QUESTIONS REPORT

for SRO exam written 03-2013

1. Given the following:

   - Unit 1 is operating at 100% power.
   - Annunciator 138-E, PANEL M-9 MOTOR TRIPOUT, alarms and it is determined the CRDM Cooler 1D-B fan tripped.
   - Fire Safe Shutdown Equipment, OR-14.10.1, is entered.
   - Before the operating crew can place an additional CRDM fan in service, the elevated CRDM temperatures result in changes in the indicated rod positions on the CERPI monitors.
   - The unit remains stable at 100% power with no indication of actual rod movement.

   Which ONE of the following completes the statements below?

   Tech Spec 3.0.3 would be first required to be entered due to inoperable rod position indications (ARPI) when more than one ARPI in a single __(1)__ indicated greater than the allowed deviation in accordance with Tech Spec LCO 3.1.8, Rod Position Indication.

   For the Unit to remain in MODE 1 with CRDM Cooler 1D-B INOPERABLE beyond the OR-14.10.1 allowance of 30 days requires __(2)__ of an engineering evaluation to justify using alternate means to provide FSSD.

	(1)	(2)
A.	group	approval by the NRC
B.✓	group	performance and documentation
C.	bank	approval by the NRC
D.	bank	performance and documentation

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the LCO 3.0.3 entry being required when more than one APRI in a single group exceeded the 12 step deviation limit is correct. Also because OR-14.10 contains a requirement similar to Tech Spec 3.0.3 such that if an inoperable component could not be restored within the time allowed by the LCO Condition, a Mode reduction is required. To prevent an LCO 3.0.3 required Mode reduction, NRC approval would be required, but the pre-approval by the NRC for actions taken to provide alternate means to provide FSSD for the fan failure is not required by OR-14-10.*

B. *Correct, LCO 3.1.8, Rod Position Indication, would be entered when an RPI exceeded 12 steps deviation from its demand position indication (step counter). The LCO provides an action for 'One APRI per group for one of more groups' but does not provide an action for more than one APRI in a single group. The LCO 3.0.3 entry would be required when more than one APRI in a single group exceeded the 12 step deviation limit. Fire Protection Plan OR-14.10.3 requires the unit to be placed in Mode 3 within 6 hours and Mode 4 within the following 12 hours if the fan is not restored to operable status within 30 days unless an evaluation justifies the use of alternate means to provide FSSD, but the evaluation does not require pre-NRC approval.*

C. *Incorrect, Plausible because the control rods are arranged in 4 banks with 2 groups in each bank. This provides the opportunity to incorrectly associate the LCO requirement to be more than one rod in a bank versus the correct association with a group. This misconception is valid because Condition C in the same LCO contains the Required Action to 'Verify the most withdrawn rod and the least withdrawn rod of the affected banks are less than or equal to 12 steps apart' when a demand position indicator (step counter) has failed. Also because OR-14.10 contains a requirement similar to Tech spec 3.0.3 such that if an inoperable component could not be restored within the time allowed by the LCO Condition, a Mode reduction is required. To prevent an LCO 3.0.3 required Mode reduction, NRC approval would be required, but the pre-approval by the NRC to actions taken to provide alternate means to provide FSSD for the fan failure is not required by OR-14-10.*

D. *Incorrect, Plausible because the control rods are arranged in 4 banks with 2 groups in each bank. This provides the opportunity to incorrectly associate the LCO requirement to be more than one rod in a bank versus the correct association with a group. This misconception is valid because Condition C in the same LCO contains the Required Action to 'Verify the most withdrawn rod and the least withdrawn rod of the affected banks are less than or equal to 12 steps apart' when a demand position indicator (step counter) has failed. Also because the OR-14.10 allowance for completion of an evaluation to establish an alternate means to provide FSSD is correct.*

Question Number: 91

QUESTIONS REPORT

for SRO exam written 03-2013

Tier: 2 **Group:** 2

K/A: 001 A2.01
Control Rod Drive System
Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Loss of CCW or fan cooling

Importance Rating: 3.1 / 3.7

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

10CFR55.43.b: 1, 2

K/A Match: K/A is matched because the question requires prediction of how the loss of a Control Rod Drive Motor cooling fan affects the Tech Spec LCO required actions due to the for Rod position indications resulting from the loss of cooling

SRO ONLY: Question is SRO only because it requires knowledge of both the Tech Spec reequired action and the requirements/allowances of the Fire Protection Plan for Fire Safe Shutdown Equipment being out of service.

Technical Reference: Tech Spec 3.8.1, Rod Position Indication, (through Amendment 90)
Part II, Fire Protection Plan,Fire Safe Shutdown Equipment, OR-14.10.1

Proposed references to be provided: None

Learning Objective: 3-OT-T/S030
3. Given plant parameters/conditions, correctly determine the compliance with the LCOs or TRs in the Reactivity Control sections of T/S and T/R manuals.
4. Given plant parameters/conditions, correctly determine applicable Action Conditions, Required Actions, and Completion Times for the Reactivity Control sections of T/S and T/R manuals.

3-OT-MSC047A
9. Compare/ contrast actions required by the Fire Protection Report regarding equipment out of service with those of the Technical Specifications or Technical Requirements.

Cognitive Level:
Higher X

QUESTIONS REPORT

for SRO exam written 03-2013

Lower ____

Question Source:

New X

Modified Bank ____

Bank ____

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

2. Given the following:

   - Unit 1 has just been returned to 100% power.
   - Annunciator 110-B, LO PRESS LTDN FLOW/PRESS HI, alarms.
   - 1-PI-62-81, LP LETDOWN PRESS, is oscillating between 310 - 360 psig.
   - 1-FI-62-82, LETDOWN FLOW, is oscillating between 70 - 75 gpm.
   - OAC places 1-HIC-62-81A, LETDOWN PRESS CONTROL, to MANUAL after determining the valve was oscillating and reduces the oscillation on 1-PI-62-81 to between 310 to 330 psig.
   - After 1-HIC-62-81A was placed to MANUAL an AUO sent to investigate reports back:
     - 1-PI-62-81C, LP LETDOWN PRESS, oscillating between 310 psig and 330 psig.
     - 1-PI-62-116, REACTOR COOLANT FILTER INLET PRESSURE oscillating between 190 psig and 200 psig.

   Which ONE of the following completes the statement below?

   As a result of the above conditions, a Tech Spec LCO 3.4.13, RCS Operational LEAKAGE, limit __(1)__ exceeded.

   In order to mitigate the consequences, the SRO will direct the performance of SOI-62.01, "CVCS-Charging and Letdown," __(2)__

A. (1) was
   (2) Section 8.18, "Bypassing Reactor Coolant Filter."

B. (1) was
   (2) Section 8.15, "Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control."

C. (1) was **NOT**
   (2) Section 8.18, "Bypassing Reactor Coolant Filter."

D. (1) was **NOT**
   (2) Section 8.15, "Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control."

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because if the safety valve upstream of the orifices was determined to have lifted instead of the safety valve downstream of the letdown heat exchanger, then the letdown flow would have been directed to the PRT resulting in exceeding the LCO 3.4.13 limit for identified leakage. Also because using SOI-62.01, "CVCS-Charging and Letdown," Section 8.18, "Bypassing Reactor Coolant Filter" to mitigate the effect of the conditions is correct.*

B. *Incorrect, Plausible because if the safety valve upstream of the orifices was determined to have lifted instead of the safety valve downstream of the letdown heat exchanger, then the letdown flow would have been directed to the PRT and resulted in exceeding the LCO 3.4.13 limit for identified leakage. Using Section 8.15, "Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control." is also plausible because all of the indications would exist for a malfunctioning PCV except for the pressure on the Reactor Coolant filter (which would have been lower).*

C. *Correct, Applicant is required to determine how the conditions effect the system flow path with a safety valve being forced to open (setpoint 200 psig) While the provided conditions do not directly identify the CVCS Reactor Coolant filter is plugged and needs to be replaced, the applicant should be able to determine they exist by evaluation of the filter inlet pressure. Conditions to replace the filter will be established using SOI-62.01, "CVCS-Charging and Letdown," Section 8.18, "Bypassing Reactor Coolant Filter." The WBN simulator was used to determine conditions in the stem with the filter 100% plugged.*

D. *Incorrect, Plausible because the safety valve downstream of the letdown heat exchanger relieves to the VCT which is the same flow path as would exist if the flow was through the filter, thus LCO 3.4.13 limit for identified leakage not being exceeded is correct. Using Section 8.15, "Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control" is also plausible because all of the indications would exist for a malfunctioning PCV except for the pressure on the Reactor Coolant filter (which would have been lower).*

Question Number: 86

Tier: 2 **Group:** 1

K/A: 004 A2.23
Chemical and Volume Control System
Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
High filter D/P

Importance Rating: 2.6 / 2.7

QUESTIONS REPORT
for SRO exam written 03-2013

10 CFR Part 55: 41.5 / 43/5 / 45/3 / 45/5

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires the ability to understand the impact of a High filter D/P on the CVCS Reactor Coolant filter (causing the opening the safety valve on the letdown line downstream of the letdown heat exchanger) and then identifying the condition exists so that the correct procedure will be implemented to mitigate the consequences of the plugged filter.

SRO ONLY: Question is SRO because it requires both assessing plant conditions to determine application of Tech Spec RCS Operational leakage LCO and then selecting a section of a procedure to mitigate the consequences of the abnormal plant conditions.

Technical Reference: 1-47W809-1 R63
SOI-62.01, CVCS-Charging and Letdown, Revision 0064

Proposed references to be provided: None

Learning Objective: 3-OT- SYS062A
22. Discuss resin breakthrough and relate the consequences to the RCS.
31. Given a set of plant parameters or indications diagnose conditions and/or problems relative to the CVCS.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam

Comments:

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

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for SRO exam written 03-2013

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

3. Given the following:

- With Unit 1 operating at 100% power an inadvertent Safety Injection occurs during SSPS testing.
- The operating crew has entered ES-1.1, "SI Termination."
- During performance of the step to RESET SI the crew determines Train A failed to reset.
- An operator dispatched to the Aux Instrument Room with Appendix G, "Reset of Train A Safety Injection Signal at R Panels," is unable to reset the SI at the SSPS cabinets.

Which ONE of the following completes the statements below?

The transition to ES-1.1, "SI Termination," __(1)__ been made directly from 1-E-0, "Reactor Trip or Safety Injection".

To terminate the ECCS flow and restore normal charging requires __(2)__.

	(1)	(2)
A.✓	would have	an operator to be dispatched with ES-1.1 Appendix E, "Operation of MOVs at Train A Electrical Board"
B.	would have	Instrument Maintenance to block SI using IMI-99.040, " Auto SI Block"
C.	would **NOT** have	an operator to be dispatched with ES-1.1 Appendix E, "Operation of MOVs at Train A Electrical Board"
D.	would **NOT** have	Instrument Maintenance to block SI using IMI-99.040, " Auto SI Block"

DISTRACTOR ANALYSIS:

A. *Correct, There is a step in 1-E-0 to check if the SI can be terminated and if so the transition to ES-1.1, "SI Termination," is directed and while performing ES-1.1, if the SI cannot be reset form the MCR or through operator actions locally at the SSPS cabinets, then an operator is dispatched with ES-1.1 Appendix E, "Operation of MOVs at Train A Electrical Board" to allow the repositioning of any required MOVs.*

B. *Incorrect, Plausible because the first part (the transition to ES-1.1, "SI Termination," being made from 1-E-0) is correct and there are conditions during performance that require Instrument Maintenance to block SI using IMI-99.040, "Auto SI Block" (e.g. FR-H.1).*

C. *Incorrect, Plausible because ES-1.1 is a sub-procedure of E-1 and in most cases the sub-procedure (ES series) is entered from the higher level ERGs, (E series) (e.g. ES-1.1 from E-1, ES-0.1 from E-0). The second part of the distractor to dispatch an operator with ES-1.1 Appendix E, "Operation of MOVs at Train A Electrical Board" to allow repositioning of required MOVs for the conditions given in the stem is correct.*

D. *Incorrect, Plausible because ES-1.1 is a sub-procedure of E-1 and in most cases the sub-procedure (ES series) is entered from the higher level ERG (E series) (e.g. ES-1.1 from E-1, ES-0.1 from E-0) and there are conditions during performance that require Instrument Maintenance to block SI using IMI-99.040, "Auto SI Block" (e.g. FR-H.1).*

Question Number: 87

Tier: 2 **Group:** 1

K/A: 006 A2.13
006 Emergency Core Cooling System (ECCS)
Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Inadvertent SIS actuation

Importance Rating: 3.9 / 4.2

10 CFR Part 55: 41.5 / 45.5

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires the knowledge of how an inadvertent Safety injection will impact operation of valves in the

K/A Match: K/A is matched because the question requires the knowledge of how an inadvertent Safety injection will impact operation of valves in the ECCS system if attempts to reset the Safety injection through the SSPS system were not successful and then use procedures to allow valve oepration to terminat the ECCS flow.

SRO ONLY: The question is SRO because it requires assessing plant conditions during an emergency) and the process by which the procedure to mitigate the event will be implemented. This requires knowledge of diagnostic steps and decision points in the EOPs that involve transitions to the event specific subprocedure. Also, requires knowledge of procedures and appendices used to allow termination the ECCS flow when abnormal conditions are encountered.

Technical Reference: 1-E-0, Reactor Trip or Safety Injection, Revision 0000
1-FR-H.1, Loss of Secondary Heat Sink, Revision 0000
ES-1.1, SI Termination, Revision 0017

Proposed references to be provided: None

Learning Objective: 3-OT-EOP0000
26. Given a set of plant conditions, use E-0, ES-0.0, ES-0.1, ES-0.2, ES-0.3, ES0.4 and the Critical Safety Function Status Trees to correctly diagnose and implement: Action Steps, RNOs, Foldout Pages, Notes and Cautions.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

4. Given the following:

Initial Conditions

- Unit 1 is at 50% RTP.
- Reactor Trip breaker RTB is closed.
- Bypass breaker BYA is racked in and closed .

Current Conditions

- An automatic Reactor trip signal is generated due to Low S/G level.
- RTB and BYA UV trip coils are deenergized but fail to actuate.

Which ONE of the following completes the statements below?

In response to the reactor trip signal __(1)__ will open.

The first notification to the NRC of the reactor trip breaker(s) opening is required within a maximum of __(2)__ hours in accordance with NPG-SPP-03.5, "Regulatory Reporting Requirements."

	(1)	(2)
A.✓	only RTB will open	4
B.	BYA and RTB will open	4
C.	only RTB will open	8
D.	BYA and RTB will open	8

DISTRACTOR ANALYSIS:

A. *Correct, The shunt trip coil (STB) in parallel with the UV coil on RTB will be energized to trip RTB. However BYA does not have the STB coil, so the SSPS trip functions only de-energize the UV relay for the BYA. Therefore, the BYA will not open. In accordance with NPG-SPP-03.5, Section 3.1.3 this is a 4 hour report.*

B. *Incorrect, the first part is plausible because the RTB will open and the BYA would open if the breakers had been equipped with the shunt trip coil contained on the RT breakers. The second part is plausible because it is correct.*

C. *Incorrect, the first part is plausible as it is correct. The second part is plausible because an 8 hour report is required when to the reactor trip breakers open due to a trip during a condition when the reactor is not critical.*

D. *Incorrect, the first part is plausible because the RTB will open and the BYA would open if the breakers had been equipped with the shunt trip coil contained on the RT breakers The second part is plausible because an 8 hour report is required when to the reactor trip breakers open due to a trip during a condition when the reactor is not critical.*

C. The following criteria require 4-hour notification:
1. §50.72(b)(2)(i) - The initiation of any nuclear plant shutdown required by the plant's Technical Specifications.
2. §50.72(b)(2)(iv)(A) - Any event that results or should have resulted in Emergency Core Cooling System (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.
3. §50.72(b)(2)(iv)(B) - Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

Question Number: 76

Tier: 1 **Group:** 1

K/A: 007 EA2.06
Reactor Trip
Ability to determine or interpret the following as they apply to a reactor trip:
Occurrence of a reactor trip

Importance Rating: 4.3 / 4.5

10 CFR Part 55: 41.7 / 45.5 / 45.6

10CFR55.43.b: 5

QUESTIONS REPORT

for SRO exam written 03-2013

K/A Match: K/A is matched because the question requires the ability to interpret an abnormal condition during the reactor trip and the reporting requirements due to a condition that caused a reactor trip while the reactor was critical.

SRO ONLY: The question is SRO because it requires the ability to apply the regulatory reporting requirements to a condition resulting in the operation of the reactor trip breakers. The applicant is required to assess plant conditions and then select the section of the NRC reporting requirement procedure which to proceed.

Technical Reference: NPG-SPP-03.5, Regulatory Reporting Requirements, Revision 0006
45W600-99-1 R7

Proposed references to be provided: None

Learning Objective: 3-OT-SYS0099A
10. Describe the two ways by which the SSPS opens the reactor trip breakers.
3-OT-SPP0305
7. Identify the criteria requiring immediate notification, 1-hour, 4-hour and 24-hour notification to the NRC in accordance with 10CFR72.74 and 72.75 as specified in NPG-SPP-03.5 Appendix C

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

5. Given the following:

- Unit 1 operating crew is currently performing 1-ECA-3.1, "SGTR and LOCA - Subcooled Recovery."
- ECCS flow has been terminated and normal charging is in service.
- Containment conditions are normal.
- RVLIS indicates 94%.
- Pressurizer level is 62% and rising.
- RCS subcooling is 137°F.
- RCPs were stopped in accordance with the EOPs prior to 1-ECA-3.1 entry and the crew has now established RCP Emergency Restart Criteria.

Which ONE of the following completes the statements below?

In order to start a RCP, __(1)__ is required to be raised.

A parameter dropping that could result in requiring transition to 1-ECA-3.2, "SGTR and LOCA - Saturated Recovery" is the __(2)__ level.

	(1)	(2)
A.✓	pressurizer level	RWST
B.	pressurizer level	Ruptured S/G
C.	RCS subcooling	RWST
D.	RCS subcooling	Ruptured S/G

DISTRACTOR ANALYSIS:

A. *Correct, The procedure has provisions for starting a RCP that must be met to accommodate the presence of a head bubble. The pressurizer level is required to be above 90% or increased until the level stops rising. The procedure also has a monitoring step to compare the drop in RWST level to the rise in the containment sump level. With no rise in sump level the transition to 1-ECA-3.2 is required when the RWST level drops to approximately 68%.*

B. *Incorrect, The ruptured S/G level dropping would not require a transition to 1-ECA-3.2. Plausible because the pressurizer level being required to be raised is correct and the ruptured S/G level is monitored to determine a need to transition to 1-ECA-3.2 but it is made on a rising level not a dropping level.*

C. *Incorrect, Subcooling is not required to be raised in order start an RCP because it is above the minimum required value. Plausible because RCS subcooling is affected and monitored during the step and because the RWST dropping could result in a transition to 1-ECA-3.2.*

D. *Incorrect, Neither Subcooling being required to be raised nor Ruptured S/G level dropping is correct. Plausible because RCS subcooling is affected and monitored during the step and the ruptured S/G level is monitored to determine a need to transition to 1-ECA-3.2 but it is made on a rising level not a dropping level.*

32. **DETERMINE** RCP status:

CHECK RCP(s) RUNNING to provide normal pzr spray.

ESTABLISH normal pzr spray, Loop 2 preferred:

a. **IF** RVLIS less than 95%,**THEN**:

- **RAISE** pzr level greater than 90% **OR** UNTIL level stops rising.
- **RAISE** RCS subcooling to greater than 101°F [121°F ADV].
- **CONTROL** pzr heaters as necessary.

Question Number: 77

Tier: 1 **Group:** 1

K/A: 009 EA2.38
Small Break LOCA

QUESTIONS REPORT
for SRO exam written 03-2013

K/A: 009 EA2.38
Small Break LOCA
Ability to determine or interpret the following as they apply to a small break LOCA:
Existence of head bubble

Importance Rating: 3.9 / 4.3

10 CFR Part 55: 43.5 / 45.1

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires the ability to determine that a head bubble is present and to interpret the effect starting an RCP will have on the head bubble (collapse and lower pressurizer level.)

SRO ONLY: The question is SRO because it requires detailed knowledge of the procedure and the bases of a step. Additionally it requires knowledge of parameters that would be used to make a transition to a different procedure as ECA-3.1 is being performed. (i.e. knowledge of diagnostic steps and decision points in the emergency operating procedures (EOP) that involve transitions to event specific subprocedures or emergency contingency procedures.

Technical Reference: 1-ECA-3.1, SGTR and LOCA - Subcooled Recovery, Revision 0000

Proposed references to be provided: None

Learning Objective: 3-OT-ECA0301
2. Given a set of plant conditions, use procedures ECA-3.1, 3.2, and 3.3 to identify any required procedure transition.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the 03/2013 NRC exam

Comments:

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

Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

6. Given the following:

- Unit 1 is operating at 100% power.
- Lower Compartment Coolers 1B-B, 1C-A and 1D-B are in service.
- CRDM Coolers 1A-A and 1B-B are in service.
- A large ERCW leak occurs in the Auxiliary Building which is isolated by closing the following three valves:
  - 1-ISV-67-523A, LOWER CNTM VENT CLR 1A & 1C ERCW SUP ISOL in the Auxiliary Building.
  - 1-FCV-67-83, LOWER CNTM CLR HDR A ERCW SUP ISOL and 1-FCV-67-91, LOWER CNTM CLR HDR C ERCW SUP ISOL in the Annulus.
- Following the isolation of the ERCW, the lower containment average air temperature begins to slowly rise and the operating crew begins action to limit the temperature increase.

Which ONE of the following completes the statements below?

TR-3.6.3 Lower Compartment Cooling (LCC) System __(1)__ entry into a Required Action.

Aligning CRDM Cooler __(2)__ to lower containment in accordance with SOI-30.03, "Containment HVAC and Pressure Control," will provide additional cooling in lower containment.

	(1)	(2)
A.	requires	1C-A
B.	requires	1D-B
C.	does **NOT** require	1C-A
D.	does **NOT** require	1D-B

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because TR-3.6.3 requires two LCC trains with two fans in each train to be OPERABLE and unless the Bases information is known it is reasonable to conclude that a loss of cooling medium would render the component to be INOPERABLE. Second part plausible because the SOI has precautions relating to maintain a balance of flows by running fans both fan rooms and there is nothing in the description of the ERCW valves that are isolated to indicate ERCW flow has been lost to the CRDM cooler 1C-A even though the flow has been lost.*

B. *Incorrect, Plausible because TR-3.6.3 requires two LCC trains with two fans in each train shall be OPERABLE and unless the Bases information is known it is reasonable to conclude that a loss of cooling medium would render the component to be INOPERABLE. Also plausible because the second part (Aligning CRDM cooling fan 1D-B for supplemental cooling in lower containment) is correct.*

C. *Incorrect, Plausible because not being required to comply with a TR-3.6.3 required action is correct as the fans are not required to perform a cooling function by the TR. Second part plausible because the SOI has precautions relating to maintain a balance of flows by running fans both fan rooms and there is nothing in the description of the ERCW valves that are isolated to indicate ERCW flow has been lost to the CRDM cooler 1C-A even though the flow has been lost.*

D. *Correct, As identified in TR-3.6.3 Bases The LCC fans do not perform a cooling function, which means that the coils and the secondary cooling water circuits need not be OPERABLE. The TR specifies the equipment which needs to be OPERABLE in order to ensure that air can be circulated in the sub-compartments if an accident should take place. Aligning CRDM cooling fan 1D-B for supplemental cooling in lower containment is correct because CRDM 1C-A fan does not have ERCW available due to the ERCW isolation in the question.*

Lower Compartment Cooling System
B 3.6.3

BASES (continued)

TR — The TR specifies the equipment which needs to be OPERABLE in order to ensure that air can be circulated in the sub-compartments if an accident should take place. At least one LCC train must be placed in operation after the accident. The LCC fans do not perform a cooling function, which means that the coils and the secondary cooling water circuits need not be OPERABLE. However, secondary side failures which could impair the operation of the fans and the circulation of the air must be prevented.

Question Number: 88

Tier: 2 **Group:** 1

K/A: 022 A2.04
Containment Cooling System (CCS)
Ability to (a) predict the impacts of the following malfunctions or operations

QUESTIONS REPORT
for SRO exam written 03-2013

K/A: 022 A2.04
Containment Cooling System (CCS)
Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Loss of service water

Importance Rating: 2.9* / 3.2

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

10CFR55.43.b: 2

K/A Match: K/A is matched because the question requires the applicant to predict how Tech Requirement TR 3.6.3 is impacted due to the loss of ERCW to two of the four Lower Compartment Coolers and a Tech Spec LCO bases associated with the operation of the Containment Cooling System.

SRO ONLY: Question is SRO because it requires using information contained in the Tech Requirement Bases to determine the OPERABILITY Status of the Lower Compartment Coolers that have no cooling medium available.

Technical Reference:
Tech Requirement TR-3.6.3 Lower Containment Cooling (LLC) system, 09/30/95
SOI-30.03, Containment HVAC and Pressure Control, Revision 0045
1-47W845-2 R86
1-47W845-3 R32

Proposed references to be provided: None

Learning Objective: 3-OT-TS0306
2. Determine the bases for each specification, as applicable, to the Containment System.
3. Given plant conditions and parameters, correctly determine the OPERABILITY of components associated with the Containment System.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

QUESTIONS REPORT

for SRO exam written 03-2013

Question History: New question for the WBN 2012 NRC exam.

Comments:

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

Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

7. Given the following:

0110 - With Unit 1 operating at 100% power, a failure in the pressurizer pressure control system controlling pressurizer pressure transmitter resulted in Tech Spec LCO 3.4.1, "RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits CONDITON A being entered due to pressure dropping slightly below the minimum allowed value before stabilizing with one of the spray valves stuck partially open and all heaters on.

0310 - The crew enters CONDITION B due to the pressurizer pressure remaining below the LCO limit.

0330 - Pressurizer pressure was restored to above the minimum limit following repair to the control system.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

Which ONE of the following completes the statement below?

Tech Spec LCO 3.4.1 was first required to be entered when the pressurizer pressure dropped to less than __(1)__ and the Unit __(2)__.

	(1)	(2)
A.	2217 psig	can remain at 100% power with both CONDITION A and CONDITION B exited at 0330
B.✓	2214 psig	can remain at 100% power with both CONDITION A and CONDITION B exited at 0330
C.	2217 psig	must be in MODE 2 by 0930 because the COMPLETION TIME of CONDITION A was **NOT** met
D.	2214 psig	must be in MODE 2 by 0930 because the COMPLETION TIME of CONDITION A was **NOT** met

DISTRACTOR ANALYSIS:

A. *Incorrect, the pressure is not correct for the heaters. Plausible because 2217 psig is the nominal pressure the Pressurizer backup heaters will automatically de-energize and because allowing the unit to remain at 100% power (CONDITION B exited) after with the pressure is restored to greater than the minimum is correct.*

B. *Correct, The LCO is required to be entered when the pressurizer pressure dropped to below 2214 psig (see below) and with the pressure restored to greater than the minimum both CONDITION A and CONDITION B can be exited allowing the unit to remain at 100% power.*

C. *Incorrect, Neither the pressure nor the required action of CONDITION B being completed is correct. Plausible because 2217 psig is the nominal pressure the Pressurizer backup heaters will automatically de-energize and there are conditions that must be completed once they have been entered (e.g. RCS Chemistry TR) and because the allowed time for completion of CONDITION A had been exceeded.*

D. *Incorrect, The completion of Condition B required actions is not required in this LCO. Plausible because entering the LCO when the pressurizer pressure drops to less than 2214 psig is correct and there are conditions that must be completed once they have been entered (e.g. RCS Chemistry TR) and because the allowed time for completion of CONDITION A had been exceeded.*

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

a. Pressurizer pressure ≥ 2214 psig;

Question Number: 78

Tier: 1 **Group:** 1

K/A: 027 AA2.04
Pressurizer Pressure Control System (PZR PCS) Malfunction
Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions:
Tech-Spec limits for RCS pressure

Importance Rating: 3.7 / 4.3

10 CFR Part 55: 43.5 / 45.13

10CFR55.43.b: 2

K/A Match: K/A is matched because the question requires the ability to determine

QUESTIONS REPORT

for SRO exam written 03-2013

K/A Match: K/A is matched because the question requires the ability to determine when RCS pressure drops below the Tech Spec LCO minimum limit and how the LCO actions apply to the conditions in the question.

SRO ONLY: The question requires knowledge of the application of Required Actions when the completion time of a Condition is not met. *Some examples of SRO exam items for this topic include the application of Required Actions (Section 3) in accordance with rules of application requirements (Section 1).*

Technical Reference: Unit 1 Tech Spec 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits, (through Amendment 90)
Unit 1 Tech Spec 1.0 Use and Application, 1.3 Completion Times, (through Amendment 90)

Proposed references to be provided: None

Learning Objective: 3-OT-T-S0304

3. Given plant conditions/parameters correctly determine the OPERABILITY of components associated with RCS.
4. Given plant conditions and parameters correctly determine the applicable Limiting Conditions for Operations or Technical Requirements for the various components of the RCS.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

8. Given the following:

- Unit 1 is operating at 100% power.

1000 - Both Reactor Trip Breakers are declared INOPERABLE.
SSPS has been determined to be operable.

1020 - The operating crew initiates a plant shutdown.

1045 - A valid reactor trip signal is generated and neither of the Reactor Trip Breakers opened or could be opened by the OAC. The operating crew enters the EOP network.

1050 - AUO reports ALL Reactor Trip and Bypass Breakers open, CRDM MG Set 1B output breaker open but CRDM MG Set 1A output breaker could not be opened.

1135 - The operating crew is ready to transition from ES-0.1, "Reactor Trip Response," to the applicable GO procedure.

Which ONE of the following correctly describes the mode the unit is allowed to remain in or must be placed in in accordance with Technical Specifications?

The Unit _____.

REFERENCE PROVIDED

A. can remain in Mode 3 indefinitely

B. must be in Mode 4 within 13 hours, but can remain in Mode 4 indefinitely

C. can remain in Mode 3 for up to 6 hours, but must be in Mode 4 in 13 hours and Mode 5 in 37 hours

D. can remain in Mode 3 for up to 1 hour while trying to repair one RTB, but if one RTB cannot be fixed, the plant must be in Mode 4 in 13 hours and Mode 5 in 37 hours

DISTRACTOR ANALYSIS:

A. Correct, LCO 3.0.3 no longer applies since the RTBs are opened. The "(a) With RTBs closed and Rod Control System capable of rod withdrawal for Modes 3, 4, 5" identifies that when the RTBs are open, the LCO no longer applies.

B. Incorrect, Plausible because the unit can remain in Mode 4 indefinitely but there is no requirement to get to Mode 4 within 13 hours. While LCO 3.0.3 is applicable in Modes 1-4, the condition that caused the entry is only applicable until the RTBs are open.

C. *Incorrect, Plausible because the plant can remain in Mode 3 indefinitely so the plant can remain in Mode 3 for 6 hours allowed by LCO 3.0.3 if the limit did apply; However the plant does not have to go to mode 4 and LCO 3.0.3 is no longer in effect due to the RTBs being open.*

D. *Incorrect, Plausible because the plant can remain in Mode 3 indefinitely so the plant can remain in Mode 3 for the 1 hour; However the plant does not have to go to mode 4 and LCO 3.0.3 is no longer in effect due to the RTBs being open.*

Table 3.3.1-1 (page 6 of 9)
Reactor Trip System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOW VAL
17.	Reactor Trip Breakers [j]	1, 2	2 trains	Q	SR 3.3.1.4	N
		3[a], 4[a], 5[a]	2 trains	C	SR 3.3.1.4	N
18.	Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1, 2	1 each per RTB	T	SR 3.3.1.4	N
		3[a], 4[a], 5[a]	1 each per RTB	C	SR 3.3.1.4	N
19.	Automatic Trip Logic	1, 2	2 trains	P	SR 3.3.1.5	N
		3[a], 4[a], 5[a]	2 trains	C	SR 3.3.1.5	N

(a) With RTBs closed and Rod Control System capable of rod withdrawal.

(j) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

Z.	Two RTS Trains inoperable	Z.1 Enter LCO 3.0.3.	Immediately

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

QUESTIONS REPORT
for SRO exam written 03-2013

Question Number: 92

Tier: 2 **Group:** 2

K/A: 029 G2.2.40
Anticipated Transient Without Scram (ATWS)
Equipment Control
Ability to apply Technical Specifications for a system.

Importance Rating: 3.4 / 4.7

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

10CFR55.43.b: 2

K/A Match: K/A is matched because the question requires the application of Tech Spec due to equipment failures that resulted in an ATWS condition

SRO ONLY: The question meets the requirements for SRO level question due to the application of both LCO 3.3.1 and LCO 3.0.3 and specifically knowledge of how 3.0.3 applies in this case.

Technical Reference: Unit 1 Tech Spec Amendment 90

Proposed references to be provided: LCO 3.3.1

Learning Objective: 3-OT-T/S0303
5. Given plant parameters/conditions, correctly determine applicable Action Conditions, Required Actions, and Completion Times for the various instrumentation systems covered by T/S or T/R.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	
Modified Bank	X
Bank	

Question History: Farley bank question from 2007 exam modified for use on WBN 03/2013 NRC exam.

Comments:

QUESTIONS REPORT

for SRO exam written 03-2013

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A B D B A B B C B D Scramble Range: A - D

Source:	BANK MOD	Source If Bank:	FARLEY
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

9. Given the following:

   - Unit 1 is operating at 100% power when the steam line leaving SG #3 breaks inside containment resulting in a Reactor Trip and Safety Injection due to the containment pressure rise.

Which ONE of the following completes the statements below?

The 15 minute clock to make a required REP declaration is first initiated when __(1)__.

The correct classification is an __(2)__.

	(1)	(2)
A.	Safety Injection is initiated	NOUE
B.	Safety Injection is initiated	ALERT
C.	SG #3 pressure drops to less than 675 psig	NOUE
D.	SG #3 pressure drops to less than 675 psig	ALERT

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the Safety Injection initiation is when the first of two requirements for an NOUE classification are met (but it takes both) and the correct classification is an NOUE.*

B. *Incorrect, Plausible because the Safety Injection is when the first of two requirements for an NOUE classification are met (but it takes both) and the classification being an ALERT is plausible because if the rise in containment pressure resulting in a Safety Injection had been due to a LOCA, the required classification would be an ALERT.*
Additionally a containment pressure increase can result in the Potential Loss of Containment Barrier if the containment spray system fails and a potential loss of only one of the barriers requires an ALERT declaration if the one potential loss is either of the other 2 barriers (RCS or Fuel Clad).

C. *Correct, In accordance with EPIP-1, the conditions for an REP declaration are first met only after both the SI is actuated and the faulted SG pressure has depressurized to less than 675 psig. The correct classification is an NOUE in accordance with EAL 2.7.*

D. *Incorrect, Plausible because the conditions that required an REP declaration existing only after the SG #3 pressure drops to less than 675 psig is correct and the classification being an ALERT is plausible because if the rise in containment pressure resulting in a Safety Injection had been due to a LOCA the required classification would be an ALERT. Additionally a containment pressure increase can result in the Potential Loss of Containment Barrier if the containment spray system fails and a potential loss of only one of the barriers requires an ALERT declaration if the one potential loss is either of the other 2 barriers (RCS or Fuel Clad).*

Question Number: 79

Tier: 1 **Group:** 1

K/A: 040 AG2.4.41
Steam Line Rupture
Emergency Procedures / Plan
Knowledge of the emergency action level thresholds and classifications.

Importance Rating: 2.9 / 4.6

10 CFR Part 55: 41.10 / 43.5 / 45.11

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires knowledge of the threshold times and values for initiating the Radiological Emergency

QUESTIONS REPORT

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K/A Match: K/A is matched because the question requires knowledge of the threshold times and values for initiating the Radiological Emergency Plan and then evaluating conditions to make the correct classification.

SRO ONLY: The question assessing plant conditions (normal, abnormal, or emergency) and then selecting which EPIP (Alert or NOUE) with which to proceed. Also, because the classification of REP events is an SRO task.

Technical Reference: 1-E-2, Faulted Steam Generator Isolation, Revision 0000
EPIP-1, Emergency Plan Classification Logic, Revision 0037

Proposed references to be provided: none

Learning Objective: 3-OT-PCD-048C
13. Given plant conditions,classify the Emergency Event, IAW EPIP-1

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

10. Given the following:

- Unit 1 is operating at 100% power when a loss of 120V AC Vital Instrument Power Boards 1-I occurs.

- The OAC trips the reactor and the crew enters 1-E-0, "Reactor Trip or Safety Injection," in accordance with required IMMEDIATE ACTION of 1-AOI-25.01, "Loss of 120V AC Vital Instrument Power Boards 1-I or 2-I."

- A transition is made to ES-0.1, "Reactor Trip Response."

- Pressurizer level is uncontrolled due to a loss of air to containment.

Which ONE of the following completes the statements below?

Performance of 1-AOI-25.01 is be be continued __(1)__.

1-AOI-25.01 will re-establish control air to containment by implementation of __(2)__.

A. (1) only after ES-0.1 is complete
(2) 1-AOI-10, "Loss of Control Air"

B. (1) only after ES-0.1 is complete
(2) 1-AOI-25.01 Appendix B, "Alternate Control of Charging and Letdown"

C. (1) concurrently with ES-0.1
(2) 1-AOI-10, "Loss of Control Air"

D✓ (1) concurrently with ES-0.1
(2) 1-AOI-25.01 Appendix B, "Alternate Control of Charging and Letdown"

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because emergency procedures normally have priority over abnormal procedures and AOI-25.01 does identify the use of (REFER TO) AOI-10 to determine equipment that is affected due to the loss of control air but does not direct the AOI to be used to restore the pressure.*

B. *Incorrect, Plausible because emergency procedures normally have priority over abnormal procedures and the appendix in 1-AOI-25.01 does initiate actions re-establish control air pressure to containment by opening the required bypass valves on the supply valves that have automatically isolated during performance of 1-AOI-25.01 Appendix B, "Alternate Control of Charging and Letdown."*

C. *Incorrect, Plausible because performing the AOI in parallel will ES-0.1 is correct and AOI-25.01 does identify the use of (REFER TO) AOI-10 to determine equipment that is affected due to the loss of control air but does not direct the AOI to be used to restore the pressure.*

D. *Correct, TI-12.04 identifies that the AOI is to be continued in parallel with ES-0.1 and the appendix in 1-AOI-25.01 does initiate actions re-establish control air pressure to containment by opening the required bypass valves on the supply valves that have automatically isolated during performance of 1-AOI-25.01 Appendix B, "Alternate Control of Charging and Letdown."*

Question Number: 80

Tier: 1 **Group:** 1

K/A: 057 AG2.4.11
Loss of Vital AC Electrical Instrument Bus
Emergency Procedures / Plan
Knowledge of abnormal condition procedures.

Importance Rating: 4.0 / 4.2

10 CFR Part 55: 41.10 / 43.5 / 45.13

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires knowledge of the actions required by the abnormal operating procedure for the loss of a Vital AC Electrical Instrument Bus and as well as the coordination of the procedure while emergency procedures are in effect.

QUESTIONS REPORT

for SRO exam written 03-2013

SRO ONLY: SRO because question requires knowledge of an appendix required to be implemented due to the loss of the Loss of Vital AC Electrical Instrument Bus and the knowledge of the administrative procedure specifying hierarchy, implementation and coordination of plant abnormal and emergency procedures.

Technical Reference: 1-AOI-25.01, Loss of 120V AC Vital Instrument Power Boards 1-I or 2-I, Revision 0000
TI-12.04, Users Guide for Abnormal and Emergency Operating Instructions, Revision 0012

Proposed references to be provided: None

Learning Objective: 3-OT-AOI2500
2) Analyze Symptoms for loss of Vital Power Bd 1-I, and evaluate their importance to system operation per AOI-25 series (SOER 81- 02).
3-OT-TI204
00. Demonstrate an understanding of NUREG 1122 knowledge's and abilities associated with this procedure that are rated 2.5 during Initial License training and 3.0 during License Operator Requalification training for the appropriate license position as identified in Appendix A

Cognitive Level:

Higher	X
Lower	

Question Source:

New	
Modified Bank	X
Bank	

Question History: WBN bank question 015 AG2.4.8 076 used on the June 2011(2 exams ago) modified for use on the WBN 03/2013 NRC exam.

Comments:

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

Source:	BANK MOD	Source If Bank:	WBN
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

11. Given the following:

- An accidental radiological release from the Condensate Demin System occurred due to a system mis-alignment while configuring the plant for a planned release.

Which ONE of the following completes the statement below in accordance with EPIP-1, "Emergency Plan Classification Logic?"

An ALERT would be first required to be declared if the unplanned release sample results exceed __(1)__ times the ODCM Limit.

The radiation monitor indication on __(2)__ is the primary indication to be used to quantify the release.

	(1)	(2)
A.	2	ICS
B.	2	0-M-12
C. ✓	200	ICS
D.	200	0-M-12

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the release exceeding 2 times the ODCM limit value meets the lower threshold (2 times the ODCM limit) for an NOUE and because EPIP-1 Attachment 7 Table 7-1 identifies the ICS indication as the primary reading to be used.*

B. *Incorrect, Plausible because the release exceeding 2 times the ODCM limit value for >60 minutes for an unmonitored release of liquid radioactivity is the criteria for an NOUE classification and the radiation monitor reading in the MCR on 0-M-12 is the indication to be used if the ICS is not available.*

C. *Correct, In accordance with EPIP-1, Attachment 7, EAL 7.2 (see below) an ALERT is required if the release exceeds 200 times the ODCM limit value for an unmonitored release of liquid radioactivity >15 minutes in duration. EPIP 1 Attachment 7 Table 7-1 identifies the ICS reading as the primary reading to be used.*

D. *Incorrect, Plausible because the release exceeding 200 times the ODCM limit value for an unmonitored release of liquid radioactivity is criteria for the ALERT classification and and the radiation monitor reading in the MCR on 0-M-12 is the indication to be used if the ICS is not available.*

EPIP-1 7.2 Liquid Effluents

All	**Any UNPLANNED release of Liquid Radioactivity that exceeds 200 times the ODCM Limit for >15 minutes** *(1 or 2)* 1. A **VALID** Rad monitor reading exceeds the values under Alert in Table 7-1 for >15 minutes, unless assessment within this time period confirms that the Criterion is <u>Not</u> exceeded. 2. Sample results exceed 200 times the ODCM limit value for an unmonitored release of liquid radioactivity >15 minutes in duration
All	**Any UNPLANNED release of Liquid Radioactivity to the Environment that exceeds 2 times the ODCM Limit for >60 minutes** *(1 or 2)* 1. A **VALID** Rad monitor reading exceeds the values under UE in Table 7-1 for >60 minutes, unless assessment within this time period confirms that the Criterion is <u>Not</u> exceeded. 2. Sample results exceed 2 times the ODCM limit value for an unmonitored release of liquid radioactivity >60 minutes in duration

Question Number: 82

QUESTIONS REPORT

for SRO exam written 03-2013

Tier: 1 **Group:** 2

K/A: 059 AG2.4.21
Accidental Liquid Radwaste Release
Emergency Procedures / Plan
Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.

Importance Rating: 4.0 / 4.6

10 CFR Part 55: 41.7 / 43.5 / 45.12

10CFR55.43.b: 4

K/A Match: K/A is matched because the question requires the knowledge of the parameters and logic used in the Emergency Plan to assess the status of radioactivity release control during an accidental Liquid Radwaste Release

SRO ONLY: Question is SRO only because it requires knowledge of the Radiological Emergency Plan including the conditions required for making a declaration when an EAL is exceeded.

Technical Reference: EPIP-1, Emergency Plan Classification Logic, Revision 0037 Attachment 7,

Proposed references to be provided: None

Learning Objective: 3-OT-PCD0048C
1. Classify emergency events.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

QUESTIONS REPORT

for SRO exam written 03-2013

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D C D C A C D D D Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

12. Given the following:

- Unit 1 is operating in Mode 2 being returned to service following a refueling outage.
- MFPT 1A is in service supplying water to the steam generators.
- MFPT 1B 250v trip bus is energized.

Which ONE of the following completes the statements below?

The bases for requiring the MFPT 250v DC trip busses to be energized is to provide for __(1)__.

If power is removed from a MFPT 250v trip bus, the entry into the REQUIRED ACTION to restore power within 48 hrs may be delayed for up to 4 hours when __(2)__.

	(1)	(2)
A.✓	AFW pump auto start logic	placing the 2nd MFPT in service
B.	AFW pump auto start logic	entering MODE 1 from MODE 2
C.	auto MFW isolation capability	placing the 2nd MFPT in service
D.	auto MFW isolation capability	entering MODE 1 from MODE 2

DISTRACTOR ANALYSIS:

A. *Correct, The Tech Spec Bases identifies the power is required to be on the MFPT trip busses to ensure AFW pumps automatically start when both main feed pumps are tripped and the superscript '(i)' on the Table 3.3.2-1 identifies "Entry into Condition J may be suspended for up to 4 hours when placing the second Turbine Driven Main Feedwater (TDMFW) Pump in service or removing one of two TDMFW pumps from service."*

B. *Incorrect, Plausible because the Bases being to ensure AFW pump automatic starts when both MFPTs are tripped is correct and while there are 4 hour allowances for LCOs during Mode changes (example ECCS LCO) this is not the case for the MFPT trip bus power, the power is required to be on the trip busses to make the Mode change. Additionally there are notes is the table referring to both Mode 1 and Mode 2 operation.*

C. *Incorrect, Plausible because the FWI is an ESFAS function and the allowance for 4 hours being to allow for placing the second MFPT in service is correct.*

D. *Incorrect, Plausible because the FWI is an ESFAS function and while there are 4 hour allowances for LCOs during Mode changes (example ECCS LCO) this is not the case for the MFPT trip bus power, the power is required to be on the trip busses to make the Mode change.*

Question Number: 89

Tier: 2 **Group:** 1

K/A: 059 G2.2.22
Main Feedwater System
Equipment Control
Knowledge of limiting conditions for operations and safety limits.

Importance Rating: 4.0 / 4.7

10 CFR Part 55: 41.5 / 43.2 / 45.2

10CFR55.43.b: 2

K/A Match: K/A is matched because the question requires knowledge of LCO associated with the Main Feedwater System.

SRO ONLY: The question requires knowledge of MFW System Tech spec information below the double line separating the ACTIONS from the LCO and information contains in the BASES. Knowledge of the "Application of Required Actions" including when the application can be delayed is required.

Technical Reference: Tech Spec LCO 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation (through Amendment 90)
Tech Spec Bases LCO 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation (through Amendment 117)

Proposed references to be provided: None

Learning Objective: 3-OT-T-S0303
3 Given plant parameters/conditions, correctly determine applicable Limiting Conditions for Operation or Technical Requirement limits for the various instrumentation systems covered by T/S or T/R.
5. Given plant parameters/conditions, correctly determine applicable Action Conditions, Required Actions, and Completion Times for the various instrumentation systems covered by T/S or T/R.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

13. Given the following:

- Unit 1 is operating at 100% power.

1930 - Annunciator 228-C, ERCW HDR 2B STRAINER ΔP HI alarms. The alarm clears following strainer backwash.

2100 - Annunciator 224-C, ERCW HDR 1B STRAINER ΔP HI alarms. The alarm clears following strainer backwash.

0030 - Annunciator 223-C, ERCW HDR 1A STRAINER ΔP HI alarms. The alarm clears following strainer backwash.

0330 - Annunciator 224-C, ERCW HDR 2A STRAINER ΔP HI alarms again.

0331 - Annunciator 228-C, ERCW HDR 2B STRAINER ΔP HI alarms again.

- At 0331 the following conditions exist on the ERCW system:

0-PI-67-18A, A ERCW SUP HDR PRESS	-	95 psig
0-PI-67-17A, B ERCW SUP HDR PRESS	-	105 psig
1-PI-67-61, 1A ERCW SUP HDR FLOW	-	2250 gpm
1-PI-67-62, 1B ERCW SUP HDR FLOW	-	1750 gpm
2-PI-67-61, 2A ERCW SUP HDR FLOW	-	8250 gpm
2-FI-67-62, 2B ERCW SUP HDR FLOW	-	5000 gpm

Which ONE of the following completes the statement below?

In addition to the procedure for backwashing the strainers, the conditions at 0331 identify the need to implement _____.

A. SOI-67.01, "Essential Raw Cooling Water System," Section 8.8, "Cross-Tie Header 1B to 2A"

B. 0-PI-OPS-1-IBE, "Preparations and Response Strategies for Intake Intrusion/Blockage Event"

C. SOI-67.01, "Essential Raw Cooling Water System," Section 8.5, "Cross-Tie B-Train ERCW Supply Headers"

D. AOI-13, "Loss of Essential Raw Cooling Water," Section 3.4, "Supply header Rupture in Yard Downstream of Strainer or Plugged Strainer"

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the 1B header flow being the lowest of the flows could be determined to be an indication of a plugged strainer that needs to be crosstied to the 1A header. However, the flow on the 1B header is normal for the conditions.*

B. *Correct, See the note below that appears in the ARI for each of the strainer ΔP high alarms. The alarms indicate that multiple alarms have occurred on more than one strainer indicating a general fouling of intake water and identifies additional guidance can be found in 0-PI-OPS-1-IBE, "Preparations And Response Strategies For Intake Intrusion/Blockage Event."*

C. *Incorrect, Plausible because the crosstie of the Train B headers would allow both strainers to supply both of the Train B headers which are currently in alarm.*

D. *Incorrect, Plausible because the AOI will address actions needed to resolve either a plugged strainer (if concluded 1B strainer has low flow in conjunction with high ΔP) or a break in the header (if concluded 2B strainer has high flow in conjunction with high ΔP).*

NOTE
Multiple alarms on more than one strainer may be an indication of general fouling of intake water. Additional guidance can be found in 0-PI-OPS-1-IBE, *PREPARATIONS AND RESPONSE STRATEGIES FOR INTAKE INTRUSION/BLOCKAGE EVENT.*

Question Number: 81

Tier: 1 **Group:** 2

K/A: 062 AG2.4.45
Loss of Nuclear Service Water
Emergency Procedures / Plan
Ability to prioritize and interpret the significance of each annunciator or alarm.

Importance Rating: 4.1 / 4.3

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

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires the ability to prioritize the significance of repeated alarms on the on the Nuclear Service Water system due to problems with debris hindering flow paths.

QUESTIONS REPORT

for SRO exam written 03-2013

SRO ONLY: The question is SRO because it requires the ability to assess plant conditions (normal, abnormal, or emergency) and then select a procedure or section of a procedure to mitigate, recover, or with which to proceed.

Technical Reference: 0-PI-OPS-1-IBE, Preparations and Response Strategies for Intake Intrusion/Blockage Event. Revision 0001
AOI-13, Loss of Essential Raw Cooling Water, revision 0040
SOI-67.01, Essential Raw Cooling Water System, Revision 0118
ARI-223-229, ERCW, Revision 0008

Proposed references to be provided: None

Learning Objective: 3-OT-AOI1300
2. Identify Alarms associated with Loss of ERCW.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

14. Assuming Unit 1 is operating at 100% power, which ONE of the following identifies how the projection of severe thunderstorms to occur within the next 12 hours would affect the performance of the activities listed below, if scheduled, in accordance with Tech Spec 3.8.1, AC Sources Operating?

Consider each activity separately

Activity 1 - 0-SI-82-11-A, "Monthly Diesel Generator Start And Load Test DG 1A-A"

Activity 2 - Place clearance to tag DG 2A-A for a 96 hour outage.

LCO 3.8.1 would prohibit the performance of _____.

A. Activity 1 <u>only</u>

B.✓ Activity 2 <u>only</u>

C. <u>both</u> Activities 1 and 2

D. <u>neither</u> Activity 1 nor 2

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because only Activity 1 would have been correct if the surveillance had been 0-SI-82-13, Start of 24 Hour Load Run - DG 1A-A" and the DG outage had been for less than 72 hours.*

B. *Correct, only the performance of Activity 2 would be affected. Using Bases Table 3.8.1.2 (see below), the conditions would affect applicable Action B.4 and SR 3.8.1.14 with the unit currently in MODE 1. The Bases for Action B.4 states "Compliance with the contingency actions listed in Bases Table 3.8.1-2 is required whenever Condition B is entered for a planned or unplanned outage which will extend beyond 72 hours. If Condition B is entered initially for an activity intended to last less than 72 hours or for an unplanned outage, the contingency actions should be invoked as soon as it is established that the outage period will be longer than 72 hours. The contingency actions applicable to Surveillance Requirement (SR) 3.8.1.14 must be invoked prior to initiation of the test." SR 3.8.1.14 is the 24 hour run (not the monthly performance run) and its bases also identifies that prior to performance of the SR in Modes 1 or 2, actions are taken to establish that adequate conditions exist for performance of the SR as defined in Bases Table 3.8.1-2.*

C. *Incorrect, Plausible because both Activities being affected would have been correct if the surveillance had been 0-SI-82-13, Start of 24 Hour Load Run - DG 1A-A" as required by SR 3.8.1.14*

D. *Incorrect, Plausible because neither activity 1 would have been correct if the DG outage had been for less than 72 hours. 0-SI-82-11A, Monthly Diesel Generator Start And Load Test DG 1A-A" is not restricted by the conditions.*

Bases Table 3.8.1-2
TS Action or Surveillance Requirement (SR) Contingency Actions

	Contingency Actions to be Implemented	Applicable TS Action or SR	Applicable Modes
1.	Verify that the offsite power system is stable. This action will establish that the offsite power system is within single-contingency limits and will remain stable upon the loss of any single component supporting the system. If a grid stability problem exists, the planned DG outage will not be scheduled.	SR 3.8.1.14 Action B.4	1, 2 1, 2, 3, 4
2.	Verify that no adverse weather conditions are expected during the outage period. The planned DG outage will be postponed if inclement weather (such as severe thunderstorms or heavy snowfall) is projected.	SR 3.8.1.14 Action B.4	1, 2 1, 2, 3, 4
3.	Do not remove from service the ventilation systems for	Action B.4	1, 2, 3, 4

Question Number: 90

Tier: 2 **Group:** 1

QUESTIONS REPORT
for SRO exam written 03-2013

K/A: 064 G2.2.25
Emergency Diesel Generator (ED/G) System
Equipment Control
Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.

Importance Rating: 3.2 /4.2

10 CFR Part 55: 41.5 / 41.7 / 43.2

10CFR55.43.b: 2

K/A Match: K/A is matched because the question requires knowledge of information contained in the bases of Tech Specs to determine if the Tech Spec limitations on the performance activities due to stated conditions identified in the stem of the question.

SRO ONLY: The question requires knowledge of TS bases that are required to analyze TS required actions and terminology. This involves knowledge of the contents and application of conditions in a Table contained in the Bases that affect both allowed out of service time and the performance of a surveillance.

Technical Reference: Unit 1 Tech Spec 3.8.1, AC sources - Operating (through Amendment 90) and Bases (through Revision 115)
0-SI 82-13, Start of 24 Hour Load Run - DG 1A-A, Revision 0014

Proposed references to be provided: None

Learning Objective: 3-OT-T-S0308
2. Determine the Bases for each specification, as applicable, the Electrical Systems.
5. Given plant conditions and parameters, determine applicable Action Conditions, Required Actions, and Completion Times associated with the Electrical Systems.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

QUESTIONS REPORT
for SRO exam written 03-2013

Comments:

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

Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

15. Given the following:

- Unit 1 is operating at 100% power.
- A fire has been reported in the Auxiliary Building on Elevation 692.
- AOI-30.1, "Plant Fires," has been entered.

Which ONE of the following completes the statements below?

The Unit SRO/Shift Manager decision to declare an Appendix R fire must be based on the magnitude of the fire and its potential effect on the equipment/components necessary to __(1)__.

If the fire is determined to have started in Unit 2 TD-AFWP room and spreads into the Corridor Area A1B, __(2)__ is/are required to be performed.

REFERENCE PROVIDED

A. (1) mitigate a design basis accident
(2) only 1-AOI-30.2 C.60

B. (1) mitigate a design basis accident
(2) both 1-AOI-30.2 C.54 and 1-AOI-30.2 C.60

C. (1) achieve and maintain cold shutdown
(2) only 1-AOI-30.2 C.60

D. (1) achieve and maintain cold shutdown
(2) both 1-AOI-30.2 C.54 and 1-AOI-30.2 C.60

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the ability to 'mitigate a design basis accident' is a part of the overall plant and safety feature design and if the interface between the areas had been a 'soft interface' (no wall or other physical separating boundary), then the actions of either areas would be sufficient as is the case between areas A1B and A1A on El 692. These soft interfaces are identified by a dotted line on the diagram.*

B. *Incorrect, Plausible because the ability to 'mitigate a design basis accident' is a part of the overall plant and the requirement to perform both procedures due to the spread of the fire is correct.*

C. *Incorrect, Plausible because 'achieve and maintain cold shutdown' is correct and if the interface between the areas had been a 'soft interface' (no wall or other physical separating boundary), then the actions of either areas would be sufficient as is the case between areas A1B and A1A on El 692. These soft interfaces are identified by a dotted line on the diagram.*

D. *Correct, Both AOI-30.1 and AOI-30.2 identify that the decision to trip the unit and declare an Appendix R fire is left to the judgment of the Unit SRO/SM and must be based on the magnitude of the fire and its potential effect on the equipment/ components necessary to achieve and maintain cold shutdown. AOI-30.2 states "**IF** fire spreads from one room to an adjacent room, **THEN REFER** to AOI-30.2 APP B again, AND **PERFORM** applicable AOI-30.2 C. Series procedure associated with the newly involved room."*

AOI-30.2, Section 4.0 Note (Note also in AOI-30.1)
The decision to trip the unit and declare an Appendix R fire is left to the judgment of the Unit SRO/SM and must be based on the magnitude of the fire and its potential effect on the equipment/components necessary to achieve and maintain cold shutdown.

ACTION/ EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7) **IF** fire spreads from one room to an adjacent room, **THEN** **REFER** to AOI-30.2 APP B again, AND **PERFORM** applicable AOI-30.2 C. Series procedure associated with the newly involved room.	

Question Number: 83

Tier: 1 **Group:** 2

K/A: 067 AA2.04
Plant Fire On Site
Ability to determine and interpret the following as they apply to the Plant

QUESTIONS REPORT
for SRO exam written 03-2013

K/A: 067 AA2.04
Plant Fire On Site
Ability to determine and interpret the following as they apply to the Plant Fire on Site:
The fire's extent of potential operational damage to plant equipment

Importance Rating: 3.1 / 4.3

10 CFR Part 55: 43.5 / 45.13

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires knowledge of the the actions required to mitigate the extent of the potential operational damage of a fire and the plant condition the actions of the fire response procedure is designed to accomplish.

SRO ONLY: The question is SRO because it requires the knowledge of the bases for SRO judgment when determining whether to declare an Appendix R fire and also because it requires knowledge of the selection a procedure or section of a procedure to mitigate, recover, or with which to proceed.

Technical Reference:
AOI-30.1, Plant Fires, Revision 0011
AOI-30.2, Fire Safe Shutdown, Revision 0031
AOI-30.2 APP B, Fire Safe Shutdown Elevation Diagrams, Revision 0000

Proposed references to be provided: AOI-30.2 Appendix B page 16 (1 page)

Learning Objective:
3-OT-AOI3100
12. Demonstrate Ability/knowledge of AOI-30.1 and 30.2 by:
    a. Recognizing entry conditions
    b. Responding to required actions of the AOI
    c. Responding to contingencies (RNO)
    d. Responding to Notes/Cautions

Cognitive Level:

Higher	X
Lower	

Question Source:

New	
Modified Bank	X
Bank	

Question History: WBN bank question G 2.4.27 299 (used on 10/2011 NC exam) modified for use on the WBN 03/2013 exam.

QUESTIONS REPORT
for SRO exam written 03-2013

Comments:

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

Scramble Range: A - D

Source:	BANK MOD	Source If Bank:	WBN
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

16. Given the following:

- Unit 1 is operating at 100% power.

- HPFP pump control switch alignment:
  - 0-HS-26-1A, 1A-A HPFP PMP - IN A AUTO (STANDBY)
  - 0-HS-26-4A, 1B-B HPFP PMP - PULL A-P AUTO
  - 0-HS-26-9A, 2A-A HPFP PMP - PULL A-P AUTO
  - 0-HS-26-11A, 2B-B HPFP PMP - IN A AUTO (STANDBY) and tagged

- HPFP pump 2B-B is tagged with a Hold Order.

- Fire Ops reports that during performance of 0-FOR-26-7-A, "18 Month Test of High Pressure Fire Protection Pump 1A-A," the pump failed acceptance criteria when it did not deliver the required head when the required flow was established.

Which ONE of the following completes the statements below?

The failure of HPFP pump 1A-A results in an __(1)__.

The HPFP system conditions __(2)__ a change in the HPFP pump handswitch alignment in accordance with SOI-26.01, "High Pressure Fire Protection System."

	(1)	(2)
A.	entry into OR-14.2 required actions	require
B.	entry into OR-14.2 required actions	do **NOT** require
C.	OR-14.2 'Tracking ONLY' entry	require
D✓	OR-14.2 'Tracking ONLY' entry	do **NOT** require

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the OPDP-8 Tech Spec Tracking would have been a actual entry into required actions if one less electric fire pump had been operable or it the diesel fire pump had been inoperable and if the content of the procedure or the function of the control switch positions (A-P AUTO versus A AUTO) is not understood it could be concluded that the conditions require different HPFP control switch arrangement to be selected.*

B. *Incorrect, Plausible because the OPDP-8 Tech Spec Tracking would have been a actual entry into required actions if one less electric fire pump had been operable or it the diesel fire pump had been inoperable and there being no required alignment changes on the HPFP pump control switches is correct.*

C. *Incorrect, Plausible because the OPDP-8 Tech Spec Tracking entry would be for Tracking only (Information only) for the current status of the fire pumps and if the content of the procedure or the function of the control switch positions (A-P AUTO versus A AUTO) is not understood it could be concluded that the conditions require a different HPFP control switch arrangement to be selected.*

D. *Correct, Part II - Fire Protection Plan 14.2, Water Supply, requires fire suppression pumps consisting of the diesel driven pump (2500 gpm at 125 psig (288 feet of head)) AND two electric driven pumps, each with a minimum capacity of 1590 gpm at 300 feet of head (130 psig). In the question only 2 of the 4 electric fire pumps are inoperable. This leaves the diesel fire pump and 2 electric fire pumps operable thus the OR-14.2 entry for HPFP pump 1A-A will be a 'Tracking only' (Information only) entry in accordance with OPDP-8. Also, the SOI requires the four pumps to be selected with and a Train A pump on one Unit and a Train B pump from the other unit selected in A-P AUTO to allow one pump to start immediately and the second pump to start 10 seconds later on an actual fire signal. The current alignment of the control switches provides this starting arrangement.*

Question Number: 93

Tier: 2 **Group:** 2

K/A: 086 A2.02
Fire Protection System
Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Low FPS header pressure

Importance Rating: 3.0 / 3.3

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

10CFR55.43.b: 1, 2

K/A Match: K/A is matched because the question requires the ability to predict the impact of a low pressure condition on a fire protection pump when another fire pump is already inoperable and the procedure requirements for alignment of the available pumps to mitigate the low pressure condition discovered when testing one of the pumps.

SRO ONLY: Question is SRO only because it requires knowledge of the conditions identified in Part II of the Fire Protection Plan that require action based on the operability status of the of the electric fire pumps and the knowledge of how the conditions will affect the entries into the Tech Spec tracking which is an SRO function.

Technical Reference: PART II - Fire Protection Plan, (rev'd on a per page bases)
SOI-26.01, High Pressure Fire Protection System, Revision 0027

Proposed references to be provided: None

Learning Objective: 3-OT-SYS026A
26. Given the condition/status of the HPFP system/component and the appropriate sections of Fire Protection Plan, determine if operability requirements are met and what actions, if any, are required.

3-OT-MSC047A
4. Identify equipment / components to which the Fire Protection Plan is applicable.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

QUESTIONS REPORT

for SRO exam written 03-2013

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

17. Given the following:

- Unit 1 is operating at 100% power when conditions require a reactor trip and safety injection to be initiated.

- The Shift Manager/SED declares a SITE AREA EMERGENCY (SAE) based on "Fission Product Barrier Matrix" EAL status.

Which ONE of the following completes the statements below in accordance with EPIP-4, "Site Area Emergency?"

When making the notification of the SAE to the State of Tennessee, the Shift Manager/SED will identify __(1)__.

If a manual call out of the individuals on the current Weekly Duty list is required due to failure of both the Preferred and Alternate methods of activating the ERO, the 'Fitness for Duty' question __(2)__ required to be verbally asked.

A. all EALs that are currently met is

B. only the EALs for which the declaration is being made is

C. all EALs that are currently met is **NOT**

D. only the EALs for which the declaration is being made is **NOT**

DISTRACTOR ANALYSIS:

A. *Plausible because for follow up notification of the SAE, all EALs that are currently met are to be reported and because when conducting a manual call out for REP response, the follow up 'Fitness for Duty' question is required to be verbally asked if the individual being called out is NOT on the current duty list.*

B. *Incorrect, Plausible because for the initial SAE notification only the EAL(s) for which the declaration is being made are to be reported is correct and when conducting a manual call out for REP response, the follow up 'Fitness for Duty' question is required to be verbally asked if the individual being called out is NOT on the current duty list.*

C. *Incorrect, Plausible because for follow up notification of the SAE, all EALs that are currently met are to be reported and because when conducting a manual call out for REP response, the follow up 'Fitness for Duty' question is not being required to be verbally asked if the individual being called out is on the current duty list is correct.*

D. *Correct, for the initial SAE notification only the EAL(s) for which the declaration is being made are to be reported and when conducting a manual call out for REP response, the follow up 'Fitness for Duty' question is not required to be verbally asked if the individual being called out is on the current duty list.*

Question Number: 94

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

K/A: G 2.1.17
Conduct of Operations
Ability to make accurate, clear, and concise verbal reports.

Importance Rating: 3.9 / 4.0

10 CFR Part 55: 41.10 / 45.12 / 45.13

10CFR55.43.b: 5, 7

K/A Match: K/A is matched because the question requires ability to make a accurate, clear, and concise verbal report when calling the State during implementation of the Radiological Emergency Plan.

SRO ONLY: Question is SRO because it involves action/decision that only an

QUESTIONS REPORT

for SRO exam written 03-2013

SRO ONLY: Question is SRO because it involves action/decision that only an SRO will be taking/making during a Radiological Emergency Plan implementation.

Technical Reference: EPIP-4, Site Area Emergency, Revision 0033

Proposed references to be provided: None

Learning Objective: 3-OT-PCD-048C

13. Given the emergency plan declaration, describe the requirements for activating the TVA Enterprise Emergency Notification System (TEEMS) IAW EPIP-3, 4, or 5.
15. Given the emergency plan declaration, describe the requirements for conducting a Manual Call-out of Emergency responders, IAW EPIP 3, 4, or 5.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A B D C C D A D C Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

18. Given the following:

- Unit 1 is cooling down for a refueling outage.
- The Shift Manager has temporarily relieved the Unit Supervisor who has been called for a random drug screen.
- The only individuals holding an active NRC license that are currently in the Main Control Room (MCR) are:
  - the OAC (RO license),
  - the CRO (RO license), and
  - the Shift Manager (SRO license).

Which ONE of the following completes the statements below?

Consider each of the conditions to occur separately.

If 1-E-0, "Reactor Trip or Safety Injection," entry was required due to a Safety Injection occuring, the Shift Manager would __(1)__ the procedure reader.

In accordance with NPG-SPP-10.0, "Plant Operations," the earliest the Shift Manager could be relieved of the MCR 'Command and Control' function by one of the ROs is after the unit enters __(2)__.

	(1)	(2)
A.	become	MODE 4
B.	become	MODE 5
C.	assign one of the ROs to be	MODE 4
D.	assign one of the ROs to be	MODE 5

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the Shift Manager has temporarily relieved the individual normally responsible for being the procedure reader for the conditions in the stem of the question. Also because NPG-SPP-10.0, Plant Operations, (a fleet wide document) does contain an allowance for ROs assuming the MCR Command and Control function during Mode 4 and while the Mode 4 allowance is not applicable to WBN, it could be misread.*

B. *Incorrect, Plausible because the Shift Manager has temporarily relieved the individual normally responsible for being the procedure reader for the conditions in the stem of the question and the RO relieving the Shift Manager of the MCR Command and control function only after the Unit enters Mode 5 is correct.*

C. *Incorrect, Plausible because the Shift Manager assigning one of the licensed operators to be the procedure reader is correct and NPG-SPP-10.0, Plant Operations, (a fleet wide document) does contain an allowance for ROs assuming the MCR Command and Control function during Mode and while the Mode 4 allowance is not applicable to WBN, it could be misread.*

D. *Correct, While the Shift Manager can provide a temporary relief to the Unit Supervisor even if the Shift Manager is the only SRO in the MCR. TI-12.04 prohibits the Shift Manager from being the procedure reader during any plant transient. Also in accordance with NPG-SPP-10.0, Plant Operations, and the Administrative Section of Tech Spec, an RO can assume the MCR Command and Control function only after the Unit enters Mode 5.*

Tech Spec 5.0 ADMINISTRATIVE CONTROLS 5.1 Responsibility
5.1.2 The Shift Manager (SM) shall be responsible for the control room command function. During any absence of the SM from the control room while the unit is in MODE 1, 2, 3, or 4, an individual with an active Senior Reactor Operator (SRO) license shall be designated to assume the control room command function. During any absence of the SM from the control room while the unit is in MODE 5 or 6, an individual with an active SRO license or Reactor Operator license shall be designated to assume the control room command function.

NPG-SPP-10.0
3.3.1 General Requirements (continued)

E. The Shift Manager shall be responsible for the control room command function. During any absence of the Shift Manager from the control room while the unit is in MODE 1, 2, or 3 (MODE 1, 2, 3, or 4: SQN and WBN only), an individual with an active Senior Reactor Operator (SRO) license shall be designated to assume the control room command function. During any absence of the Shift Manager from the control room while the unit is in MODE 4 or 5 (MODE 5 or 6: SQN and WBN only), an individual with an active SRO license or Reactor Operator(RO) license shall be designated to assume the control room command function.

Question Number: 95

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

QUESTIONS REPORT
for SRO exam written 03-2013

K/A: G 2.1.3
Conduct of Operations
2.1.3 Knowledge of shift or short-term relief turnover practices.

Importance Rating: 3.7 / 3.9

10 CFR Part 55: 41.10 / 45.13

10CFR55.43.b: 1

K/A Match: K/A is matched because the question requires knowledge of the short-term relief turnover practices associated with a Shift Manager providing short-term relief to the SRO assigned to the Unit and for the limitations on turning over the MCR command and control function for a short term while the Shift Manage ris involved in another function or out of the MCR.

SRO ONLY: The question requires knowledge of the limitations on the process of the Shift Manager providing a temporary relief to the SRO assigned to the unit and the knowledge of the limitations for maintaining Command and Control of the Main Control Room which is an SRO function.

Technical Reference:
Unit 1 Tech Spec, Section 5.0, ADMINISTRATIVE CONTROLS, through Amendment 90
NPG-SPP-10.0, Plant Operations, Revision 0001
TI-12.04, User's Guide For Abnormal and Emergency Operating Instructions, Revision 0012

Proposed references to be provided: None

Learning Objective:
3-OT-SPP1000
2. State who may hold the control room command function.
3-OT-TI1204
5. Identify the Operating Team member who should NOT serve as the procedure reader during any plant transient.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam

QUESTIONS REPORT
for SRO exam written 03-2013

Comments:

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

Scramble Range: A - D

Source:	NEW	Source If Bank:	
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

19. Given the following:

- Unit 1 is operating at 100% power.
- A system engineer and MIG technician have come to the control room with a work order to install a temporary alteration (TA) on the Loose Parts Monitoring System (LPMS).
- The TA installs additional recorders and analyzers in order to collect data to troubleshoot recurring spurious LPMS alarms.
- The additional equipment will be powered from available 120V AC wall receptacles.
- LPMS will remain operable while the TA is installed.
- The TA will remain installed, with the equipment continuously connected, for 30 days.

Which ONE of the following completes the statements below in accordance with "NPG-SPP-09.5, Temporary Alterations?"

A 50.59 screening review __(1)__ required to be performed for the TA.

A Temporary Alteration Control Form (TACF) __(2)__ required to be performed for the TA.

REFERENCE PROVIDED

	(1)	(2)
A.	is	is
B.	is	is **NOT**
C.	is **NOT**	is **NOT**
D.	is **NOT**	is

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the 50.59 screening review could be mistaken for the required Technical Evaluation or the Appendix D flow chart used incorrectly and a TACF would have been required if any of the following conditions had of existed: degraded conforming condition compensatory action, temporary power required, not in support of maintenance activity, or installed for more than 90 days.*

B. *Incorrect, Plausible because the 50.59 screening review could be mistaken for the required Technical Evaluation or the Appendix D flow chart used incorrectly and because a TACF not being required is correct.*

C. *Correct, the process requires a Technical Evaluation to ensure it is safe but does not require a 50.59 screening review. Since it installed with no comp action being required, no temporary power, and directly supporting a maintenance activity on an operable system which is in service for less than 90 days, the TACF is not required.*

D. *Incorrect, Plausible because the 50.59 screening review not being required is correct and a TACF would have been required if any of the following conditions had of existed: degraded conforming condition compensatory action, temporary power required, not in support of maintenance activity, or installed for more than 90 days.*

QUESTIONS REPORT
for SRO exam written 03-2013

Question Number: 96

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

K/A: G 2.2.11
Equipment Control
Knowledge of the process for controlling temporary design changes.

Importance Rating: 2.3 / 3.3

10 CFR Part 55: 41.10 / 43.3 / 45.13

10CFR55.43.b: 3

K/A Match: K/A is matched because the question requires knowledge of the requirements for making and controlling temporary design changes

SRO ONLY: The question is SRO only because 10 CFR 50.59 screening and evaluation processes and the administrative processes for temporary modifications to the design of the facility.

Technical Reference: NPG-SPP-09.5, Temporary Alterations, Revision 0002

Proposed references to be provided: NPG-SPP-09.5, Temporary Alterations, Appendix D (page 1 of 1)

Learning Objective: 3-OT-SPP0905
1. State some conditions when Temporary Alterations (TAs) are not required to be installed.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	
Modified Bank	X
Bank	

Question History: WBN bank question SPP0905 002 (used on the WBN 2006 NRC exam) modified by changing one half of the stem question being asked to make a different answer correct for use of the WBN 03/2013 NRC exam

Comments:

QUESTIONS REPORT

for SRO exam written 03-2013

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C A A A C D D C A A Scramble Range: A - D

Source:	BANK MOD	Source If Bank:	WBN
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

20. Which ONE of the following completes the statements below in accordance with Tech Specs?

The maximum extension time allowed for the completion of a Surveillance Requirement (SR) with a 12 hour FREQUENCY is __(1)__.

If the SR was later discovered to have **NOT** been completed within the maximum allowable extension time, the requirement for declaring the equipment inoperable can be delayed for a maximum of __(2)__ hours.

	(1)	(2)
A.	3 hours	12 hours
B.	24 hours	12 hours
C✓	3 hours	24 hours
D.	24 hours	24 hours

DISTRACTOR ANALYSIS:

A. *Incorrect, The maximum extension time is 3 hours but the delay time is not up to 12 hours (it is up to 24 hours). Plausible because the extension time of 3 hours is correct and the delay time being 12 hours is equal to the normal required frequency and can be mistaken.*

B. *Incorrect, The extension time is not 24 hours (it is 3 hours) and the delay time is not 12 hours (it is 24 hours) Plausible because the time allowed for a missed surveillance is up to 24 hours and can be confused with the delay time. Also, the delay time being 12 hours is equal to the normal required frequency and can be mistaken.*

C. *Correct, A surveillance requirement must be completed within its specified frequency plus 25% extension (3 hours for a 12 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 or up to the specified surveillance interval, whichever is greater. With the specified interval being 12 hours, then the maximum time is 24 hours.*

D. *Incorrect, The extension time is not 24 hours (it is 3 hours) but the delay time is 24 hours. Plausible because the time allowed for a missed surveillance is up to 24 hours and can be confused with the extension time. Also, the delay time being 24 hours is correct.*

QUESTIONS REPORT
for SRO exam written 03-2013

Question Number: 97

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

K/A: G 2.2.5
Equipment Control
Knowledge of surveillance procedures.

Importance Rating: 3.7 / 4.1

10 CFR Part 55: 41.10 / 43.3 / 45.13

10CFR55.43.b: 3

K/A Match: K/A is matched because the question requires knowledge of Tech Spec surveillance requirements as to time restrictions of completion of the requirement.

SRO ONLY: Question is SRO because it requires knowledge the application of generic Limiting Condition for Operation (LCO) requirements (LCO 3.0.1 thru 3.0.7; SR 4.0.1 thru 4.0.4).

Technical Reference: Watts Bar Unit 1 Technical Specifications, 3.0 Surveillance Requirement (SR) Applicability, Amendment 55

Proposed references to be provided: None

Learning Objective: 3-OT-T/S0300
8. Given the surveillance performance history, determine the limit for the next performance of a surveillance.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	
Modified Bank	X
Bank	

Question History: SQN question G 2.2.12 used on the SQN 01/2009 Retake exam modified for use on the WBN 03/2013 NRC exam.

Comments:

QUESTIONS REPORT
for SRO exam written 03-2013

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

Scramble Range: A - D

Source:	BANK MOD	Source If Bank:	SQN
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

21. Given the following:

- Unit 1 is at 100% power.
- The Monitor Tank is to be released.

Which ONE of the following identifies...

(1) how 0-RM-90-122, "Liquid Radwaste Effluent Line," being inoperable would affect the planned release,

and

(2) the permit requirements to restart the release if it isolated due to low Cooling Tower Blowdown (CTBD) flow?

	(1) 0-RM-90-122 inoperable	(2) Low CTBD flow
A.	2 independent samples required.	Release can not be restarted until a new release permit generated after it is isolated due to low CTBD flow.
B.✓	2 independent samples required.	Release can be continued if restarted within 2 hours with existing release permit.
C.	only 1 sample required.	Release can not be restarted until a new release permit generated after it is isolated due to low CTBD flow.
D.	only 1 sample required.	Release can be continued if restarted within 2 hours with existing release permit.

DISTRACTOR ANALYSIS:

A. *Incorrect, 2 independent samples are taken, independently analyzed, and the valve lineup independently verified are all required but does not need a new permit if it is restarted within 2 hours. Plausible because the action required due to the radiation monitor being inoperable are correct and there are conditions where the release being isolated would require a new release permit.*

B. *Correct, If the radiation monitor is out of service, a release can be made provided that 2 independent samples are taken, independently analyzed, and the valve lineup independently verified and if while in progress the release is isolated due to low Cooling Tower Blowdown flow the release can be restarted using the same release permit provided the restart is within than 2 hours of the isolation.*

C. *Incorrect, there must be 2 independent samples taken as well as 2 independent analyses of the samples and independent valve lineup verification and a new release permit is not required if the release is restarted within 2 hours. Plausible because the actions required due to the radiation monitor being are correct except for the taking of the sample and normally only one sample is required and there are conditions where the release being isolated would require a new release permit.*

D. *Incorrect, there must be 2 independent samples taken as well as 2 independent analyses of the samples and independent valve lineup verification and a new permit is not required if the release is restarted within 2 hours but the release can be restarted using the same release permit provided the restart is within than 2 hours of the isolation. Plausible because the action required due to the radiation monitor being are correct except for the taking of the sample and normally only one sample is required and the release being restarted without requiring a new release permit is correct.*

Question Number: 98

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

K/A: G 2.3.6
Radaition Control
Ability to approve release permits.

Importance Rating: 2.0 / 3.8

10 CFR Part 55: 41.13 / 43.4 / 45.10

10CFR55.43.b: 2, 4

K/A Match: Applicant is required to understand the requirements that must be met before approving a release package and the requirements for restarting a release after it had been terminated prior to completion.

QUESTIONS REPORT

for SRO exam written 03-2013

K/A Match: Applicant is required to understand the requirements that must be met before approving a release package and the requirements for restarting a release after it had been terminated prior to completion. SRO because the question involves the requirements for operability of 0-RM-90-122 and required actions are part of the ODCM.

SRO ONLY: Question is SRO because it requires knowledge of the process for liquid release approval during conditions involving off-normal events.

Technical Reference: SOI-77.01, Liquid Waste Disposal, Rev 0071
ODCM ,Offsite Dose Calculation Manual, Rev 23

Proposed references to be provided: None

Learning Objective: 3-OT-SYS077A
19. Discuss how processed water is released.
21. State the parameters of the Liquid Radwaste Processing System that are governed by the Offsite Dose Calculation Manual (ODCM).

Cognitive Level:

Higher	
Lower	X

Question Source:

New	
Modified Bank	
Bank	X

Question History: WBN bank question G2.3.6 099 for the WBN 03/2013 NRC exam.

Comments: Question used on the WBN 11/2009 exam which was not one of the last two WBN NRC exams. It was 4 NRC exams back.

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

Source:	BANK	Source If Bank:	WBN
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

22. Given the following:

- A fire is occurring at the Watts Bar Hydro Plant.
- Fire Operations is currently staffed with 2 qualified fire brigade leaders and 6 fire brigade members on site.
- The Shift Manager directs 1 of the fire brigade leaders and 2 fire brigade members to report to the Watts Bar Hydro Plant to provide assistance in extinguishing the fire.

Which ONE of the following completes the statement below in accordance with the "Part II - Fire Protection Plan?"

The onsite Fire Brigade composition _____.

A. is reduced but remains at or above the minimum required staffing

B. is unchanged due to the WB Hydro Station being on the Watts Bar site

C. is less than minimum and requires immediate action to restore the minimum staffing

D. is less than minimum but no action is required unless neither of the fire brigade members return within 2 hours

DISTRACTOR ANALYSIS:

A. Correct, because FPR Part II, 9.1 Fire Brigade Staffing states that the fire brigade is comprised of a fire brigade leader and 4 fire brigade members. There are 4 fire brigade members and a qualified fire brigade leader remaining on site after the 3 individuals are sent to the Hydro station.

B. Incorrect, Plausible because the with WB hydro on the TVA reservation, none of the fire brigade has left the TVA reservation. However, the Hydro Station is not on the Nuclear Plant Site and sending personnel to the Hydro station is sending them offsite.

C. Incorrect, Sending the specified individuals to the fire at the WBH station does not results in the 'onsite' fire brigade staffing being less than the minimum required of a fire brigade leader and four fire brigade members. Plausible because there are references to needing 5 fire brigade members but the leader is included in the five and since the action specified is correct if fire brigade staffing was less than minimum.

D. Incorrect, Plausible if the applicant believes that the number of brigade members to less than the minimum. If so then a maximum of 2 hours would be allowed to restore to minimum staffing. But the requirement is to immediately initiate action to

restore to the minimum, not wait for 2 hours to start actions to restore.

9.0 EMERGENCY RESPONSE

9.1 Fire Brigade Staffing

Effective handling of fire emergencies is an important aspect of the WBN Fire Protection Program. This is accomplished by trained and qualified emergency response personnel. The fire response organization is staffed and equipped for firefighting activities. The fire brigade is comprised of a fire brigade leader and four fire brigade members. The fire brigade shall not include the Shift Manager nor the other members of the minimum shift crew necessary for safe shutdown of the unit, nor any personnel required for other essential functions during a fire emergency. Additional support is available when needed through an agreement with a local fire department.

An Incident Commander is available to direct each shift fire brigade. The Incident Commander meets the requirements of a Unit Supervisor, Shift Technical Advisor or Shift Support Supervisor and has sufficient training in or knowledge of plant safety-related systems to understand the effects of fire and fire suppressants on safe shutdown capability.

The fire brigade composition may be less than the minimum requirements for a period of time not to exceed two hours, in order to accommodate unexpected absence, provided immediate action is taken to fill the required positions. The following are examples of emergencies that would prevent the full fire brigade from being available onsite: (a) a life-threatening medical emergency, requiring the plant ambulance and EMT responders to leave the site for transport of the patient, and (b) the fire brigade may respond to fires outside the site area, but still on the TVA Reservation, to respond to a fire that has the potential to or is affecting the ability for WBN to maintain the ability to safely shut down. This would include areas such as the Watts Bar Hydro and Fossil Plant switchyards. This response would be at the direction of the Shift Manager based on a concern for plant stability due to the fire or fire's threat. These are expected to be rare occurrences.

QUESTIONS REPORT
for SRO exam written 03-2013

Question Number: 99

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

K/A: G 2.4.26
Emergency Procedures / Plan
Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage.

Importance Rating: 3.1 / 3.6

10 CFR Part 55: 41.10 / 43.5 / 45.

10CFR55.43.b: 1

K/A Match: K/A is matched because the question requires knowledge of fire protection plan requirements for staffing of the fire brigade.

SRO ONLY: The question is SRO because it requires knowledge of the requirement of the Fire Protection plan which is a program required by Tech Spec (the same as the ODCM, etc.)

Technical Reference: Part II - Fire Protection Plan, page 21 Revision 27 (rev'd on a per page bases)

Proposed references to be provided: None

Learning Objective: 3-OT-MSC047A
Material is lesson plan but no objective identified

Cognitive Level:

Higher	
Lower	X

Question Source:

New	
Modified Bank	X
Bank	

Question History: WBN bank question MSC047A 001 modified for the WBN 03/2013 NRC exam.

Comments:

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

QUESTIONS REPORT

for SRO exam written 03-2013

Source:	BANK MOD	Source If Bank:	WBN
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

23. Given the following:

- A General Emergency has been declared on Unit 1.
- All REP emergency centers are operational.

Which ONE of the following completes the statement below?

In accordance with the Radiological Emergency Plan, the Site Emergency Director can relieved of the responsibility for __(1)__ by the__(2)__.

	(1)	(2)
A.✓	Protective Action Recommendations	CECC Director
B.	Emergency Dose Approvals	Site Vice President
C.	Emergency Dose Approvals	CECC Director
D.	Protective Action Recommendations	Site Vice President

DISTRACTOR ANALYSIS:

A. *Correct, The Emergency Classification and Emergency Dose Approval are SED responsibilities that cannot be delegated but after the CECC is staffed the CECC Director can assume the responsibility for the PARs. (See below)*

B. *Incorrect, Plausible because the Emergency Dose Approval is an SED responsibility (but it cannot be delegated) and the Site Vice President is a position in the TSC who can assume the duties of the SED (i.e. become the SED).*

C. *Incorrect, Plausible because the Emergency Dose Approval is an SED responsibility (but it cannot be delegated) and the CECC director can be delegated ownership of the SED responsibility for Protective Action Recommendations.*

D. *Incorrect, Plausible because the Protective Action Recommendation is an SED responsibility that can be delegated and the Site Vice President is a position in the TSC who can assume the duties of the SED (i.e. become the SED).*

EPIP-1

2.0 RESPONSIBILITY[2,4]

The responsibility of declaring an Emergency based on the guidance within this procedure belongs to the Shift Manager/Site Emergency Director (SM/SED) or designated Unit Supervisor (US) when acting as the SM or the TSC Site Emergency Director (SED). The following duties CAN NOT be delegated:

Emergency Classification, Emergency Dose Approval and PAR development prior to CECC Director ownership for PAR development.

QUESTIONS REPORT
for SRO exam written 03-2013

Question Number: 100

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

K/A: G 2.4.40
Emergency Procedures / Plan
Knowledge of SRO responsibilities in emergency plan implementation.

Importance Rating: 2.7 / 4.5

10 CFR Part 55: 41.10 / 43.5 / 45.11

10CFR55.43.b: 4

K/A Match: K/A is matched because the question requires knowledge of SRO responsibilities in emergency plan implementation and the Shift Manager (SRO) will be the SED initially during an emergency.

SRO ONLY: The question requires knowledge of responsibilities of an SRO during emergency plan implementation.

Technical Reference: EPIP-1, Emergency Plan Classification Logic, Revision 0037
EPIP-6, Activation and Operation of the Technical Support Center (TSC), Revision 0042

Proposed references to be provided: None

Learning Objective: 3-OT-PCD-048C
9. Given implementation of the Site Emergency Plan , describe the Site Emergency Director responsibilities that cannot be delegated IAW EPIP-1.5.

Cognitive Level:

Higher	
Lower	X

Question Source:

New	
Modified Bank	X
Bank	

Question History: WBN bank question PCD048C.04 003 modified for use on the WBN 03/2013 NRC exam

Comments:

QUESTIONS REPORT
for SRO exam written 03-2013

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

Scramble Range: A - D

Source:	BANK MOD	Source If Bank:	WBN
Cognitive Level:	LOWER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

24. Given the following:

- While operating at 100% a small break LOCA occurred on Unit 1.
- The operating crew has progressed through the emergency instructions and has just placed RHR in service during performance of ES-1.2, "Post LOCA Cooldown and Depressurization."
- An unexpected plant transient results in a YELLOW path to FR-C.3, "Saturated Core Cooling," and the SRO makes the transition.

Which ONE of the following completes the statements below?

The basis of FR-C.3 is to __(1)__.

After entering FR-C.3 a transition to __(2)__ would be directed.

	(1)	(2)
A.	restore subcooling using ECCS	AOI-6, " Small Reactor Coolant System Leak"
B.	establish RCS cooling via SGs	AOI-6, " Small Reactor Coolant System Leak"
C✓	restore subcooling using ECCS	AOI-14, "Loss of RHR Shutdown Cooling"
D.	establish RCS cooling via SGs	AOI-14, "Loss of RHR Shutdown Cooling"

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because the purpose of FR-C.3 is to restore RCS subcooling. Also because with RCS pressure lower, the leak rate will be reduced and AOI-6 is the AOI used to mitigate an RCS leak when the RHR system is not in service.*

B. *Incorrect, Plausible because FR-C.2, "Degraded Core Cooling," does use the secondary to cool the RCS and because with RCS pressure lower the leak rate will be reduced. AOI-6 is the AOI used to mitigate an RCS leak when the RHR system is not in service.*

C. *Correct, FR-C.3 attempts to increase the ECCS flow and reduce the loss of primary coolant. Both of these actions will result in restoring a minimum of RCS subcooling. The WOG background description states "Primarily, concern for core cooling arises when the RCS reaches saturation due to a loss of RCS inventory. Without adequate makeup, the continued loss of inventory will cause the core to partially uncover. Guideline FR-C.3 has been developed to address this concern. The operator is instructed to begin safety injection and check for any open RCS vent path in an attempt to stop the loss of RCS inventory." The first step in FR-C.3 directs "IF RHR in shutdown cooling mode, THEN ** GO TO AOI-14, Loss of RHR Shutdown Cooling.*

D. *Incorrect, Plausible because FR-C.2, "Degraded Core Cooling," does use the secondary to cool the RCS and the transition to AOI-14 is correct.*

3.0 OPERATOR ACTIONS

NOTE If ECA-3.2, SGTR and LOCA - SATURATED RECOVERY, is in effect, this instruction should **NOT** be performed.

1. **IF** RHR in shutdown cooling mode,
THEN

** **GO TO** AOI-14, Loss of RHR Shutdown Cooling.

Question Number: 84

Tier: 1 **Group:** 2

K/A: W/E07 EG2.4.18
Saturated Core Cooling
Emergency Procedures / Plan
Knowledge of the specific bases for EOPs.

Importance Rating: 3.3 / 4.0

QUESTIONS REPORT

for SRO exam written 03-2013

10 CFR Part 55: 41.10 / 43.1 / 45.13

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires knowledge of the specific bases of EOP FR-C.3

SRO ONLY: The question requires knowledge of diagnostic steps and decision points in the emergency operating procedures (EOP) that involve transitions to event specific subprocedures or emergency contingency procedures. It requires assessing plant conditions and then selecting a procedure to mitigate, recover, or with which to proceed. One area of SRO level knowledge (with respect to selecting a procedure) is knowledge of the content of the procedure versus knowledge of the procedure's overall mitigative strategy or purpose.

Technical Reference: FR-C.3, Saturated Core Cooling, Revision 0009
WOG background FR-C.3, Response To Saturated Core Cooling, HP-Rev. 2, April 30, 2005

Proposed references to be provided: None

Learning Objective: 3-OT-FRC0001
8. Explain the purpose for and basis of each step in FR-C.1, FR-C.2, and FR-C.3.

Cognitive Level:

Higher	X
Lower	

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO

25. Given the following:

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

- After the operating crew entered 1-E-1, "Loss of Reactor or Secondary Coolant," the OAC reported the following:
  - Containment pressure 2.9 psig and rising.
  - Containment Spray Pump 1A-A started and tripped.
  - Containment Spray Pump 1B-B failed to start.

- The SRO enters 1-FR-Z.1, "High Containment Pressure."

- During performance of 1-FR-Z.1, the OAC reports:
  - Containment pressure is 1.8 psig and dropping.
  - Containment Spray Pump 1B-B has been started at the breaker and is delivering flow.
  - Containment Sump level at 86%.

Assuming all Status trees except CONTAINMENT are GREEN, which ONE of the following identifies the correct procedure usage by the Unit Supervisor?

A. Remain in 1-FR-Z.1 until a transition is directed, then return to 1-E-1.

B. ✓ Remain in 1-FR-Z.1 until a transition is directed, then implement FR-Z.2, "Containment Flooding."

C. Immediately transition to FR-Z.2, "Containment Flooding," and return to 1-FR-Z.1 when a transition is directed from FR-Z.2.

D. Immediately transition to FR-Z.2, "Containment Flooding," and return to 1-E-1 when a transition is directed from FR-Z.2.

DISTRACTOR ANALYSIS:

A. *Incorrect, Plausible because completing FR-Z.1 until a transition is directed is correct and if the containment sump level had been lower, the transition to 1-E-1 would be correct.*

B. *Correct, After entering an FR due to an ORANGE or RED path the procedure is required to be completed to a point of transition unless a higher priority FR develops. So while the ORANGE condition no longer exist, the FR-Z.1 would be continued even though there is a ORANGE challenge to Containment Flooding until a transition was reached in FR-Z.1 at which time the lower priority FR-Z.2 would be implemented.*

C. *Incorrect, Plausible because it is a common misconception that you would deal with the most severe condition currently existing, which is the challenge to containment flooding due to the sump level since the immediate challenge to containment pressure no longer exists. However, a transition to FR-Z.2 will not be made until FR-Z.1 is completed. If the transition was made, it is also normal to transition back to the procedure that was left when the FR is complete which in this case would be FR-Z.1.*

D. *Incorrect, Plausible because a common misconception that you would not need to go back to FR-Z.1 since its orange path is cleared and that you would deal with the most severe condition currently existing. This would incorrectly result in the immediate transition to FR-Z.2 and when FR-Z.2 is complete, with FR-Z.1 clear, the transition back to 1-E-1, while incorrect, is plausible.*

TI12.04

E. If an ORANGE path is diagnosed, then the remaining Status Trees will be checked. If no RED path exits, then the ORANGE path Function Restoration Instruction will be implemented.

2.4.4 Status Tree Rules of Usage (continued)

F. Once implemented because of any RED or ORANGE path, that Function Restoration Instruction will be performed to completion or to a point of transition UNLESS a higher priority condition develops.

1. As a Function Restoration Instruction is performed, the status of that tree may change. This change does **NOT** change the priority of an instruction in progress.

2. If a higher priority condition develops, the instruction in effect should be suspended and the higher priority condition addressed.

G. When no RED or ORANGE path exists, a YELLOW path Function Restoration Instruction can be implemented at the operator's discretion.

QUESTIONS REPORT

for SRO exam written 03-2013

Question Number: 85

Tier: 1 **Group:** 2

K/A: W/E15 EA2.2
Containment Flooding
Ability to determine and interpret the following as they apply to the (Containment Flooding)
Adherence to appropriate procedures and operation within the limitations in the facility*s license and amendments.

Importance Rating: 2.9 / 3.3

10 CFR Part 55: 43.5 / 45.13

10CFR55.43.b: 5

K/A Match: K/A is matched because the question requires the ability to maintain adherence to the EOP network (which is required by the facility license via Tech Specs) requirements for procedure usage and operation following an accident.

SRO ONLY: The question requires the applicant to assess plant conditions (normal, abnormal, or emergency) and then selecting a procedure or section of a procedure to mitigate, recover, or with which to proceed. To do this the applicant must know the requirements for procedure transitions contained in the users guide for EOPs and to evaluate a how a transition from a procedure required to be entered due to an ORANGE path would be made if the ORANGE path was cleared and additional ORANGE paths to other procedures were present. The question is more than just knowing RED and ORANGE path entry conditions.

Technical Reference: FR-0, Status Trees, Revision 0014
TI-12.04, User's Guide For Abnormal And Emergency Operating Instructions, Revision 0012

Proposed references to be provided: None

Learning Objective: 3-OT-TI1204
24. State the action required when a RED or ORANGE path is diagnosed while monitoring the CSF status trees.
25. Describe when a Function Restoration Instruction can be exited or transitioned out of.

Cognitive Level:

Higher X
Lower ____

QUESTIONS REPORT
for SRO exam written 03-2013

Question Source:

New	X
Modified Bank	
Bank	

Question History: New question for the WBN 03/2013 NRC exam.

Comments:

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

Source:	NEW	Source If Bank:	
Cognitive Level:	HIGHER	Difficulty:	
Job Position:	SRO	Plant:	WATTS BAR
Date:	03/2013	Last 2 NRC:	NO