The applicant must calculate the total TEDE of 3.3 rem. This changes the answer from the Radiological Manager to the Site Vice President – Nuclear. Since the answer changes, no distracters were changed since this meets the requirement for significantly modified.

Distracter a, b, c: See explanation above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 97	ILT	0	2/2001	SUMPS	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.2.27, Att. 3, 1.2.3.4	2.3.10, 2.9	41(b)(7)

***K/A Text:***

2.3.10 – Ability to control radiation releases.

***Question:***

Which one of the following is a consequence of an extremely high level in the "Z" sump?

- The SGT discharge lines to the elevated release point can become blocked.
- The OFFGAS discharge lines to the elevated release point can become blocked.
- The SGT common discharge (outlet) valve will be interlocked closed until the condition is corrected.
- The OFFGAS common discharge (outlet) valve will be interlocked closed until the condition is corrected.

***Answer:***

ANSWER: a.

Drains from the elevated release point (ERP) and other parts of the OFFGAS system drain to the Z sump. Excessively high water level in the Z sump can block the SGT discharge lines to the ERP.

REFERENCE: 2.2.27, Att. 3, 1.2.3.4

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.3.10  
 K/A Value: 2.9  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter b: Offgas drains go to the Z sump. Offgas discharge is not affected.

Distracter c: There is no interlock with high Z sump level and the discharge valve.

Distracter d: Offgas drains go to the Z sump. There is no interlock with high Z sump level and the discharge valve.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 98	ILT	0	2/2001	INSTRUMENTATION	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-15-02

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	3.18, Section 2.9	2.4.3, 3.5	41(b)(7)

***K/A Text:***

2.4.3 – Ability to determine post-accident instrumentation.

***Question:***

An RPV level instrument on the Control Room panels is marked with a black diamond. Which one of the following describes the significance of this marking?

The marking designates instrumentation:

- A. calibrated for hot conditions at 1000 psig.
- B. calibrated for cold conditions and depressurized.
- C. qualified to the requirements of RegGuide 1.97.
- D. that will be unavailable during accident conditions.

***Answer:***

ANSWER: c

Control Room indicators are marked with black diamonds on the panels to identify them as RegGuide 1.97 instrumentation.

REFERENCE: 3.18, Section 2.9

Tier: 3  
 Group: -  
 K/A System: Generic  
 K/A Number: 2.4.3  
 K/A Value: 3.5  
 Cognitive Level: 1  
 Bank/Mod/New: New

Distracter a: See justification above.  
 Distracter b: See justification above.  
 Distracter c: See justification above.

Proposed references to be provided to applicants during the examination: None

<i>Q#</i>	<i>Question Description</i>	<i>Rev #</i>	<i>Rev Date</i>	<i>Topic Area</i>	<i>Diff</i>
RO 99	ILT	0	2/2001	SEC CONT	

<i>Q Type</i>	<i>Response Time</i>	<i>Max Point Value</i>	<i>Passing Point Value</i>	<i>Lesson #</i>
M/C				COR002-22-02 COR001-08-01

<i>Objective #</i>	<i>Reference</i>	<i>K/A #</i>	<i>10CFR 55 41/43/45</i>
	2.3.2.1, A-1 / A-2 2.4.3.1	2.4.10, 3.0	41(b)(10) 43(b)(2)

***K/A Text:***

2.4.10 – Knowledge of annunciator response procedures.

***Question:***

The plant is at 100% power with irradiated fuel movements in the fuel pool in preparation for a refueling outage. Annunciator A-2, RX BLDG DOOR OPEN, alarms on Panel A-1. RONAN CRTs display the following information:

- (4224) MG VENT INTAKE ROOM OUTER DOOR OPEN
- (4225) MG VENT INTAKE ROOM INNER DOOR OPEN

Which one of the following describes the concern and required actions if the conditions above **CANNOT** be immediately corrected?

- a. Secondary containment is inoperable and must be corrected within 4 hours.
- b. Secondary containment is inoperable and fuel movements must be terminated within 4 hours.
- c. Conditions for an unmonitored release are present and an emergency shutdown must be performed.
- d. Conditions for an unmonitored release are present and Chemistry must be notified to evaluate the situation.

***Answer:***

ANSWER: a.

For a loss of secondary containment operability, enter TS 3.6.4.1 and perform the required actions. Secondary containment must be restored to OPERABLE status within 4 hours.

REFERENCE: 2.3.2.1, A-1 / A-2  
2.4.3.1

Tier: 3  
Group: -  
K/A System: Generic  
K/A Number: 2.4.10  
K/A Value: 3.0  
Cognitive Level: 2  
Bank/Mod/New: New

Distracter b: Fuel movements must be terminated immediately.

Distracter c: An unmonitored release is not present. This condition would be present if the open doors were for the MG VENT EXHAUST ROOM however an emergency shutdown would not be required.

Distracter d: An unmonitored release is not present. This condition would be present if the open doors were for the MG VENT EXHAUST ROOM requiring notification of Chemistry to evaluate.

Proposed references to be provided to applicants during the examination: **TS 3.6.4.1 and Bases**

<b>Q#</b>	<b>Question Description</b>	<b>Rev #</b>	<b>Rev Date</b>	<b>Topic Area</b>	<b>Diff</b>
RO 100	ILT	0	2/2001	PMIS	

<b>Q Type</b>	<b>Response Time</b>	<b>Max Point Value</b>	<b>Passing Point Value</b>	<b>Lesson #</b>
M/C				

<b>Objective #</b>	<b>Reference</b>	<b>K/A #</b>	<b>10CFR 55 41/43/45</b>
COR002-17-02-11.a	COR002-17-02, PMIS	2.4.21	41(b)(7)

**K/A Text:**

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

**Question:**

During a LOCA, a HPCI isolation signal is received and HPCI responds as designed. Which one of the following describes how this isolation affects the PMIS CONTAINMENT DISPLAY?

- a. Group 4 box changes to RED.
- b. Group 5 box changes to RED.
- c. Group 4 box changes to GREEN.
- d. Group 5 box changes to GREEN.

**Answer:**

ANSWER: a.

The group 4 box will change from green to red. Group 5 is RCIC isolation.

REFERENCE: COR002-17-02, PMIS

Tier: 3

Group: -

K/A System: Generic

K/A Number: 2.4.21

K/A Value: 3.7

Cognitive Level: 1

Bank/Mod/New: Bank

Distracter b: Group 4 not group 5.

Distracter c: Changes to red from green.

Distracter d: Group 4 not group 5. Changes to red from green.

Proposed references to be provided to applicants during the examination: None