

This document was added to the ADAMS package for this exam to allow auditors to review the source question for questions that were labeled as “Modified” on the written exam.

The following pages contain the source questions. The hand-written question numbers on the top of the pages are the “Modified” questions on the written exam.

Beaver Valley Unit 1 NRC Written Exam (1LOT18)

28. Which of the following describes a function of the flywheel on the RCPs?
- A. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining hot channel factors at an acceptable level during certain loss of RCS flow events.
 - B. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining DNBR within acceptable limits during certain loss of flow events.
 - C. Maintains constant RCP speed, minimizing the potential for spurious RCS low flow reactor trips and maintaining hot channel factors at an acceptable level during power operation.
 - D. Maintains constant RCP speed, minimizing the potential for spurious RCS low flow reactor trips and maintaining DNBR within limits during power operation.

Answer: B

Explanation/Justification: K/A is met by demonstrating the knowledge of the effects that the RCP flywheel has during RCP coast down and how this assists in maintaining DNBR within acceptable limits during certain loss of flow events.

- A. Incorrect. Flywheel designed to provide inertia to aid DNBR, not specifically for hot channel factors. Hot channel factors are affected by control rods.
- B. Correct.
- C. Incorrect. Flywheel more important for loss of flow, where RCP coastdown time is important for heat removal. Hot channel factors are affected by control rods.
- D. Incorrect. RCS flow is a consideration for DNBR, but at rated RCP speed, the flywheel inertia is insignificant in performing the function of maintaining flow.

Sys #	System	Category	KA Statement	
003	Reactor Coolant Pump	K5 Knowledge of the operational implications of the following concepts as they apply to the RCPS:	Effects of RCP coastdown on RCS parameters	
K/A#	K5.02	K/A Importance	2.8	Exam Level RO
References provided to Candidate		None	Technical References:	1SQS-6.3 rev 15 Iss 1 pgs. 41-42
Question Source:		Bank – BV2 2005 NRC Exam Q1		
Question Cognitive Level:		Lower – Memory or Fundamental	10 CFR Part 55 Content:	(CFR: 41.5 / 45.7)
Objective:		1SQS-6.3, Rev. 15 Obj. 19. Given a Reactor Coolant Pump and support system configuration and without referenced material, describe the Reactor Coolant Pump and support system control room response to the following off-normal conditions, including automatic functions and changes in equipment status as applicable. b. Loss of electrical power		

Robinson Nuclear Plant

ILC15 RNP RO NRC Examination

Question: 35

(1 point)

Given the following:

- The plant is at 100% power
- Containment pressure is 0.2 psig
- Containment temperature is 94°F

Subsequently:

- A load rejection results in a reactor trip
- Following the trip, a Pressurizer Safety valve opens, and will NOT reseal
- The PRT rupture disks function as designed
- Containment pressure is rising at 0.1 psig every 5 minutes
- Containment temperature is rising at 2°F every 5 minutes

Assuming these conditions remain constant, which ONE of the following identifies the Containment Technical Specifications LCOs that will be affected one hour from now?

- A. Both LCO 3.6.4, Containment Pressure, and LCO 3.6.5, Containment Air Temperature, will be exceeded.
 - B. Only LCO 3.6.4, Containment Pressure, will be exceeded.
 - C. Only LCO 3.6.5, Containment Air Temperature, will be exceeded.
 - D. Neither LCO 3.6.4, Containment Pressure, nor LCO 3.6.5, Containment Air Temperature, will be exceeded.
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63. Given the following plant conditions:

- The plant is operating at 100 % power with all systems in NSA.
- A Valid High Radiation Alarm exists on 2ARC-RQI-100, "Condenser Air Ejector Discharge".
- All systems function as designed.

With no operator action, which ONE of the following describes the alignment of the Unit 2 Condenser Air Ejector Off-Gas?

- A. Air Ejector discharge is AUTO aligned to Unit 2 containment.
- B. 2MSS*SOV120, "Common Header Isolation Downstream" AUTO OPENS.
- C. Air Ejector discharge is AUTO aligned through the Charcoal Delay Beds.
- D. No AUTO action occurs, discharge continues to atmosphere until manual action occurs.

Answer: D

Explanation/Justification:

- A. Incorrect. Plausible if the candidate confuses Unit 2 with Unit 1 since Unit 1 does AUTO align to the containment.
- B. Incorrect. Plausible because one of the ARP actions is to manually align 2MSS*SOV120. This valve does auto open on an SI signal.
- C. Incorrect. The air ejector discharge is aligned to the charcoal delay beds however, this is not an AUTO action.
- D. Correct. The ARP directs the air ejector discharge be aligned to the gaseous waste system through the delay beds in accordance with 2OM-19.4.H due confirmed high radiation level from the condenser air removal system which is indicative of a S/G tube leak. AOP 2.6.4 also directs the alignment through the delay beds.

Sys #	System	Category	KA Statement
055	Condenser Air Removal	K1 Knowledge of the physical connections and/or cause/effect relationships between the CARS and the following systems:	PRM system
K/A#	K1.06	K/A Importance 2.6	Exam Level RO
References provided to Candidate		None	Technical References:
			2OM-43.1.C, Rev. 4, pg. 8
			2OM-43.4.ACN, Rev. 5, pg. 2 & 3
			2OM-53C.4.2.6.4, Rev. 26, pg. 21
			2OM-19.4.H, Rev. 14, pg. 2 - 4

Question Source: New

Question Cognitive Level: Higher - Comprehension

10 CFR Part 55 Content: (CFR: 41.2 to 41.9 / 45.7 to 45.8)

Objective: 2SQS-43.1

Given a specific plant condition, predict the response of the RM system control room indications and control loops, including any automatic functions and changes in equipment status for either a change in plant conditions or an off-normal condition.

Indian Point 2016 NRC Exam

Exam Outline Cross Reference:	Level	RO	SRO
	Tier#		1
	Group#		2
	K/A#	000032A201	
		Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation: - Normal/abnormal power supply operation	
	Importance	2.6	2.9

Question # 83

The plant is in a refueling outage and about to begin core offload when SR-N31 becomes inoperable due to a failed power supply. All three EDGs are operable, and all other nuclear instrumentation remains operable. Which of the following describes the effect of this issue on core offload?

- A. Core offload may commence after operators verify that the Audio Count Rate Drawer is aligned to SR-N32.
- B. Core offload may not be performed until SR-N31 is returned to operable status.
- C. Core offload may commence after operators verify that the Audio Count Rate Drawer is aligned to SR-N32 and place N-33 ASSS Source Range Monitor in service. N-33 must be powered from a safety related power source.
- D. Core offload may commence after operators verify that the Audio Count Rate Drawer is aligned to SR-N32 and place N-33 ASSS Source Range Monitor in service. Since SR-N32 power is backed up by an EDG, N-33 may be powered from any bus.

Answer: C

Explanation/Justification:

Explanation:

Indian Point 2016 NRC Exam

LCO 3.9.2 requires 2 SR instruments along with the audio count rate to be operable when moving fuel. 3.9.2 Bases allows use of N-33 provided it is powered from a safety related power source.

- A. Incorrect but plausible since there are actions for the audio count rate operability.
- B. Incorrect but plausible if the candidate is not familiar with the bases.
- C. Correct answer.
- D. Incorrect but plausible. It is reasonable that only one NI would be required to be on a safety related power supply since we could (and most likely would) suspend core alterations following a loss of power.

The question addresses the KA because it deals power supply operation to source range instrumentation and what is required as a contingency in case normal power is lost.

The question is an SRO question because it is a TS question that is not; <1 hour, above the line, or safety limit and it requires knowledge of the TS bases used to analyze TS required actions.

Technical References:	Tech Specs
Proposed References to be provided:	None

Learning Objective	I2LP-ILO-ICEXC 14
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Question Source:	New
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Question History:	N/A
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Question Cognitive Level:	Comprehension
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10 CRF Part 55 Content:	55.43 (b) 2
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Comments

48. Given the following plant conditions:

- The plant is at 100% power
- Vertical Board 'C' indicator for No. 2 DC Bus Grd Volts meter indicates a +110 VDC ground
- The crew performs 1OM-39.4.E, Clearing Grounds (125 VDC Busses 1-1 and 1-2)
- The ground is discovered to be on battery charger 1-2

How will No. 2 DC Bus Voltage indication in the Control Room respond when battery charger 1-2 is removed from service?

What action must be taken to ensure continued plant operation in regards to maintaining No. 2 DC Bus Voltage?

No. 2 DC Bus Voltage indication will be _____ (1) _____ when the battery charger is removed from service.

Plant operation may continue by _____ (2) _____.

- A. 1) lower
2) placing the redundant battery charger in service
- B. 1) lower
2) closing DC Bus 1-2A to Bus 5 crosstie breaker
- C. 1) unaffected
2) placing the redundant battery charger in service
- D. 1) unaffected
2) closing DC Bus 1-2A to Bus 5 crosstie breaker

Beaver Valley Unit 1 NRC Written Exam (1LOT16)

Question 48

Answer: A

Explanation/Justification: K/A is met by the candidates ability to predict that when the battery charger is removed from service due to grounds, that the CR indication of DC bus voltage will lower to battery voltage. The candidate also has to know that continued plant operation cannot continue on the battery beyond its design of 2hrs, therefore the redundant charger for bus 1-2 must be placed in service.

- A. Correct. With the charger supplying a float charge to the bus, the voltage is normally 132 VDC (129-138 vdc). When the charger is removed from service, bus voltage will lower to approximately 125 vdc. DC Bus 1-2 has 2 battery chargers available to maintain DC bus voltage, battery charger 1-2A and 1-2B. In the event one fails, the redundant battery charger will be placed in service to maintain DC loads.
- B. Incorrect. First part is correct. Second part is a plausible distractor because DC bus 1-2 can be aligned to supply DC bus 5 in the event battery charger 5 fails.
- C. Incorrect. Plausible if the candidate thinks the CR indication is the battery voltage, or that the charger maintains the same voltage as the battery. Second part is correct.
- D. Incorrect. Plausible if the candidate thinks the CR indication is the battery voltage, or that the charger maintains the same voltage as the battery. Second part is a plausible distractor because DC bus 1-2 can be aligned to supply DC bus 5 in the event battery charger 5 fails.

Sys #	System	Category	KA Statement
063	DC Electrical Distribution	A2 Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:	Grounds

K/A#	A2.01	K/A Importance	2.5	Exam Level	RO
References provided to Candidate		None	Technical References:		
			1OM-39.4.E rev. 7 pg. 5		
			1OM-39.4.C rev. 10 pg. 13		
			1OM-39.1.B rev. 1 pg. 3		
			Unit 1 RE-0001V rev. 33		

Question Source: New

Question Cognitive Level: Higher – Comprehension or Analysis 10 CFR Part 55 Content: (CFR: 41.5 / 43.5 / 45.3 / 45.13)

Objective: 3SQS-39.1, Rev. 9 Obj. 2 - Describe the distribution paths for the 125 VDC Distribution System from the batteries and chargers to the 125 VDC Distribution Panels.

3SQS-39.1, Rev. 9 Obj. 8 - State the following NSA parameters for the 125 VDC Distribution System. a. Battery Float Voltage

13.

Initial condition:

- Unit 2 is at 45% reactor power.

Current condition:

- SG #3 MFRV fails open and can NOT be closed.

Which one of the following completes the following statements?

With no operator action, the reactor will automatically trip ___(1)___ the main turbine trips.

Based on the given conditions, per 00152-C, "Federal and State Reporting Requirements," the NRC Operations Center is required to be notified in no later than ___(2)___ hours.

REFERENCES PROVIDED

	___(1)___	___(2)___
A.	after	4
B.	after	8
C.	before	4
D.	before	8