

QUESTIONS REPORT
for 2009 SRO Retake Exam

009 EA2.11 076

Given the following:

- A SGTR on SG #4 caused an automatic safety injection (SI) on Unit 2.
- E-3, "Steam Generator Tube Rupture" is being implemented.
- SI has just been terminated.

Subsequently, the crew observes the following:

- SG #1, #2 and #3 levels and pressures are stable.
- SG #4 level and pressure are lowering in an uncontrolled manner.
- Pressurizer level cannot be maintained.
- Containment pressure, temperature and humidity are rising.

Which ONE of the following identifies the required actions?

- A. Manually actuate Safety Injection, go to E-O, "Reactor Trip or Safety Injection."
- B. Manually establish ECCS flow, go to E-2, "Faulted Steam Generator Isolation."
- C✓ Manually establish ECCS flow, go to ECA-3.1, "SGTR and LOCA - Subcooled Recovery."
- D. Manually actuate Safety Injection, go to ECA-3.2, "SGTR and LOCA - Saturated Recovery."

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DISTRACTOR ANALYSIS:

- A. *Incorrect, the FOP for E-3 has the crew establish ECCS flow by manual pump start verses actuation of SI. This is plausible as it is common in other EOP procedures to have the SI signal actuated on deteriorating conditions. The correct procedure transition after establishing ECCS flow is to ECA-3.1, SGTR and LOCA - Subcooled Recovery. This is plausible as in other EOP procedures an SI actuation will return the crew to E-0.*
- B. *Incorrect, The first part of the distracter is plausible because it is correct. The second part is plausible because E-2 is a viable transition from E-3 via the FOP if one of the previous intact SGs became faulted. SG #4 is experiencing lowering level and pressure in the subsequent portion of the stem which is consistent with a SBLOCA and a fault on it. The key is that a faulted/ruptured SG will also require entry into ECA-3.1.*
- C. **CORRECT**, *The indications given in the stem are indicative that SI reinitiation criteria will be met based on PZR level criteria. The FOP for E-3 has the crew establish ECCS flow by manual pump start verses actuation of SI. The correct procedure transition after establishing ECCS flow is to ECA-3.1, SGTR and LOCA - Subcooled Recovery.*
- D. *Incorrect, the FOP for E-3 has the crew establish ECCS flow by manual pump start verses actuation of SI. This plausible as it is common in other EOP procedures to have the SI signal actuated on deterioration conditions. The second part of the distracter is plausible as ECA-3.2 may be a viable recovery procedure, but only after entering ECA-3.1 does it become an option.*

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Question No. 76

Tier 1 Group 1

K/A 009 EA2.11

Ability to determine or interpret the following as they apply to a small break
LOCA: Containment temperature, pressure and humidity

Importance Rating: 3.8 / 4.1

Technical Reference: E-3, Steam Generator Tube Rupture, Rev 17

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271.E-3 B.5
Describe the conditions and reason for transitions within this
procedure and transitions to other procedures.

Question Source:

Bank # _____
Modified Bank # _____X_____
New _____

Question History: SQN bank question 038 EA2.07 078 modified

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____X_____

10 CFR Part 55 Content: (43.5 / 45.13)

10CFR55.43.b (5)

Comments: SQN bank question 038 EA2.07 078 modified
Changed stem to include indications for a small break LOCA and require
knowledge of SI actuation criteria and method.
A distracter was changed to the correct answer.
Correct answer relocated

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015 AA2.11 077

Given the following:

- A LOCA has occurred on Unit 2.
- Due to equipment failures, a transition to FR-C.1, "Inadequate Core Cooling" was required.
- The Core Exit temperature is 1205°F and rising.
- Containment Pressure is 3.6 psig.
- All S/Gs are Intact with levels of...
 #1 #2 #3 #4
 9% NR 17% NR 26% NR 35% NR
- The crew is currently depressurizing the Intact S/Gs to atmospheric pressure.

Which ONE of the following identifies both:

- (1) the number of RCPs that will be started in accordance with FR-C.1 and
- (2) the minimum number of thermocouples reading above 1200°F required to make the transition to SACRG-1, Severe Accident Control Room Guideline Initial Response?"

	<u>RCPs running</u>	<u>Thermocouples</u>
A✓	2	At least 5 total
B.	2	At least 1 in each train
C.	3	At least 5 total
D.	3	At least 1 in each train

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DISTRACTOR ANALYSIS:

- A. *CORRECT, The conditions would result in 2 of the RCPs being started. Only loops #3 and #4 have the required minimum SG level to allow starting of the RCP in the loop. If the RCS temperature remained above 1200°F on at least 5 core exit thermocouples, then a transition to SACRG-1 would be made.*
- B. *Incorrect, 2 RCPs (Loops #3 and #4) would be started but the transition to SACRG-1 requires at least 5 core exit thermocouples (not 3) to be above 1200°F. Plausible because starting 2 RCPs to provide temporary cooling for the core is correct and because using redundant instrument loops for conformation is applied in other conditions (such as fire detection systems).*
- C. *Incorrect, only 2 RCPs (Loops #3 and #4) would be started because the SG levels are not above the minimum required in the other 2 but the transition to SACRG-1 does require at least 5 core exit thermocouples to be above 1200°F. Plausible because starting the RCPS can provide temporary cooling for the core and the #2 loop SG has level above the normal narrow range minimum but the adverse level setpoint must be used and because using redundant instrument loops for conformation is applied in other conditions (such as fire detection systems).*
- D. *Incorrect, only 2 RCPs (Loops #3 and #4) would be started because the SG levels are not above the minimum required in the other 2 but the transition to SACRG-1 requires at least 5 core exit thermocouples (not 3) to be above 1200°F. Plausible because starting the RCPS can provide temporary cooling for the core and the #2 loop SG has level above the normal narrow range minimum but the adverse level setpoint must be used and because using redundant instrument loops for conformation is applied in other conditions (such as fire detection systems).*

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Question No. 77

Tier 1 Group 1

K/A 015 AA2.11

Reactor Coolant Pump (RCP) Malfunctions

Ability to determine and interpret the following as they apply to
the Reactor Coolant Pump Malfunctions (Loss of RC Flow):

When to jog RCPs during ICC

Importance Rating: 3.4* / 3.8*

Technical Reference: FR-C.1, Inadequate Core Cooling, Rev. 12

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-C.1 B.3

Summarize the mitigating strategy for the failure that initiated
entry into FR-C.1

Question Source:

Bank # _____

Modified Bank # X _____

New _____

Question History: Commanche Peak question 015 AA 2.11 modified

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis X _____

10 CFR Part 55 Content: (43.5 / 45.13)

10CFR55.43.b (5)

Comments: Commanche Peak SRO Exam 2007 question 015 AA 2.11 modified.

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038 E2.4.20 078

Given the following:

- Unit 1 experiences a Safety Injection due to a steam generator tube rupture.
- All Reactor Coolant Pumps were removed from service due to loss of support systems.
- RCS cooldown at maximum rate to target incore temperature is in progress in accordance with E-3, "Steam Generator Tube Rupture."
- The STA reports that 1-FR-0, "Unit 1 Status Trees" indicates a RED path to FR-P.1, "Pressurized Thermal Shock," on the ruptured loop.

Which ONE of the following identifies the required action due to the FR-P.1 RED path?

Remain in E-3 until...

- A. the cooldown is completed, then transition to FR-P.1 only if the RED path still exists.
- B. the cooldown is completed, then transition to FR-P.1 even if the RED path no longer exists.
- C. the safety injection is terminated, then transition to FR-P.1 only if the RED path still exists.
- D. the safety injection is terminated, then transition to FR-P.1 even if the RED path no longer exists.

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DISTRACTOR ANALYSIS:

- A. *Incorrect, The transition would not be made until after the SI was terminated not after the cooldown was terminated. Plausible because remaining is E-3 to complete the cooldown is a major action whose completion is necessary in stopping any release.*
- B. *Incorrect, The transition would not be made until after the SI was terminated and then only if the condition still existed. Plausible because remaining is E-3 is correct and completion of the cooldown is a major action in the procedure that has added to the stresses on the vessel that need to be addressed.*
- C. **CORRECT**, *If cooling down while on Natural circulation, reverse flow can occur in the loop and can cause the SI flow to change. This can result in an indicated cold leg temperature in the stagnant ruptured SG loop below the value required for PTS. The transition to FR-P.1 would not be made until after the SI was terminated and then only if the condition still existed.*
- D. *Incorrect, Transitioning to FR-P.1 after the SI is terminated is correct but only if the RED path conditions still exist the transition would only be made after the SI was terminated. Plausible because remaining is E-3 until the SI is terminated is correct and completion of the cooldown is a major action in the procedure that has added to the stresses on the vessel that need to be addressed.*

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Question No. 78

Tier 1 Group 1

K/A 038 E2.4.20

Knowledge of the operational implications of EOP warnings, cautions, and notes.

Importance Rating: 3.8 / 4.3

K/A match: SQN has rewritten the **Caution** from the WOG E-3 procedure as a step in the procedure as explained in the site background document included with this question. Thus, the question is testing the 'Knowledge of the operational implications of EOP cautions' as addressed in the K/A statement.

Technical Reference: E-3, Steam Generator Tube Rupture, Rev 17
EPM-3-E-3, Basis Document for E-3 Steam Generator
Tube Rupture, Rev 7

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271E.3 B.4
Describe the bases for all limits, notes, cautions and steps of E-3.

Question Source:

Bank # X
Modified Bank #
New

Question History: WBN bank question

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (41.10 / 43.5 / 45.13)

10CFR55.43.b (5)

Comments:

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040 AA2.02 079

Given the following:

- Unit 1 is operating at 67% power steady state conditions with Rod Control in Manual.
- A transient occurs resulting in the following:
 - Reactor power at 68% and increasing.
 - RCS pressure at 2225 psig and slowly decreasing.
 - Auctioneered high Tavg at 564°F and decreasing.
 - Turbine power at 66% and slowly decreasing.
 - Generator output at 785 MWe and slowly decreasing.

Which ONE of the following identifies the procedure the crew should implement and actions required?

- A. AOP-C.02, "Uncontrolled RCS Boron Concentration Changes" and trip the reactor because of the current temperature difference between Tavg- Tref.
- B. AOP-C.02, "Uncontrolled RCS Boron Concentration Changes." A reactor trip not currently required, but will be if reactor power rises greater than 3% above turbine power.
- C. AOP-S.05, "Steam Line or Feedwater Line Break/Leak" and trip the reactor because of the current temperature difference between Tavg- Tref.
- D✓ AOP-S.05, "Steam Line or Feedwater Line Break/Leak." A reactor trip not currently required, but will be if reactor power rises greater than 3% above turbine power.

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DISTRACTOR ANALYSIS:

- A. *Incorrect, all of the conditions in the stem would occur from an uncontrolled change in RCS boron concentration (either a boration or a dilution) but not all in the direction provided for either one. All except the reactor power change would be applicable for a boration. Plausible because the parameters identified are parameters that would be affected during an uncontrolled change in RCS boron concentration and AOP-C.02 has the direction to trip the reactor if the difference in Tavg-Tref cannot be maintained less than 5°F.*
- B. *Incorrect, all of the conditions in the stem would occur from an uncontrolled change in RCS boron concentration (either a boration or a dilution) but not all in the direction provided for either one. All except the reactor power change would be applicable for a boration. Plausible because the parameters identified are parameters that would be affected during an uncontrolled change in RCS boron concentration and AOP-C.02 has the direction to trip the reactor based on the magnitude of reactor power.*
- C. *Incorrect, AOP-S.05 is the appropriate procedure to be entered but a reactor trip is not required for the current Tavg-Tref difference. The procedure directs a reactor trip if the difference cannot be maintained less than 5°F and the current difference is less than 5°F. (Turbine at 66% = Tavg. of 567.46. So, 564-567.46 = -3.46) Plausible because the AOP to be entered is correct and the AOP has the direction to trip the reactor if the difference in Tavg-Tref cannot be maintained less than 5°F.*
- D. **CORRECT**, *The conditions in the stem are consistent with a steam line leak thus entering AOP-S.05 is the appropriate procedure. The AOP provides conditions that would require the reactor to be tripped and turbine power greater than 3% above reactor power is a condition that would require the reactor to be tripped. Currently the difference is only 2%.*

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Question No. 79

Tier 1 Group 1

K/A 040 AA2.02

Steam Line Rupture

Ability to determine and interpret the following as they apply to the Steam Line Rupture:

Conditions requiring a reactor trip

Importance Rating: 4.6 / 4.7

Technical Reference: AOP-S.05, Steam or Feedwater Leak, Rev. 7
AOP-C-.02, Uncontrolled RCS Boron Concentration Changes, Rev. 6

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-S.05 B 2.d & 8.b
Describe the AOP-S.05 entry conditions.
d. Describe the plant parameters that may indicate a Steam Line or Feedwater Line Break/Leak.
Given a set of initial plant conditions, use AOP-S.05 to correctly:
b. Identify correct actions;

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN bank question AOP-S.05-B.2.A 001 modified.

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis X _____

10 CFR Part 55 Content: (43.5 / 45.13)

10CFR55.43.b (5)

Comments: SQN bank question AOP-S.05-B.2.A 001 modified.
Stem and distracters modified,
Correct answer relocated,
Mitigating strategy element for reactor trip included

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057 AG 2.2.44 080

Given the following:

- Unit 1 is at 38% RTP.
- PZR Pressure Channel IV (1-PT-68-322) has failed HIGH
- All actions of AOP-I.04, "Pressurizer Instrument Malfunction," have been taken and all required bistables have been placed in the required Tech Spec position.

Subsequently, an automatic Reactor trip occurs and the OATC reports the following conditions:

- Reactor First Out "Pressurizer Low Pressure Reactor Trip" annunciator flashing.
- Steam Dumps closed with Tavg at 550°F.
- CCP suction swapped to RWST with VCT level at 38%.
- 1-FI-63-93A, Charging Flow, indicates '0' flow.
- MDAFW pump B failed to automatically start.
- Safety Injection is not actuated.

Which ONE of the following correctly identifies...

- (1) if the SRO should direct the initiation of a Safety Injection, and
- (2) which section of AOP-P.03, "Loss of Unit 1 Vital Instrument Power Board" should be implemented in conjunction with the applicable emergency procedures?

Safety injection should...

AOP-P.03

- | | |
|-----------------------------|---|
| A. be initiated. | Section 2.1, Loss of 120v AC Vital Instrument Power Board 1-I. |
| B. be initiated. | Section 2.2, Loss of 120v AC Vital Instrument Power Board 1-II. |
| C. NOT be initiated. | Section 2.1, Loss of 120v AC Vital Instrument Power Board 1-I. |
| D. NOT be initiated. | Section 2.2, Loss of 120v AC Vital Instrument Power Board 1-II. |

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DISTRACTOR ANALYSIS:

- A. *Incorrect, Safety injection should not be directed for the condition as it is not required and Section 2.1 is not the correct procedure section to be implemented. Plausible because if the 2 instruments out of service and failed had been any combination other than a Channel IV instrument, the Safety Injection would have been designed to occur automatically and the conditions in the stem are either the same or similar to conditions requiring implementation of Section 2.1. The reactor trip, steam dumps, CCP suction, and safety injection) would be the same for a Channel I failure and a Channel I failure will also affect but in a different way the charging flow and AFW system.*
- B. *Incorrect, Safety Injection should not be directed for the condition as it is not required but the conditions in the stem are associated with a Channel II failure and Section 2.2 is the correct procedure section to be implemented. Plausible because if the 2 instruments out of service and failed had been any combination other than a Channel IV instrument, the Safety Injection would have been designed to occur automatically and implementing Section 2.2 of the procedure is correct and implementing section 2.2 is correct.*
- C. *Incorrect, The Safety Injection should not be directed, Channel IV is out of service with its bistables tripped, but this instrument does not input to the 2 out of 3 Safety Injection logic and Section 2.1 is the incorrect section of the procedure to be implemented. Plausible because not initiating Safety Injection is correct and the conditions in the stem are either the same or similar to conditions requiring implementation of Section 2.1. The reactor trip, steam dumps, CCP suction, and safety injection) would be the same for a Channel I failure and a Channel I failure will also affect but in a different way the charging flow and AFW system.*
- D. **CORRECT**, *the loss of 120v Vital Instrument Power Board 1-II results in the control room indications identified in the stem. The reactor trip occurs because the board loss causes a second pressurizer pressure instrument to fail. This combined with the instrument already out of service makes the 2 out of 4 logic for the reactor trip. The Safety Injection logic is a 2 out of 3 logic but the instrument out of service is not one of the 3 inputs to the logic, therefore a Safety Injection should not have occurred and is not required. If the 2 instruments out of service and failed had been any combination other than a Channel IV instrument, the Safety Injection would have occurred automatically. The procedure section to be implemented to address the failure is Section 2.2.*

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Question No. 80

Tier 1 Group 1

K/A 057 AG 2.2.44

Loss of Vital AC Instrument Bus

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

Importance Rating: 4.2 / 4.4

Technical Reference: AOP-P.03, Loss of Vital Instrument Power Board, Rev 21

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271.AOP-P.03 & 04 B.2 and 4

Describe the AOP-P.03 & -P.04 entry conditions

a. Describe the setpoints, interlocks and automatic actions associated with AOP-P.03 & P.04 entry conditions.

Upon entry into AOP-P.03 & P.04, diagnose the applicable condition and transition to the appropriate procedural section for response.

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN question AOP-P.03-B.9 001 modified

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.12)

10CFR55.43.b (5)

Comments: Stem conditions changed, 2nd part of question changed, distracter modified, correct answer relocated.

QUESTIONS REPORT
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062 AG 2.1.7 081

Given the following:

- Unit 2 was operating at 100% RTP when a loss of all ERCW occurred.
- The operating crew implements AOP-M.01, "Loss of Essential Raw Cooling Water" in response to the event.
- Eight minutes after entering the AOP, the STA is monitoring Status Trees and reports the Intermediate Range Monitors indicate a positive Startup Rate.

Which ONE of the following identifies the ~~correct~~ use of procedures?

- A. The Status Tree condition requires a transition to FR-S.1, "Nuclear Power Generation / ATWS."
- B. Continue in AOP-M.01, Status Tree monitoring is required for information ONLY even though an ORANGE path exists.
- C. The Status Tree condition requires FR-S.1, "Nuclear Power Generation / ATWS" to be implemented in parallel with AOP-M.01.
- D. Acknowledge the YELLOW path, continue in AOP-M.01, and instruct STA that Status Tree monitoring is NOT applicable while performing AOP-M.01.

DISTRACTOR ANALYSIS:

- A. *Incorrect, while performing AOP-M.01 in response to a loss of all ERCW, the status trees are monitored for information only, not to make transitions. Plausible because the Status Tree indicates an orange path and orange paths normally require immediate transition to the applicable Function Restoration Procedure.*
- B. *CORRECT, AOP-M.01 section for loss of all ERCW identifies that the EOPs, except for ECA-0.0, are not applicable when AOP-M.01 is being used in response to a loss of all ERCW. There is a step that directs the Status trees to be monitored for information only and that the SM and TSC should be notified of any red or orange path conditions. The STA would be monitoring the Status trees and if the IRM indicated a Positive startup rate, then an orange path would exist but no transition would be made.*
- C. *Incorrect, while performing AOP-M.01 in response to a loss of all ERCW, the status trees are monitored for information only. Plausible because the Status Tree indicates an orange path and orange paths normally require immediate transition and there are times that Emergency procedures and AOP are used in parallel.*
- D. *Incorrect, the path is not a Yellow path but while continuing in AOP-M.01 is correct, Status Tree monitoring in the AOP is also required. Plausible because if the Source range were energized there is a decision point on the status tree for IRM startup rate that could result in a yellow path and also because Status Trees are not normally monitored in AOPs.*

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Question No. 81

Tier 1 Group 1

K/A 062 AG 2.1.7

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

Importance Rating: 4.4 / 4.7

Technical Reference: 2-FR-0, Unit 2 Status Trees, Rev 1
AOP-M.01, Loss of Essential Raw Cooling Water, Rev 20

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-M.01 B.8.b
Given a set of plant conditions use AOP-M.01 to correctly:
b. Identify required actions

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.12 / 45.13)

10CFR55.43.b (5)

Comments: New question

QUESTIONS REPORT
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060 AA2.05 082

Given the following:

- Both Units in service at 100% power.
- Waste Gas Decay Tank 'B' is the inservice tank, contains high activity gas, and is currently at 92 psig.
- Waste Gas Decay Tank 'G' is being released.

If the Waste Gas Decay Tank 'B' safety relief valve opens, which ONE of the following identifies both...

(1) the radiation monitor that would detect the inadvertent release from tank 'B' and

(2) how the releases would be affected due to the radiation being detected?

- A. (1) 0-RE-90-118, Waste Gas Radiation Monitor;
(2) the offsite release from both tanks would be stopped.
- B✓** (1) 0-RE-90-118, Waste Gas Radiation Monitor;
(2) the offsite release from tank 'G' would be stopped, but additional manual action would be required to stop the offsite release from tank 'B.'
- C. (1) 1-RE-90-101, Unit 1 Auxiliary Building Stack Radiation Monitor;
(2) the ABI signal generated would terminate the offsite releases from both tanks.
- D. (1) 1-RE-90-101, Unit 1 Auxiliary Building Stack Radiation Monitor;
(2) the ABI signal generated would terminate the offsite release from tank 'B' but manual action would be required to stop the offsite release from tank 'G.'

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DISTRACTOR ANALYSIS:

- A. *Incorrect, 0-RE-90-118 will detect the high radiation but the automatic isolation resulting from detecting the radiation would only isolate the release from tank 'G'. The release from tank 'B' would continue. Plausible because the high radiation signal isolating tank 'G' is correct and the applicant conclude the relief valve line also passes through the normal release automatic isolation valve.*
- B. *CORRECT, 0-RE-90-118 will detect the high radiation and isolate the in progress release from tank 'G' but the relief valve line enters downstream of the isolation valve and would continue to be released to the shield building stack until manually isolated.*
- C. *Incorrect, The release from neither the tank being released nor the tank with the relief valve open would be detected by the Auxiliary Building Stack Radiation Monitor, 0-RM-90-101. Plausible because if the relief valve had been leaking out the bonnet into the Auxiliary Building, then 0-RM-90-101 would have detected the release and caused an ABI which would have stopped the offsite release of the Tank 'B' and because the ABGTS fan being used for the release would have a reduced flow that could result in the normal release line automatically closing to stop the release from tank 'G.'*
- D. *Incorrect, The release from neither the tank being released nor the tank with the relief valve open would be detected by the Auxiliary Building Stack Radiation Monitor, 0-RM-90-101. Plausible because if the relief valve had been leaking out the bonnet into the Auxiliary Building, then 0-RM-90-101 would have detected the release and caused an ABI which would have stopped the offsite release of the Tank 'B' and if the reduced flow interlock was not applied, the release from tank 'G' would continue.*

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Question No. 82

Tier 1 Group 2

K/A 060 AA2.05

Accidental Gaseous-Waste Release

Ability to determine and interpret the following as they apply to the Accidental Gaseous Radwaste:

That the automatic safety actions have occurred as a result of a high ARM system signal

Importance Rating: 3.7 / 4.2

Technical Reference: 1,2-47W611-77-4 R10
1,2-47W830-4 R45

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.GRW B.5.d

Describe the operation of the GRW system:

d. How a component failure will affect system operation.

Question Source:

Bank # _____

Modified Bank # X _____

New _____

Question History: SQN bank question GRW-B.4 003 modified.

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis X _____

CFR Part 55 Content: (43.5 / 45.13)

10CFR55.43.b (4)

Comments: SQN bank question GRW-B.4 003 modified.

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061 AG2.4.46 083

Given the following:

- Both Units at 100% power.
- A dry cask storage campaign is in progress with removal of the HI-TRAC from the Cask Loading Area occurring.

The following annunciators alarm:

- 1-RA-90-1A, "AUX BLDG AREA RAD MON HIGH RAD" alarms.
- 0-RA-90-102A, "FUEL POOL RAD MONITOR HI RAD" alarms.
- 0-RA-90-103A, "FUEL POOL RAD MONITOR HI RAD" alarms.

The CRO reports that 0-RA-90-102A and 0-RA-90-103A are blocked.

The alarms received are _____ (1) _____ with the evolution in progress and _____ (2) _____.

- A. (1) consistent
(2) the removal of the HI-TRAC may continue
- B. (1) consistent
(2) the removal of the HI-TRAC must be stopped due to no ABGTS train operable
- C. (1) inconsistent
(2) the removal of the HI-TRAC may continue
- D. (1) inconsistent
(2) the removal of the HI-TRAC must be stopped due to no ABGTS train operable

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DISTRACTOR ANALYSIS:

- A. *CORRECT, The annunciation of Spent Fuel Pit Rad Monitors is expected and are blocked due to this expectation to prevent an ABI. The evolution of lifting the HI-TRAC may continue as allowed by procedures.*

- B. *Incorrect, The first part of this distracter is plausible as it is correct, the second part is plausible as the ABGTS trains are inop, however the basis document for 3/4.9.12 considers movement of a Cask loaded spent fuel assemblies as outside this spec and movement may continue.*

- C. *Incorrect, The first part of this distracter is plausible as radiation alarms are generally unexpected and not consistent in most evolutions. The second part of the distracter is plausible as it is correct.*

- D. *Incorrect, the first part of this distracter is plausible as radiation alarms are generally unexpected and not consistent in most evolutions. The second part is plausible as the ABGTS trains are inop, however the basis document for 3/4.9.12 considers movement of a Cask loaded spent fuel assemblies as outside this spec and movement may continue.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 83

Tier 1 Group 2

K/A 061 AG2.4.46

Area Radiation Monitoring System Alarms

Ability to verify that the alarms are consistent with the plant conditions

Importance Rating: 4.2 / 4.2

Technical Reference: Technical Specifications 3/4.9.12 ABGTS Amendment #263/301 and 3/4.9.12 Basis.
0-SO-90-5, Area Radiation Monitors, R7.
SQN-DCS-200.2, SQN-MPC-Loading and Transport Operations, R0010.
0-AR-M12-B (B-5), 0-RA-90-103A, Fuel Pool RAD Monitor HI RAD, R29.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.DryCask B.5.c & B.6.a
Describe the operation of the DCS system: Alarms and alarm response
Describe the administrative controls and limits for the DCS system: State Tech Specs/TRM LCOs that govern the DCS

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 43.5 / 45.3 / 45.12)

10CFR55.43.b (2 & 4)

Comments:

QUESTIONS REPORT
for 2009 SRO Retake Exam

W/E13 EA2.01 084

Given the following:

- The crew is performing FR-H.2, "Steam Generator Overpressure", for an overpressure condition on SG #2.
- When the step is addressed to check affected S/G(s) NR level it is noted that the SG #2 level is indicating 86% narrow range.

Which ONE of the following identifies the correct crew actions as a result of the SG level indicating 86%?

- A. Continue in FR-H.2, steam release may continue until NR level indicates 100%.
- B. Continue in FR-H.2, but do not initiate any steam release until TSC evaluation is complete.
- C. Transition to FR-H.3, "Steam Generator High Level"; Steam release may continue until NR level indicates 100%.
- D. Transition to FR-H.3, "Steam Generator High Level"; but do not initiate any steam release until TSC evaluation is complete.

DISTRACTOR ANALYSIS:

- A. *Incorrect, The step RNO directs a transition to FR-H.3. However candidate may correctly conclude that FR-H.3 is lower in priority on the FR-H status tree and not recall the transition. Plausible that steam could be released since even when NR level indicates 100%, there is still significant volume before the steam generator fills with water.*
- B. *Incorrect, The step RNO directs a transition to FR-H.3. Plausible since FR-H.2, if continued, also prohibits the release of steam with a high level (> 84%) condition until after a TSC evaluation is complete. Transition to FR-H.3 is directed from FR-H.2 at Step 3.*
- C. *Incorrect, The RNO for the step directs the transition to FR-H.3 and the release of steam is restricted until a TSC evaluation is complete if the level exceeds 84%, therefore with the level at 86%, the release will be restricted. Plausible to release steam since even when narrow range SG level indicates 100%, there is still significant volume before the steam generator fills with water.*
- D. **CORRECT.** *The RNO for the step directs the transition to FR-H.3 and FR-H.3 restricts the release of steam until a TSC evaluation is complete.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 84

Tier 1 Group 2

K/A W/E13 EA2.1

Steam Generator Over-pressure

Ability to determine and interpret the following as they apply to the (Steam Generator Overpressure)

Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Importance Rating: 2.9 / 3.4

Technical Reference: FR-H.2, Steam Generator Overpressure, Rev 6.
FR-H.3, Steam Generator High Level, Rev 9.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR.H.2 B.4 & 5

Describe the bases for all limits, notes, cautions, and steps of FR-H.2.

Describe the conditions and reason for transitions within this procedure and transitions to other procedures.

Question Source:

Bank # X
Modified Bank #
New

Question History: WBN bank question W/E13 EA2.1 (used on WBN 2008 exam)

Question Cognitive Level:

Memory or fundamental knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: (43.5 / 45.13)

10CFR55.43.b (5)

Comments: WBN bank question W/E13 EA2.1 (used on WBN 2008 exam)
Correct answer relocated, distracter locations changed.

QUESTIONS REPORT
for 2009 SRO Retake Exam

W/E15 G 2.4.30 085

Given the following:

- A large break LOCA occurs of Unit 1.
- During performance of the emergency instructions the crew transitioned to and completed FR-Z.1, "High Containment Pressure" and is now currently performing E-1, "Loss of Reactor or Secondary Coolant."
- The Shift Manager has determined the required Emergency Plan declaration.
- The STA monitoring the Status Trees reports the following current containment conditions;
 - Pressure has lowered to 2.6 psid.
 - Lower Containment Radiation 86 R/HR.
 - Upper Containment Radiation 42 R/HR.
 - Containment Sump Level 73%.

Which ONE of the following identifies if a transition to a Containment Functional Restoration Procedure is required and the maximum time allowed to notify the NRC of the REP declaration?

Transition to a Containment
Function Restoration Procedure ...

Time required for
NRC notification

A. is required.

1-hour notification

B. is required.

4-hour notification

C. is **NOT** required.

1-hour notification

D. is **NOT** required.

4-hour notification

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. ~~CORRECT~~, A transition is required because the conditions indicate an ORANGE path to FR-Z.3, "Containment Flooding," due to the containment sump level not being less than 68%. The required NRC notification is a 1-hour report.
- B. Incorrect, A transition is required because the conditions indicate an ORANGE path to FR-Z.3, "Containment Flooding," due to the containment sump level not being less than 68%. The NRC notification is a 1-hour report, not a 4-hour report. Plausible because the transition being required is correct and the reactor trip is a 4-hour immediate report.
- C. Incorrect, A transition is required because the conditions indicate an ORANGE path to FR-Z.3, "Containment Flooding," due to the containment sump level not being less than 68% but the 1-hour report is required. Plausible because the applicant could mis-apply the containment sump level required for an orange path or determine since FR-Z.1 had been previously completed a Containment FRP transition would not be required and the 1-hour immediate report requirement is correct.
- D. Incorrect, A transition is required because the conditions indicate an ORANGE path to FR-Z.3, "Containment Flooding," due to the containment sump level not being less than 68% and the NRC notification is a 1-hour report, not an 4-hour report. Plausible because the applicant could mis-apply the containment sump level required for an orange path or determine since FR-Z.1 had been previously completed a Containment FRP transition would not be required and the reactor trip is a 4-hour immediate report.

FR-2.2
FR-2.3 H. Rad
Are 20's req'd to
know AOV values, if so
are they the same as
cont. H. Rad Yellow Path FR-2.3
est 17?

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 85

Tier 1 Group 2

K/A W/E15 G 2.4.30

E15 Containment Flooding

Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.

Importance Rating: 2.7 / 4.1

Technical Reference: 1-FR-0, Unit 1 Status Trees, Rev 1
SPP-3.5, Regulatory Reporting Requirements, Rev 21

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-Z.2 B.6.a & c

Given a set of initial plant conditions use FR-0 to correctly identify the:

a. Identify required actions

c. requirements when a RED or ORANGE path is diagnosed.

OPL271SPP-3.5 B.3.d & e

For a given condition, determine the regulatory reporting requirements using appropriate reference material.

c. State the criteria requiring four-hour notification of the NRC.

d. State the criteria requiring eight-hour notification of the NRC.

Question Source:

Bank # _____

Modified Bank # _____

New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 43.5 / 45.11)

10CFR55.43.b (5)

Comments: New question

QUESTIONS REPORT
for 2009 SRO Retake Exam

004 G.2.4.44 086

Given the following:

- Unit 1 has experienced an RCS leak.
- The leak has not been identified but all secondary radiation levels are normal.
- The crew has implemented AOP-R.05, "RCS Leak and Leak Source Identification."
- The operating crew raised charging flow from 87 gpm to 103 gpm.
- PZR level is now stable.

Which ONE of the following is required by Technical Specification LCO 3.4.6.2, "RCS Operational Leakage," and if the current rate of leakage requires a Radiological Emergency Plan (REP) declaration?

- A. Reduce leakage to less than the limit within 1 hour or enter LCO 3.0.3;
No, leakage is less than the classification threshold value.
- B. Reduce leakage to less than the limit within 1 hour or enter LCO 3.0.3;
Yes, leakage exceeds the classification threshold value.
- C. Reduce leakage to less than the limit within 4 hours or initiate a plant shutdown;
No, leakage is less than the classification threshold value.
- D. Reduce leakage to less than the limit within 4 hours or initiate a plant shutdown;
Yes, leakage exceeds the classification threshold value.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, TS 3.4.6.2 does not require the 1 hour action and LCO 3.0.3 entry. The leakage is not less than the threshold value for unidentified leakage (10 gpm), an NOUE classification is required. Plausible because entering LCO 3.0.3 is a condition that is required for some conditions different than as stated in the question stem and if the leakage had been identified leakage, it would have been below the 25 gpm NOUE threshold value and no declaration would be required.*
- B. *Incorrect, TS 3.4.6.2 does not require the 1 hour action and LCO 3.0.3 entry but a declaration is required because the threshold value for unidentified leakage (10 gpm) has been exceeded. Plausible because entering LCO 3.0.3 is a condition that is required for some conditions different than as stated in the question stem and a declaration being required is correct.*
- C. *Incorrect, TS 3.4.6.2 does require the leakage to be reduced to less than the limit within 4 hours or the unit to be placed in HOT STANDBY within the following 6 hours. The leakage is not less than the threshold value for unidentified leakage (10 gpm), an NOUE classification is required. Plausible because the Tech Spec action is correct and if the leakage had been identified leakage, it would have been below the 25 gpm NOUE threshold value and no declaration would be required. .*
- D. **CORRECT**, TS 3.4.6.2 requires the leakage to be reduced to less than the limit within 4 hours or the unit is to be placed in HOT STANDBY within the following 6 hours. A declaration is required because the threshold value for unidentified leakage (10 gpm) has been exceeded. This meets the Potential Loss of the RCS Barrier in EPIP-1 requiring an ALERT declaration.

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 86

Tier 3

K/A 004 G.2.4.44

Chemical and Volume Control System

Knowledge of emergency plan protective action recommendations.

2.2.44

Importance Rating: 2.4 / 4.4

Technical Reference: Technical Specification 3.4.6.2, Amendment No. 322
EPIP-1, Emergency Plan Classification Matrix, Rev. 41
AOP-R.05, RCS Leak and Leak source Identification, Rev. 14
NP-REP Appendix B, Tennessee Valley Authority Nuclear
Power Radiological Emergency Plan, Rev 89

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271REP B.3
Classify Events using the appropriate procedures.
OPL217AOP-R.05 B.9
Describe the Tech Spec and TRM actions applicable during
the performance of AOP-R.05.

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 41.12 / 43.5 / 45.11)

10CFR55.43.b (2,5)

Comments: New question

QUESTIONS REPORT
for 2009 SRO Retake Exam

005 A2.04 087

Given the following conditions:

- RCS temperature is 178°F with the RCS vented.
- RHR Train 'A' is in service.
- 0-GO-13, "Reactor Coolant Systems Fill and Drain Operations, Drain-Down" Section 5.1.1, "To Partial Drain Conditions" is in progress.
- 1-LI-68-321, "RCS PZR Level-Cold Cal," indicates 10%.
- Both trains of Mansell indicate level at Elevation 715'9".

Subsequently, the following indications are observed:

- RCS temperature is 183°F and rising.
- RHR Pump1A-A flow is 0 GPM.
- RHR Pump1A-A discharge pressure is 180 psig.
- RHR Pump1A-A current is stable at approximately 10 amps.
- 1-LI-68-321 indicates 11%.
- Both trains of Mansell indicate level at Elevation 716'2' and rising.

The crew enters AOP-R.03, "RHR System Malfunction."

Which ONE of the following describes (1) the event in progress, and (2) the section of the procedure that will be implemented?

<u>Event in progress</u>	<u>Procedure section entry required</u>
A. RHR Pump sheared shaft	Section 2.3, RHR pump(s) failure or trip.
B. RHR Pump sheared shaft	Section 2.1, RHR malfunctions due to low water level during reduced inventory or mid-loop operations.
C✓ RHR system valve failure	Section 2.3, RHR pump(s) failure or trip.
D. RHR system valve failure	Section 2.1, RHR malfunctions due to low water level during reduced inventory or mid-loop operations.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, If the pump shaft were sheared the pressure would not indicate 300 psig. Plausible because the conditions except for pressure would exist for a sheared shaft and the procedure section to be used is correct.*
- B. *Incorrect, If the pump shaft were sheared the pressure would not indicate 300 psig. Plausible because the conditions except for pressure would exist for a sheared shaft and a drain down has been initiated with the level reduced from normal.*
- C. *CORRECT, Pump is operating against closed valve, RCS is heating up, and resulting in small volume change and the level is above the reduced inventory range.*
- D. *Incorrect, Conditions do indicate a valve problem, but the level is above the level for entering reduced inventory (el 699'). Plausible because the conditions are correct for a valve problem and a drain down has been initiated with the level reduced from normal.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 87

Tier 2 Group 1

K/A 005 A2.04

Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

RHR valve malfunction

Importance Rating: 2.9 / 2.9

Technical Reference: AOP-R.03, RHR System Malfunction, Rev 21
GO-13, Reactor Coolant Systems Fill and Drain
Operations, Rev 18

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-R.03
Upon entry into AOP-R.03, diagnose the applicable condition and transition to the appropriate procedural section for response.

Question Source:

Bank # X
Modified Bank #
New

Question History: Question from Ginna bank

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (41.5 / 43.5 / 45.3 / 45.13)

10CFR55.43.b (5)

Comments: Ginna bank question changed to make applicable to SQN

QUESTIONS REPORT
for 2009 SRO Retake Exam

012 A2.05 088

Given the following:

- Unit 1 at 100% power.
- An Eagle 21 malfunction has occurred that caused several annunciators to alarm and unexpected reactor trip bi-stables to be LIT.
- 2 hours after the event, MIG is prepared to initiate work on the failure.

In accordance with AOP-I.11, "Eagle 21 Malfunction," which ONE of the following identifies ...

(1) the type of failure that has occurred
and

(2) the strategy used in responding to the event as related to the attempt to reset the system and the hard tripping of the associated bi-stables?

(1) <u>Type Failure</u>	(2) <u>Strategy Used</u>
A. Test Setpoint Processor (TSP)	Trip Bistables in accordance with applicable AOP before attempting System Reset.
B. Test Setpoint Processor (TSP)	Attempt System Reset in accordance with applicable Maintenance PI before tripping Bistables.
C. Loop Control Processor (LCP)	Trip Bistables in accordance with applicable AOP before attempting System Reset.
D✓ Loop Control Processor (LCP)	Attempt System Reset in accordance with applicable Maintenance PI before tripping Bistables.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, the failure is not on the TSP (it is on the LCP) and the hard bi-stables should not be tripped prior to an attempted system reset. Plausible because the failure type would be on the TSP if no additional bi-stables were lit and because if there was not time enough to make the 6 hour T/S to have bi-stables tripped the bi-stables would be tripped prior to an attempted system reset.*
- B. *Incorrect, the failure is not on the TSP (it is on the LCP) but an attempt of a System Reset should be completed prior to tripping the hard bi-stables. Plausible because the failure type would be on the TSP if no additional bi-stables were lit and because the attempted system reset should be performed prior to tripping the bi-stables.*
- C. *Incorrect, the failure is on the LCP but the hard bi-stables should not be tripped prior to an attempted system reset. Plausible because the failure type is correct and because if there was not time enough to make the 6 hour T/S to have bi-stables tripped the bi-stables would be tripped prior to an attempted system reset.*
- D. **CORRECT**, *If bi-stables are LIT due to the failure, the failure is on the LCP and AOP-I.11 and the AOPs for instrument failure response have notes and cautions stating that the a System reset should be attempted prior to any bi-stables being hard tripped.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 88

Tier 2 Group 1

K/A 012 A2.05

Reactor Protection System

Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Faulty or erratic operation of detectors and function generators

Importance Rating: 3.1* / 3.2*

Technical Reference: AOP-I-11, Eagle 21 Malfunction, Rev 9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.EAGLE21 B.5.c & .d
Describe the operation of the Eagle 21 system:
c. alarms and alarm response
d. How a component failure will affect system operation.

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN bank question AOP-I.11-B.1 003 modified

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.3 / 45.5)

10CFR55.43.b (5)

Comments: SQN bank question AOP-I.11-B.1 003 modified

QUESTIONS REPORT
for 2009 SRO Retake Exam

059 A2.06 089

Given the following:

- Unit 1 has experienced a Safety Injection due to a steam line break inside containment.
- MSIVs closed automatically.
- Subsequently, all AFW has been lost.
 - Containment pressure has peaked at 1.2 psig and is lowering.
 - WR S/G levels as follows:

<u>S/G 1</u>	<u>S/G 2</u>	<u>S/G 3</u>	<u>S/G 4</u>
23% WR	27% WR	25% WR	5% WR

- FR-H.1, "Loss of Secondary Heat Sink" is being implemented with the crew attempting to restore MFW flow to at least one S/G in accordance with EA-2-2, "Establishing Secondary Heat Sink Using Main Feedwater or Condensate System."

Which ONE of the following identifies...

- (1) the mitigating strategy to be used,
and
- (2) if MIG support would be required to block auto SI signals?

- A. (1) Establish RCS feed and bleed per FR-H.1.
(2) MIG support is required for blocking auto SI signals.
- B. (1) Establish RCS feed and bleed per FR-H.1.
(2) **No** MIG support is required for blocking auto SI signals.
- C. (1) Continue to establish feed flow from the condensate system per EA-2-2.
(2) MIG support is required for blocking auto SI signals.
- D✓ (1) Continue to establish feed flow from the condensate system per EA-2-2.
(2) **No** MIG support is required for blocking auto SI signals.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, RCS Bleed and feed is not required as levels in at least 3 S/Gs are > 20% wide range with containment not adverse (2.81 psig). With containment pressure only reaching 1.2 psig (verses 1.5 psig) the auto high containment pressure SI is not active. This SI is not blocked from the MCR boards (Lo Steam and Lo Pressurizer Pressure SIs are blocked from the MCR) and requires MIG support. In this case blocking the signal for high containment pressure SI is not required. The first part of this distracter is plausible as the examinee will need to understand that the containment is not adverse and S/G levels are above RCS feed and bleed criteria. The second part is plausible as the examinee will have to understand that the auto containment high pressure SI did not occur. MIG is required to assist in blocking that signal if it did.*
- B. *Incorrect, RCS Bleed and feed is not required as levels in at least 3 S/Gs are > 20% wide range with containment not adverse (2.81 psig). With containment pressure only reaching 1.2 psig (verses 1.5 psig) the auto high containment pressure SI is not active. This SI is not blocked from the MCR boards (Lo Steam and Lo Pressurizer Pressure SIs are blocked from the MCR) and requires MIG support. In this case blocking the signal for high containment pressure SI is not required. The first part of this distracter is plausible as the examinee will need to understand that the containment is not adverse and S/G levels are above RCS feed and bleed criteria. The second part is plausible because it is correct.*
- C. *Incorrect, with the MSIVs closed the option to use MFW to initiate feed to the S/Gs is not possible and the next procedural feed source is using condensate. With containment pressure only reaching 1.2 psig (verses 1.5 psig) the auto high containment pressure SI is not active. This SI is not blocked from the MCR boards (Lo Steam and Lo Pressurizer Pressure SIs are blocked from the MCR) and requires MIG support. In this case blocking the signal for high containment pressure SI is not required. The first part of the distracter is plausible because it is correct. The second part is plausible as the examinee will have to understand that the auto containment high pressure SI did not occur. MIG is required to assist in blocking that signal if it did.*
- D. **CORRECT**, with the MSIVs closed the option to use MFW to initiate feed to the S/Gs is not possible and the next procedural feed source is using condensate. With containment pressure only reaching 1.2 psig (verses 1.5 psig) the auto high containment pressure SI is not active. This SI is not blocked from the MCR boards (Lo Steam and Lo Pressurizer Pressure SIs are blocked from the MCR) and requires MIG support. In this case blocking the signal for high containment pressure SI is not required.

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 89

Tier 2 Group 1

K/A 059 A2.06

Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Loss of steam flow to the MFW system

Importance Rating: 2.7 / 2.9

Technical Reference: FR-H.1, Loss of Secondary Heat Sink, Rev 17

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-H.1 B.5.a & .b & B.6.e & i
Describe the conditions and reason for transitions within this procedure and transitions to other procedures
Given an initial set of plant conditions use FR-H.1 to correctly:
a. identify required actions
b. respond to contingencies
OPL200.RPS B.4.e & i
Describe the following characteristics of each major component in the Reactor Protection and Engineered Safety Actuation Systems:
e. Component operation
i. Protective features (including setpoints)

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.3 / 45.13)

10CFR55.43.b (5)

Comments:

QUESTIONS REPORT
for 2009 SRO Retake Exam

064 G 2.4.8 090

Given the following:

- Both units at 100% power with all system normal.
- The 6.9kV Unit Board 2B trips due to electrical fault resulting in a reactor trip.
- The Diesel Generators (DG) start but DG 2A-A fails to connect to the board.
- Unit 2 operating crew is ready to transition from E-0, "Reactor Trip or Safety Injection."

Which ONE of the following identifies both ...

- (1) the action required when Diesel Generator (DG) 2A-A ERCW cooling is checked
and
- (2) the correct procedure implementation by the Unit Supervisor in accordance with EPM-4, "User's Guide?"

Note: ES-0.1, "Reactor Trip Response"
AOP-P.06, "Loss of Unit 2 Electrical Shutdown Board"

(1) <u>DG 2A-A would ...</u>	(2) <u>Procedure Implementation</u>
A. be stopped because it is running without ERCW cooling.	Procedure reader will normally implement ES-0.1, while handing off performance of AOP-P.06 to another crew member.
B. be stopped because it is running without ERCW cooling.	Procedure reader will normally implement AOP-P.06, while handing off performance of ES-0.1 to another crew member.
C. have ERCW being supplied from the normal source.	Procedure reader will normally implement ES-0.1, while handing off performance of AOP-P.06 to another crew member.
D. have ERCW being supplied from the normal source.	Procedure reader will normally implement AOP-P.06, while handing off performance of ES-0.1 to another crew member.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *CORRECT, DG 2A-A would be stopped because while there is water available in the normal supply, the motor operated valves in both the normal and alternate supply would be closed and the boards supplying power de-energized and in accordance with EPM-4, AOPs can be used with EOPs. The AOP would be implemented by a person other than the procedure reader in order that the procedure reader would stay focused on the EOP until the SM directs otherwise.*
- B. *Incorrect, DG 2A-A would be stopped because of no available ERCW source and the procedure reader would not hand ES-0.1 off to other crew member. The US would continue in ES-0.1 and hand the AOP off. Plausible because stopping the DG due to no ERCW is correct and handing ES-0.1 off to focus on a AOP occurred at the plant in the past and resulted in lack of focus on stabilizing the plant and also because it can be done but only with SM direction.*
- C. *Incorrect, the DG 2A-A normal ERCW supply header would have pressure from the 1A ERCW header but the supply valve for the DG could not be opened due to the board supplying the motor being de-energized and the procedure reader would continue in ES-0.1 while handing off the AOP. Plausible because the 1A ERCW is available and the MOV normally opens when the DG starts and continuing in ES-0.1 while handing off the AOP is correct.*
- D. *Incorrect, the DG 2A-A normal ERCW supply header would have pressure from the 1A ERCW header but the supply valve for the DG could not be opened due to the board supplying the motor being de-energized and the procedure reader would not implement the AOP while handing off ES-0.1. Plausible because the 1A ERCW is available and the MOV normally opens when the DG starts and handing ES-0.1 off to focus on an AOP occurred at the plant in the past and resulted in lack of focus on stabilizing the plant and also because it can be done but only with SM direction.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 90

Tier 2 Group 1

K/A 064 G 2.4.8

Emergency Diesel Generator (ED/G) System

Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

Importance Rating: 3.8 / 4.5

Technical Reference: 1,2-15E500-1, R28
EPM-4, User's Guide, Rev 20

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271EPM-4 B.8

Given plant operating conditions determine if AOP entry conditions have been met and state the resultant appropriate operator actions for those conditions.

OPT200.DG B.4.c

Describe the following items for each major component in the Diesel Generator system:

c. Support equipment and systems.

Question Source:

Bank # _____

Modified Bank # _____

New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 43.5 / 45.13)

10CFR55.43.b (5)

Comments: New question

QUESTIONS REPORT
for 2009 SRO Retake Exam

028 G2.1.23 091

During the performance of ES-1.2, "Post LOCA Cooldown and Depressurization," which ONE of the following is the minimum containment hydrogen concentration, which if exceeded, would require the SRO to notify the Technical Support Center (TSC), and why?

	<u>Hydrogen Concentration</u>	<u>Reason</u>
A.	3.0%	To evaluate and determine a hydrogen recovery strategy.
B.	3.0%	To determine maximum allowable vessel venting time.
C✓	6.0%	To evaluate and determine a hydrogen recovery strategy.
D.	6.0%	To determine maximum allowable vessel venting time.

DISTRACTOR ANALYSIS:

- A. Incorrect. Plausible because the 3.0% is the concentration used to determine "maximum allowable vessel venting time" in FR-1.3, "Voids in the Reactor Vessel," but the TSC is notified to calculate the time if hydrogen concentration is less than 3%, not to determine further recovery actions.
- B. Incorrect. Plausible because the 3.0% is the concentration used to determine "maximum allowable vessel venting time" in FR-1.3, "Voids in the Reactor Vessel," but the TSC is notified to calculate the time if hydrogen concentration is less than 3%.
- C. CORRECT. If containment hydrogen concentration reaches or exceeds 6%, the SRO is directed to notify the TSC for additional guidance, per ES-1.2.
- D. Incorrect. Plausible because the 6.0% is correct but it is not to determine "maximum allowable vessel venting time."

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 91

Tier 2 Group 2

K/A 028 G2.1.23

Hydrogen Recombiner and Purge Control System (HRPS)

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Importance Rating: 4.3 / 4.4

Technical Reference: ES-1.2, Post LOCA Cooldown and Depressurization, Rev. 17
FR-1.3, Voids in the Reactor Vessel, Rev 11
EPM-3-ES-1.2, Basis Document for ES-1.2 Post LOCA
Cooldown and Depressurization, Rev 5

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CGCS B.4.d, .e & .i
Describe the following characteristics of each major component in the Combustible Gas Control system:
d. Normal operating Parameters
e. Component operation
i. Protective Features (including setpoints)

Question Source:

Bank # X
Modified Bank #
New

Question History: WBN question

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: (41.10 / 43.5 / 45.2 / 45.6)

10CFR55.43.b (5)

Comments: WBN question

QUESTIONS REPORT
for 2009 SRO Retake Exam

068 A2.04 092

Given the following:

- A planned release of the Cask Decontamination Collector Tank (CDCT) was started at 1300 and terminated at 1415.
- Subsequently, it was determined that counts were higher than expected and that the radiation monitor RM-90-122 had failed to automatically isolate the release.
- The release count rate was determined to have been $1.75 \text{ E}+06$ cpm for the entire release.

Which ONE of the following identifies (1) the Radiological Emergency Plan EAL Classification met due to the release and (2) the action required?

Reference Provided

(1) <u>EAL Criteria met</u>	(2) <u>Action Required</u>
A. Notification of Unusual Event (NOUE).	Declare the event.
B✓ Notification of Unusual Event (NOUE).	Report the event but do NOT Declare.
C. ALERT because the condition existed for greater than 15 minutes.	Declare the event.
D. ALERT because the condition existed for greater than 15 minutes.	Report the event but do NOT Declare.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, The NOUE declaration criteria was met because the release duration was more than 60 minutes but the declarations would not be made because the conditions have been resolved. Plausible because the criteria for NOUE classification did exist and would have been declared if identified at the time of the release.*
- B. *CORRECT, The NOUE declaration criteria was met because the release duration was more than 60 minutes and the condition would be reported but the declaration would not be made because the conditions have been resolved.*
- C. *Incorrect, Condition existing for greater than 15 minutes does not elevate the classification to an ALERT and the event would not be declared. Plausible because there are conditions where an NOUE would become an ALERT if time limits were exceeded (ex. MCR abandonment) and an declaration would have been made if identified at the time of the release. Additionally if the release rate had been higher, an alert condition could have been met and the determination of the top of the scale versus release rate would be required.*
- D. *Incorrect, Condition existing for greater than 15 minutes does not elevate the classification to an ALERT and the event would not be declared. Plausible because there are conditions where an NOUE would become an ALERT if time limits were exceeded (ex. MCR abandonment) and reporting the event but not declaring is correct because the conditions have been resolved. Additionally if the release rate had been higher, an alert condition could have been met and the determination of the top of the scale versus release rate would be required.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 92

Tier 2 Group 2

K/A 068 A2.04

Liquid Radwaste System (LRS)

Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Failure of automatic isolation

Importance Rating: 3.3 / 3.3

Technical Reference: EPIP-1, Emergency Plan Classification Matrix, Rev. 41
NP REP Appendix B, Tennessee Valley Authority Nuclear
Power Radiological Emergency plan,
Rev 89

Proposed references to be provided to applicants during examination:
EPIP-1, Emergency Plan Classification Matrix,
pages 43 and 46

Learning Objective: OPL271REP B. 2
Classify emergency events using the appropriate procedures.

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.3 / 45.13)

10CFR55.43.b (5)

Comments: New question

QUESTIONS REPORT
for 2009 SRO Retake Exam

002 A2.02 093

Given the following:

- Unit 1 is in Mode 3 with the Reactor Trip Breakers open following a planned shutdown for maintenance.
- The unit is being cooled down in accordance with GO-7, "Unit Cooldown from Hot Standby to Cold Shutdown."
- Current RCS temperature is 465°F and pressurizer pressure 1535 psig.

If a pressurizer PORV inadvertently opened...

- (1) which procedure contains the steps to address the failure and
(2) if the PORV could not be closed or isolated, what criteria would be used to determine when a Safety Injection is required to be initiated?

(1) <u>Procedure</u>	(2) <u>SI Initiation Criteria</u>
A. AOP-R.05, "RCS Leak and Leak Source Identification"	RCS subcooling less than 40°F.
B. AOP-R.05, "RCS Leak and Leak Source Identification"	Pressurizer level less than 5%.
C✓ AOP-I.04, "Pressurizer Instrument and Control Malfunctions"	RCS subcooling less than 40°F.
D. AOP-I.04, "Pressurizer Instrument and Control Malfunctions"	Pressurizer level less than 5%.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, a PORV opened would be an RCS leak but AOP-R.05 is not the procedure with a section for addressing a failed open PORV, AOP-I.04 does have the section but the initiation of Safety Injection based on lack of subcooling is correct. Plausible because AOP-R.05 is the procedure for an RCS leak and safety injection initiation being required if subcooling less than 40 degrees F is correct.*
- B. *Incorrect, a PORV opened would be an RCS leak but AOP-R.05 is not the procedure with a section for addressing a failed open PORV, AOP-I.04 does have the section and the initiation of Safety Injection would be required due to low subcooling not based on low pressurizer level. Plausible because a failed open PORV is an RCS leak and pressurizer level less than 5% is criteria for initiating safety injection in the ES-0.2 and ES-0.3 cooldown procedures as well as in the ES-0.1 procedure.*
- C. *CORRECT, AOP-I.04 contains a section for response to a failed open PORV. Mitigating strategy during performance of the section while in Mode 3 is to initiate a Safety Injection prior to reaching 1870 psig (auto SI setpoint) if the low pressurizer pressure SI is not block or when subcooling is less than 40 degrees F. The question setup has the pressure below the low pressurizer pressure SI setpoint, thus it must be blocked and would have been during the performance of the GO prior to reaching the pressure stated in the stem.*
- D. *Incorrect, AOP-I.04 contains a section for response to a failed open PORV but the initiation of Safety Injection would be required due to low subcooling not based on low pressurizer level. Plausible because AOP-I.04 is correct and pressurizer level less than 5% is criteria for initiating safety injection in the ES-0.2 and ES-0.3 cooldown procedures as well as in the ES-0.1 procedure.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 93

Tier 2 Group 2

K/A 002 A2.02

Reactor Coolant System (RCS)

Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:

Loss of coolant pressure

Importance Rating: 4.2 / 4.4

Technical Reference: AOP -R.05, RCS Leak and Leak Source Identification, Rev. 14
AOP -I.04, Pressurizer Instrument and Control Malfunctions, Rev.9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-I.04 B.5
Describe the mitigating strategy for the failure that initiated entry into AOP-I.04.

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New Question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.5 / 43.5 / 45.3 / 45.5)

10CFR55.43.b (5)

Comments: New Question

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.1.9 094

While implementing a System Operating Instruction (SO), the CRO informs the US that the procedure directs an alarm to be disabled.

In accordance with OPDP-4, "Alarm Disablement," the US can allow the CRO to disable the alarm _____.

- A✓ without completing either a Technical Evaluation or a 50.59 review.
- B. only after a Technical Evaluation and a 50.59 review are completed.
- C. after a Technical Evaluation is completed, but a 50.59 review is **NOT** required.
- D. only after a 50.59 review is completed, but a Technical Evaluation is **NOT** required.

DISTRACTOR ANALYSIS:

- A. *Correct, per OPDP-4, Appendix A section A, if an approved plant procedure allows an alarm disablement then a TE and 50.59 review are not required.*
- B. *Incorrect, per OPDP-4, Appendix A section A, if an approved plant procedure allows an alarm disablement then a TE and 50.59 review are not required. This distracter is plausible because OPDP-4 Appendix A section C does require both a TE and 50.59 review for plant conditions other than those listed in the stem.*
- C. *Incorrect, per OPDP-4, Appendix A section A, if an approved plant procedure allows an alarm disablement then a TE and 50.59 review are not required. This distracter is plausible because OPDP-4 Appendix A section B may require a TE and but not necessarily a 50.59 review for other plant conditions than those listed in the stem.*
- D. *Incorrect, per OPDP-4, Appendix A section A, if an approved plant procedure allows an alarm disablement then a TE and 50.59 review are not required. This distracter is plausible because OPDP-4 Appendix A section B may require a 50.59 review and but not necessarily a TE for other plant conditions than those listed in the stem.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 94

Tier 3 Group 1

K/A G 2.1.9

Conduct of operations

Ability to direct personnel activities inside the control room

Importance Rating: 2.9 / 4.5

Technical Reference: OPDP-4, Annunciator Disablement, Rev 4

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271.OPDP-4 B.3, B.7 & B.8

Describe the responsibilities of the operating crew during disabling an Alarm.

Describe when a Technical Evaluation is required for a disabled Alarm.

Describe when a 10CFR50.59 Review is required for a disabled Alarm.

Question Source:

Bank # _____
Modified Bank # _____X_____
New _____

Question History: SQN bank question 055 G2.4.43 091
(used on Audit Exam in 2008) modified.

Question Cognitive Level:

Memory or fundamental knowledge ___X_____

Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 45.5 / 45.12 / 45.13)

10CFR55.43.b (3)

Comments: SQN bank question 055 G2.4.43 091 (used on Audit Exam in 2008)
modified.

Modified by re-writing stem for different set of initial conditions to meet K/A and provide a different correct answer.

Made closed reference question by eliminating the "Reference Provided."

Reworded distractors and correct answer.

Correct answer in different location.

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.2.12 095

Which ONE of the following identifies...

- (1) the maximum extension time allowed by Technical Specifications for the completion of a daily Surveillance Requirement (SR) and
- (2) if it was discovered the SR was not completed within the maximum allowable extension time, the longest the requirement to declare the equipment inoperable can be delayed without completing a risk assessment?

	(1) <u>Max extension time</u>	(2) <u>Delay time w/o Risk Assessment</u>
A.	6 hours	6 hours
B✓	6 hours	24 hours
C.	24 hours	6 hours
D.	24 hours	24 hours

DISTRACTOR ANALYSIS:

- A. *Incorrect, The extension time is 24 hours but the delay time is not up to 6 hours without completing a Risk Assessment must (it is up to 24 hours). Plausible because the extension time of 24 hours is correct and the delay time being 6 hours is equal to the allowed extension time and can be mistaken.*
- B. **CORRECT**, *A surveillance requirement must be completed within its specified frequency plus 25% extension (6 hours for a 24 surveillance requirement) but if it was discovered that the surveillance requirement was not completion within the specified time plus the extension time, the decision to declare the equipment inoperable could be delayed for up to 24 hours. If the delay is to be past 24 hours, a Risk Assessment must be completed.*
- C. *Incorrect, The extension time is not 24 hours (it is 6 hours) but the delay time being up to 24 hours is correct. Plausible because the time allowed for a missed surveillance is up to 24 hours and can be confused with the extension time of 6 hours. Also, the delay time being 6 hours is equal to the allowed extension time and can be mistaken.*
- D. *Incorrect, The extension time is not 24 hours (it is 6 hours) and the delay time is not up to 6 hours without completing a Risk Assessment (it is up to 24 hours). Plausible because the time allowed for a missed surveillance is up to 24 hours and can be confused with the extension time of 6 hours. Also, the delay time being 24 hours is correct.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 95

Tier 3

K/A G 2.2.12

Knowledge of surveillance procedures.

Importance Rating: 3.7 / 4.1

Technical Reference: Technical Specification Section 3.0/4.0,
Amendment No. 322

Proposed references to be provided to applicants during examination: None

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

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 45.13)

10CFR55.43.b (2)

Comments: New question

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.2.17 096

Given the following:

- The Shift Manager determines that immediate action is needed to begin work on an emergent maintenance activity in parallel with the planning of the associated Work Order.
- The maintenance activity will result in an individual receiving an annual dose greater than the Administrative Dose Limit but still within the 10CFR20 limit.

Which ONE of the following identifies the Work Order Priority Code(s) required to allow work to be performed in parallel with the planning process and the lowest level of management who can authorize the individual to exceed the Administrative Limit?

<u>Work Order Priority Code</u>	<u>Management Authorization required</u>
A. Priority 1 only	RADCON Shift Supervisor
B✓ Priority 1 only	Radiation Protection Manager
C. Priority 1 or 2	RADCON Shift Supervisor
D. Priority 1 or 2	Radiation Protection Manager

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, Shift Manager assigning a Priority 1 code to the WO is correct but Site Radiation Protection Manager (not the RADCON Shift Supervisor) authorization is required to exceed the Administrative Dose Limit. Plausible because assigning a Priority 1 code to the WO is correct and the RADCON Shift Supervisor has functions related to work controlled by an RWP.*
- B. *CORRECT, In accordance with SPP-6.1, if the Shift Manager assigns a Priority 1 code to the WO, the work and planning can be performed in a parallel and in accordance with RCI-03, the Site Radiation Protection Manager authorization is required to exceed the Administrative Dose Limit.*
- C. *Incorrect, A WO coded Priority 2 is an immediate attention situation. It must be planned and worked continuously (24 hours a day) until completion. (Not planned and worked in parallel). Plausible because a WO assigned a Priority 2 causes immediate action to get the WO planned and worked until completion and the RADCON Shift Supervisor has functions related to work controlled by an RWP.*
- D. *Incorrect, A WO coded Priority 2 is an immediate attention situation. It must be planned and worked continuously (24 hours a day) until completion. (Not planned and worked in parallel). Plausible because a WO assigned a Priority 2 causes immediate action to get the WO planned and worked until completion and the Site Radiation Protection Manager authorization is required to exceed the Administrative Dose Limit.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 96

Tier 3

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

Technical Reference: SPP-7.1, On Line Work Management, Rev. 0013
SPP-6.1, Work Order Process Initiation, Rev 0006
RCI-03, Personnel Monitoring, Rev 48

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271SPP-7.1 B.8
Describe the definitions of the Work Order priority codes.
OPL271C260 B.5
List TVA Administrative Dose Levels.

Question Source:

Bank # _____
Modified Bank # _____
New _____

Question History: New question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 43.5 / 45.13)

10CFR55.43.b (4)

Comments:

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.3.11 097

Given the following:

- E-3, "Steam Generator Tube Rupture," has been completed due to a tube rupture on #3 Steam Generator.
- The crew is ready to transition to a post-SGTR cooldown procedure.

If the goal is to use the recovery procedure that will MOST limit contamination spread and offsite radiological releases, which ONE of the following identifies...

- (1) the procedure that should transitioned to,
and
- (2) after the transition is made, which procedure is required to be implemented if #1 Steam Generator pressure starts dropping in an uncontrolled manner?

- A✓ (1) ES-3.1, "Post-SGTR Cooldown Using Backfill"
(2) E-2, "Faulted Generator Isolation"
- B. (1) ES-3.1, "Post-SGTR Cooldown Using Backfill"
(2) ECA-3.1, "SGTR and LOCA"
- C. (1) ES-3.2, "Post-SGTR Cooldown Using Blowdown"
(2) E-2, "Faulted Generator Isolation"
- D. (1) ES-3.2, "Post-SGTR Cooldown Using Blowdown"
(2) ECA-3.1, "SGTR and LOCA"

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *CORRECT, ES-3.1 is the cooldown method that will provide for the least spread of contamination and the minimum offsite dose. If the #1 steam generator pressure starts dropping in an uncontrolled manner after ES-3.1 is implemented the Fold-Out Page directs the transition to E-2.*
- B. *Incorrect, ES-3.1 is the cooldown method that will provide for the least spread of contamination and the minimum offsite dose, but the transition required if #1 steam generator pressure starts dropping in an uncontrolled manner after ES-3.1 is implemented is not to ECA-3.1 (it is to E-2). Plausible because ES-3.1 is the cooldown procedure to be used and ECA-3.1 is the procedure directed to be entered from the Fold Out Page for other conditions that would be present if the pressure on the ruptured steam generator had been dropping.*
- C. *Incorrect, ES-3.2 is not the procedure to be entered to provide for the least spread of contamination and the minimum offsite dose (ES-3.1 is) but the transition to E-2 if the #1 steam generator pressure starts dropping in an uncontrolled manner after ES-3.1 is implemented is correct. Plausible because ES-3.2 is a cooldown procedure that could be used and the transition to E-2 is correct.*
- D. *Incorrect, ES-3.2 is not the procedure to be entered to provide for the least spread of contamination and the minimum offsite dose (ES-3.1 is) and the transition required if #1 steam generator pressure starts dropping in an uncontrolled manner after ES-3.1 is implemented is not to ECA-3.1 (it is to E-2). Plausible because ES-3.2 is a cooldown procedure that could be used and ECA-3.1 is the procedure directed to be entered from the Fold Out Page for other conditions that would be present if the pressure on the ruptured steam generator had been dropping.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 97

Tier 3

K/A G 2.3.11

Ability to control radiation releases.

Importance Rating: 3.8 / 4.3

Technical Reference: E-3, Steam Generator Tube Rupture, Rev. 17
ES-3.1, Post-SGTR Cooldown Using Backfill, Rev. 10

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ES-3.1 B.1 & .5
State the purpose/goal of this ES-3.1.
Describe the conditions and reason for transitions within this
procedure and transitions to other procedures.

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: Question modified from Byron Plant question

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: (41.11 / 43.4 / 45.10)

10CFR55.43.b (5)

Comments: Question modified from Byron Plant question

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.3.14 098

With Unit 1 in Mode 1, compliance with Technical Specification 3.4.8, Reactor Coolant System Specific Activity ensures that the 2-hour dose at the site boundary will not exceed a small fraction of (1) limits following a SGTR in conjunction with an assumed steady state steam generator tube leakage rate of (2) .

	<u>(1)</u>	<u>(2)</u>
A.	10CFR20	1.0 gpm total
B.	10CFR20	0.1 gpm per SG
C✓	10CFR100	1.0 gpm total
D.	10CFR100	0.1 gpm per SG

DISTRACTOR ANALYSIS:

- A. *Incorrect, the limit is based on not exceeding a fraction of the Part 100 limits, not the Part 20 limits but the assumed steady state primary-to-secondary steam generator leakage rate is 1.0 gpm per steam generator. Plausible because Part 20 identifies radiological limits and the assumed steady state primary-to-secondary steam generator leakage rate is 1.0 gpm as identified in Technical Specification 3/4.4.8 bases.*
- B. *Incorrect, the limits is based on not exceeding a fraction of the Part 100 limit, not the Part 20 limits and the assumed steady state primary-to-secondary steam generator leakage rate is 1.0 gpm, not 0.1 gpm per steam generator. Plausible because Part 20 identifies radiological limits and the 0.1 gpm leakage per steam generator is the normal operational leakage limit accounted for the safety limits as identified in the bases for Technical Specification 3/4.4.6.2, RCS Operational Leakage.*
- C. **CORRECT**, *the limit being based on not exceeding a fraction of the Part 100 limits and the assumed steady state primary-to-secondary steam generator leakage rate being 1.0 gpm is identified in Technical Specification 3/4.4.8 bases.*
- D. *Incorrect, the limit is based on not exceeding a fraction of the Part 100 limits, however, the assumed steady state primary-to-secondary steam generator leakage rate is 1.0 gpm, not 0.1 gpm per steam generator. Plausible because not exceeding a fraction of the Part 100 limits is correct and the 0.1 gpm leakage per steam generator is the normal operational leakage limit accounted for the safety limits as identified in the bases for Technical Specification 3/4.4.6.2, RCS Operational Leakage.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 98

Tier 3

K/A G 2.3.14

Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

Importance Rating: 3.4 / 3.8

Technical Reference: Tech Spec 3/4.4.8 Basis, Amendment No. 322

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RCS B.6.a

Describe the administrative controls and limits for the RCS as explained in this lesson:

a. State the Tech Spec/TRM LCOS that govern the RCS.

Question Source:

Bank # _____

Modified Bank # _____

New _____

Question History: SQN bank question RCS-B.6 003 and AOP-R.06-B.9 001

Question Cognitive Level:

Memory or fundamental knowledge _____

Comprehension or Analysis _____

10 CFR Part 55 Content: (41.12 / 43.4 / 45.10)

10CFR55.43.b (2,4) Requires the candidate to know the Facility operating limitations in the technical specifications and their bases and be knowledgeable of the radiation hazards that may arise during normal, abnormal and emergency conditions.

Comments: SQN bank questions RCS-B.6 003 and AOP-R.06-B.9 001 with some modification in wording

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.4.16 099

Given the following:

- A Station Blackout has occurred.
- Unit 1 is performing ECA-0.0, "Loss of All AC Power." and have depressurized the SGs.
- RCS Subcooling is 0°F.
- 1A-A Emergency Diesel Generator was started and is supplying its associated bus.

Subsequently,

- The crew has reached the last step of ECA-0.0 and is preparing to transition to the appropriate recovery procedure.
- A RED Path exists on the Heat Sink CSF Status Tree.

Which ONE of the following identifies the required recovery strategy?

- A. Transition to ECA-0.1, "Loss of All AC Power Recovery Without SI Required", and enter FR-H.1, "Response to Loss of Secondary Heat Sink" when allowed by ECA-0.1.
- B✓ Transition to ECA-0.2, "Loss of All AC Power Recovery With SI Required", and enter FR-H.1, "Response to Loss of Secondary Heat Sink" when allowed by ECA-0.2.
- C. Transition to FR-H.1, "Response to Loss of Secondary Heat Sink" upon exit from ECA-0.0. Perform ECA-0.1, "Loss of All AC Power Recovery Without SI Required", when FR-H.1 is complete.
- D. Transition to FR-H.1, "Response to Loss of Secondary Heat Sink" upon exit from ECA-0.0. Perform ECA-0.2, "Loss of All AC Power Recovery With SI Required", when FR-H.1 is complete.

QUESTIONS REPORT
for 2009 SRO Retake Exam

DISTRACTOR ANALYSIS:

- A. *Incorrect, ECA-0.1 is not correct because ECCS flow is required with the subcooling identified but not entering FR-H.1 until identified in procedure would be correct. Plausible because with more subcooling the transition to ECA-0.1 would be correct and the resumption of Status Tree implementation when addressed by procedure is correct.*
- B. *CORRECT, ECCS flow is required because subcooling is insufficient, thus ECA-0.2 is the correct transition from ECA-0.0. Status tree are monitored for information only until power is restored because the FRPs are written assuming a Train of shutdown power is available. The power will be restored in ECA-0.2 and a step will address the resumption of Status Tree implementation.*
- C. *Incorrect, CSFST are only monitored but not addressed until allowed in appropriate recovery procedure. Performance of ECA-0.1 is also incorrect due to the lack of subcooling. Plausible because a Status Tree RED path is normally implemented immediately and ECA-0.1 would be the correct recovery procedure if subcooling had been higher.*
- D. *Incorrect, CSFST are only monitored but not addressed until allowed in appropriate recovery procedure. Performance of ECA-0.2 is incorrect due to the lack of subcooling but it would be implemented prior to performance FR-H.1. Plausible because a Status Tree RED path is normally implemented immediately and ECA-0.2 is the correct recovery procedure.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 99

Tier 3

K/A G 2.4.16

Knowledge of EOP implementation hierarchy and coordination with other support procedures or guidelines such as, operating procedures, abnormal operating procedures, and severe accident management guidelines.

Importance Rating: 3.5 / 4.4

Technical Reference: ECA-0.0, Loss of All AC Power, Rev 22
ECA-0.2, Recovery From loss of All AC Power With SI
Required, Rev 9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ECA-0.0 B.3
Summarize the mitigating strategy for the failure that initiated entry into ECA-0.0.
OPL271ECA-0.2 B.3
Summarize the mitigating strategy for the failure that initiated entry into ECA-0.2.

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN Bank question written for 2007 Audit exam.

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (41.10 / 43.5 / 45.13)

10CFR55.43.b (5)

Comments: Minor format and wording changes in stem and choices.
Relocated correct answer

QUESTIONS REPORT
for 2009 SRO Retake Exam

G 2.4.38 100

In accordance with the Emergency Plan Implementing Procedures (EPIPs), which ONE of the following identifies a function of the Site Emergency Director (SED) that can be delegated and who the SED can delegate to perform the function?

<u>Function to be delegated</u>	<u>Can be delegated to...</u>
A. Emergency Doses that exceed occupational dose limits	CECC director
B. Emergency Doses that exceed occupational dose limits	Site Vice President
C. Protective Action Recommendations	CECC director
D. Protective Action Recommendations	Site Vice President

DISTRACTOR ANALYSIS:

- A. *Incorrect, the SED can delegate Protective Action Recommendations (PARs) to the CECC Director but not the authorization of emergency dose limits. Plausible because the authorization of emergency dose limits is an SED function and because Protective Action Recommendations (PARs) can be delegated to the CECC director.*
- B. *Incorrect, the SED can delegate Protective Action Recommendations (PARs) to the CECC Director but not the authorization of emergency dose limits. Plausible because the authorization of emergency dose limits is an SED function and because the Site VP is a position in the Technical support Center (TSC) and normally is the highest ranking person on the site.*
- C. *CORRECT, In accordance with EPIP-6, the SED makes Protective Action Recommendations (PARs) to the state and the responsibility cannot be delegated except to the CECC director.*
- D. *Incorrect, the SED can delegate Protective Action Recommendations (PARs) but not to anyone except the CECC director. Plausible because the Site VP is a position in the Technical support Center (TSC) and normally is the highest ranking person on the site.*

QUESTIONS REPORT
for 2009 SRO Retake Exam

Question No. 100

Tier 3

K/A G 2.4.38

Emergency Procedures /Plan

Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

Importance Rating: 2.4 / 4.4

Technical Reference: EPIP-6, Activation and support of the Technical Support Center, Rev 44

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271.REP B.5.a

State the duties and responsibilities of the Site Emergency Director (SED).

a. State the duties and the responsibilities the SED cannot delegate.

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN question EPIP-15 003 modified

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (41.10 / 43.5 / 45.11)

10CFR55.43.b (4)

Comments: SQN question EPIP-15 003 modified and a made 2 part question.

Changed to ask for a function that could be delegated versus a function that could not be delegated and the identification of who could be delegated to perform the function.

Correct answer in different location.

BANK INFORMATION REPORT
for 2009 SRO Retake Exam

Item Type	#Items	Title
MCS	25	Multiple choice: single

Category 1 (Source)	#Items	Title
BANK	6	
BANK MOD	9	
NEW	10	

Category 2 (Source If Bank)	#Items	Title
	10	
BYRON	1	
COMMANCHE PEAK	1	
GINNA	1	
SQN	9	
WBN	3	

Category 3 (Cognitive Level)	#Items	Title
HIGHER	17	
LOWER	8	

Category 4 (Difficulty)	#Items	Title
	25	

Category 5 (Job Position)	#Items	Title
SRO	25	

Category 6 (Plant)	#Items	Title
SEQUOYAH	25	

Category 7 (Date)	#Items	Title
1/2009 RETAKE	25	

Category 8 (Last 2 NRC?)	#Items	Title
NO	25	