

NRC Resolution of Post-Exam Comments
2017 Ginna Initial Exam

Question 22

NRC Resolution:

Delete the question from the examination because there are no correct choices.

Discussion:

Four applicants chose the original Key Answer C whereas 11 chose A. No applicants chose B or D.

There were no questions asked by the applicants pertaining to Question 22.

This was a new question.

The licensee proposed changing the correct answer to A based upon a corrected assessment of the circuit logic regarding stopping the main feed water (MFW) pumps' DC oil pumps. There is a ~11-12 minute timer associated with the circuitry. The question was originally developed on the incorrect premise that the timer was associated with the stopping of the MFW pumps' AC oil pumps and that stopping these pumps would occur at step 20 of ECA-0.0, Loss of All AC Power. Upon further review by the licensee, it was determined that the timer starts when the MFW pumps trip. Based upon the question, the MFW pumps tripped and the timer started 30 minutes earlier. Therefore, by the time the crew went to implement step 20, the timer part of the logic was already met. Thus, when the crew stopped the MFW pumps' AC oil pumps, the logic to automatically stop the MFW pumps' DC oil pumps would be met and the pumps would stop immediately upon completing this logic by stopping the AC oil pumps.

The NRC disagrees with the licensee's proposal and has determined that there is no correct answer to the question. Therefore, the question should be deleted from the exam.

Justification for Deleting Question 22:

With an SBO having occurred 30 minutes earlier and the crew at step 20 of ECA-0.0, the second part of the question asked: "Placing the MFW Pump AC Oil Pumps to OFF will result in the MFW Pump DC Oil Pump stopping _____." The proposed choices (in a "2x2" format) were "Immediately" or "in 11 minutes." Upon further review by the NRC, it was determined that at step 8 of ECA-0.0, operators would take action in Attachment 8.3, Attachment Nonvital, to stop the MFW pumps' AC oil pumps – which is also directed in step 20. Thus, at this earlier point in the procedure, part of the logic to automatically stop the DC oil pumps would be met. Since the MFW pumps tripped earlier due to the station black out, the timer would have started and timed-out prior to the crew reaching step 20. Therefore, with both portions of the logic met

for automatically stopping the DC oil pumps, the DC oil pumps would have already been stopped by the time the crew got to step 20. Finding the pumps already stopped at step 20, was not one of the choices in the question. Because there was no correct answer for the conditions provided in the question, the NRC will delete Question 22 from the examination.

Summary:

The NRC has determined that Question 22 has no correct answer and will be deleted from the exam.

References:

ECA-0.0, Loss of All AC Power
Attachment 8.3, Attachment Nonvital
Wiring Diagram 10905-0238

Question 85

NRC Resolution:

Delete the question from the examination because there are no correct choices.

Discussion:

None of the nine SRO applicants chose the original Key Answer A while one chose B, eight chose C, and none chose D.

There were no questions asked by the applicants pertaining to Question 85.

This was a modified bank question (2011 Vogtle ILT).

The licensee proposed the removal of the question from the exam because there was no correct choice to the question. The question provided the conditions that the plant was in Mode 6 with core alteration in progress with Power Range Nuclear Instrument (PRNI) N-44 defeated for maintenance when an offsite power supply is lost and the "A" EDG fails to start and cannot be started. The two part question asked if core alteration could continue and what is the status of the source range nuclear instrumentation (SRNI). The designated answer A (core alterations cannot continue and both SRNIs were inoperable) was predicated upon a loss of Offsite Power Circuit 7T, with 'A' EDG failure, resulting in Bus 14 being de-energized which in turn would cause Instrument Bus 'B' to lose power (as there is no battery backup to this instrument bus). This would cause a loss of PRNI N-42. The loss of the second PRNI would result in P-10 blocking the Source Range High Voltage, thus de-energizing both SRNIs. However, upon further review, the licensee determined that there is no correct answer to the second part of the question. The licensee recognized that with PRNI N-44 defeated, there would be a jumper installed to remove this PRNI's input to P-10. Therefore, when PRNI N-42 was lost, the P-10

logic to block Source Range High Voltage would not be met and thus both SRNIs would remain energized. However, due to the degraded power condition, SRNI N-31 would be considered inoperable according to Technical Specifications (and core alterations could not continue). SRNI N-32 would remain operable throughout the event. Thus, the post-event status of the SRNIs does not match any of the choices provided in the question.

The NRC agrees that the question should be deleted based upon the licensee's assessment of post-event conditions regarding the SRNIs and that there is no correct choice to the question.

Justification for Deleting Question 85:

The NRC reviewed ER-NIS.3, PR Malfunction, and confirmed that if PRNI N-44 were defeated for maintenance that jumpers would be installed to remove N-44 from the logic circuit for reinstating the SRNIs. The NRC also reviewed Technical Specifications (TS) 3.8.2 (AC Sources – MODES 5 and 6), 3.8.10 (Distribution Systems – MODES 5 and 6), and 3.9.2 (Nuclear Instrumentation). The electrical TS's provide an option of either immediately declaring affected required features inoperable or immediately suspending core alterations. Furthermore according to TS bases for 3.8.10, LCO 3.9.2 applies which causes SRNI N-31 to be declared inoperable. With SRNI N-31 inoperable, core alterations are to be suspended immediately. Therefore, in the end, core alterations cannot continue as one SRNI is inoperable.

Summary:

The NRC determined that, based upon the procedural guidance for defeating a PRNI and the requirements of TS, none of the answer choices for Question 85 reflects the plant's post-event condition. Therefore the question will be deleted from the examination.

References:

ER-NIS.3, PR Malfunction
TS 3.8.2, AC Sources – MODES 5 and 6
TS 3.8.10, Distribution Systems – MODES 5 and 6
TS 3.9.2 Nuclear Instrumentation

Question 87

NRC Resolution:

Delete the question from the examination because there are no correct choices.

Discussion:

Five applicants chose the designated answer C whereas four chose A and none chose B or D. There was one comment from an applicant who stated that there was no correct choice as the loss of the Bus 11A would result in the loss of an RCP thereby resulting first in an entry into AP-RCS.2, Loss of Reactor Coolant Flow, a transition to E-0, Reactor Trip or Safety Injection, and

then to ES-0.1, Reactor Trip Response. The applicant was told to provide the best answer based upon the conditions provided.

This was a new question.

The licensee proposed the removal of the question from the exam because there is no correct choice to the question. With the plant at 6% power, the turbine latched and rotating at 1800 rpm, and B Circulating Water Pump out of service for maintenance, Bus 11A becomes de-energized. The applicants were asked which procedure would the unit supervisor (US) enter **first** and what procedure will be transitioned to **first** from the initial procedure. The intended answer was C, as the US was expected to go to AP-CW.1 Loss of a Circ Water Pump, and then transition to AP-TURB.1, Turbine Trip without a Reactor Trip, because the reactor is below P-9.

The draft submittal for this question was the same except that instead of the loss of Bus 11A a loss of a second circulating water pump occurred. The NRC recommended this change to increase the discriminatory value of the question by making the applicants consider the effects of the loss of Bus 11A (i.e., a loss of the remaining circulating water pump). Neither the NRC nor the licensee realized that the loss of the Bus 11A would also cause the loss of an RCP. Thus, according to the licensee, the loss of Bus 11A (which would cause the loss of an RCP in conjunction with a circulating water pump), there would be entry conditions for multiple abnormal operating procedures. According to A-503.1, Emergency and Abnormal Operating Procedures Users Guide, Section 5.2.A.4, 'Multiple AOPs may be used simultaneously if conditions warrant. Prioritization of actions under these circumstances is the responsibility of the US.' AP-CW.1, step 1 RNO would require the operators to verify a turbine trip and then go to AB-Turb.1, Turbine Trip without a Reactor Trip (because reactor power is only 6%). AP-RCS.2 step 1 RNO would direct the operator to trip the reactor and then go to E-0. The operators would be expected to enter AP-RCS.2 and then transition to E-0 because the reactor trip takes priority over a turbine trip. Tripping the reactor would require entry into the EOP network while just tripping the turbine would keep the operators in the AOP network.

Justification for Deleting Question 87:

The NRC recognizes the unintended consequences of the change that was made to the draft question. The NRC also understands the procedural prioritization involved to address the conditions for the loss of Bus 11A in this question. The use of the word "first" in the question is problematic as operators, in this case, would need to implement the AOPs first in order to be able to transition to E-0 as there is no direct EOP entry condition based upon the plant conditions stated in the question. (Procedure A-503.1, Section 5.2.C1.a, states that anytime a reactor trip is required, operators will enter E-0. The licensee defines "is required" to apply to situations that when an automatic trip setpoint is reached versus procedurally directed.) Therefore, since the expected first procedure and subsequent transition (AP-RCS.2 and E-0) were not one of the choices, the test takers could be confused as to what is meant by "first" since they do not know if the question is testing procedure usage rules (enter the AOPs to be

procedurally driven to the EOPs) or to identify the ultimate mitigation strategy (trip the reactor and enter the EOPs).

Summary:

Based upon the fact that no correct "first" choice was provided to the applicants, and the fact that Choices A and C are mutually exclusive (Choice A results in a reactor trip whereas Choice C does not), the NRC will delete the question from the examination.

References:

AP-CW.1 Loss of a Circ Water Pump
AP-TURB.1, Turbine Trip without a Reactor Trip
AP-RCS.2, Loss of Reactor Coolant Flow
E-0, Reactor Trip or Safety Injection,
A-503.1, Emergency and Abnormal Operating Procedures Users Guide

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	EPE 055 EA1.04	
	Importance Rating	3.5	

Ability to operate and monitor the following as they apply to a Station Blackout: Reduction of loads on the battery

RO Question #22

Given the following plant conditions:

- Station blackout occurred 30 minutes ago
- ECA-0.0, LOSS OF ALL AC POWER, has been entered
- RG&E reports that Offsite Power will be restored within the next 2 hours
- Operating crew is performing Step 20, Check DC Bus Loads

Which ONE of the following completes the statements below:

- 1) The CO and EO will perform DC load shed in accordance with _____;

AND

- 2) Placing the MFW Pump AC Oil Pumps to OFF will result in the MFW Pump DC Oil Pump stopping _____.

NOTE: ATT-8.0, ATTACHMENT DC LOADS

FSG-4, ELAP DC BUS LOAD SHED/MANAGEMENT

- A. 1) ATT-8.0
2) immediately
- B. 1) FSG-4
2) immediately
- C. 1) ATT-8.0
2) in 11 minutes
- D. 1) FSG-4
2) in 11 minutes

Answer: C

Explanation (Optional):

- A. INCORRECT. Plausible since the first part is correct and the candidate may not have knowledge of the timer related to the MFW Pump AC and DC Oil Pumps.
- B. INCORRECT. Plausible since ECA-0.0 has the operating crew perform FSG-4 once an ELAP is declared in progress of if DC bus voltages lower to ≤ 108.6 VDC and the candidate may not have knowledge of the timer related to the MFW Pump AC and DC Oil Pumps.
- C. CORRECT. In accordance with ECA-0.0, Step 20, the operator ensures that DC load shed is in progress by referring to ATT-8.0. The background document states "The UFSAR assumes that the MFW pump DC oil pump operates for 12 minutes following loss of all AC power. This is based on a timer in the MFW pump DC oil pump control circuitry which allows the pump to operate for 11 minutes."
- D. INCORRECT. Plausible since ECA-0.0 has the operating crew perform FSG-4 once an ELAP is declared in progress of if DC bus voltages lower to ≤ 108.6 VDC and the second part is correct.

Technical Reference(s): ECA-0.0 (p22; Rev 042)
 (Attach if not previously provided, ECA-0.0 Background Document (p74; Rev 01901)
 including version/revision number) _____

Proposed references to be provided to applicants during examination: None

Learning Objective: REC00C 2.01; R4301C 1.07 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New 159422

Question History: Last NRC Exam

(Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content:	55.41	<u>.7</u>
	55.43	<u> </u>

Comments:

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	034 K1.04	
	Importance Rating		3.5

Knowledge of the physical connections and/or cause-effect relationships between the Fuel Handling System and the following systems: NIS

SRO Question #85

Given the following plant conditions:

- Plant is in MODE 6, with core alterations in progress
- Electric plant is in a normal 50/50 lineup
- Power Range Nuclear Instrument N-44 has been defeated for maintenance
- Source Range Nuclear Instrument N-32 is selected to audible indication
- Offsite Power Circuit 7T trips
- 'A' D/G fails to start and cannot be started
- Annunciator E-14, LOSS B INSTR. BUS, is LIT

Which ONE of the following completes the statement below?

Core alterations 1 continue based on 2 .

- A. 1. CANNOT
2. Both Source Ranges are INOPERABLE
- B. 1. CANNOT
2. N-31 must be selected for audible indication to be OPERABLE
- C. 1. CAN
2. Both Source Ranges are OPERABLE
- D. 1. CAN
2. N-31 is OPERABLE and only one Source Range is required

Answer: A

Explanation (Optional):

- A. CORRECT. In accordance with P-12 a loss of Offsite Power Circuit 7T, with 'A' EDG failure, will result in Bus 14 being de-energized which causes Instrument Bus 'B' losing power. This will cause a loss of Power Range Nuclear Instrument N-42. Loss of the second PRNI will cause Permissive P-10 to de-energize resulting in a block of Source Range High Voltage, de-energizing both SRNIs.
- B. INCORRECT. Plausible since the first part is correct and the candidate may believe that only one Source Range Instrument is required since a majority of safety systems utilize a redundant instrument/component scheme where only half the instruments/components are required. Also, the audible count instrument is powered from Instrument Bus 'D' which remains energized in this event.
- C. INCORRECT. Plausible since Source Range Nuclear Instruments receive power from Instrument Buses A and C, which will not lose power. Instrument Bus 'A' receives normal power from Bus 14 (which is de-energized); however, the 'A' Station Main Battery will automatically assume the Instrument Bus load upon loss of power to the associated Battery Charger. Instrument Bus 'C' receives normal power from Bus 16.
- D. INCORRECT. Plausible since Source Range Instrument N-32 used to receive power from Instrument Bus 'B', which would be de-energized with the given plant conditions. Also, the candidate may believe that only one Source Range Instrument is required since a majority of safety systems utilize a redundant instrument/component scheme where only half the instruments/components are required.

Technical Reference(s): P-1 (p42; Rev 07201)

(Attach if not previously provided, P-12 (p16, 18, 21-22; Rev 024)

including version/revision number) _____

Proposed references to be provided to applicants during examination: None

Learning Objective: RIC10C 1.06 (As available)

Question Source: Bank # _____

Modified Bank # 165678 (Note changes or attach parent)

New _____

Question History: Last NRC Exam 2011 Vogtle ILT

(Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: 55.41 _____
55.43 _____ .6 _____

Comments: SRO level because the question requires the candidate to have in-depth knowledge of and the interrelationships between the PRNIs, SRNIs, and the Reactor Protection System permissive circuitry. Additionally, determining operability is an SRO function.

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	075 2.4.4	
	Importance Rating		4.7

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

SRO Question #87

Given the following plant conditions:

- O-1.2, PLANT STARTUP FROM HOT SHUTDOWN TO FULL LOAD, is being performed
- Reactor power is 6% and stable
- Turbine is latched and speed is 1800 rpm
- 'B' Circulating Water Pump is out of service for maintenance
- Bus 11A-12A Bus Tie Breaker trips OPEN

NOTE: E-0, REACTOR TRIP OR SAFETY INJECTION
 ES-0.1, REACTOR TRIP RESPONSE
 ES-0.2, NATURAL CIRCULATION COOLDOWN
 AP-CW.1, LOSS OF A CIRC WATER PUMP
 AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED
 AP-TURB.4, LOSS OF CONDENSER VACUUM

- 1) What procedure will the US enter **first**?
 - 2) What procedure will be transitioned to **first** from the initial procedure?
- A. 1) E-0
2) ES-0.1
 - B. 1) E-0
2) ES-0.2
 - C. 1) AP-CW.1
2) AP-TURB.1
 - D. 1) AP-CW.1
2) AP-TURB.4

Answer: C

Explanation (Optional):

- A. INCORRECT. Plausible since according to P-1, loss of both Circ Water Pumps and the P-7 Permissive (8% reactor power) would result a reactor trip due to Turbine trip. This would be an uncomplicated trip so the transition to ES-0.1 would be normal.
- B. INCORRECT. Plausible since according to P-1, loss of both Circ Water Pumps and the P-7 Permissive (8% reactor power) would result a reactor trip due to Turbine trip. Also, ES-0.2 is procedure used when natural circulation cooldown is required.
- C. CORRECT. In accordance with AP-CW.1 "This procedure provides the actions necessary to respond to a loss of a Circ Water Pump while the plant is at power." According to AP-CW.1, step 1 RNO "IF power less than 8%, THEN verify Turbine trip and go to AP-TURB.1".
- D. INCORRECT. Plausible since the initial procedure entered is correct and AP-TURB.4 would be the procedure used for lowering condenser vacuum which is plausible since condenser vacuum would start to degrade with the given plant conditions; however, the transition to AP-TURB.1 occurs first.

Technical Reference(s): AP-CW.1 (p2-3; Rev 01400)(Attach if not previously provided, P-1 (p40-42; Rev 07201)
including version/revision number) _____Proposed references to be provided to applicants during examination: NoneLearning Objective: RAP24C 2.01 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New 165676

Question History: Last NRC Exam

(Optional: Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis _____

X

10 CFR Part 55 Content: 55.41 _____
 55.43 .2

Comments: