

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

007 EA2.04 076

Given the following:

- Unit 2 in service at 100% power with the TD AFW pump tagged.
- The reactor failed to trip after a valid trip signal was received and attempts to manually trip from the MCR were unsuccessful.
- The crew entered E-0, "Reactor Trip or Safety Injection," and transitioned to FR-S.1, "Nuclear Power Generation/ATWS."
- Immediate operator actions have been completed.
- Current conditions are:

	<u>SG#1</u>	<u>SG#2</u>	<u>SG#3</u>	<u>SG#4</u>
NR level	0%	0%	0%	0%
Max AFW flow	195 gpm	220 gpm	0 gpm	0 gpm

RCS pressure is 2285 psig.

Emergency boration flow 45 gpm and supplied from the BAT.

Which ONE of the following is the required crew response to the above conditions?

- A. Align CCP suction to the RWST to enhance boration flow. Transition to E-0 at the completion of FR-S.1.
- B. Open Pressurizer PORVs to lower pressure to 2135 psig to enhance boration flow. Transition to E-0 at the completion of FR-S.1.
- C. Transition to FR-H.1, "Loss of Secondary Heat Sink" at the completion of FR-S.1 if conditions remain the same.
- D. Immediately transition to FR-H.1, "Loss of Secondary Heat Sink," since the emergency boration is now in progress.

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**DISTRACTOR ANALYSIS:**

- A. *Incorrect, aligning the CCP suction to the RWST is not required since the boric acid flow at 45 gpm is above the minimum of 35 gpm and returning to E-0 would not be correct for the conditions given. Plausible because aligning the CCP suction to the RWST is an action directed to enhance boration flow if the flow was less than the 35 gpm and returning to E-0 would be correct if the RED path for FR-H.1 was not present.*
- B. *Incorrect, the RCS pressure is not high enough to require manual opening of pressurizer PORVs and returning to E-0 would not be correct for the conditions given. Plausible because opening PORVs is an action to enhance boration flow if RCS pressure > 2335 psig and returning to E-0 would be correct if the RED path for FR-H.1 was not present.*
- C. *Correct, the conditions indicate a RED path to FR-H.1, Loss of Heat Sink. However the FR-S.1 Red path is higher priority than FR-H.1 Red path and EPM-4 requires the FRP in progress to be completed unless otherwise directed within the FRP. So the transition to FR-H.1 would not be made until FR-S.1 was completed to a transition.*
- D. *Incorrect, the transition to FR-H.1 would not be made immediately even though a RED path is present. The rules of usage require FR-S.1 to be completed. Plausible because normally RED path are implemented immediately.*

**Question Number:**   76  

**Tier:**   1   **Group**   1  

**K/A:** 007 EA2.04

Reactor Trip

Ability to determine or interpret the following as they apply to a reactor trip:

If reactor should have tripped but has not done so, manually trip the reactor and carry out actions in ATWS EOP

**Importance Rating:** 4.4 / 4.6

**10 CFR Part 55:** 41.7 / 45.5 / 45.6

**10CFR55.43.b:** 5

**K/A Match:** Applicant is required to evaluate conditions during an ATWS and identify the actions required to be carried out including the proper procedure use and transition when the ATWS procedure is complete

**Technical Reference:** FR-S.1, Nuclear Power Generation / ATWS, Rev 22  
2-FR-0, Status Trees, Rev 1  
EA-68-4, Emergency Boration, Rev 10

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**Technical Reference:** FR-S.1, Nuclear Power Generation / ATWS, Rev 22  
2-FR-0, Status Trees, Rev 1  
EA-68-4, Emergency Boration, Rev 10  
EPM-4, User's Guide, Rev 20

**Proposed references to be provided:** None

**Learning Objective:** OPL271FR-S.1  
5. Describe the conditions and reason for all transitions within this procedrue and transitions to other procedures.  
6. Given a set of initial plant conditions use FR-S.1 to correctly:  
a. Identify required actions

**Question Source:**

New	<input type="checkbox"/>
Modified Bank	<input checked="" type="checkbox"/>
Bank	<input type="checkbox"/>

**Question History:** Modified from SQN bank question FR-S.1-B.4 003

**Comments:** Reworded stem and provided values for plant conditions, reordered choices to relocate correct answer and chnged one distrator and modified wording on another.  
Original question was modified from a DC Cook NRC exam dated 3/26/2007

Source: BANK MOD  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank: SQN  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

009 EG 2.4.20 077

Given the following:

- A small-break LOCA has occurred on Unit 1.
- All RCPs were stopped in E-0, "Reactor Trip or Safety Injection."
- The crew is now performing E-1, "Loss of Reactor or Secondary Coolant."
- RCS subcooling 34°F.
- All SG levels 40-50% NR.
- RCS pressure 1125 psig & stable.
- PZR level 11% & slowly increasing.

Which ONE of the following ...

(1) identifies the procedure transition that will be required, assuming conditions remain the same

and

(2) after the transition when the procedure directs placing a Reactor Coolant Pump in service, what precaution should the operator consider prior to starting the RCP?

- A. (1) ES-1.1, "SI Termination"  
(2) A steam bubble may exist in the upper head region of the reactor vessel during RCP startup. The bubble could collapse rapidly, lowering PZR level and decreasing the subcooling margin.
- B. (1) ES-1.1, "SI Termination"  
(2) A temperature differential in the RCS loops exists due to seal injection flow with RCPs stopped. This could result in a rapid pressure increase leading to a Pressurized Thermal Shock condition.
- C✓ (1) ES-1.2, "Post LOCA Cooldown and Depressurization"  
(2) A steam bubble may exist in the upper head region of the reactor vessel during RCP startup. The bubble could collapse rapidly, lowering PZR level and decreasing the subcooling margin.
- D. (1) ES-1.2, "Post LOCA Cooldown and Depressurization"  
(2) A temperature differential in the RCS loops exists due to seal injection flow with RCPs stopped. This could result in a rapid pressure increase leading to a Pressurized Thermal Shock condition.

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**DISTRACTOR ANALYSIS:**

- A. *Incorrect, the transition would not be to ES-1.1, "SI Termination," because the subcooling value is not greater than 40°F but the concern is for a bubble in the upper head that would be condensed causing a drop in pressurizer level and subcooling. Plausible because the transition to ES-1.1 would be correct if the subcooling value had been greater than 40°F and the concern for the loss of pressurizer level and subcooling due to condensing an upper head void is correct.*
- B. *Incorrect, the transition would not be to ES-1.1, "SI Termination," because the subcooling value is not greater than 40°F and the concern is not due to the temperature differential in the RCS loops existing. Plausible because the transition to ES-1.1 would be correct if the subcooling value had been greater than 40°F and the precaution concerning the temperature differential in the RCS loops existing is a Precaution noted in 1-SO-68-2 which requires a bubble in the pressurizer before starting a RCP, but would not be applicable since a LOCA has been confirmed and solid RCS conditions do not exist under given conditions .*
- C. *Correct, the subcooling value is not high enough to terminate the Safety Injection, therefore, the transition will be to ES-1.2, "Post LOCA Cooldown and Depressurization." In ES-1.2, in the step previous to starting the RCP, the RCS was rapidly depressurized to establish greater than 20% Pressurizer Level. A Note prior to that step identified that upper head voiding may have occurred as a result of the rapid depressurization. Therefore, the operator should be aware that subcooling margin and pressurizer level may decrease when the voids are condensed during the start of an RCP.*
- D. *Incorrect, the transition would be to ES-1.2 but the concern is not due to the temperature differential in the RCS loops existing. Plausible because the transition to ES-1.2 being required to be made is correct and the precaution concerning the temperature differential in the RCS loops existing is a Precaution noted in 1-SO-68-2 which requires a bubble in the pressurizer before starting a RCP, but would not be applicable since a LOCA has been confirmed and solid RCS conditions do not exist under given conditions .*

**Question Number:**   77  

**Tier:**   1   **Group**   1  

**K/A:** 009 EG 2.4.20  
Small Break LOCA  
Knowledge of the operational implications of EOP warnings, cautions, and notes.

**Importance Rating:** 3.8 / 4.3

**10 CFR Part 55:** 41.10 / 43.5 / 45.13

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**10CFR55.42.b:** 5

**K/A Match:** Applicant is required to identify an operational implication of starting a Reactor Coolant Pump during performance of an emergency procedure used during a small break LOCA event based on a caution in the procedure and to identify required transition from an emergency procedure to an emergency sub-procedure.

**Technical Reference:** E-1, Loss of Reactor or Secondary Coolant. Rev 23  
ES-1.2, Post LOCA Cooldown and Depressurization,  
Rev 17  
ES-1.1, SI Termination, Rev 10  
EPM-3-ES-1.2, Basis Document for ES-1.2 Post LOCA  
Cooldown and Depressurization, Rev 5  
EPM-3-ES-1.1, Basis Document for ES-1.1 SI  
Termination, Rev 4

**Proposed references to be provided:** None

**Learning Objective:** OPL271E-1  
Describe the conditions and reason for transitions within this procedure and transitions to other procedures  
OPL271ES-1.2  
Given a set of initial plant conditions use ES-1.2 to correctly:  
c. Observe and Interpret Cautions and Notes

**Question Source:**

<b>New</b>	<input type="checkbox"/>
<b>Modified Bank</b>	<input checked="" type="checkbox"/>
<b>Bank</b>	<input type="checkbox"/>

**Question History:** SQN bank questions ES-1.2-B.6 002 and ES-1.2-B.5.A 001 combined and modified.

**Comments:**

Source: BANK MOD  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank: SQN  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

011 EA2.07 078

Given the following:

- Unit 2 operating at 100% power with 2A-A RHR pump tagged to repair motor.
- A LOCA occurs.
- The reactor is tripped and safety injection is actuated.
- While performing E-1, "Loss of Reactor or Secondary Coolant," annunciator "RHR PUMP B-B MECH SEAL HX OUTLET FLOW LOW" alarms.
- AUO reports the CCS supply line to the 2B-B RHR mechanical seal water heat exchanger is broken and is isolated.
- RWST level is 66% and dropping.

Which ONE of the following identifies how the loss of CCS to the seal water heat exchanger would affect 2B-B RHR pump operation and the procedure flow path(s) that would be implemented?

- A. The pump must be removed from service to prevent damage.  
The crew would immediately transition from E-1 to ECA-1.1, "Loss of RHR Sump Recirculation" using the fold out page.
- B. The pump must be removed from service to prevent damage.  
The crew would continue in E-1 until RWST level setpoint requiring transition to ES-1.3, "Transfer to RHR Containment Sump," was met, then transition would be made to ECA-1.1, "Loss of RHR Sump Recirculation" from ES-1.3.
- C. The pump would be allowed to continue to operate until a transition was made to ES-1.3, "Transfer to RHR Containment Sump," at which time it must be removed from service.  
The crew would then transition from ES-1.3, "Transfer to RHR Containment Sump," to ECA-1.1, "Loss of RHR Sump Recirculation" from ES-1.3."
- D✓ The pump would be allowed to continue to operate.  
When the RWST level reached the setpoint, a transition to ES-1.3, "Transfer to RHR Containment Sump," would be made and ECCS Cold Leg Recirculation established.

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**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The pump does not need to be stopped; it can run indefinitely without cooling to the mechanical seal water heat exchanger and the transition would not be made to ECA-1.1. Plausible because a loss of cooling could cause seal damage and there is a transition to ECA-1.1 on the Fold Out page but it is based on RWST level but RHR pump status.*
- B. *Incorrect, The pump does not need to be stopped; it can run indefinitely without cooling to the mechanical seal water heat exchanger.. If the pump was stopped, and the transition was made to ES-1.3 based on level, then a transition to ECA-1.1 would be made. Plausible because a loss of cooling could cause seal damage and the procedure transition would be correct with other conditions.*
- C. *Incorrect, the pump would be allowed to continue to operate but would not be limited by the transfer to the containment sump. The transition from E-1 would be to ES-1.3 but a transition from ES-1.3 to ECA-1.1 would not be required. Plausible because condition do change when the RHR suction is realigned to the containment sump and if no RHR pump was available the transition to ECA-1.1 would be correct.*
- D. *Correct, As identified in the Annunciator Response (0-AR-M27-B-E) and in AOP-M.03, "Loss of Component Cooling Water," when the CCS is out of service to the mechanical heat seal exchanger for the RHR pump, the pump remains Operable and Available and can run indefinitely. Thus, ECCS pump operation would continue and the transfer to the containment sump would be performed to place the ECCS pumps in Cold Leg Recirculation.*

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**Question Number:** 78

**Tier:** 1 **Group** 1

**K/A:** 011 EA2.07  
Large Break LOCA  
Ability to determine or interpret the following as they apply to a Large Break LOCA:  
That equipment necessary for functioning of critical pump water seals is operable

**Importance Rating:** 3.2? / 3.4\*

**10 CFR Part 55:** 43.5 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** Applicant must determine the impact of a loss of seal cooling to the only available RHR pump during a large break LOCA event and then identify how the emergency operating procedure flow path would be affected and/or implemented.

**Technical Reference:** 0-AR-M27-B-E, Component Cooling/Misc, Rev 9  
AOP-M.03, Loss of Component Cooling Water, Rev 12  
E-1, Loss of Reactor or Secondary Coolant, Rev 23.  
ES-1.3, Transfer to RHR Containment Sump, Rev 16

**Proposed references to be provided:** None

**Learning Objective:** OPL271E-1  
5. Describe the conditions and reason for transitions within this procedure and transitions to other procedures.  
OPT200.CCS  
5. Describe the operation of the Component Cooling Water System:  
a. How a component failure will affect system operation

**Question Source:**  
**New** X  
**Modified Bank** \_\_\_\_\_  
**Bank** \_\_\_\_\_

**Question History:** New question

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

026 AA2.02 079

Given the following:

- Both Units in service at 100% power with all equipment in a normal alignment.
- Component Cooling Water (CCS) for the Spent Fuel Pool heat exchangers is being supplied from Unit 2.

Which ONE of the following identifies ...

(1) the electrical board which if lost would result in a loss of one train of CCS on both units

and

(2) the action in accordance with AOP-M.03, "Loss of Component Cooling Water," to restore flow to both units and allow one of the units to have 2 operable CCS trains?

- A. (1) 480v Shutdown Board 1B2-B  
(2) The power supply will be transferred to Alternate and the failed CCS pump will be restarted using the appropriate section of 0-SO-70-1, "Component Cooling Water System "B" Train."
- B. (1) 480v Shutdown Board 1B2-B  
(2) The 1B CCS pump will be realigned to supply flow to the failed CCS Train on both units using the appropriate section of 0-SO-70-1, "Component Cooling Water System "B" Train."
- C. (1) 480v Shutdown Board 2B2-B  
(2) The power supply will be transferred to Alternate and the failed CCS pump will be restarted using the appropriate section of 0-SO-70-1, "Component Cooling Water System "B" Train."
- D✓ (1) 480v Shutdown Board 2B2-B  
(2) The 1B CCS pump will be realigned to supply flow to the failed CCS Train on both units using the appropriate section of 0-SO-70-1, "Component Cooling Water System "B" Train."

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**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The loss of 480v Shutdown Board 1B2-B will not result is the loss of the C-S CCS pump which normally supplies the Train B of both units but while the pump has an alternate power supply, the pumps would not be aligned to the alternate. Plausible because the alternate feed to the C-S pump is from a Unit 1 board but not the 1B2-B and transferring the pump to the alternate would allow the restart of the pump but would also inop the Train A on unit 1 and Unit 2.*
- B. *Incorrect, The loss of 480v Shutdown Board 1B2-B will not result is the loss of the C-S CCS pump which normally supplies the Train B of both units but the, the 1B CCS pump will be aligned because the additional heat load of the Spent fuel Pool is aligned to the Train A on Unit 2 and it is preferred t o to have 2 pumps aligned on the unit supplying the spent fuel pool heat exchangers. Plausible because the alternate feed to the C-S pump is from a Unit 1 board but not the 1B2-B and realigning the 1B CCS to supply both units and allow Unit one to have 2 operable trains is correct.*
- C. *Incorrect, The loss of 480v Shutdown Board 2B2-B will result is the loss of the C-S CCS pump which normally supplies the Train B of both units but while the pump has an alternate power supply, the pumps would not be aligned to the alternate. Plausible because the failure of the 2B2-B is correct and transferring the pump to the alternate would allow the restart of the pump but would also inop the Train A on Unit 1and Unit 2*
- D. *Correct, The loss of 480v Shutdown Board 2B2-B will result is the loss of the C-S CCS pump which normally supplies the Train B of both units. After the failure, the 1B CCS pump will be aligned because the additional heat load of the Spent fuel Pool is aligned to the Train A on Unit 2 and it is preferred to have 2 pumps aligned on the unit supplying the spent fuel pool heat exchangers. this will restore 2 operable trains on unit 1 but leave Unit 2 with only one operable train due to the lack of a Unit 2 SI starting the 1B CCS pump.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:**   79  

**Tier:**   1   **Group**   1  

**K/A:** 026 AA2.02  
Loss of Component Cooling Water (CCW)  
Ability to determine and interpret the following as they apply to the Loss of  
Component Cooling Water:  
The cause of possible CCW loss

**Importance Rating:** 2.9 / 3.6

**10 CFR Part 55:** 43.5 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** The applicant is required to identify a plant condition that would  
cause a loss of CCW to occur on both of the Units and then identify  
how the procedure would be used to restore the CCS on the units.

**Technical Reference:** 0-SO-70-1, Component Cooling Water System "B"  
Train Rev: 38  
AOP-M.03, Loss of Component Cooling Water,  
Rev 12

**Proposed references  
to be provided:** None

**Learning Objective:** OPL271AOP-M.03  
7. Describe the conditions and reason for transitions  
within this procedure and transitions to other  
procedures.  
OPT200.CCS  
4. Describe the following characteristics of each major  
component in the Reactor Component Cooling Water  
System.  
b. Power supply (include control power as applicable)

**Question Source:**

<b>New</b>	<u>  X  </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Source: NEW  
Cognitive Level: LOWER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

056 AG2.1.19 080

Given the following:

- Both Units are at 100% power.
- A loss of Offsite Power occurs, resulting in a Reactor Trip on both Units.
- Neither the 1A-A nor the 1B-B Diesel generator starts.
- 2A-A and 2B-B Shutdown boards are energized by the respective diesel generators.
- The operating crew is responding using the appropriate plant procedures.
- Attempts are being made to restore the 1A-A and 1B-B Shutdown boards to service.

Which one of the following correctly identifies...

- (1) the status of the plant computer on both units, 3 minutes after the event  
and
- (2) the AOP-P.01, "Loss of Offsite Power," Appendix that would be used to establish the preferred source of Offsite power?

Plant Computers

AOP-P.01 Appendix to be used

- |  |   |
|--|---|
| A✓ Both Plant Computers remain available for monitoring system status.         | Appendix D, "Energizing 161Kv Switchyard from Chickamauga No.1 Line." |
| B. Both Plant Computers remain available for monitoring system status.         | Appendix E, "Energizing 161Kv Switchyard from Watts Bar Hydro Line."  |
| C. Only Unit 2 Plant computer would be available for monitoring system status. | Appendix D, "Energizing 161Kv Switchyard from Chickamauga No.1 Line." |
| D. Only Unit 2 Plant computer would be available for monitoring system status. | Appendix E, "Energizing 161Kv Switchyard from Watts Bar Hydro Line."  |

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**DISTRACTOR ANALYSIS:**

- A. *Correct, both units Plant Computer would remain available for monitoring system conditions because the computer systems are supplied with power from the TSC inverters which have a power source from the 250v DC battery boards. AOP-P.01, Loss of Offsite Power, identifies that when ready to restore the power that the preferred source will be restored by using Appendix D.*
- B. *Incorrect, both units Plant Computer would remain available for monitoring system conditions because the computer systems are supplied with power from the TSC inverters which have a power source from the 250v DC battery boards. Appendix E will not be used to restore the preferred source of offsite power. AOP-P.01, Loss of Offsite Power, identifies that when ready to restore offsite power that the preferred source will be restored by using Appendix D. Plausible because both computers remaining available is correct and Appendix E could be used to establish off site power.*
- C. *Incorrect, Unit 2 is not the only unit whose plant computer remains available. (The plant computer on both computers will be available.) Plausible because Unit 1 has loss power to both of the shutdown boards while Unit 2 has power restored to both Shutdown Boards and because using Appendix D to restore the preferred power source is correct.*
- D. *Incorrect, Unit 2 is not the only unit whose plant computer remains available. (The plant computer on both computers will be available.) Plausible because Unit 1 has loss power to both of the shutdown boards while Unit 2 has power restored to both Shutdown Boards and because Appendix E could be used to restore an offsite power source.*

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**Question Number:** 80

**Tier:** 1 **Group** 1

**K/A:** 056 Loss of Off-site Power  
G 2.1.19 Ability to use plant computers to evaluate system or component status.

**Importance Rating:** 3.9 / 3.8

**10 CFR Part 55:** 41.10

**10CFR55.43.b:** 5

**K/A Match:** Applicant is required to be able to evaluate the status of the Plant Computers during during a loss of offsite power in order to determine if the computers can be used to evalaute system and component status. SRO because the determine of which Appendix of the AOI would be used in restoration of the offsie power supply for the given conditions.

**Technical Reference:** AOP-P.1, Loss of Offsite Power, Rev 24

**Proposed references to be provided:** None

**Learning Objective:** OPT200.ICS  
B.4. Describe the following characteristics of each major component in the Integrated Computer System:  
b. Power supply (include control power as applicable)

**Question Source:**

<b>New</b>	<u>X</u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
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077 AG2.2.44 081

Given the following:

- Both units are at 100%.
- The Transmission Operator has informed the control room staff that the grid/offsite power conditions are in an unanalyzed (RED) condition.
- Switchyard voltage is 165kV.

Which ONE of the following identifies the...

(1) Procedure the crew would implement as a result of these conditions,

and

(2) immediate operability status of offsite power sources?

A✓ (1) GOI-6, "Apparatus Operation."

(2) Both sources operable.

B. (1) GOI-6, "Apparatus Operation."

(2) Both sources inoperable.

C. (1) AOP-P.01, "Loss of Offsite Power."

(2) Both sources operable.

D. (1) AOP-P.01, "Loss of Offsite Power."

(2) Both sources inoperable.

**DISTRACTOR ANALYSIS:**

- A. *Correct, GOI-6 is the procedure the crew would implement in response to the conditions and both offsite sources remain operable pending the completion of an evaluation which is required to be completed within 4 hours.*
- B. *Incorrect, GOI-6 is the procedure the crew would implement in response to the conditions but the offsite sources are not immediately inoperable. Plausible because the procedure is correct and both offsite sources would be immediately inoperable if the voltage had been outside limits.*
- C. *Incorrect, AOP-P-.01 is not the correct procedure but both offsite sources remain operable. Plausible because the procedure is used for the loss of offsite power and the offsite sources being operable is correct.*
- D. *Incorrect, AOP-P-.01 is not the correct procedure and both offsite sources are not immediately inoperable. Plausible because the procedure is used for the loss of offsite power and both offsite sources would be immediately inoperable if the voltage had been outside limits.*

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**Question Number:**   81  

**Tier:**   1   **Group**   1  

**K/A:** 077 AG2.2.44, Generator Voltage and Electric Grid Disturbances: Ability to interpret control room indications to verify the status and operations of a system, and understand how operator actions and directives affect plant and system conditions.

**Importance Rating:** 4.2 / 4.4

**10 CFR Part 55:** 41.5 / 43.5 / 45.12

**10CFR55.43.b:** (5)

**K/A Match:** Applicant must determine the procedure to be implemented and the status of the offsite power supplies from information provided by the Transmission operator and indication in the control room.

**Technical Reference:** GOI-6, Apparatus Operations, R130

**Proposed references to be provided:** None

**Learning Objective:** OPT200.SWYD, B.5.c  
OPL271GOI-6, B.2

**Question Source:**

<b>New</b>	<u>  X  </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

1. 005 AG2.4.46 082/NEW//HIGHER//SRO/SEQUOYAH/2/2010/NO

Given the following:

- Unit 1 power is 8% being raised to 18% by control rod withdrawal.
- While the control rod withdrawal was in progress, annunciator 'COMPUTER ALARM ROD DEV & SEQ NIS PWR RANGE TILTS' alarmed.
- The OATC stopped rod motion and determined the cause of the alarm is that Control Bank D Rod D-4 is misaligned by 14 steps from the step counter.
- The crew enters AOP-C.01, "Rod Control System Malfunctions."

Which ONE of the following identifies...

(1) the required action in accordance with AOP-C.01

and

(2) how the action taken would affect the status of the 'ROD CONTROL SYSTEM URGENT FAILURE' annunciator?

- A✓ (1) When repairs complete, realign the rod in accordance with AOP-C.01.  
(2) The control rod realignment to the bank would cause the annunciator to alarm.
- B. (1) When repairs complete, realign the rod in accordance with AOP-C.01.  
(2) The control rod realignment to the bank would **NOT** cause the annunciator to alarm.
- C. (1) Initiate a reactor trip and go to E-0, "Reactor Trip or Safety Injection."  
(2) The reactor tripping would cause the annunciator to alarm.
- D. (1) Initiate a reactor trip and go to E-0, "Reactor Trip or Safety Injection."  
(2) The reactor tripping would **NOT** cause the annunciator to alarm.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Correct, With the conditions in the stem, the rod would be realigned and while it was being realigned to the bank, an Urgent Failure alarm would occur due to the last of current sensed in the opposite group of Bank D Rods due to all lift coils in the group being disconnected.*
  
- B. *Incorrect, The rod would be realigned with the bank but the Urgent Failure alarm would occur due to the last of current sensed in the opposite group of Bank D Rods due to all lift coils in the group being disconnected. Plausible because the rod would-be realigned and if the misaligned rod had been in shutdown Bank C or D (having only one group of rods) the annunciator would not have alarmed*
  
- C. *Incorrect, The conditions would not require a reactor trip but the Urgent Failure alarm would occur. Plausible because with different conditions(one being at a higher power) a misalignment of a Control Bank D rod will result is a reactor trip being required as identified in AOP-C.01 and the annunciator will alarm as a result of the reactor trip breakers opening due to no current being sensed on the stationary gripper coils.*
  
- D. *Incorrect, The conditions would not require a reactor trip and the Urgent Failure alarm would occur. Plausible because with different conditions(one being at a higher power) a misalignment of a Control Bank D rod will result is a reactor trip being required as identified in AOP-C.01 and the annunciator does not alarm as a direct impact reactor trip breakers opening. The alarm is due to no current being sensed on the stationary gripper coils after the trip breakers open.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 82

**Tier:** 1 **Group** 2

**K/A:** 005 AG2.4.46  
Inoperable/Stuck Control Rod  
Ability to verify that the alarms are consistent with the plant conditions.

**Importance Rating:** 4.2 / 4.2

**10 CFR Part 55:** 41.10 / 43.5 / 45.3 / 45.12

**10CFR55.43.b:** 5

**K/A Match:** Question requires knowledge of actions required for misaligned (inoperable) control rods as to the applicable procedure to be used to implement the actions and to verify alarms are consistent with the action being implemented.  
SRO because it requires the determination of the actions required and the procedure that would be used in the implementation of the actions.

**Technical Reference:** AOP-C.01,Rod Control System Malfunctions, Rev 20  
1-AR-M4-B, NIS/ROD CONTROL 1-XA-55-4B, Rev 28

**Proposed references to be provided:** None

**Learning Objective:** OPL271AOP-C.01  
4. Upon entry into AOP-C.01, diagnose the applicable condition and transition to the appropriate procedural section for response.  
7. Describe the conditions and reason for transitions within this procedure and transitions to other procedures.

**Question Source:**

**New** X

**Modified Bank** \_\_\_\_\_

**Bank** \_\_\_\_\_

**Question History:** New question for 2/2010 exam

**Comments:**

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9  
Answer: A C C D B C C C D B Scramble Range: A - D

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

024 AA2.01 083

Given the following:

- A Reactor Trip occurred on Unit 1.
- The crew initiates emergency boration in accordance with EA-68-4, Section 4.2, "Emergency Boration from BAT" due to multiple stuck rods.
- After placing 1-HS-62-138A, Emergency Boration FCV in OPEN direction, the OATC released the handswitch after observing flow indicated on 1-FI-62-137A, Emerg Boration Flow.
- Three minutes later, the OATC observed both the RED and GREEN lights LIT on 1-HS-62-138A and flow stable at 40 gpm on 1-FI-62-137A.

Which ONE of the following identifies the status of the required emergency boration and the actions required?

- A. 1-FCV-62-138 should be full open but the breaker has tripped. EA-68-4 Section 4.3, "Emergency Boration from RWST" is required to be implemented to inject the required number of gallons from the RWST.
- B. 1-FCV-62-138 should be full open but the breaker has tripped. EA-68-4 Section 4.3, "Emergency Boration from RWST" is required to be implemented to raise the RCS boron concentration to the concentration required for shutdown margin.
- C. 1-FCV-62-138 stopped opening when the handswitch was released and the current flow would be continued until the required number of gallons of boric acid have been injected in accordance with EA-68-4, Section 4.2
- D. 1-FCV-62-138 stopped opening when the handswitch was released and the flow is less than the minimum required. Handswitch would be used to further open the valve and flow continued until the required number of gallons of boric acid have been injected in accordance with EA-68-4, Section 4.2

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, the emergency boration valve should not be full open. Unlike most MOVs it does not have a seal in contact in the control circuit to cause the valve to come full open but Section 4.3 is not required to be implemented because the flow rate is not below the required minimum. Plausible because most MOVs do run full open after the handswitch is placed to the open position and released unless the valve travel is stopped due to thermal overload and if flow rate had been less than the minimum required and could not have been raised then Section 4.3 would be used..*
- B. *Incorrect, the emergency boration valve should not be full open. Unlike most MOVs it does not have a seal in contact in the control circuit to cause the valve to come full open but Section 4.3 is not required to be implemented because the flow rate is not below the required minimum. Plausible because most MOVs do run full open after the handswitch is placed to the open position and released unless the valve travel is stopped due to thermal overload and if flow rate had been less than the minimum required and could not have been raised then Section 4.3 would be used and if used the correct termination for the section is when RCS boron concentration is greater than the required concentration for shutdown margin.*
- C. *Correct, the emergency boration valve is a motor operated valve but unlike most MOVs, there is no seal in to cause the valve to run full open after the hand switch is placed to open. Thus the valve would stop when the handswitch was released and the Red and Green indicating lights would both be lit. EA-68-4, Emergency Boration, requires a flow rate of 35 - 150 gpm when emergency borating from the BAT. Thus the flow is within the targeted range and the boration would be continued to inject the required volume.*
- D. *Incorrect, The valve would stop when the handswitch was released and the Red and Green indicating lights would both be lit. The flow is greater than the minimum required so the valve does not need to be opened further while the current procedure section is continued. Plausible because the valve would stop when the handswitch was released, the with flow on the low end of the acceptable band and if it had been lower, additional opening would be required.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 83

**Tier:** 1 **Group:** 2

**K/A:** 024AA2.01  
Emergency Boration  
Ability to determine and interpret the following as they apply to the  
Emergency Boration:  
Whether boron flow and/or MOVs are malfunctioning, from plant conditions

**Importance Rating:** 3.8\* / 4.1

**10 CFR Part 55:** 43.5 / 45.13

**10CFR55.42.b:** 5

**K/A Match:** Question requires knowledge of the operation of the emergency boration valves to able the determine whether the valve is malfunctioning and knowledge of the emergency boration procedure to make the determination if conditions are correct using indications and plant conditions. Then determining the correct procedure section required as a result of the indications.

**Technical Reference:** EA-68-4, Emergency Boration, Rev 10  
1-47W611-62-2 R5  
1,2-45N779-24 R23

**Proposed references to be provided:** None

**Learning Objective:** OPT200.CVCS  
B.4. Describe the following characteristics of each major component in the CVCS system:  
d. Normal operating parameters  
f. Controls

**Question Source:**

<b>New</b>	<u>      </u>
<b>Modified Bank</b>	<u>  X  </u>
<b>Bank</b>	<u>      </u>

**Question History:** Question modified from a question used on 2009 exam

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Source: BANK MOD  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

033 AA2.03 084

Given the following:

- Unit 1 at 40% power.
- N-35 has failed due to a blown fuse and is being removed from service with AOP I.01, "Nuclear Instrument Malfunction."

Which ONE of the following identifies...

- (1) the condition on the 1-M-13 instrument drawer that would indicate the fuse, that if blown, would prevent bypassing the high flux reactor trip output signal
- and
- (2) the maximum time allowed in accordance with Technical Specification 3.3.3.7, Accident Monitoring Instrumentation, before a plant shutdown is required due to the failed channel?

<u>Indication</u>	<u>Max. Time Allowed</u>
A. "CONTROL POWER ON" light DARK.	7 days
B. ✓ "CONTROL POWER ON" light DARK.	30 days
C. "INSTRUMENT POWER ON" light DARK.	7 days
D. "INSTRUMENT POWER ON" light DARK.	30 days

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The "CONTROL POWER ON" light being DARK would indicate the blown fuse would prevent the blocking of the trip signal from the drawer but while Tech Spec 3.3.1 would allow continuous operation, 3.3.3.7 would require a shutdown after 30 days. Plausible because the light being DARK is correct and one of the Tech Specs entered allows continuous operation.*
- B. *Correct, The "CONTROL POWER ON" light being DARK would indicate the blown fuse would prevent the blocking of the trip signal from the drawer and while Tech Spec 3.3.1 would allow continuous operation, Tech Spec 3.3.3.7 would require a shutdown after 30 days.*
- C. *Incorrect, The "INSTRUMENT POWER ON" light being DARK would not indicate the blown fuse would prevent the blocking of the trip signal from the drawer and while Tech Spec 3.3.1 would allow continuous operation, 3.3.3.7 would require a shutdown after 30 days. Plausible because there is a fuse that if blown would cause the light to be DARK but the control for blocking the trip signal would not be affected and one of the Tech specs entered allows continuous operation.*
- D. *Incorrect, The "INSTRUMENT POWER ON" light being DARK would not indicate the blown fuse would prevent the blocking of the trip signal from the drawer and Tech Spec 3.3.3.7 would require a shutdown after 30 days. Plausible because there is a fuse that if blown would cause the light to be DARK but the control for blocking the trip signal would not be affected and Tech Spec 3.3.3.7 requiring a shutdown after a time period is correct.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 84

**Tier:** 1 **Group** 2

**K/A:** 033 AA2.03

Loss of Intermediate Range Nuclear Instrumentation  
Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation:  
Indication of blown fuse

**Importance Rating:** 2.8 / 3.1

**10 CFR Part 55:** 43.5 / 45.13

**10CFR55.43.b:** 2

**K/A Match:** Applicant is required to determine the indication of a blown control power fuse on an Intermediate Range Monitor.

**Technical Reference:** AOP-I.01, Nuclear Instrument Malfunction, Rev 9  
Technical Specifications, 3.3.1.1, Amendment 251  
Technical Specifications, 3.3.3.7, Amendment 149

**Proposed references to be provided:** None

**Learning Objective:** OPT200.NIS  
5. Describe the operation of the NIS system:  
d. How a component failure will affect system operation

**Question Source:**

<b>New</b>	<u>  X  </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

074 EG2.2.44 085

Unit 1 is experiencing an inadequate core cooling condition. The crew is performing FR- C.1, "Inadequate Core Cooling" and core exit T/Cs have exceeded 1200°F.

The current plant conditions exist:

- RCPs #1 and #2 have been started.
- SGs are being depressurized to atmospheric pressure.
- All SGs have dropped to <10% NR.
- Core exit T/Cs are 1210°F and slowly dropping.

Which one of the following identifies the correct mitigating strategy that the crew should take?

(1) The SG depressurization \_\_\_\_\_ continue

and

(2) the correct procedure flow path will be \_\_\_\_\_.

A✓ (1) would

(2) remain in FR-C.1, "Inadequate Core Cooling."

B. (1) would

(2) a transition to SACRG-1, "Severe Accident Control Room Guideline Initial Response."

C. (1) would NOT

(2) remain in FR-C.1, "Inadequate Core Cooling."

D. (1) would NOT

(2) a transition to SACRG-1, "Severe Accident Control Room Guideline Initial Response."

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Correct, The SG depressurization would continue once started based on note preceding step 14 in FR-C.1. The transition to SACRG-1 would not be made as core exit T/Cs are dropping, thus actions in FG-C.1 are beginning to mitigate the ICC and remaining in this procedure is the correct flow path.*
- B. *Incorrect, The first part of this distractor is correct and thus adds plausibility to this choice. The second part of this distractor is incorrect as the transition is not made to SACRG-1. It is plausible because the conditions meet the first criteria for this transition by having  $\geq 5$  core exit T/Cs  $> 1200^{\circ}\text{F}$ . The only missing criteria for this to be correct are to have T/Cs rising in value.*
- C. *Incorrect, The SG depressurization would continue, it is plausible because if the applicants do not recall the note on NR levels earlier in the procedure, they may conclude that the depressurization should be terminated because we no longer meet SG conditions that were necessary to begin depressurization. The second part of this distractor is plausible because it is correct.*
- D. *Incorrect, The SG depressurization would continue, it is plausible because if the applicants do not recall the note on NR levels earlier in the procedure, they may conclude that the depressurization should be terminated because we no longer meet SG conditions that were necessary to begin depressurization. The second part of this distractor is incorrect as the transition is not made to SACRG-1. It is plausible because the conditions meet the first criteria for this transition by having  $\geq 5$  core exit T/Cs  $> 1200^{\circ}\text{F}$ . The only missing criteria for this to be correct are to have T/Cs rising in value.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 85

**Tier:** 1 **Group** 2

**K/A:** Inadequate Core Cooling, Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect and system conditions.

**Importance Rating:** 4.2 / 4.4

**10 CFR Part 55:** 41.5 / 43.5 / 45.12

**10CFR55.43.b:** (5)

**K/A Match:** Control room indications are given and required to be interpreted to make operational decision. The decision of procedure flow path determines plant conditions - for correct mitigating strategy or not.

**Technical Reference:** FR- C.1, "Inadequate Core Cooling" R12

**Proposed references to be provided:** None

**Learning Objective:** OPL271FR-C.1, B.3, B.6

**Question Source:**

**New** X

**Modified Bank** \_\_\_\_\_

**Bank** \_\_\_\_\_

**Question History:** New

**Comments:** SRO only determination: The question meets the SRO criteria by requiring the applicant to know detailed diagnostic steps and decision points that involve transition to other procedures.

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Given the following:

- Unit 1 is shutdown with RCS at 170°F with RHR Train A in service.
- RCS loops are filled.
- All RCPs are OFF.
- SGs Wide Range levels are:
  - SG #1 - 8%
  - SG #2 - 15%
  - SG #3 - 9%
  - SG #4 - 6%
- The 1A RHR pump trips due to motor failure.
- Train B RHR is placed in service

Which ONE of the following identifies ...

- (1) the status of Technical Specification LCO 3.4.1.4, "Reactor Coolant System - Cold Shutdown"

and

- (2) a Basis for the LCO?

- A. (1) LCO entry required until an additional SG level is raised above 10% WR.  
(2) to maintain equilibrium temperatures in the RCS to dampen the resultant expansion as any cold water injected by the charging pump is rapidly warmed.
- B✓ (1) LCO entry required until an additional SG level is raised above 10% WR.  
(2) To produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System.
- C. (1) LCO entry required until an RCP is started.  
(2) to maintain equilibrium temperatures in the RCS to dampen the resultant expansion as any cold water injected by the charging pump is rapidly warmed.
- D. (1) LCO entry required until an RCP is started.  
(2) To produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, an additional steam generators to be filled to greater than 10% wide range is required to exit the LCO but a bases is not to maintain equilibrium temperatures in the RCS to dampen the resultant expansion as any cold water injected by the charging pumps is rapidly warmed. Plausible because the additional steam generator being filled is correct and dampening the resultant expansion of any cold water injected by the charging pump is rapidly heated is in the bases for running a RCP in accordance with LCO 3.4.1.2.*
- B. *Correct, LCO requires the RCS to be filled with at least 2 steam generator levels to be greater than 10% wide range to be substituted for an RHR loop and the LCO bases states the operation of an RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System.*
- C. *Incorrect, Starting a RCP is not required to exit the LCO and a bases is not to maintain equilibrium temperatures in the RCS to dampen the resultant expansion as any cold water injected by the charging pumps is rapidly warmed. . Plausible because placing an RCP in service would be required by LOC 3.4.1.2 if the plant had been in Mode 3 and dampening the resultant expansion of any cold water injected by the charging pump is rapidly heated is in the bases for running a RCP in accordance with LCO 3.4.1.2.*
- D. *Incorrect, Starting a RCP is not required to exit the LCO but the LCO bases states the operation of an RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. Plausible because placing an RCP in service would be required by LOC 3.4.1.2 if the plant had been in Mode 3 and the bases is correct.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 86

**Tier:** 2 **Group** 1

**K/A:** 005 G 2.2.40  
Residual Heat Removal System  
Ability to apply Technical Specifications for a system. ✓

**Importance Rating:** 3.4 / 4.7

**10 CFR Part 55:** 41.10 / 43.2 / 43.5 / 45.3

**10CFR55.43.b:** 2

**K/A Match:** Applicant is required to apply Technical Specifications for the RHR system with specified plant conditions and to identify a bases for the LCO.

**Technical Reference:** Technical Specification 3.4.1.4, Amendment 285  
Technical Specification 3.4.1.4 Bases, Amendment 299

**Proposed references to be provided:** None

**Learning Objective:** OPT200.RHR  
6. Describe the administrative controls and limits for the RHR as explained in this lesson:  
a. State Tech Specs/TRM LCOs that govern the RHR  
b. State the =1 hour action limit TS LCOs  
c. Given the conditions/status of the RHR components and the appropriate sections of the Tech Spec, determine if operability requirements are met and what actions are required

**Question Source:**

**New** \_\_\_\_\_  
**Modified Bank** X  
**Bank** \_\_\_\_\_

**Question History:** SQN bank question RHR-B.5.C 006 modified

**Comments:**

Source:	BANK MOD	Source If Bank:	SQN
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	SEQUOYAH
Date:	2/2010	Last 2 NRC?:	NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

012 G 2.4.11 087

Given the following:

- Unit 1 at 100% power.
- The following alarms are received:
  - PROTECTION SET CHANNEL SET FAILURE ✓
  - PROTECTION SET 1 BYPASS ✓
- The PROTECTION SET TROUBLE status light is LIT on 1-M-5.
- All SSPS status lights indicate normal.
- Plant remains stable.
- Crew enters AOP-I.11, "Eagle 21 Malfunction."

Which ONE of the following identifies...

(1) the section of AOP-I.11 that would be implemented from the diagnostics step,

and

(2) an action that would be required during implementation of the AOP?

- A. (1) Section 2.1, Test Sequence Processor (TSP) Subsystem failure.  
(2) Refer to an appendix in the procedure to determine which rack is affected.
- B✓ (1) Section 2.1, Test Sequence Processor (TSP) Subsystem failure.  
(2) Notify MIG to evaluate Eagle 21 lockup and attempt to reset system failure.
- C. (1) Section 2.2, Loop Control Processor (LCP) failure.  
(2) Refer to an appendix in the procedure to determine which rack is affected.
- D. (1) Section 2.2, Loop Control Processor (LCP) failure.  
(2) Notify MIG to evaluate Eagle 21 lockup and attempt to reset system failure.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The conditions do describe a TSP failure but the appendices of the instruction would not be used to determine which rack had the failure. Plausible because the TSC failure is correct and the appendices would be used if the failure had been an LCP failure.*
- B. *Correct, The conditions describe a TSP failure which requires use of section 2.1 of the AOI and one of the actions is to notify MIG to evaluate Eagle 21 lockup and to attempt to reset system failure using 0-PI-IXX-099-003.0.*
- C. *Incorrect, the conditions do not describe an LCP failure because there are no unexpected reactor trip bistable lights LIT, only the Trouble bistable light and the appendices of the instruction would not be used to determine which rack had the failure. Plausible because a Bistable light is LIT (Trouble) and the appendices would be used if the failure had been an LCP failure.*
- D. *Incorrect, the conditions do not describe an LCP failure because there are no unexpected reactor trip bistable lights LIT, only the Trouble bistable light, but one of the actions is to notify MIG to evaluate Eagle 21 lockup and to attempt to reset system failure using 0-PI-IXX-099-003.0. Plausible because a Bistable light is LIT (Trouble) and notify MIG to evaluate Eagle 21 lockup and to attempt to reset system failure is correct*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 87

**Tier:** 2 **Group** 1

**K/A:** 012 G 2.4.11  
Reactor Protection System  
Knowledge of abnormal condition procedures.

**Importance Rating:** 4.0 /4.2

**10 CFR Part 55:** 41.10 / 43.5 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** Question requires knowledge of the abnormal operating procedure for failure in the Eagle 21 system which is process racks supplying the reactor protection system.

**Technical Reference:** AOP-I.11, Eagle 21 Malfunctions, Rev 9  
1-AR-M6-A, Reactor Protection and Safeguards  
1-XA-55-6A, Rev 15  
1-AR-M4-A, Bypass and Permissives 1-XA-55-4A,  
Rev 13

**Proposed references to be provided:** None

**Learning Objective:** OPT200.Eagle21  
5. Describe the operation of the Eagle 21 system:  
c. Alarms and alarm response  
d. How a component failure will affect system operation

**Question Source:**

<b>New</b>	<u>X</u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

039 A2.02 088

Given the following:

- Unit 1 at 56% power with the turbine control in 'OPER AUTO' and 'IMP OUT'.
- Due to an inoperable safety valve on SG #4, the Power Range Neutron Flux High Setpoint trip has been reduced in accordance with Technical Specifications.
- A safety valve on SG #2 starts leaking through.
- The operating crew responds in accordance with AOP-S.05, "Steam or Feedwater Leak."
- The decision is made to gag the leaking safety valve.

Which ONE of the following identifies ...

(1) how the turbine load will be affected by the relief valve leakage prior to any operator action

and

(2) the impact, if any, the gagging of the leaking safety valve will have on the setting of the Power Range Neutron Flux High Setpoint?

- A. (1) Turbine load will be maintained constant by governor valves throttling open.  
(2) An additional reduction in the setpoint would be required.
- B. (1) Turbine load will be maintained constant by governor valves throttling open.  
(2) **NO** change in the setpoint would be required.
- C. (1) Turbine load will decrease and the governor valve positions will **NOT** change.  
(2) An additional reduction in the setpoint would be required.
- D✓ (1) Turbine load will decrease and the governor valve positions will **NOT** change.  
(2) **NO** change in the setpoint would be required.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The turbine load would not have remained constant because in IMP OUT the governor valves would not have throttled more open as the pressure dropped and an additional reduction in the setpoint would not have to be made. The LCO allows for one safety valve on each steam generator (as stated in the Bases as '...the number of MSSVs per steam generator...'). With 1 on SG #4 and one on SG #2 there in only 1 per generator and the trip setpoint has already been dropped to the required value for 1 safety valve being inoperable. Plausible because the governor valves would have throttled open to maintain load if the turbine controls had been in 'IMP IN' and an additional lowering of the setpoint would have been required if the 2<sup>nd</sup> inoperable valve was on the same steam generator.*
- B. *Incorrect, The turbine load would not have remained constant because in IMP OUT the governor valves would not have throttled more open as the pressure dropped and no additional reduction in the setpoint would have to be made. The LCO allows for one safety valve on each steam generator (as stated in the Bases as '...the number of MSSVs per steam generator...'). With 1 on SG #4 and one on SG #2 there in only 1 per generator and the trip setpoint has already been dropped to the required value for 1 safety valve being inoperable. Plausible because the governor valves would have throttled open to maintain load if the turbine controls had been in 'IMP IN' and NO additional change in the trip setpoint is correct.*
- C. *Incorrect, The leakage results in a reduction in steam pressure and with the turbine control in IMP OUT the governor valves will not move causing a lower impulse pressure and steam flow through the turbine. An additional reduction in the setpoint would not have to be made. The LCO allows for one safety valve on each steam generator (as stated in the Bases as '...the number of MSSVs per steam generator...'). With 1 on SG #4 and one on SG #2 there in only 1 per generator and the trip setpoint has already been dropped to the required value for 1 safety valve being inoperable. Plausible because the turbine load decrease is correct and an additional lowering of the setpoint would have been required if the 2<sup>nd</sup> inoperable valve was on the same steam generator.*
- D. *Correct, The leakage results in a reduction in steam pressure and with the turbine control in IMP OUT the governor valves will not move causing a lower impulse pressure and steam flow through the turbine. LCO allows for one safety valve on each steam generator (as stated in the Bases as '...the number of MSSVs per steam generator...'). With 1 on SG #4 and one on SG #2 there in only 1 per generator and the trip setpoint has already been dropped to the required value for 1 safety valve being inoperable.*

Question Number: 88

Tier: 2 Group 1

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**K/A:** 039A2.02  
Main and Reheat Steam System (MRSS)  
Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
(Decrease in turbine load as it relates to steam escaping from relief valves)

**Importance Rating:** 2.4 / 2.7\*

**10 CFR Part 55:** 41.5 / 43.5 / 45.3 / 45.13

**10CFR55.43.b:** 2

**K/A Match:** Questions requires the applicant to predict the impact of a leaking safety valve as it relates to turbine load and then applying the procedural action to mitigate the event to conditions allowed to be in compliance with the Technical Specification as identified clarified in the bases.

**Technical Reference:** Technical Specification LCO 3.7.1.1 Amendment 301 and Bases, Amendment 275

**Proposed references to be provided:** None

**Learning Objective:** OPT200.MS  
B.5. Describe the operation of the Main Steam System as it pertains to the following:  
d. How a component failure will affect system operation  
B.6. Describe the administrative controls and limits for the Main Steam System as explained in this lesson.  
a. State Tech Specs/TRM LCOs that govern Main Steam.  
c. Given the conditions status of the Main Steam components and the appropriate sections of the Tech Spec/TRM, determine if operability requirements are met and what actions are required.

**Question Source:**

<b>New</b>	_____
<b>Modified Bank</b>	<u>  X  </u>
<b>Bank</b>	_____

**Question History:** SQN bank question MS 004 modified.

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Source: BANK MOD  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank: SQN  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

064 A2.16 089

Given the following plant conditions:

- Both Unit 1 and Unit 2 are at 100% power.
- Diesel Generator 1A-A is paralleled to the grid and loaded to rated load for a surveillance.
- A Loss of Offsite Power occurs.
- The 6.9 Kv Shutdown Board 1A-A Emergency Feeder Breaker 1912 overcurrent (50) relay actuates.
- Transmission Operator reports that offsite power restoration will take 1 hour.

Which ONE of the following describes ...

(1) the effect of the 50 overcurrent relay actuating,

and

(2) the correct Radiological Emergency Plan (REP) declaration?

**REFERENCE PROVIDED**

(1) <u>Status of SD Boards</u>	(2) <u>REP EPIP Status</u>
A. Breaker 1912 would trip, and Blackout sequencing would occur.	ALERT
B✓ Breaker 1912 would trip, and blackout sequencing would occur.	NOUE
C. Diesel Generator would trip and Breaker 1912 would trip and lockout.	ALERT
D. Diesel Generator would trip and Breaker 1912 would trip and lockout.	NOUE

**QUESTIONS REPORT**  
for 2010 Feb SRO exam  
**DISTRACTOR ANALYSIS:**

- A. *Incorrect, the relay operation would allow the board to load shed and the non accident loads to sequence back on but an Alert is not warranted. Plausible because if the overcurrent relay was determined to affect the DG operability, then the required "additional a single failure" (the other Shutdown board failure) as identified in the EAL would result in meeting Alert criteria.*
- B. *Correct, the overcurrent relay will cause the feeder breaker to open, allowing the shutdown board to load shed. Then the DG would re-connected back to the board allowing the blackout relays to sequence the non accident load back on. With offsite power loss lasting greater than 15 minutes, the EPIP declaration required is an NOUE.*
- C. *Incorrect, the diesel would not be tripped, only the breaker would be open to allow load shedding to occur and EPIP declaration would not be an Alert. Plausible because the overcurrent condition causes an electrical relay operation and typically overcurrent relay operations associated with faults and if overcurrent relay was determined to affect the DG operability, then the required "additional a single failure" (the other Shutdown board failure) as identified in the EAL would result in meeting Alert criteria.*
- D. *Incorrect, the diesel would not be tripped, only the breaker would be open to allow load shedding to occur and the EPIP declaration would be an NOUE. Plausible because the overcurrent condition causes an electrical relay operation and typically overcurrent relay operations associated with faults and because the NOUE being required is correct.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 89

**Tier:** 2 **Group** 1

**K/A:** 064 A2.16  
Emergency Diesel Generator (ED/G) System  
Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
Loss of offsite power during full-load testing of ED/G

**Importance Rating:** 3.3 / 3.7

**10 CFR Part 55:** 41.5 / 43.5 / 45.3 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** Question requires the applicant to predict the impact of an overcurrent relay being actuated due to the loss of offsite power while a diesel generator is being ran fully loaded for a surveillance test and then use procedures to identify the decalartion required by the resulting conditions in accordance with the Radiological Emergency Plan. SRO because the questions requires knowledge of the Radiological Emergency Plan implementation and ability to use the EPIPs.

**Technical Reference:** EPIP-1 Emergency Plan Classification Matrix, Rev 42  
1,2-45N765-2 R20

**Proposed references to be provided:** EPIP-1 Emergency Plan Classification Matrix, page 21 of 47.

**Learning Objective:** OPT200.DG  
B.4. Describe the following items for each major component in the Diesel Generator System:  
e. Component operation  
i. Protective features (including setpoints)

**Question Source:**

<b>New</b>	<u>X</u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:** NEW

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

1. 073 A2.02 090/BANK MOD/TURKEY POINT 08/LOWER//SRO/SEQUOYAH/2/2010/NO

Given the following

- Unit 1 at 100% power with Steam Generator Blowdown (SGBD) in service to the Cooling Tower Blowdown.
- Steam Generator Blowdown (SGBD) Radiation Monitor 1-RM-90-120 is out of service awaiting parts for repair.
- The following alarm is received:  
    "1-RA-120/121B STM GEN BLDN LIQ SAMP MON INSTR MALFUNC"
- Operators determine 1-RM-90-121 has failed and can **NOT** be returned to service.

Which ONE of the following identifies ...

- (1) how the SGBD system will be affected by the radiation monitor failure
- and
- (2) the criteria that determines the frequency of sampling required by the ODCM?
- A. (1) SGBD flow would continue to the Cooling Tower Blowdown.  
    (2) The SGBD flow rate.
- B✓ (1) SGBD flow would continue to the Cooling Tower Blowdown.  
    (2) Specific activity of the secondary coolant.
- C. (1) SGBD flow would be automatically rerouted to the Condensate system.  
    (2) The SGBD flow rate.
- D. (1) SGBD flow would be automatically rerouted to the Condensate system.  
    (2) Specific activity of the secondary coolant.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, the instrument malfunction on the in-service radiation monitor not changing the SGBD flow path but the frequency of sampling with both radiation monitors out of service is not based on the blowdown flowrate. Plausible because not re-routing the flow path is correct and flow rate is used in this ODCM for other reasons.*
- B. *Correct, the instrument malfunction on the in-service radiation monitor will not change the SGBD flow path and the frequency of sampling with both radiation monitors out of service is based on the specific activity of the blowdown.*
- C. *Incorrect, the instrument malfunction on the in-service radiation monitor will not change the SGBD flow path to the condensate system and the frequency of sampling with both radiation monitors out of service is not based on the blowdown flowrate. Plausible because a high radiation condition would re-route the flow path and flow rate is used in this ODCM for other reasons.*
- D. *Incorrect, the instrument malfunction on the in-service radiation monitor will not change the SGBD flow path to the condensate system but the frequency of sampling with both radiation monitors out of service is based on the specific activity of the blowdown. Plausible because a high radiation condition would re-route the flow path and the required frequency of the sampling being based on the specific activity of the blowdown is correct.*

**Question Number:**   90  

**Tier:**   2   **Group**   1  

**K/A:** 073 A2.02  
Process Radiation Monitoring (PRM) System  
Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
Detector failure

**Importance Rating:** 2.7 / 3.2

**10 CFR Part 55:** 41.5 / 43.5 / 45.3 / 45.13

**10CFR55.43.b:** 2

**K/A Match:** Applicant is required to predict the affect of the failure of both radiation monitors on the SGBD system and then use the ODCM to determine sampling requirements. SRO question because it requires

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**K/A Match:** Applicant is required to predict the affect of the failure of both radiation monitors on the SGBD system and then use the ODCM to determine sampling requirements. SRO question because it requires knowledge of ODCM Action requirements.

**Technical Reference:** SQN ODCM, 1/2/.1.1, Rev 55  
1-SO-15-1, S/G Blowdown In Service Via The Heat Exchangers, Rev 42  
0-AR-M12-A, Unit 1 and Common Radiation Monitor  
0-XA-55-12-A, Rev 52

**Proposed references to be provided:** None

**Learning Objective:** OPT200.SGBD  
B.5. Describe the operation of the SGBD system:  
c. Alarms and alarm response  
d. How a component failure will affect system operation  
B.6. Describe the administrative controls and limits for the SGBD system:  
a. State Tech Specs/TRM LCOs that govern the SGBD

**Question Source:**  
New   X    
Modified Bank         
Bank       

**Question History:** Question modified from a Turkey Point 08 exam question.

**Comments:**

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

028 A2.03 091

Given the following:

- A vapor space LOCA occurred on Unit 1.
- Some fuel damage was experienced during the accident.
- The LOCA has been stopped and the Safety Injection has been terminated.

The operating crew has transitioned to FR-I.3, "Voids in the Reactor," and is currently addressing the steps to prepare for and execute venting the reactor vessel.

The following conditions are reported to exist:

- PRT pressure is 5 psig.
- Containment hydrogen concentration is 6.3%.
- Containment Pressure is 0.29 psid.
- Neither Air Return Fan is available.

Which ONE of the following identifies ...

- (1) the actions directed by the procedure relative to Hydrogen Recombiner operation
- and
- (2) the correct action associated with vessel venting?

<u>Hydrogen Recombiner</u>	<u>Reactor Vessel Venting</u>
A. Would be placed in service.	Vent the vessel before transitioning from FR-I.3.
B. Would be placed in service.	Make transition from FR-I.3 without venting the reactor vessel.
C. Would <b>NOT</b> be placed in service.	Vent the vessel before transitioning from FR-I.3.
D. Would <b>NOT</b> be placed in service.	Make transition from FR-I.3 without venting the reactor vessel.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS**

- A. *Incorrect, the hydrogen concentration is above the limit for placing the recombiner in service for venting the vessel. Plausible because the recombiner would be place is service if the hydrogen concentration had been between 3.0% and 6.0% and with the PRT not ruptured the vessel venting would be to the PRT, not to the containment atmosphere.*
- B. *Incorrect, the hydrogen concentration is above the limit for placing the recombiner in service for venting the vessel. Plausible because the recombiner would be place is service if the hydrogen concentration had been between 3.0% and 6.0% and not venting the reactor vessel correct*
- C. *Incorrect, the recombiner would not be placed in service but the vessel would not be vented. Plausible because not placing the recombiner in service is correct and with the PRT not ruptured the vessel venting would be to the PRT and not to the containment atmosphere.*
- D. *Correct, the recombiner would not be placed in service and FR1.3 would be transitioned from without venting the vessel. The hydrogen concentration in containment is above the maximum allowed to place the recombiners in service and also above the maximum allowed to vent the reactor vessel.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:**   91  

**Tier:**   2   **Group**   2  

**K/A:** 028 A2.03

Hydrogen Recombiner and Purge Control System (HRPS)  
Malfunctions or operations on the HRPS; and (b) based on those  
predictions, use procedures to correct, control or mitigate the  
consequences of those malfunctions or operations:

[The hydrogen air concentration in excess of limit flame propagation or  
detonation with resulting equipment damage in containment . ]

**Importance Rating:** 3.4 / 4.0

**10 CFR Part 55:** 41.5 / 43.5 / 45.3 / 45.13

**10CFR55.42.b:** 5

**K/A Match:** Question requires the applicant to recognize that the hydrogen  
concentration is high enough to cause detonation with resulting  
equipment damage in containment if the Recombiner were to be  
placed in service when the procedure addresses the recombinder  
operation and recognize the procedure requirements will prevent  
placing of the recombinder in operation.

**Technical Reference:** FR-I.3, Voids in Reactor Vessel, Rev 11

**Proposed references  
to be provided:** None

**Learning Objective:** OPL271FR-I.3  
4. Describe the bases for all limits, notes, cautions, and  
steps of FR-I.3.  
5. Describe the conditions and reason for transitions  
within this procedure and transitions to other  
procedures.

**Question Source:**

<b>New</b>	<u>  X  </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	SEQUOYAH
Date:	2/2010	Last 2 NRC?:	NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

055 G 2.1.20 092

Given the following:

- Unit 1 is operating at 100% power.
- Steam Generator Blowdown is out of service to repair a leak.
- SG #4 has an 8.5 gpd identified steam generator tube leak.
- The operating crew is performing AOP-R.01, "Steam Generator Tube Leak," Section 2.2 "Steam Generator Leak Monitoring" to monitor the leak rate.
- Condenser Vacuum Pump Rad Monitor, 1-RM-90-119, indicates a substained increase in the leak rate to 83 gpd.

Which ONE of the following actions is required in response to the indicated rise in the leak rate?

- A. If leak rate confirmed by chemistry sample, then trip reactor and reduce Tav<sub>g</sub> to less than 500°F within the next 6 hours.
- B. Trip reactor and reduce Tav<sub>g</sub> to less than 500°F within the next 6 hours without waiting for sample results to confirm the increase.
- C. After the leak rate is confirmed by the next chemistry sample, initiate a power reduction to be less than 50% power within the next hour and be in Mode 3 within the next 2 hours.
- D✓ Initiate a power reduction to reduce power to less than 50% power within the next hour and be in Mode 3 within the next 2 hours without waiting for sample results to confirm the increase.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, a chemistry sample is not required prior to initiation of action and a reactor trip would only be required if the leak rate got much larger (or GPD was mistaken for gpm is in the question) The actions required do not include dropping Tavg to less than 500°F within six hours. Plausible because Chemistry conformation is used in other conditions, leakage at higher values would require a reactor trip and being below 500°F is required if RCS activity is elevated in conjunction with a tube leak*
- B. *Incorrect, reactor trip is not required due to the leak rate but would be if the rate continued to rise (or GPD was mistaken for gpm is in the question) and the Tavg is not required to be dropped to less than 500°F within six hours. Plausible because leakage at higher values would require a reactor trip and being below 500°F is required if RCS activity is elevated in conjunction with a tube leak*
- C. *Incorrect, the initiation of the power reduction would not be delayed awaiting conformation by chemistry. AOP-R.01 directs the initiation of the shutdown based on the single rad monitor. Plausible because Chemistry conformation is used in other conditions prior to the initiation of actions.*
- D. *Correct, With the magnitude of the increase, Note 1 of Appendix B. AOP-R.01 directs the required actions to shutdown the unit be initiated based on the one available rad monitor if the increase puts the unit in Action Level 3, (Leak rate in any one SG is greater than or equal to 75 gpd).*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 92

**Tier:** 2 **Group** 2

**K/A:** 055 G 2.1.20  
Condenser Air Removal System  
Ability to interpret and execute procedure steps.

**Importance Rating:** 4.6 / 4.6

**10 CFR Part 55:** 41.10 / 43.5 / 45.12

**10CFR55.43.b:** 5

**K/A Match:** Question requires the applicant to determine the actions required (interpret and execute) in accordance with the procedure in effect when conditions change associated with the Condenser Air Removal System radiation monitor.

**Technical Reference:** AOP-R.01, Steam Generator Tube Rupture, Rev 26

**Proposed references to be provided:** None

**Learning Objective:** OPL271AOP-R.01  
4. Upon entry into AOP-R.01, diagnose the applicable condition and transition to the appropriate procedural section for response.

**Question Source:**

**New**   X    
**Modified Bank** \_\_\_\_\_  
**Bank** \_\_\_\_\_

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

075 A2.01 093

Given the following:

- Unit 1 is in Mode 4 with RCS at 340°F.
- Unit 2 is at 100% power.
- The operating crew has just been informed of a failure of the Chickamauga Dam.
- AOP-N.04, "Break of Downstream Dam," is implemented.
- Lake level is currently at EI 676'.

Which ONE of the following identifies the action that should be initiated on each unit?

- A✓ Initiate shutdown of Unit 2 in accordance with AOP-C.03, "Rapid Shutdown or Load Reduction," due to CCW pumps being lost when level drops to EI 668'. Initiate cooldown on Unit 1 at the maximum allowable rate to achieve RHR cooling.
- B. Initiate shutdown of Unit 2 in accordance with AOP-C.03, "Rapid Shutdown or Load Reduction," due to CCW pumps being lost when level drops to EI 668'. Stop RCS cooldown on Unit 1 and establish steady state conditions using Steam Generators for heat sink via the Atmospheric Relief Valves.
- C. Manually Trip Unit 2 and enter E-0, "Reactor Trip or Safety Injection" and stop the CCW pumps to prevent loss of suction for the Flood Mode Fire pumps. Initiate cooldown on Unit 1 at the maximum allowable rate to achieve RHR cooling.
- D. Manually Trip Unit 2 and enter E-0, "Reactor Trip or Safety Injection" and stop the CCW pumps to prevent loss of suction for the Flood Mode Fire pumps. Stop RCS cooldown on Unit 1 and establish steady state conditions using Steam Generators for heat sink via the Atmospheric Relief Valves.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Correct, With the lake at the current level, the AOP directs the operating Unit to be shutdown using the rapid shutdown AOP (with a cooldown to follow.) It also directs the units be cooled at the maximum allowable rate to reach RHR conditions. Thus with unit 2 operating , it would be shutdown using the AOP and Unit1 already being shutdown, would have a cooldown initiated at the maximum allowable rate.*
- B. *Incorrect, Unit 2 would be shutdown using AOP-C.03, but the temperature on Unit 1 would not be stabilized using the SG atmospheric relief valves. Plausible because the action initiated on Unit 2 is correct and stabilizing temperature using the SG Atmospheric relief valves is a method of maintaining g the plant during events where the RHR system has been lost or is not available*
- C. *Incorrect, Unit 2 would be shutdown (not tripped, unless the lake level was lower) but a cooldown at the maximum allowable rate on Unit 1 would be initiated to get the unit on RHR cooling. Plausible because the unit would be tripped if the lake level were lower and the Flood Mode Fire pump suction is a concern with action identified to protect the pump suction in the procedure and initiating a cooldown at the maximum allowable rate to get Unit 1 on RHR is correct.*
- D. *Incorrect, Unit 2 would be shutdown (not tripped, unless the lake level was lower) but a cooldown at the maximum allowable rate on Unit 1 would be initiated to get the unit on RHR cooling but the temperature on Unit 1 would not be stabilized using the SG atmospheric relief valves. Plausible because the unit would be tripped if the lake level were lower and the Flood Mode Fire pump suction is a concern with action identified to protect the pump suction in the procedure and stabilizing temperature using the SG Atmospheric relief valves is a method of maintaining the plant during events where the RHR system has been lost or is not available.*

**Question Number:**   93  

**Tier:**   2   **Group**   2  

**K/A:** 075 A2.01  
Circulating Water System  
Ability to (a) predict the impacts of the following malfunctions or operations on the circulating water system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
Loss of intake structure

**Importance Rating:** 3.0\* / 3.2

**10 CFR Part 55:** 41.5 / 43.5 / 45.3 / 45.13

**10CFR55.43.b:** 5

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**K/A Match:** Question requires knowledge of when the Condenser Circulating Water pumps would lose suction if a downstream dam break caused the loss of the intake structure.  
SRO because the question requires knowledge of actions required by the implemented procedure that includes different actions directed and procedures to required to be implemented on each of the units due to different states of operation.

**Technical Reference:** AOP-N.04, Break of Downstream Dam, Rev 8

**Proposed references to be provided:** None

**Learning Objective:** OPL271AOP-N.04  
B.2. Describe the AOP-N.04 entry conditions.  
a. Describe the setpoints, interlocks, and automatic actions associated with AOP-N.04 entry conditions.  
b. Describe the ARP requirements associated with AOP-N.04 entry conditions.

**Question Source:**

New	<u>  X  </u>
Modified Bank	<u>      </u>
Bank	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.1.26 094

Given the following:

- A section of caustic piping between the caustic tank and the condensate demin regeneration system is to be replaced.
- A clearance is to be placed on the section of piping.

Which ONE of the following identifies...

(1) the requirement if there is only one valve in the flow path for isolation of the piping section coming from the caustic tank

and

(2) the tagging process that would control the activity?

- A. (1) Operations Manager and Maintenance Manager approval is required to be documented on the clearance prior to issuing.  
(2) in accordance with SPP-10.2, "Clearance Procedure to Safely Control Energy."
- B. (1) the single valve used for isolation must be closed and mechanically restrained ...  
(2) in accordance with MMDP-12, "Lockout/ Tagout."
- C✓ (1) The lack of two valve isolation shall be clearly documented and communicated to the proposed clearance holder before issue.  
(2) in accordance with SPP-10.2, "Clearance Procedure to Safely Control Energy."
- D. (1) A vent or drain valve within the Tagout/Lockout zone must be blocked and tagged in the open position with a danger tag as a part of the Tagout/Lockup.  
(2) in accordance with MMDP-12, "Lockout/ Tagout."

**QUESTIONS REPORT**  
for 2010 Feb SRO exam  
**DISTRACTOR ANALYSIS:**

- A. *Incorrect, Operation Manager and Maintenance Manager approval is not required to be documented on the clearance prior to issuing but SPP-10.2 is the controlling procedure. Plausible because the approval of both managers is required to release a clearance in the absence of the PAE who is holding a clearance and SPP-10.2 is the controlling procedure.*
- B. *Incorrect, the single valve used for isolation being closed and mechanically restrained is not required due to there being only one valve and MMDP-12 is not the controlling procedure. Plausible because closing and mechanically restraining a valve is applicable in other conditions in MMDP-12 and MMDP is the procedure for controlling clearance on equipment not under the control of the Shift Manager and the listing of such equipment includes some chemical systems and components.*
- C. *Correct, SPP-10.2, Appendix E, I. states "Clearances for work on high energy systems (operate with temperature greater than 200°F or pressure greater than 500 psig), lethal chemical systems, or systems connected to high energy systems shall, when possible isolate the work area by two closed valves in series. If equipped, a tell-tale vent or drain between the isolation valves should be opened. Lack of two valve isolation shall be clearly documented and communicated to the proposed clearance holder before issue" and the equipment is under the control of the shift Manager therefore SSP-10.2 controls the tagout.*
- D. *Incorrect, a vent of drain valve within the zone can be opened and tagged but MMDP-12 is not the controlling procedure. Plausible because the MMDP does identify the requirements of the Safety and Safety Manual Procedure 615 are to be met and this procedure discuss the opening of vents valve but between two isolation valves not in the clearance zone and MMDP is the procedure for controlling clearance on equipment not under the control of the Shift Manager and the listing of such equipment includes some chemical systems and components.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 94

**Tier:** 3 **Group** n/a

**K/A:** G 2.1.26  
Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen).

**Importance Rating:** 3.4 / 3.6

**10 CFR Part 55:** 41.10 / 45.12

**10CFR55.43.b:** 5

**K/A Match:** Applicant must identify the a requirement for properly applying a clearance to establish safe working conditions and which of the plant procedure would be applicable for work on a caustic header.

**Technical Reference:** SPP-10.2, Clearance Procedure to Safely Control Energy, Rev 0013  
MMDP-12, Lockout/Tagout, Rev 0004  
TVA Health and Safety Manual, Procedure 615, Hazardous Energy Control, Lockout/Tagout (LOTO), Rev 0

**Proposed references to be provided:** None

**Learning Objective:** OPL271SPP-10.2  
6. List the conditions that require two closed valves in series (double valve isolation) for mechanical clearances.

**Question Source:**  
**New** X  
**Modified Bank** \_\_\_\_\_  
**Bank** \_\_\_\_\_

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: LOWER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.1.29 095

Given the following:

- Unit 2 is in Mode 5 with final preparations being made to enter Mode 4.
- AUO performing valve checklist on the 1A diesel generator reports that the manual isolation valve to the #1 air start motors on the 1A1 engine (0-82-516-1A1) is closed.
- Authorization to reposition the valve has been granted.

Which ONE of the following identifies...

- (1) the verification requirement when repositioning 0-82-516-1A1,  
and
- (2) if it is determined that the valve is stuck shut, can TS 3.0.4(b) be applied in accordance with 0-TI-OPS-000-911.0, "Instructions for Using TS/TR 3.0.4(b)," to support entering Mode 4?

<u>Verification method</u>	<u>3.0.4(b) Applicability</u>
A. Concurrent Verification	can be applied
B. Concurrent Verification	can <b>NOT</b> be applied
C. Independent Verification	can be applied
D. Independent Verification	can <b>NOT</b> be applied

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, concurrent verification is not the verification method use on diesel generators systems and the use of the provisions of TS 3.0.4.b is not allowed for a DG being inoperable. Plausible because concurrent Verification is the verification method use in other applications and use of TS 3.0.4.b is allowed for Mode changes in other applications.*
- B. *Incorrect, concurrent verification is not the verification method use on diesel generators systems but use of the provisions of TS 3.0.4.b being not allowed for a DG being inoperable is correct. Plausible because concurrent Verification is the verification method use in other applications and use of TS 3.0.4.b not being allowed for Mode changes with a DG inoperable is correct.*
- C. *Incorrect, Independent verification is required for system alignment on the DG systems but the provisions of TS 3.0.4.b is not allowed for a DG being inoperable. plausible because Independent verification is correct and use of TS 3.0.4.b is allowed for Mode changes in other applications.*
- D. *Correct, Independent verification is required for system alignment on the DG systems and the diesel generators are components where the use of TS 3.0.4.b is not allowed for entering Mode 4 from Mode 5.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 95

**Tier:** 3 **Group** n/a

**K/A:** G 2.1.29  
Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.

**Importance Rating:** 4.1 / 4.0

**10 CFR Part 55:** 41.10 / 45.1 / 45.12

**10CFR55.43.b:** 5

**K/A Match:** Applicant must know the requirements for relaxing control of valves, breakers, and switches and then know the process for re-establishing Status Control when a conflict exist between the checklist required position of a device and understand the restrictions on using T/s 3.0.4.b

**Technical Reference:** 0-TI-OPS-000-911.0, Instructions for Using TS/TR 3.0.4(b), Rev 0002  
0-SO-82-5, Diesel Generator 1A-A Support Systems Valve Checklist 0-82-5.02, date 05/04/07  
Technical Specifications, LCO 3/4-0, Amendment 312

**Proposed references to be provided:** None

**Learning Objective:** OPL271SPP-10.1  
3. Explain the requirements for a checklist to be completed as directed by SPP-10.1, "System Status Control", including  
c. Response to a component NOT in the specified position during performance of an Equipment Alignment Checklist (alignment deviations)

**Question Source:**

**New**   X    
**Modified Bank**         
**Bank**       

**Question History:**

**Comments:**

Source:	NEW	Source If Bank:	
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	SEQUOYAH
Date:	2/2010	Last 2 NRC?:	NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.2.12 096

Given the following:

- Unit 2 at 100% power.
- 2A-A Diesel Generator has just been declared inoperable.
- Performance of 0-SI-OPS-082-007.W, "AC Electrical Power Source Operability Verification," is required per Technical Specification LCO 3.8.1.1, A.C. Sources.

Which ONE of the following identifies...

(1) if the 25% extension time allowed by SR 4.0.2 can be applied to the first performance of 0-SI-OPS-082-007.W

and

(2) if failure to perform 0-SI-OPS-082-007.W within the time allowed is reportable in accordance with SPP-3.5, "Regulatory Reporting Requirements?"

A. (1) Extension time can be applied.  
(2) Reportable as a license violation.

B✓ (1) Extension time can **NOT** be applied.  
(2) Reportable as a license violation.

C. (1) Extension time can be applied.  
(2) Reportable only if the provisions of SR 4.0.3 are **NOT** met.

D. (1) Extension time can **NOT** be applied.  
(2) Reportable only if the provisions of SR 4.0.3 are **NOT** met.

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, Applying the extension time is not allowed for the first performance of the surveillance procedure. The surveillance must be completed within the time specified in the LCO and if the SI is not completed within the time allowed, then the condition is reportable as a license violation. Plausible because the 25% maximum extension time is standard for most surveillance requirements and being reportable as a license violation is correct.*
- B. *Correct, The first performance of the action statements must be completed within the time identified in the LCO Action section to comply with Tech Spec and if the SI is not completed within the time required the condition is reportable as a license violation.*
- C. *Incorrect, Applying the extension time is not allowed for the first performance of the surveillance procedure. The surveillance must be completed within the time specified in the LCO and if the SI is not completed within the time allowed, then the condition does not allow the use of SR-4.0.3. Plausible because the 25% maximum extension time is standard for most surveillance requirements and SR-4.0.3 can be used to delay calling equipment inoperable when discovery of a missed surveillance is identified.*
- D. *Incorrect, while the 25% maximum extension time can not be applied to the first performance of the surveillance, the provisions of SR-4.0.3 also can not be used to to delay declaring equipment inoperable.. Plausible because not applying the extension time to the first performance is correct and SR-4.0.3 can be used to delay calling equipment inoperable when discovery of a missed surveillance is identified.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 96

**Tier:** 3 **Group** n/a

**K/A:** 2.2.12  
Knowledge of surveillance procedures.

**Importance Rating:** 3.7 / 4.1

**10 CFR Part 55:** 41.10 / 45.13

**10CFR55.43.b:** 2

**K/A Match:** Applicant is require to have knowledge of how to apply the surveillance procedure maximum extension timeallowed by Tech Spec 3.0.4 to a surveillance requirement required by a Tech Spec LCO.

**Technical Reference:** Technical Specifications

**Proposed references to be provided:** None

**Learning Objective:** OPT200.TS-Intro  
4. Explain the purpose of the Tech Spec Surveillance Requirements.

**Question Source:**

<b>New</b>	<u>X</u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: LOWER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.2.17 097

Given the following:

- Both Units in service at 100% power.
- Maintenance activities require removing the A-A ERCW traveling screen from service to support diving operations.

Which ONE of the following identifies...

(1) the Risk Level associated with diving operations in accordance with SPP-7.3, "Work Activity Risk Management Process"

and

(2) the operability impact on the ERCW system when the A-A ERCW traveling screen is removed from service?

<u>Risk Level</u>	<u>Operability Impact</u>
A. Medium	'A' train ERCW inoperable
B. Medium	'A' train ERCW operable
C. High	'A' train ERCW inoperable
D✓ High	'A' train ERCW operable

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, diving operations are not considered Medium Risk activities (they are High Risk activities) and the Train A ERCW is not inoperable as result of the diving activity even though 2 ERCW pumps are required to be removed form service to support the activity. Plausible because there are activities designated as Medium Risk activities and conditions on the Train A of ERCW will have 2 of the ERCW pumps removed from service.*
- B. *Incorrect, diving operations are not considered Medium Risk activities (they are High Risk activities) but the Train A ERCW does remain operable during the diving activity even though 2 ERCW pumps are required to be removed form service to support the activity. Plausible because there are activities designated as Medium Risk activities and the ERCW Train A remaining operable is correct.*
- C. *Incorrect, diving operations are High Risk activities but the Train A ERCW is not inoperable as result of the diving activity even though 2 ERCW pumps are required to be removed form service to support the activity. Plausible because diving operations are High Risk activities and conditions on the Train A of ERCW will have 2 of the ERCW pumps removed from service.*
- D. *Correct, all diving operations are considered as High Risk activities in accordance with SPP-7.3 and the Train A of the ERCW system remains operable during the activity even though 2 of the ERCS pumps as well as the screen would be removed from service to support the diving activity.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:**   97  

**Tier:**   3   **Group**   n/a  

**K/A:** G 2.2.17

Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, and coordination with the transmission system operator.

**Importance Rating:** 2.6 / 3.8

**10 CFR Part 55:** 41.10 / 43.5 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** Question requires knowledge of the responsibilities of SROs during the process by which risk assessments are properly conducted for maintenance activities to be performed with the unit on-line.

**Technical Reference:** SPP-7.3, Work Activity Risk Management Process, Rev 0004

**Proposed references to be provided:** None

**Learning Objective:** OPL271SPP-7.0  
10. Describe the plant activities that require a risk assessment

**Question Source:**

<b>New</b>	<u>  X  </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: LOWER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.3.5 098

Given the following:

- Unit 1 was operating at a 100% power when a LOCA occurred.

Which ONE of the following identifies both:

- 1) how many of the fission product barriers in EPIP-1, "Emergency Plan Classification Flowchart," utilize 1-RE-90-273 and 274, Upper Containment Radiation Monitors in determining the barrier status

AND

- 2) a condition which could affect the accuracy of the monitors?

<u>Fission Product Barrier</u>	<u>Condition Affecting Upper Containment Radiation Monitors</u>
--------------------------------	---

- |    |                         |  |
|----|-------------------------|--|
| A. | 1<br>(Fuel Clad)        | When a rapid change in containment temperature is in progress. |
| B. | 1<br>(Fuel Clad)        | When a rapid change in containment pressure is in progress.    |
| C✓ | 2<br>(CNMT & Fuel Clad) | When a rapid change in containment temperature is in progress. |
| D. | 2<br>(CNMT & Fuel Clad) | When a rapid change in containment pressure is in progress.    |

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect. The monitors appear in 2 of the barriers, not just one. Plausible, because the containment radiation monitors are temperature sensitive, being affected by either a rapid increase or decrease in containment temperature. However, applicant fails to conclude that not only is the containment fission product barrier potentially affected, but also these monitors function to provide indication of failed fuel; a second fission product barrier.*
- B. *Incorrect. The monitors appear in 2 of the barriers, not just one. Many sensors and instruments not only in containment, but throughout the plant, are affected by pressure in their environment. Plausible, if student thinks that containment pressure affects these monitors and does not recall that the monitors are in 2 barriers.*
- C. *Correct, EPIP-1, "Emergency Plan Classification Flowchart," Section 1.3 "Containment Barrier" contains a note explaining the effect that containment temperature has on the containment radiation monitors. Further, these monitors are evaluated in the loss of fuel cladding barrier, and a potential loss of the containment fission product barrier.*
- D. *Incorrect. Plausible because the given readings on these monitors is indicative of loss or potential loss of two fission product barriers (fuel cladding barrier, and containment fission product barrier). Second part is also plausible, but incorrect, because many sensors and instruments not only in containment, but throughout the plant, are affected by pressure in the environment they are in. Plausible, if student thinks that containment pressure affects these monitors.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 98

**Tier:** 3 **Group** n/a

**K/A:** G 2.3.5 Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

**Importance Rating:** 3.1

**10 CFR Part 55:** CFR: 41.12 / 43.4 / 45.9

**10CFR55.43.b:** (4)

**K/A Match:** Applicant is required to know how radiation monitors are used in the implementation of the Radiological Emergency Plan and conditions that would affect the accuracy of the instrument.

**Technical Reference:** EPIP-1, Section 1.3 "Containment Barrier," including Note 5.

**Proposed references to be provided:** None

**Learning Objective:** OPL271REP B.3

**Question Source:**

<b>New</b>	<u>      </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>  X  </u>

**Question History:** WBN Bank question

**Comments:** Modified stem

Source: BANK  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank: WBN BANK  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.4.12 099

Given the following:

- Both units are at 100% power.
- Operating crew staffing is at the minimum level for all classifications.
- A Medical Emergency occurs and the Unit Supervisor with Incident Commander duties reports to the local scene.
- A lightning strike causes Unit 1 to trip and load to be reduced on Unit 2 due to equipment failures.
- The Shift Manager recalls the Unit Supervisor with Incident Commander duty to the Main Control Room to ensure adequate supervision of both units is available.

Which ONE of the following identifies how the functions of the Incident Commander would continue to be performed?

- A. A Unit Operator would assume the Incident Commander functions and perform them from the Main Control Room as directed in OPDP-1, "Conduct of Operations."
- B. The Unit Supervisor would continue to perform the Incident Commander functions from the Main Control Room as directed in EPM-4, "User's Guide."
- C. The Level 2 AUO designated as Fire Brigade would assume the Incident Commander functions locally at the accident scene as directed by the SQN Fire Protection Report Part II.
- D. The Maintenance Shift Supervisor would assume the Incident Commander functions locally at the accident scene as directed in OPDP-9, "Emergent Issue Response."

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, Plausible while the function would be continued from the main control Room, a unit Operator would not be directed to assume and perform the duties. Also the reference is wrong for this action.*
- B. *Correct, as identified in EPM-4, User's Guide, "In the event of a fire or medical emergency with Unit Supervisors at the minimum crew staffing level, the Shift Manager may recall the Incident Commander (IC) to the MCR if necessary to mitigate the events in progress and to provide adequate supervision of both units. If the IC is recalled to the MCR, the functions of the IC should be performed from the MCR."*
- C. *Incorrect, Plausible since the Level 2 AUO designated for fire brigade would be available to participate with medical response and rescue activities, but could not assume the Incident Commander functions since they are not Senior Licensed. Also the reference is not correct.*
- D. *Incorrect, Plausible since the Maintenance Shift Supervisor would be involved in responding to emergent issues, however the Incident Commander is required to be a Senior Licensed individual the Maintenance Shift Supervisor could not assume the duties of the Incident Commander but does have duties during emergency operations.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 99

**Tier:** 3 **Group** n/a

**K/A:** G2.4.12  
Knowledge of general operating crew responsibilities during emergency operations.

**Importance Rating:** 4.0 / 4.3

**10 CFR Part 55:** 41.10 / 45.12

**10CFR55.43.b:** 43.5

**K/A Match:** Questions requires the knowledge of how the incident Commander duties are fulfilled if conditions require recalling the incident commander to the MCR during an emergency.

**Technical Reference:** EPM-4, User's Guide, Rev 20

**Proposed references to be provided:** None

**Learning Objective:** OPL271EPM-4  
B.9 Identify general operating crew responsibilities during emergency operations including appropriate implementation of prudent operator actions.

**Question Source:**

<b>New</b>	<u>X</u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>      </u>

**Question History:**

**Comments:**

Source: NEW  
Cognitive Level: LOWER  
Job Position: SRO  
Date: 2/2010

Source If Bank:  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

G 2.4.6 100

Given the following:

- Unit 1 has tripped due to a LOCA.
- Due to equipment failures, FR-C.2, "Degraded Core Cooling," has been entered.
- A depressurization of the Steam Generators (S/Gs) is being performed in accordance with FR-C.2 when the STA reports a Red Path on "Pressurized Thermal Shock."

Which ONE of the following identifies the required action to be taken?

- A. Immediately transition to FR-P.1, "Pressurized Thermal Shock."
- B. Complete FR-C.2 and then transition to FR-P.1, "Pressurized Thermal Shock," if the red path still exists.
- C. Stop the S/G depressurization and if the red path does not clear, transition to FR-P.1, "Pressurized Thermal Shock".
- D. Complete the S/G depressurization and then transition to FR-P.1, "Pressurized Thermal Shock," if the red path still exists.

**DISTRACTOR ANALYSIS:**

- A. *Incorrect, The transition should be delayed but until FR-C.2 is complete. Plausible because the normal procedure usage would be to transition to a red path immediately if an orange path was being performed.*
- B. *Correct, there is a caution in FR-C.2 stating "The following step will cause accumulator injection which may cause a RED path condition in FR-P, Pressurized Thermal Shock Status Tree. FR-C.2 should be completed before transition to FR-P.1, Pressurized Thermal Shock."*
- C. *Incorrect, The transition should not be immediately made, but the action is not to stop the S/G depressurization to determine if the red path would clear before making the transition.) Plausible because the depressurization is the action causing the red path to exist..*
- D. *Incorrect, The transition should be delayed but until FR-C.2 is complete (not until the depressurization is complete.) Plausible if the applicant is aware of the caution but misapplies when the transition should be made.*

**QUESTIONS REPORT**  
for 2010 Feb SRO exam

**Question Number:** 100

**Tier:** 3 **Group** n/a

**K/A:** G 2.4.6  
Knowledge of EOP mitigation strategies.

**Importance Rating:** 3.7 / 4.7

**10 CFR Part 55:** 41.10 / 43.5 / 45.13

**10CFR55.43.b:** 5

**K/A Match:** Applicant is required to understand the mitigation strategy of the EOP Function Restoration Procedure being performed, the impact it will have on the challenge to another EOP Function Restoration Procedure and then prioritize which procedure would be implemented.

**Technical Reference:** FR-C.2, Degraded Core Cooling, Rev

**Proposed references to be provided:** None

**Learning Objective:** OPL271FR-C.2

3. Summarize the mitigating strategy for the failure that initiated entry into FR-C.2.
4. Describe the bases for all limits, notes, cautions, and steps of FR-C.2.
5. Describe the conditions and reason for transitions within this procedure and transitions to other procedures.

**Question Source:**

<b>New</b>	<u>      </u>
<b>Modified Bank</b>	<u>      </u>
<b>Bank</b>	<u>  X  </u>

**Question History:** SQN question used on 2007 SQN audit exam

**Comments:** Minor wording changes and correct answer relocated.

Source: BANK  
Cognitive Level: HIGHER  
Job Position: SRO  
Date: 2/2010

Source If Bank: SQN  
Difficulty:  
Plant: SEQUOYAH  
Last 2 NRC?: NO