Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

1 **ID: 994374** **Points: 1.00**

Unit 3 is at 100% power

- The Unit 3 HPCI Turbine isolated from a false steam supply low pressure signal.
- I&C Technicians corrected the problem, the isolation signal is clear.
- No operator actions have been performed in the Main Control Room.
- RPV pressure is 1034 psig.

Subsequently a transient causes RPV level to lower to -55 inches.

Which of the following automatic and/or manual actions will result in HPCI system start?

A. The HPCI isolation resets automatically, the steam supply valves (MO-15 and MO-16) must be manually re-opened.

B. The HPCI isolation resets automatically, the steam supply valves (MO-15 and MO-16) will automatically open.

C. Pushbuttons 23A-S20 (AUTO/MANUAL RESET) and 23A-S26 (AUTO RESET) must be depressed ONLY.

D. Pushbutton 23A-S20 (AUTO/MANUAL RESET) and 23A-S26 (AUTO RESET) must be depressed AND the Steam Line Isolation Valves (MO-15 and MO-16) must be manually re-opened.

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The HPCI low steam supply pressure isolation signal will auto reset above 100 psig reactor pressure. The steam supply valves will open automatically on -48 inches RPV level initiation signal once isolation auto resets.
Distractors:	A	The steam supply valves will open automatically on -48 inches RPV level initiation signal. Plausible as even though the isolation signal is clear, the system was still isolated and the candidate may misinterpret that the all valves will not realign for injection.
	C	No isolation reset pushbuttons need to be depressed. The HPCI low steam supply pressure isolation signal will auto reset above 100 psig reactor pressure. Plausible if the candidate misinterprets the isolation signal as one that does not auto reset.
	D	No isolation reset pushbuttons need to be depressed. The HPCI low steam supply pressure isolation signal will auto reset above 100 psig reactor pressure. Plausible if the candidate misinterprets the isolation signal as one that does not auto reset. Plausible as even after the isolation signal is clear, the system was still isolated and the candidate may misinterpret that the all valves will not realign for injection.

Test Answer Key

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Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.50
System ID:	994374
User-Defined ID:	ILT-5023-4G-003
Cross Reference Number:	206000 K1.02
Topic:	ILT-5023-4G-003 The Unit 3 HPCI Turbine isolated from a faulty low steam supply pressure signal.
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CFR55.41(b)(7)

Source Documentation

Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 23.7.C-3	
Learning Objective:	PLOT - 5023	
K/A System:	206000 - HPCI	Importance: RO / SRO 4.0/ 4.1
K/A Statement:	K1.02 - Knowledge of the physical connections and/or cause-effect relationships between HIGH PRESSURE COOLANT INJECTION SYSTEM and the following: Reactor water level	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

2 **ID: 2132439** **Points: 1.00**

Which of the following can be used for alternate depressurization to the Main Condenser using T-252-2 "RPV Alternate Depressurization / RPV Venting"?

1. HPCI steam line drain
2. RCIC steam line drain
3. BPVs
4. RWCU

A. 1, 2, and 3

B. 1, 2, and 4

C. 1, 3, and 4

D. 2, 3, and 4

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The systems used for alternate depressurization that can be used out of T-252-2 are HPCI, RCIC, BPV's, Main Steam line drains, Reactor Feedpumps, and Steam Jet Air Ejectors/Offgas System.
Distractors:	B	Plausible as Both HPCI and RCIC can be used in T-252-2. RWCU can be used as an alternate depressurization path, however that is controlled under T-227 if bypassing interlocks is necessary.
	C	Plausible as Both HPCI and BPV's can be used in T-252-2. RWCU can be used as an alternate depressurization path, however that is controlled under T-227 if bypassing interlocks is necessary.
	D	Plausible as Both RCIC and BPV's can be used in T-252-2. RWCU can be used as an alternate depressurization path, however that is controlled under T-227 if bypassing interlocks is necessary.

Test Answer Key

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Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00
System ID:	2132439
User-Defined ID:	
Cross Reference Number:	217000 K1.04
Topic:	PLOT-5013-5d-002 RCIC T-252
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Diffic ulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b)(10)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	T-252-2, T-112	
Learning Objective:	PLOT - 5013-5d	
K/A System:	217000 - RCIC	Importance: RO / SRO 2.6/ 2.6
K/A Statement:	K1.04 - Knowledge of the physical connections and/or cause-effect relationships between Reactor Core Isolation Cooling System (RCIC) and the following: Main Condenser	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

3 **ID: 994278** **Points: 1.00**

Unit 2 is operating at 80% power when a loss of the 2A RPS MG Set occurs.

Which one of the following identifies the expected Power Range Neutron Monitor/plant response assuming no operator action?

A. APRM Channels "1" and "3" lose power.

B. APRM Channels "2" and "4" lose power.

C. Two Quad Low Voltage Power Supplies lose all input power.

D. All Quad Low Voltage Power Supplies lose one of the input power supplies.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	The APRM's are powered by the Quad Low Voltage Power Supplies that have a supply from both the "A" RPS and the "B" RPS. When either RPS bus loses power the other will supply power to the APRM's without interruption.
Distractors:	A	Plausible if the candidate misinterprets the power supplies of the APRM's being the Quad Low Voltage Supplies and the 2/4 logic voters that get their power directly from RPS bus. If the "A" RPS bus loses power, voters 1 and 3 which are related to APRM's "1" and "3" would lose power. Each APRM chassis has an alternate power supply.
	B	Plausible if the candidate confuses the power supplies of the APRM's being the Quad Low Voltage Supplies and the 2/4 logic voters that get their power directly from RPS bus. The "B" RPS bus would be related to voters 2 and 4 which are related to the "2" and "4" APRM's. Each APRM chassis has an alternate power supply.
	C	Plausible if candidate misinterprets the electrical supplies to the Quad low Voltage Power Supplies. Each Quad Low Voltage Power Supply has two redundant power supplies (RPS 'A' and 'B').

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	994278
User-Defined ID:	A-ILT-5060-6A-002
Cross Reference Number:	215005K2.02
Topic:	A-ILT-5060-6A-002 Unit 2 is operating at 80% power when a loss of the 2A RPS MG Set occurs. Which
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b)(7)

Source Documentation		
Source:	New Exam item Previous NRC Exam Modified Bank Other Exam Bank **X** ILT Exam Bank	
Reference(s):	PLOT 5060; M-1-S-34 (shts 36 & 37)	
Learning Objective:	PLOT - 5060	
K/A System:	215005 - APRM / LPRM	Importance: RO / SRO 2.6/ 2.8
K/A Statement:	K2.02 - Knowledge of electrical power supplies to the following: APRM Channels	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

4 **ID: 993347** **Points: 1.00**

Which of the following describes the power supply to the Unit 2 'A' RBCCW pump?

A. 480 VAC DIV I E-Bus

B. 480 VAC DIV II E-Bus

C. 480 VAC DIV I Non-Emergency Bus

D. 480 VAC DIV II Non-Emergency Bus

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The 2A RBCCW pump is powered by E-324-R-D, which is a Division I, safety related E-Bus.
Distractors:	B	Plausible as the 2B RBCCW pump is powered by a Division II, safety related E-Bus and the candidate may confuse the two.
	C	Plausible as the 2A TBCCW pump is powered by a Division I, non-safety related Bus and the candidate may confuse the two.
	D	Plausible as the 2B TBCCW pump is powered by a Division II, non-safety related Bus and the candidate may confuse the two.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	2.00
System ID:	993347
User-Defined ID:	ILT5035-PWRTO2APMP
Cross Reference Number:	400000 K2.01
Topic:	ILT-5035-001 Power Supply to 2A RBCCW Pump
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b)(7)

Source Documentation

Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	PLOT 5035, E-1617	
Learning Objective:	PLOT - 5035	
K/A System:	400000- Component Cooling Water System (CCWS)	Importance: RO / SRO 2.9/ 3.0
K/A Statement:	K2.02 - Knowledge of electrical power supplies to the following: CCW pumps	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

5 **ID: 994488** **Points: 1.00**

Unit 3 is at 100% power with the following condition

- One RPS Channel A Group White Light on Panel 30C015 is NOT lit due to a blown fuse.

During trouble shooting the 3B RPS MG set output breaker spuriously trips.

Which of the following describes the effect on the Control Rods?

A. ONLY 1/4 of the control rods will insert

B. ONLY 1/2 of the control rods will insert

C. All of the control rods will insert

D. None of the control rods will insert

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	With one Group white light out on RPS channel A, 1/4 of the control rods have one scram solenoid without power on the 'A' channel. When the 3B RPS MG set output breaker spuriously trips, it removes power from the 'B' channel scram solenoid for all control rods. Therefore 1/4 of the control rods do not have power to either solenoid valve and will insert into the core.
Distractors:	B	Plausible because all control rods have 1/2 of the scram solenoids without power due to the loss of the B MG set. This however will not cause any of the control rods to scram.
	C	Plausible if the candidate misinterprets the significance of the white lights on Panel 30C015 and considers the blown fuse as equal to an entire loss of Channel A RPS.
	D	Plausible if the candidate misinterprets the significance of the white lights on Panel 30C015 and considers the loss of the white light just a loss of indication and not a loss of power to scram solenoid valves, which would be true if only the lightbulb was blown and not the fuse.

Test Answer Key

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Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	994488
User-Defined ID:	ILT-5060F-3A-006
Cross Reference Number:	212000 K3.07
Topic:	ILT-5060F-3E-006 Loss of one white light
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(6)

Source Documentation

Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	M-1-S-54	
Learning Objective:	PLOT - 5060F	
K/A System:	212000 - Reactor Protection System	Importance: RO / SRO 3.8/ 3.9
K/A Statement:	K3.07 - Knowledge of the effect that a loss or malfunction of the Reactor Protection System will have on the following: Reactor Power (thermal heat flux)	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

6 **ID: 2123351** **Points: 1.00**

Unit 3 is in MODE 4, twenty-four hours after shutdown, following extended full power operation with the following conditions:

- "B" Reactor Recirculation pump is in service
- All MSIVs are closed
- 3C Residual Heat Removal (RHR) pump is operating in the Shutdown Cooling Mode
- Reactor Coolant Temperature is 135 °F on a very slow downward trend
- Reactor water level is being maintained at +30 inches

A spurious +1 inch low reactor water level signal is received

Which of the following describes the plant response:

The 3C RHR pump will __(1)__

AND

The 3B Recirculation loop temperatures will __(2)

A. (1) Trip
(2) Stay consistent with RPV Temperature

B. (1) Trip
(2) Begin to diverge from RPV Temperature

C. (1) Continue to run
(2) Stay consistent with RPV Temperature

D. (1) Continue to run
(2) Begin to diverge from RPV Temperature

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The low reactor water level will cause SDC valves MO-17 and MO-18 valves to close. This will cause a loss of SDC and the 3C RHR pump to trip. The 3B recirculation pump will continue to run and maintain temperatures consistent with coolant in the Reactor.
Distractors:	B	The first part is true and the 3C RHR pump will trip. The second part is plausible because if the spurious signal were a 2 psig in the Drywell signal, SDC would be lost and the discharge valves MO-53 of both recirc pumps would close. The MO-53 closure comes from a combination of a LPCI injection signal (> 2 psig in the Drywell and < 450 psig RPV pressure) AND < 211 psig RPV pressure. The stem states however that it is a spurious low level in the reactor.
	C	First part is plausible if candidate misinterprets the signals that would give a loss of shutdown cooling. Second part is true.
	D	First part is plausible if candidate misinterprets the signals that would give a loss of shutdown cooling. The second part is plausible because if the spurious signal were a 2 psig in the Drywell signal, SDC would be lost and the discharge valves MO-53 of both recirc pumps would close. The MO-53 closure comes from a combination of a LPCI injection signal (> 2 psig in the Drywell and < 450 psig RPV pressure) AND < 211 psig RPV pressure. The stem states however that it is a spurious low level in the reactor.

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	2123351
User-Defined ID:	ILT-5010-6G-001
Cross Reference Number:	205000 K3.04
Topic:	ILT-5010-6g-001 Loss of SDC with Recirc in service
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(7)

Source Documentation

Source:	X New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank	
Reference(s):	PLOT 5010, 5002 TS 3.3.5.1	
Learning Objective:	PLOT - 5010	
K/A System:	205000 - Shutdown Cooling System (RHR Shutdown Cooling Mode)	Importance: RO / SRO 3.7/ 3.7
K/A Statement:	K 3.04 - Knowledge of the effect that a loss or malfunction of the Shutdown Cooling System (RHR Shutdown Cooling Mode) will have on the following: Recirculation Loop Temperatures	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

7 **ID: 2123353** **Points: 1.00**

Unit 2 is in Mode 5 with refueling activities in progress

- An irradiated fuel bundle is dropped
- Reactor Building and Refuel Floor Exhaust Rad monitors indicate as follows:

Reactor Bldg Exhaust		Refuel Floor Exhaust	
Ch. A	9 mR/hr	Ch. A	8 mR/hr
Ch. B	8 mR/hr	Ch. B	8 mR/hr
Ch. C	18 mR/hr	Ch. C	9 mR/hr
Ch. D	22 mR/hr	Ch. D	32 mR/hr

Based on the above indications, how will Reactor Building Ventilation and SBGT respond without operator action?

A. Reactor Building AND Refuel Floor Ventilation continue to operate.
SBGT does NOT initiate.

B. Reactor Building Ventilation isolates.
SBGT initiates and aligns to the Reactor Building ONLY.

C. Refuel Floor Ventilation isolates.
SBGT initiates and aligns to the Refuel Floor ONLY.

D. Reactor Building AND Refuel Floor Ventilation isolate.
SBGT initiates and aligns to the Reactor Building AND Refuel Floor.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	GR III isolation has occurred. PCIS logic is A or C AND B or D; setpoint is 16 mR/hr (10 mR/hr per ARC). Either RB or RF logic channels will isolate RB AND RF ventilation. In the given conditions, a full-isolation is present on Reactor Bldg Exhaust Rad Monitors. SBGT will initiate if RPV level is 1 in or DW pressure is 2 psig or the correct combination of RB and/or Refuel floor ventilation radiation levels above 16 mr/hr.
Distractors:	A	Plausible if the candidate misinterprets the logic as A or B and C or D which is the logic for Control Room Emergency Ventilation
	B	Plausible if the candidate misinterprets the logic of the GR III isolation and that the ventilation system with the initiation signal will be the only one SBGT will aligns to.
	C	Plausible if the candidate misinterprets the logic of the GR III isolation and that the SBGT system will align to the ventilation system with the highest rad reading.

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2123353
User-Defined ID:	
Cross Reference Number:	261000 K4.01
Topic:	ILT-5009A-3B SBGT initiation
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.41(b)(13)

Source Documentation

Source:	New Exam item X Modified Bank (2114315) ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	GP-8.B; GP-8.B COL	
Learning Objective:	PLOT-1550 27b	
K/A System:	261000 - Standby Gas Treatment System	Importance: RO / SRO 3.3/ 3.5
K/A Statement:	K4.01 - Knowledge of Standby Gas Treatment System design feature(s) and/or interlocks which provide for the following: Automatic system initiation	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

8 **ID: 2123439** **Points: 1.00**

Unit 2 is at 100% power with the following conditions:

- SO 57B.7-2 "U2 Alternate 125 VDC Station Battery Charger 20D390 Operations" is performed to place the alternate battery charger in service to the 2AD001 station batteries.

Which one of the following describes the plant impact?

While aligned to 2AD001 battery the U2 Alternate 125 VDC Station Battery Charger __(1)__ supply power to another station battery.

AND

If a loss of offsite power occurs the 2AD001 battery loads will be supplied by __(2)__.

A. (1) can
(2) 2AD001 Battery ONLY

B. (1) cannot
(2) 2AD001 Battery ONLY

C. (1) can
(2) U2 Alternate 125 VDC Station Battery Charger

D. (1) cannot
(2) U2 Alternate 125 VDC Station Battery Charger

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	In accordance with SO 57B.7-2, the alternate battery charger can only supply one Unit 2 station battery at a time. The Alternate 125 VDC battery charger is not supplied by an E-Bus and if a Loss of Offsite power were to occur, the charger would lose power and not supply the loads. Only the battery would be supplying the loads.
Distractors:	A	Plausible as candidate may misinterpret that because the Alternate 125VDC Station battery charger can be used to maintain battery voltages on any of the four Unit 2 station batteries, that it can do it simultaneously. However, only one station battery can be supplied at a time. The second part is correct
	C	Plausible as candidate may misinterpret that because the Alternate 125VDC Station battery charger can be used to maintain battery voltages on any of the four Unit 2 station batteries, that it can do it simultaneously. However, only one station battery can be supplied at a time. Plausible if the candidate misinterprets the electrical lineup and supplies of the Alternate battery charger and that it will lose power during a LOOP.
	D	First part is correct. Second part is plausible if the candidate misinterprets the electrical lineup and supplies of the Alternate battery charger and that it will lose power during a LOOP.

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	2123439
User-Defined ID:	PLOT-5057-3B-001
Cross Reference Number:	263000 K4.02
Topic:	PLOT-5057-3b-001 U2 Alternate 125VDC Station Battery Charger
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(10)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 57B.7-2	
Learning Objective:	PLOT-5057-3b	
K/A System:	263000- DC Electrical Distribution	Importance: RO / SRO 3.1/ 3.5
K/A Statement:	K4.02 - Knowledge of D.C. Electrical Distribution design feature(s) and/or interlocks which provide for the following: Breaker interlocks, permissives, bypasses and cross ties	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

9 **ID: 993544** **Points: 1.00**

Given the following:

At time = 0

- Reactor pressure is 550 psig

Which one of the following list of plant conditions will directly result in the automatic opening of the ADS?

A. 2.5 psig Drywell pressure concurrent with –165 inches Reactor water level for 1 minute, all RHR Pumps running

B. 1.5 psig Drywell pressure concurrent with –165 inches Reactor water level for 5 minutes, with ONLY the "D" RHR Pump running

C. 2.5 psig Drywell pressure concurrent with –165 inches Reactor water level for 5 minutes, with the 'A' and 'C' Core Spray Pumps running

D. 1.5 psig Drywell pressure concurrent with –165 inches Reactor water level for 12 minutes, with the 'A' and 'B' Core Spray Pumps running

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	The level is < -160 inches in the RPV, there is > 2 psig in the drywell, greater than 115 seconds has passed, and there is the correct combination of pumps running, therefore ADS will initiate.
Distractors:	A	Plausible if candidate misinterprets initiation signals as there is an additional 115 second timer that initiates after < -160 inches reactor level and > 2 psig in the drywell. In this setup only 60 seconds has passed.
	B	Plausible if candidate misinterprets the initiation signals as there is a 9.5 minute timer that starts when level is <-160 inches. This timer will bypass the > 2 psig in the drywell logic, however not enough time has passed to bypass the > 2 psig in the drywell logic. The candidate may confuse this timer with the 115 second timer.
	D	Plausible if the candidate misinterprets the combination of Low Pressure ECCS pumps in service. To initiate ADS 1 RHR pump needs to be in service, or the correct combination of Core Spray pumps. Those combinations being "A" or "B" pump and "C" or "D" pump. Other combinations will not initiate ADS.

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	993544
User-Defined ID:	ILT-5001G-5-002
Cross Reference Number:	218000K5.01
Topic:	ILT-5001G-002 Select the conditions that cause ADS to actuate
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(7)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	M-1-S-52 sheets 2 and 3	
Learning Objective:	PLOT-5001G-5	
K/A System:	218000 - Automatic Depressurization System	Importance: RO / SRO 3.8/ 3.8
K/A Statement:	K5.01 - Knowledge of the operational implications of the following concepts as they apply to Automatic Depressurization System: ADS logic operation	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

10 **ID: 2130724** **Points: 1.00**

Unit 2 is in an ATWS

- T-211-2 "CRD System Non-Enriched Boric Acid and Borax Injection" is currently in progress

Which one of the following complete the statements:

Cold Shutdown Boron Weight has been achieved when __(1)__ of each chemical has been injected

AND

Cold Shutdown Boron Weight will maintain the reactor shutdown under __(2)__.

A. 1) 1550 lbs (Approximately 1/2 of the barrels)
2) all conditions

B. 1) 3850 lbs (All of the barrels)
2) all conditions

C. 1) 1550 lbs (Approximately 1/2 of the barrels)
2) rated pressure conditions ONLY

D. 1) 3850 lbs (All of the barrels)
2) rated pressure conditions ONLY

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	In accordance with T-211 when the 3850 lbs of each chemical are injected Cold Shutdown Boron Weight has been achieved. In accordance with T-BAS Cold Shutdown Boron Weight will maintain the reactor shutdown under all conditions
Distractors:	A	Plausible as 1550 lbs is listed in T-211, however this is the weight associated with Hot Shutdown Boron Weight. Second part is correct
	C	Plausible as 1550 lbs is listed in T-211, however this is the weight associated with Hot Shutdown Boron Weight. Plausible as this is what Hot Shutdown Boron Weight could achieve and the candidate may misinterpret the two with regards of what they allow.
	D	First part is correct Plausible as this is what Hot Shutdown Boron Weight could achieve and the candidate may misinterpret the two with regards of what they allow.

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2130724
User-Defined ID:	ILT-5011-4B-003
Cross Reference Number:	211000 K5.03
Topic:	ILT-5011-4b-003 SBLC shutdown Margin
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(5)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	T-211, T-BAS (TRIP)	
Learning Objective:	PLOT-5011-4B	
K/A System:	211000 - Standby Liquid Control System	Importance: RO / SRO 3.2/ 3.5
K/A Statement:	K5.03 - Knowledge of the operational implications of the following concepts as they apply to Standby Liquid Control System: Shutdown margin	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

11 **ID: 993208** **Points: 1.00**

Which one of the following would be correct concerning the 'D' SRV tailpipe vacuum breaker failing to open as designed?

A. Direct pressurization of Primary containment during the first 'D' SRV actuation

B. Damage to the T-quencher during first 'D' SRV actuation

C. Direct pressurization of Primary containment during the second 'D' SRV actuation

D. Damage to the T-quencher during second 'D' SRV actuation

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	If the vacuum breaker failed to open a vacuum would form in the SRV and draw water from the Torus back into the tailpipe during the first SRV actuation. Under these circumstances a second opening of the SRV would cause water hammer in the tailpipe which in turn could cause damage to the T-quencher and its supports.
Distractors:	A	Plausible as this would occur if the SRV vacuum breaker failed in the open direction before SRV actuation and the candidate may misinterpret the functional failures and consequences of an SRV vacuum breaker failure. On the first actuation of the SRV, the steam would take the path of least resistance and exit out the vacuum breaker bypassing torus suppression and directly pressurize the Drywell.
	B	Plausible as damage to the T-quencher is the concern, however this will only occur after the SRV has been actuated once and the condensing steam has vacuumed up water into the SRV tailpipe. At this time a second actuation would cause waterhammer damage to the T-quencher.
	C	Plausible as the second actuation of the SRV is what would cause damage during a failure of an SRV vacuum breaker to open, however direct pressurization is a failure of the SRV vacuum breaker to reclose after opening as designed.

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	993208
User-Defined ID:	ILT-5001A-3M-001
Cross Reference Number:	239002 K6.05
Topic:	ILT-5001A-3m-001 SRV Tailpipe vacuum breaker stuck shut
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(7)

Source Documentation		
Source:	New Exam item Previous NRC Exam Modified Bank Other Exam Bank **X** ILT Exam Bank	
Reference(s):	PLOT-5001A, T-102 bases, M-351	
Learning Objective:	PLOT-5001A-3m	
K/A System:	239002 - Relief/Safety Valves	Importance: RO / SRO 3.0/ 3.2
K/A Statement:	K6.05 - Knowledge of the effect that a loss or malfunction of the following will have on the Relief/Safety Valves; Discharge line vacuum breaker	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

12 **ID: 993007** **Points: 1.00**

Unit 2 is operating at 100% power

- An electrical transient results in Group II AND Group III INBOARD isolations.

Which one of the following is correct regarding the impact of this transient on the Instrument Nitrogen System and Instrument Air System?

A. Instrument air will backup the 'A' Instrument Nitrogen header to the drywell.

B. Instrument air will backup the 'B' Instrument Nitrogen header to the drywell.

C. Instrument Nitrogen will continue to supply all equipment normally.

D. Both Instrument Nitrogen headers to the drywell isolated.

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The following valves will close from the listed conditions: AO-2969A "Drywell Instr. N2 isolation" (GRP II Inboard) and SV-8100 "N2 Compressor Suction Valve" (GRP III Inboard). When the suction valve closes, both N2 compressors will trip on a loss of suction. As N2 pressure lowers, instrument air will backup the N2. However since the outlet of the 'A' header of N2 is closed due to the GRP II Inboard isolation, only 'B' header will be supplied.
Distractors:	A	Plausibe if candidate confuses the results of the inboard vs outboard isolations. The 'B' header will still be supplied by instrument air because only the outlet of the 'A' header has isolated due to the INBOARD isolations.
	C	Plausible if candidate fails to recall all the equipment effected by a GRP II and GRP III isolation and the subsequent plant responses associated with those failures.
	D	Plausible if candidate misinterprets the isolations as either the inboard or outboard isolations will cause both compressors to trip on a loss of suction, however only one header would be lost during the half isolation and instrument air would back that up.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	993007
User-Defined ID:	ILT-5016-6E-002
Cross Reference Number:	300000 K 6.07
Topic:	ILT-5016-6e-002 Electrical Transient Inboard Gp II/III
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(7)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	PLOT-5016, COL GP-8.C	
Learning Objective:	PLOT-5016-6E	
K/A System:	300000 - Instrument Air	Importance: RO / SRO 2.5/ 2.6
K/A Statement:	K6.07 - Knowledge of the effect that a loss or malfunction of the following will have on the Instrument Air: Valves	
REQUIRED MATERIALS:	None	
Notes and Comments:		

13 **ID: 2123564** **Points: 1.00**

Unit 2 is exiting a refueling outage with Mode Switch in STARTUP with the following conditions:

- D WRNM has been bypassed using bypass joystick due to failing INOP

While continuing the startup the following occurs:

- H WRNM fails INOP

(1) What alarm would be expected with this condition?

AND

(2) If the H WRNM were placed in bypass using bypass joystick, would that alarm reset?

A. (1) ARC 210 G-3 "A WRNM TRIP/INOP"
(2) YES

B. (1) ARC 210 G-3 "A WRNM TRIP/INOP"
(2) NO

C. (1) ARC 210 H-3 "B WRNM TRIP/INOP"
(2) YES

D. (1) ARC 210 H-3 "B WRNM TRIP/INOP"
(2) NO

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The 'B' WRNM TRIP/INOP alarm would come in as the H WRNM is part of the 'B' WRNM channel. The bypass switch is a joystick that can only bypass one WRNM in a channel at a time. Since the 'D' WRNM (also in the 'B' channel) is already bypassed as indicated in the stem, when the 'H' WRNM is placed in bypass the 'D' WRNM would no longer be bypassed and would complete the logic for the alarm to be in. Therefore the alarm would not be able to be cleared.
Distractors:	A	First part is plausible as there are 8 total WRNM with 4 WRNM on the 'A' channel and 4 on the 'B' channel. The candidate may misinterpret which WRNM is on which channel. Second part is plausible because if the WRNM with the failure can be bypassed and there is no other WRNM bringing in the alarm, the alarm would clear.
	B	First part is plausible as there are 8 total WRNM with 4 WRNM on the 'A' channel and 4 on the 'B' channel. The candidate may misinterpret which WRNM is on which channel. Plausible if candidate also misinterprets what channel the 'D' WRNM is on.
	C	First part is correct. Second part is plausible if candidate misinterprets the ability to bypass more than one WRNM on either channel.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2123564
User-Defined ID:	ILT-5060C-9K4-001
Cross Reference Number:	215003 A1.06
Topic:	ILT-5060C-9k4-001 Bypassing multiple WRNM
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(5)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	PLOT-5060C, ARC 210 G-3, H-3	
Learning Objective:	PLOT-5060C-9k4	
K/A System:	215003 - Intermediate Range Monitor (IRM) System	Importance: RO / SRO 3.3/ 3.2
K/A Statement:	A1.06 - Ability to predict and/or monitor changes in parameters associated with operating the Intermediate Range Monitor (IRM) System controls including: Lights and alarms	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

14 **ID: 2123579** **Points: 1.00**

The site has experienced a Loss of Offsite Power with the Following conditions:

- E2, E3, and E4 Diesels cannot be started
- SE-11 ATT K "Backfeeding Safe Shutdown loads using E1 Diesel Generator" is in progress

All steps prior to energizing the E-12 Bus are complete.

- The "E-12 BKR" control switch is taken to close

Which one of the following describes the expected status of the E124 Load Center and 'A' ESW pump 30 seconds later, with no additional operator action?

A. The E124 Load Center is NOT energized
The 'A' ESW pump is NOT running

B. The E124 Load center is energized
The 'A' ESW pump is running

C. The E124 Load center is energized ONLY

D. The 'A' ESW pump is running ONLY

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	The E124 Load center will automatically close on the E-12 Bus approximately 3 seconds after power is supplied to the bus. The 'A' ESW pump will not be running immediately as further backfeeding steps must be taken in order to backfeed the 'A' ESW pump. Once backfed the 'A' ESW pump will start, ultimately receiving power through the E-12 bus.
Distractors:	A	Plausible as many breakers are taken to open during backfeeding operations and the candidate may misinterpret the E124 Load Center Breaker being taken to off. The 'A' ESW pump will not be running.
	B	The E124 Load center will be energized, however the 'A' ESW pump will not be running. Plausible since the 'A' ESW pump is needed urgently in order to cool the diesel generator which currently has no cooling and the candidate may misinterpret the power supply to the 'A' ESW pump, as it is supplied by the E-22 bus and would need to be backfed first.
	D	Plausible as many breakers are taken to open during backfeeding operations and the candidate may misinterpret the E124 Load Center Breaker being taken to open. Plausible since the 'A' ESW pump is needed urgently in order to cool the diesel generator which currently has no cooling and the candidate may misinterpret the power supply to the 'A' ESW pump, as it is supplied by the E-22 bus and would need to be backfed first.

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	2123579
User-Defined ID:	ILT-5054-9K2-001
Cross Reference Number:	262001 A1.02
Topic:	ILT-5054-9k2-001 Backfeeding from E12 bus
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(5)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-11 attachment K	
Learning Objective:	PLOT-5054	
K/A System:	262001 - A.C. Electrical Distribution	Importance: RO / SRO 3.1/ 3.5
K/A Statement:	A1.06 - Ability to predict and/or monitor changes in parameters associated with operating the A.C. Electrical Distribution controls including: Effects of loads when energizing a bus	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A as the candidate would be monitoring the change of the bus due to loads being automatically / manually added when first re-energizing the bus.	

15 **ID: 2123587** **Points: 1.00**

Unit 2 is experiencing a Loss of Coolant Accident with the following conditions:

- T-111 "Level Restoration" is currently in progress
- A,B,C and D Core Spray pumps are running
- A and B Core Spray loop flows are indicating approximately 0 gpm
- No other ECCS pumps are available
- T-112 "Emergency Blowdown" is being performed
- Reactor Vessel level is - 210 inches and lowering
- Reactor Pressure is 480 psig and lowering

T-111 next step calls to "Maximize RPV injection Using All Systems and Subsystems"

Which one of the following:

1) Describe the required operator action

AND

2) The earliest CS flow to the reactor is verified

A. 1) Immediately open the Core Spray MO-2-14-12A(B) "Inboard Disch" Valves
2) Verify Core Spray first shows flow at approximately 305 psig reactor vessel pressure

B. 1) Verify the Core Spray MO-2-14-12A(B) "Inboard Disch" Valves automatically open at appropriate pressure
2) Verify Core Spray first shows flow at approximately 305 psig reactor vessel pressure

C. 1) Immediately open the Core Spray MO-2-14-12A(B) "Inboard Disch" Valves
2) Verify Core Spray first shows flow at approximately 330 psig reactor vessel pressure

D. 1) Verify the Core Spray MO-2-14-12A(B) "Inboard Disch" Valves automatically open at appropriate pressure
2) Verify Core Spray first shows flow at approximately 330 psig reactor vessel pressure

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The Core Spray inboard discharge valve has an automatic open signal at 450 psig reactor vessel pressure. The Core Spray pumps are currently aligned to inject with the exception of the inboard discharge valve. The operator is expected to verify this automatic action and only open the valve when the automatic action did not occur. The Core Spray shutoff head is approximately 330 psig in the reactor vessel.
Distractors:	A	Plausible if candidate misinterprets the steps in maximizing RPV injection and lines up for injection before automatic actions occur. Many actions in the plant are taken manually before the automatic actions occur and the candidate may confuse them. Second part is plausible as the Shutoff head of the RHR system is approximately 305 psig reactor vessel pressure and the candidate may confuse the two. Core Spray should start showing injection around 330 psig.
	B	The first part is correct. Second part is plausible as the Shutoff head of the RHR system is approximately 305 psig reactor vessel pressure and the candidate may confuse the two. Core Spray should start showing injection around 330 psig.
	C	Plausible if candidate misinterprets the steps in maximizing RPV injection and lines up for injection before automatic actions occur. Many actions in the plant are taken manually before the automatic actions occur and the candidate may confuse them. Second part is correct

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2123587
User-Defined ID:	ILT-5014-10F-001
Cross Reference Number:	209001 A2.06
Topic:	ILT-5014-10f-001 CS injection valve not open
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High		3	10CRF55.41(b)(5)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	T-111 Bases	
Learning Objective:	PLOT-5014	
K/A System:	209001 - Low pressure Core Spray System	Importance: RO / SRO 3.2/ 3.2
K/A Statement:	A2.06 - Ability to (a) predict the impacts of the following on the Low Pressure Core Spray System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Inadequate system flow	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

16 **ID: 2123766** **Points: 1.00**

Unit 3 is at 100% power with the following conditions:

- E134-T-B has been de-energized to perform bus work

The next shift, the following alarms are received:

- ARC 320 F-5 "Inverter Trouble"
- ARC 320 G-5 "Inverter DC supply Undervoltage"
- No other alarms are received

Which of the following, if any, will be entered to mitigate the event?

A. ON-112-3 "Loss of Uninterruptible AC Power" ONLY

B. SE-13 "Loss of a 125 or 250 VDC Safety Related Bus" ONLY

C. ON-112-3 "Loss of Uninterruptible AC Power"
AND
SE-13 "Loss of a 125 or 250 VDC Safety Related Bus"

D. NEITHER ON-112-3 "Loss of Uninterruptible AC Power"
NOR
SE-13 "Loss of a 125 or 250 VDC Safety Related Bus"

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Due to the loss of the DC power supply to the inverter, the inverter loses power. The Static switch would switch to the alternate source, however the alternate source is E134-T-B which has been de-energized. This leads to a loss of the Uninterruptible power supply and ON-112-3 would be entered
Distractors:	B	Plausible as the inverter DC supply is a 250 VDC bus and the candidate may misinterpret this as a Safety Related bus as it is supplying uninterruptible power and may enter SE-13. In addition the inverter DC supply is connected upstream to 3BD18 Distribution panel that supplies a 250 VDC Safety Related bus. The candidate may also misinterpret the power supplies to the Uninterruptible AC power and not correctly diagnose that the Alternate power supply is already de-energized.
	C	Plausible if the candidate misinterprets the fault being further upstream of the Inverter DC supply, which is connected to the 3BD18 Distribution panel that supplies a 250 VDC Safety Related bus. If the 3BD18 Distribution panel was de-energized in this scenario, both procedures would be entered.
	D	Plausible as the candidate may misinterpret the power supplies to the Uninterruptible AC power and not correctly diagnose that the Alternate power supply is already de-energized. Not entering SE-13 would be correct

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2123766
User-Defined ID:	ILT-5058-10A
Cross Reference Number:	262002 A2.01
Topic:	ILT-5058-10a Low voltage UPS
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High		3	10CRF55.41(b)(5)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	E-27, E-29, SE-13, ON-112-3, AO 56E.2-3	
Learning Objective:	PLOT-5058-10a	
K/A System:	262002 - Uninterruptible Power Supply	Importance: RO / SRO 3.2/ 3.2
K/A Statement:	A2.01 - Ability to (a) predict the impacts of the following on the Uninterruptible Power Supply; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Undervoltage	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

17 **ID: 1137055** **Points: 1.00**

Unit 2 HPCI is injecting into the RPV following a Group I isolation.

The following conditions exist:

- HPCI steam piping area temperature is 210 degrees F and rising
- RPV level is -100 inches and rising slowly
- Drywell pressure is 1 psig and steady
- HPCI pump discharge flow on FI-2-23-108 is 5000 gpm and steady

Based on the above conditions, the HPCI PCIS Group IV isolation _____.

A. will occur if/when HPCI area temperature reaches 250 degrees F.

B. will occur if/when RPV level rises above +45 inches.

C. has failed. Close valve MO-2-23-15 "HPCI Steam Isolation". The breaker for MO-2-23-15 "HPCI Steam Isolation" can remain closed.

D. has failed. Close valve MO-2-23-15 "HPCI Steam Isolation". The breaker for MO-2-23-15 "HPCI Steam Isolation" must be opened.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	HPCI should have isolated. The area temperature is above the isolation setpoint of 200 degrees F. The reason that C is wrong and D is correct is because with a failed isolation signal the isolation valve will not stay closed with an initiation signal present. When the valve reaches the full closed position the valve will come open automatically because of the initiation signal (-100"). The only way to stop the valve from coming open is to remove the electrical feed.
Distracters:	A	The isolation setpoint is 200 degrees F. Plausible if the candidate misinterprets the HPCI isolation setpoint with the Reactor Building Main Steam Line isolation setpoint.
	B	The high RPV level trip logic (+45) signal does not affect the isolation setpoint. Plausible if the candidate misinterprets the relationship of the high RPV level trip logic and the isolation logic.
	C	MO-15 will not stay closed with the initiation signal present (≤ -48 inches RPV level) and the isolation signal failed. Plausible if the candidate misinterprets how the initiation signal affects the MO-15 valve logic.

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1137055
User-Defined ID:	
Cross Reference Number:	223002 A3.01
Topic:	ILT-5007G-5I-002
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.41(b)(7)

Source Documentation

Source:	New Exam item Modified Bank X ILT Exam Bank (2114067)	Previous 2 NRC Exams Other Exam Bank
Reference(s):	GP-8.F PCIS Isolation - Groups IV and IV-B, COL GP-8.F-Groups IV, and IV-B Isolation, M-1-S-23, M-1-S-36	
Learning Objective:	PLOT-5007G.5I	
K/A System:	223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-off	Importance: RO / SRO 3.5/ 3.5
K/A Statement:	A3.01 - Ability to monitor automatic operations of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF including: Valve closures	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

18 **ID: 2131290** **Points: 1.00**

Unit 2 is at 85% power with the following conditions:

- All RFP's are in automatic

The following occurs:

- "RFP A FLOW" on the Digital Feedwater Control System fails upscale instantaneously
- DFWC Alarm is displaying "FCS-RFPAFLOW-AA"

Which one of the following identifies the expected response of the "A" RFP and the Digital Feedwater Control System?

A. (1) "A" RFP speed lowers
(2) DFWC swaps to manual

B. (1) "A" RFP speed remains constant
(2) DFWC swaps to manual

C. (1) "A" RFP speed lowers
(2) DFWC remains in automatic, but swaps to single element control

D. (1) "A" RFP speed remains constant
(2) DFWC remains in automatic, but swaps to single element control

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	When the Feed flow indication for the 'A' Reactor feedpump fails (in this case upscale) the Digital feedwater system detects the failure and removes the failed point. The last known 'GOOD' value is used for total FW flow interlocks. The DFWC would stay in automatic but swap to single element control because not all Flow elements are known as good.
Distractors:	A	First part is plausible if the candidate misinterprets DFWC response to an instantaneous failure of flow. If the flow failed slowly, the DFWC system would follow the flow until it reaches a determined failure point at which time the DFWC would disregard the 'BAD' signal. During this time the RFP speed could lower. However with an instantaneous failure the DFWC would immediately dismiss the data point as 'BAD' and remove from its calculations. Second part is plausible as DFWC system does swap to manual during certain failure criteria, however a failure of a flow indicator alone does not meet this criteria.
	B	First part is correct Second part is plausible as DFWC system does swap to manual during certain failure criteria, however a failure of a flow indicator alone does not meet this criteria.
	C	First part is plausible if the candidate misinterprets DFWC response to an instantaneous failure of flow. If the flow failed slowly, the DFWC system would follow the flow until it reaches a determined failure point at which time the DFWC would disregard the 'BAD' signal. During this time the RFP speed could lower. However with an instantaneous failure the DFWC would immediately dismiss the data point as 'BAD' and remove from its calculations. Second part is correct.

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	2131290
User-Defined ID:	ILT-5006-5T-004
Cross Reference Number:	259002 A3.04
Topic:	ILT-5006-5t-004
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.41(b)(7)

Source Documentation

Source:	New Exam item Modified Bank X ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 6D.7.E-2	
Learning Objective:	PLOT - 5006-5t-001	
K/A System:	259002 - Reactor Water level Control System	Importance: RO / SRO 3.2/ 3.2
K/A Statement:	A3.04 - Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYSTEM including: Changes in reactor feedwater flow	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

19 **ID: 994047** **Points: 1.00**

Unit 2 and Unit 3 are at 100% power when the following occurs:

- Loss of offsite power
- Drywell pressure in Unit 2 is 2.6 psig and rising slowly
- Drywell pressure in Unit 3 is 1.5 psig and rising slowly
- E1 and E4 Diesel Generators are running.
- NO Diesel Generator cooling water is available.

Based on the above conditions, which action below is required to shutdown the E1 and E4 Diesels in accordance with SE-11, "Loss of Offsite Power"?

A. Direct the EO to depress the 'red buttons' to trip the fuel racks.

B. Place the DG control switches to the 'Pull-To-Lock' position.

C. Pull the 4KV feeder breaker fuse blocks to remove the start signal.

D. Install electrical jumpers to insert DG differential lockout.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	During an SE-11 if the diesels are running without cooling water, ATT 'A' is performed. This installs jumpers that bypasses the diesel MCA start and run signal. The MCA signal has the diesel run for 10 minutes without any jacket coolant temperature trips. The MCA signal also bypasses the control room switch and maintains the diesel running for 10 minutes. Performing this procedure allows the control room to take control of the diesel and shut it down.
Distractors:	A	Plausible as this would cause the diesel to be shutdown, however this would not allow control from the control room for a restart and is not directed by SE-11.
	B	Plausible as this would shutdown a diesel and prevent its restart, except in the event of a MCA signal. Which is stated in the stem as Drywell pressure being > 2 psig on Unit 2. This would start a diesel in PTL and would not allow it to be shutdown.
	C	Plausible as pulling the 4KV feeder breaker fuse blocks is a section within SE-11 that will be used when backfeeding power to the cooling water pumps. However these fuse blocks will not affect the start of the diesel and the candidate my misinterpret the use of these fuse blocks.

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	994047
User-Defined ID:	ILT-1555-3-013
Cross Reference Number:	264000 A4.03
Topic:	ILT-1555-013 SE-11 DG shutdown with no cooling water
Num Field 1:	6865
Num Field 2:	NA
Text Field:	B
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(7)

Source Documentation		
Source:	New Exam item Modified Bank X ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-11	
Learning Objective:	PLOT-1555-3	
K/A System:	264000 - Emergency Generators (Diesel/Jet)	Importance: RO / SRO 3.2/ 3.4
K/A Statement:	A4.03 - Ability to manually operate and/or monitor in the control room: Transfer of emergency controls between manual and automatic	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question is a K/A match because it is asking the manual actions that need to be taken in order to transfer the control of the Diesel Generator back to the control room from the automatic control created by the MCA signal.	

20 **ID: 993898** **Points: 1.00**

A LOCA occurred on Unit 2

RHR was placed in Drywell Sprays, with the following conditions noted:

- Drywell Pressure: 15 psig
- RPV Level: -50 inches
- RPV Pressure: 600 psig

10 Minutes later, the following conditions exist:

- Drywell Pressure: 10 psig
- RPV Level: -180 inches
- RPV Pressure: 400 psig

Which one of the following statements correctly describes the expected response of RHR?

A. Drywell Sprays will automatically secure.
RHR injection valves will NOT automatically lineup to inject.

B. Drywell Sprays will automatically secure.
RHR injection valves will automatically lineup to inject.

C. The PRO must manually secure Drywell Sprays.
RHR injection valves will NOT automatically lineup to inject.

D. The PRO must manually secure Drywell Sprays.
RHR injection valves will automatically lineup to inject.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	T-204 directs the spray valves be closed upon receipt of a LOCA signal because the spray valves do not receive an automatic closed signal under these conditions.
Distractors:	A	Plausible if the candidate does not understand that the spray valves will not close because the containment spray override key has been used. Plausible if the candidate does not believe the initiation signal will open the injection valve because the containment spray override key has been used.
	B	Plausible if the candidate does not understand that the spray valves will not close because the containment spray override key has been used.
	C	Plausible if the candidate does not believe the initiation signal will open the injection valve because the containment spray override key has been used.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	993898
User-Defined ID:	B NRC 2019
Cross Reference Number:	203000 A4.02
Topic:	ILT-5010-5d-002 Drywell Spray Valve Status post LOCA
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High	2	3	10CRF55.41(b) 10

Source Documentation

Source:	New Exam item X Previous NRC Exam (2019) Modified Bank Other Exam Bank **X** ILT Exam Bank (446781)	
Reference(s):	T-204 notes, M-1-S-65	
Learning Objective:	ILT-5010-5d	
K/A System:	203000 - RHR/LPCI: Injection Mode	Importance; RO / SRO 4.1 / 4.1
K/A Statement:	A4.02 - Ability to manually operate and/or monitor in the control room: System Valves	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

21 **ID: 993894** **Points: 1.00**

Unit 2 is experiencing an ATWS. Plant parameters are as follows:

- Reactor power is cycling between 34% power and 38% power on the APRM recorders.
- 40 Control Rods are at position 48. Their associated blue SCRAM lights on the Full Core Display are NOT lit.
- The Main Turbine is on-line at ~450 MWe.

In accordance with T-101 "RPV Control" which one of the following actions must be performed at this time?

A. Trip the Main Turbine

B. Trip both Recirc Pumps simultaneously

C. Perform T-213-2 "Scram Solenoid Deenergization"

D. Perform T-216-2 "Control Rod Insertion by Manual Scram or Individual Scram Test Switches"

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	The 40 rods remaining at full out position are experiencing an electrical ATWS as indicated by the blue SCRAM lights not being lit. In accordance with T-101, during an Electrical ATWS T-213 is performed in order to remove power from the solenoid valves to SCRAM the rods.
Distractors:	A	Plausible as tripping the Main Turbine is performed during most transients and is called to be performed in the PRO Scram actions. However tripping of the turbine should occur around 50 MWe and the turbine is currently around 450 MWe.
	B	Plausible as tripping the Recirc Pumps is part of an ATWS strategy and would be performed during this scenario, however the direction is to trip the Recirc Pumps 10 seconds apart and not simultaneously.
	D	Plausible as this is another ATWS strategy used in T-101, however this strategy is used during a hydraulic ATWS. The rods that are out do not have their blue SCRAM lights lit, indicating that they are experiencing a electrical ATWS.

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	993894
User-Defined ID:	ILT-2101-1-008
Cross Reference Number:	212000 2.4.6
Topic:	ILT-PBIG2101-008 Actions for ATWS and T-213
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(7)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	T-101	
Learning Objective:	PLOT-2101-1	
K/A System:	212000 - Reactor Protection System	Importance: RO / SRO 3.7/ 4.7
K/A Statement:	2.4.6 - Knowledge of EOP mitigation strategies	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question is a K/A match because it is asking what action out of an EOP would help mitigate an electrical failure of part of RPS.	

22 **ID: 2124000** **Points: 1.00**

Which of the following is true regarding DC power supplies to the Diesel Generators:

Unit 2 DC distribution supplies power to Diesel Generators __(1)__

AND

Unit 3 DC distribution supplies power to Diesel Generators __(2)__

A. 1) E1 and E2
2) E3 and E4

B. 1) E3 and E4
2) E1 and E2

C. 1) E1 and E3
2) E2 and E4

D. 1) E2 and E4
2) E1 and E3

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Feeds are located on prints E-26 and E-27 with Unit 2 panels 20D21 and 20D22 going to E1 and E2 respectively and Unit 3 panels 30D23 and 30D24 going to E3 and E4 respectively.
Distractors:	B	Plausible as the diesels are separated this way for DC distribution, however the candidate may misinterpret what feed comes from what unit.
	C	Plausible as most ECCS systems are categorized with A and C being together and powered by the E1 and E3 diesels. The same is true for B and D being powered from E2 and E4. The candidate may misapply this logic to the DC distribution for the Diesels
	D	Plausible as most ECCS systems are categorized with A and C being together and powered by the E1 and E3 diesels. The same is true for B and D being powered from E2 and E4. The candidate may misapply this logic to the DC distribution for the Diesels and misinterpret what feed comes from what unit.

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2124000
User-Defined ID:	ILT-5057-12
Cross Reference Number:	263000 2.2.3
Topic:	ILT-5057-12 DC distribution to diesels
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(7)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	PLOT-5052, E-26 sht1, E-27 sht1	
Learning Objective:	PLOT-5057-12	
K/A System:	263000 - DC Electrical Distribution	Importance: RO / SRO 3.8/ 3.9
K/A Statement:	2.2.3 - (multi-unit license) Knowledge of the design, procedural, and operational differences between units.	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A because the lineup of the DC distribution is a design difference between the 2 units of what common equipment they power.	

23 **ID: 995356** **Points: 1.00**

A small-break LOCA occurred on Unit 2.

T-112 "Emergency Blowdown" is in progress with all 5 ADS Safety Relief Valves open.

Current plant conditions are as follows:

- RPV pressure is 380 psig
- Drywell pressure is 10 psig
- All ECCS pumps are running

Based on these conditions,

MO-2-10-25B "RHR Inboard Valve" is ____(1)____

AND

AO-2-10-46B "Testable Check Valve" is ____(2)____.

A. (1) open
(2) open

B. (1) closed
(2) open

C. (1) open
(2) closed

D. (1) closed
(2) closed

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	MO-25 opens at 450 psig, but 380 psig is above the shutoff head of the RHR pumps, and therefore the testable check valve is closed.
Distracters:	A	Part 1 is correct Plausible if candidate misinterprets the pressure in which a discharge path is created and the discharge head of the pumps.
	B	Plausible if the candidate misinterprets the lineup of the valves, and that the testable check before discharge, and could misinterpret that the min flow is in this flow path resulting in the check valve opening
	D	Plausible if the candidate misinterprets the shutoff head of the pump and when the RHR inboard valve will automatically open. Part 2 is correct

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00
System ID:	995356
User-Defined ID:	B CERT
Cross Reference Number:	203000 A3.08
Topic:	ILT 5010-002
Num Field 1:	
Num Field 2:	A CERT
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.41(b)(8)

Source Documentation

Source:	☐ New Exam Item ☐ Previous NRC Exam: () ☐ Modified Bank Item ☐ Other Exam Bank: () ☒ ILT Exam Bank		
Reference(s):	M-361; T-101		
Learning Objective:	PLOT-5010-5a		
K/A System:	203000 – RHR/LPCI: Injection Mode	Importance:	RO / SRO 4.1 / 4.1

K/A Statement:
A3.08 - Ability to monitor automatic operations of the RHR/LPCI: Injection Mode including : System initiation sequence

REQUIRED MATERIALS:	**NONE**
Notes and Comments:	

24 **ID: 994752** **Points: 1.00**

Unit 2 is operating at 70% power at the end of cycle with the following conditions:

- All APRM channels are in-service and operable
- APRM '1' has a total of 13 LPRM detectors bypassed
- APRM '1' has 7 out of a possible 10 'B' level LPRM detectors bypassed

Based on these conditions, which APRM '1' response is correct if an additional 'B' level LPRM to APRM '1' is manually bypassed?

A. NO alarms and NO Rod Block

B. An APRM TROUBLE alarm and Rod Block

C. An APRM DOWNSCALE alarm and Rod Block

D. An APRM INOP alarm, Rod Block and Scram Vote to RPS

Answer: B

Answer Explanation		
Correct:	B	APRM trouble alarm and rod block due to "too few inputs" (< 3 LPRMs per level). APRM will continue to average the remaining LPRMs.
Distractors:	A	Plausible as the total LPRMs are still greater than the "too few inputs" per APRM setpoint (< 20 LPRMs total), however since the removal of a 'B' level places < 3 LPRMs on that level, an alarm and rod block is generated
	C	Plausible as the LPRM's feed into the APRM average and would cause a downscale alarm if enough LPRM's failed low, however 30 LPRMs remaining at 70% power will not result in an APRM downscale trip.
	D	Conditions result in a trouble alarm only, NOT an INOP trip with the GE NUMAC APRM system. Plausible since standard BWR APRM system generates an INOP trip on too few inputs.

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	994752
User-Defined ID:	ILT-5060-7D-002
Cross Reference Number:	215005 K5.01
Topic:	ILT-5060-7D-002 Unit 2 is operating at 70% power at the end of cycle with the following conditions:
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory		3	10CRF55.41(b)(5)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC-211 A-3, ARC-211 C-2, ARC-211 E-5, Tech Spec 3.3.1.1 Bases	
Learning Objective:	PLOT-5060-7D	
K/A System:	215005 - APRM / LPRM System	Importance: RO / SRO 2.8 / 2.9
K/A Statement:	K5.01 - Knowledge of the operational implications of the following concepts as they apply to APRM / LPRM System: LPRM detector operation	
REQUIRED MATERIALS:	None	
Notes and Comments:		

25 **ID: 2130790** **Points: 1.00**

Unit 2 is performing a startup using GP-2-2 "Normal Plant Start-up"

- SO 6C.1.A-2 "'C' Reactor Feedwater Pump Startup with Vessel Level Control Established Through AO-8091" is in progress
- 'C' RFP is in manual control with MO-2149C "C Discharge" CLOSED

The procedure states that while raising Reactor power, adjust RFPT speed to maintain AO-8091 "start-up level controller" between 30 and 70%.

While raising Reactor power, AO-8091 would be expected to __(1)__

AND

In order to maintain AO-8091 within band the 'C' RFPT speed must be __(2)__.

A. 1) OPEN
2) RAISED

B. 1) CLOSE
2) RAISED

C. 1) OPEN
2) LOWERED

D. 1) CLOSE
2) LOWERED

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	While raising Reactor Power, more steam flow will be generated causing level to lower. This will in turn cause the AO-8091 to open further to allow more water to flow to the reactor. In order to maintain AO-8091 in its band, there must be more differential pressure across the valve so that more flow can pass through a smaller opening. The RFP speed is increased, creating more differential pressure across AO-8091 allowing more water to flow through, this causes AO-8091 to close and be maintained in its 30 to 70% band.
Distractors:	B	Plausible if candidate misinterprets lineup of the AO-8091 as later in SO 6C.1.A-2 you are monitoring for AO-8091 to go closed as you are valving in MO-2149C Second part is correct.
	C	First part is correct Plausible if candidate misinterprets the response of AO-8091 to a lowering RFP flow.
	D	Plausible if candidate misinterprets lineup of the AO-8091 as later in SO 6C.1.A-2 you are monitoring for AO-8091 to go closed as you are valving in MO-2149C Plausible as this would be the proper response if AO-8091 was going closed, however AO-8091 would be opening while raising power.

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130790
User-Defined ID:	PLOT-5006-9K9
Cross Reference Number:	259002 A1.05
Topic:	PLOT-5006-9k9 startup level control during startup
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics			
Level of Knowledge			RO
HIGH			10CRF55.41(b)(7)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 6C.1.A-2	
Learning Objective:	PLOT - 5006 - 9k9	
K/A System:	259002 - Reactor Water level Control System	Importance: RO / SRO 2.9/ 2.9
K/A Statement:	A1.05 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR WATER LEVEL CONTROL SYSTEM controls including: FWRV/startup level control position: Plant-Specific	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

26 **ID: 993033** **Points: 1.00**

Unit 2 is at 100% power when a transient results in water level lowering to -10 inches.

Given the following items

1) Control Room Ventilation fans trip, Control Room Emergency Ventilation fans will start.
2) Drywell vent and purge valves receive an isolation signal
3) Standby Gas Treatment System (SBGTS) filters inlet/outlet valves open and both SBGTS fans will start.

Which of the following describe the plant response?

A. 1 and 2 ONLY

B. 1 and 3 ONLY

C. 2 and 3 ONLY

D. 1, 2, and 3

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	A group III isolation will occur at 1 inch RPV level. When a Group III isolation does occur, Drywell vent and purge valves will receive an isolation signal. Standby Gas Treatment System (SBGTS) also auto aligns with fan starts with suction aligned to the Reactor Building: both SBGTS filters inlet and outlet valves auto open and both SBGTS fans start to ensure the Reactor BUilding Dp remains negative.
Distractors:	A	Plausible because other ventilation systems would trip and isolate on the 1 inch RPV signal, and the candidate may misinterpret this isolation with the Main Control Room Ventilation isolations. The Drywell vent and purge valves would receive an isolation.
	B	Plausible because other ventilation systems would trip and isolate on the 1 inch RPV signal, and the candidate may misinterpret this isolation with the Main Control Room Ventilation isolations. The SBGT system would start on a 1 inch RPV signal.
	D	Plausible because other ventilation systems would trip and isolate on the 1 inch RPV signal, and the candidate may misinterpret this isolation with the Main Control Room Ventilation isolations. The Drywell vent and purge valves would receive an isolation. The SBGT system would start on a 1 inch RPV signal.

Question 26 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	1.00
System ID:	993033
User-Defined ID:	ILT-5007G-1K-001
Cross Reference Number:	223002K1.12
Topic:	ILT-5007G1k--001 response to RB vent isolation signal
Num Field 1:	3013
Num Field 2:	NA
Text Field:	A
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(8)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	COL GP-8.B				
Learning Objective:	PLOT - 507G, 4K				
K/A System:	223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-Off			Importance: RO / SRO 3.1/3.3	
K/A Statement:	K1.12 Knowledge of the physical connections and/or cause/effect relationships between PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF and the following: Standby gas treatment system				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

27 **ID: 2129546** **Points: 1.00**

Unit 2 is at 100% power in normal alignment when the following occurs:

- Drywell valve "RBCCW ISOL" (MO-2-35-2374) indicates full closed on Panel 20C012.

Which of the following describes the plant response? (Assume NO operator actions)

A. Drywell air temperatures will rise.

B. Control rod drive mechanism temperatures will rise.

C. Fuel Pool Cooling system temperatures will rise.

D. Reactor Recirculation Pumps seal temperatures and motor oil temperatures will rise.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	Unit 2 was at 100% power when valve "RBCCW ISOL" (MO-2-35-2374) indications showed green light on and red light off, meaning this normally open valve had closed. When closed, RBCCW flow to the reactor recirculation Pumps is lost . RBCCW cools the recirc motor oil coolers and the recirc pump seal coolers, which have been impacted. With a loss of cooling, motor oil temperatures and seal temperatures will rise, with no operator actions.
Distractors:	A	The drywell air is cooled by the Drywell Chilled Water system. This cooled water is piped inside the Drywell to the Drywell coolers. The chillers are located outside of the drywell, and the chilled water system is cooled by the service water system. Thus there is no impact on the ability of the drywell chilled water system from cooling the drywell air. The answer is plausible since the DW Coolers are located inside the DW, and RBCCW can be used as an alternate cooling system for the Drywell.
	B	The control rod drive mechanisms are located inside the RPV inside the drywell. The control rod drives are cooled by the control rod drive system and thus their temperatures are not impacted and will not rise. The answer is plausible since the components are located inside the DW and are cooled by a cooling water system, but just not RBCCW. RBCCW supplies backup cooling to the CRD Pumps.
	C	This answer is plausible because the Fuel Pool Cooling system can use RBCCW as a backup cooling medium - the normal cooling medium is service water.

Question 27 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129546
User-Defined ID:	
Cross Reference Number:	
Topic:	5f. Describe the relationships between the Reactor Recirculation / Recirculation Flow Control System
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(4)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	6280-M-316 sheet 1				
Learning Objective:	PLOT-5002, 5f				
K/A System:	202001 Recirculation System			Importance: RO / SRO 3.1/3.2	
K/A Statement:	K1.07 Knowledge of the physical connections and/or cause/effect relationships between RECIRCULATION SYSTEM and the following: Component cooling water systems				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

28 **ID: 2129547** **Points: 1.00**

Which of the following lists the power supply to the following Unit 2 RHR "B" Torus Cooling valves:

- MO-2-10-034B, Full Flow Test
- MO-2-10-039B, Torus Hdr

Load Center ...

A. E334

B. E434

C. E324

D. E424

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	The listed valves (MO-2-10-039B and MO-2-10-34B) are required to be open to cool the torus using the Unit 2 RHR "B" loop ("B" RHR Pump or "D" RHR Pump). These valves are powered from Load Center E424, Answer D is correct.
Distractors:	A	Load Center E334 powers the similar valves for Unit 3 "A" RHR for torus cooling. Answer A is incorrect.
	B	Load Center E434 powers the similar valves for Unit 3 "B" RHR for torus cooling. Answer B is incorrect.
	C	Load Center E324 powers the similar valves for Unit 2 "A" RHR for torus cooling. Answer C is incorrect.

Question 28 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129547
User-Defined ID:	
Cross Reference Number:	
Topic:	2b. State the power supplies to system components: For AC components less than 4kV, state the type (
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	COL 10.1.A-2B				
Learning Objective:	PLOT - 5010, 2b				
K/A System:	219000 RHR/LPCI: Torus/Suppression Pool Cooling Mode			Importance: RO / SRO 2.5/2.9	
K/A Statement:	K2.01 Knowledge of electrical power supplies to the following: Valves				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

29 **ID: 993171** **Points: 1.00**

Unit 3 is at 100% power.

- a constant input of contaminated water to the Unit 3 RB Floor Drain Sump exists
- a failure of BOTH Unit 3 RB Floor Drain sump pumps occurs

Which one of the following describes the effect on contamination levels in the Unit 3 Sump Pump Room and why?

Contamination levels in the Unit 3 Sump Pump Room will:

A. rise because the sump will overflow to the room floor.

B. not be affected because the sump is sealed and excess input will backup to the source.

C. not be affected because the sump will overflow directly to the Floor Drain Collector Tank before the top of the Floor Drain Sump is reached.

D. not be affected because the sump will overflow directly to the RB Equipment Drain Sump before the top of the Floor Drain Sump is reached.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	The design of the Floor Drain sumps and Equipment Drain sumps is that they will drain to the other if the sump pumps stop working. The overflow will then be pumped out by the functioning pumps.
Distractors:	A	Plausible if candidate misinterprets the design of the sumps and does not recognize the cross connecting pipes
	B	Plausible if candidate misinterprets the structural design of the sumps as they are on a lower elevation and are open to atmosphere they would first overflow to the other sump and then overflow onto the floor.
	C	Plausible as the sump pumps for RB Floor Drain pump to the Floor Drain Collector tank. However the Floor Drain Collector tank is at a higher elevation than the sump pumps and they would not overflow into the tank.

Question 29 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	1.00
System ID:	993171
User-Defined ID:	ILT-5020-2D-001
Cross Reference Number:	268000 K3.04
Topic:	ILT-5020-2d-001 Loss of Floor Drain Sumps
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(13)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	PLOT 5020; M-369				
Learning Objective:	PLOT-5020-6d				
K/A System:	268000 - Radwaste			Importance: RO / SRO 2.7/ 2.8	
K/A Statement:	K3.04 - Knowledge of the effect that a loss or malfunction of the RADWASTE will have on following: Drain sumps				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

30 **ID: 2130447** **Points: 1.00**

IAW the assumptions in the PBAPS UFSAR accident analysis for a control rod drop accident, which of the following is designed to maximize the amount of time it takes for a control rod to drop out of the core?

A. The CRD blade velocity limiter.

B. The CRD blade cooling water line.

C. The CRD mechanism collet fingers.

D. The CRD mechanism coupling spud.

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	IAW the PBAPS UFSAR accident analysis of a control rod drop accident (section 14.6.2): "The velocity at which the control rod falls out of the core is assumed to be 5 ft/sec. The control rod velocity limiter(3), an engineered safeguard, limits the rod drop velocity to less than this value." Thus the CRD blade velocity limiter is designed to limit the speed at which the control rod drops out of the core, or in other words, it maximizes the amount of time it take to drop out of the core. Answer A is correct.
Distractors:	B	The CRD cooling water line comes in at the bottom of the blade and flows upward. If the flow and pressure were high enough, it may impact the speed at which the control rod falls. Raising CRD cooling water flow/pressure is one method to insert control rods during a hydraulic ATWS. CRD cooling water is not listed in the accident analysis. Answer B is incorrect but plausible for the reasons listed.
	C	This answer is plausible since the CRD mechanism collet fingers are designed to prevent a latched control rod from withdrawing without a withdraw signal but is not mentioned in the accident analysis for a rod drop accident. Answer C is incorrect.
	D	This answer is plausible since the CRD coupling spud is designed to ensure that the CRD blade is coupled to the CRD mechanism. The control rod drop accident assumes that the CRD blade has become uncoupled from the CRD mechanism and does impact the speed drop in the accident analysis for a control rod drop accident. Answer D is incorrect.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130447
User-Defined ID:	
Cross Reference Number:	
Topic:	3a. Describe the CRDM and RPIS Systems design feature(s) and/or interlock(s) and {for initial candid
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	USAR 14.6.2				
Learning Objective:	PLOT - 5003, 3a				
K/A System:	201003 Control Rod and Drive Mechanism			Importance: RO / SRO 2.9/3.0	
K/A Statement:	K4.01 Knowledge of CONTROL ROD AND DRIVE MECHANISM design feature(s) and/or interlocks which provide for the following: Limiting control rod speed in the event of a rod drop				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

31 **ID: 993324** **Points: 1.00**

Unit 2 is operating at 65% power

- Alarm (201 E-4) "4B Heater High Level" is sealed-in due to a tube leak in the '4B' Feedwater Heater
- 4B Feedwater Heater Drain and Dump Valves are full open
- 4B Feedwater Heater level is rising slowly

One minute later:

- 4B Feedwater Heater level rises to the High-High condition

Which one of the following valve positions is correct?

	4B Extraction Steam Stop Valve (AO-8120B)	4B Extraction Steam Bleed Valve (AO-2315B)
A.	OPEN	CLOSED
B.	OPEN	OPEN
C.	CLOSED	CLOSED
D.	CLOSED	OPEN

Answer: D

Answer Explanation

<<Justification:	Choice	Basis or Justification
Correct:	D	In accordance with ARC 201 E-4 AO-8120B will go closed and AO-2315B will go open due to high level
Distractors:	A	Plausible as these are the normal valve positions while operating and the candidate may misinterpret the need for automatic operation of these valves.
	B	Plausible as this is partially correct, however the AO-8120B valve will go closed and the candidate may misinterpret the automatic operation of this valve at a high level in the Feedwater heater.
	C	Plausible as this is partially correct, however the AO-2315B valve will open and the candidate may misinterpret the automatic operation of this valve at a high level in the Feedwater heater.

Question 31 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	993324
User-Defined ID:	ILT-5001E-4D-001
Cross Reference Number:	256000 K5.03
Topic:	ILT-5001E-001 Unit 2 is operating at 65% Reactor power with the "4B Heater High Level" alarm
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams

Reference(s):	PLOT5001E.04D; M-304, ARC-201 E-4	
Learning Objective:	PLOT-5001E-3d	
K/A System:	256000 - Reactor Condensate System	Importance: RO / SRO 2.6/ 2.7
K/A Statement:	K5.03 - Knowledge of the operational implications of the following concepts as they apply to REACTOR CONDENSATE SYSTEM : Heat exchanger level operation	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A as the Feedwater Heater System is the Heat Exchanger associated with the Reactor Condensate System. The question tests knowledge of operational implications by testing the candidates knowledge of automatic valve operations that respond to Heat Exchanger level operation.	

32 **ID: 1659126** **Points: 1.00**

Unit 2 is operating at 100% power when RPS Bus B de-energizes due to a sustained electrical fault.

Which one of the following identifies a radiation monitor that is affected by this electrical loss and how the radiation monitor fails?

A. 'B' Main Stack Radiation Monitor; fails low

B. 'B' Main Stack Radiation Monitor; fails as-is

C. 'B' and 'D' Main Steam Line Radiation Monitors; fail low

D. 'B' and 'D' Main Steam Line Radiation Monitors; fail as-is

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	RPS Bus B supplies power to 'B' and 'D' Main Steam Line radiation monitors. On loss of power, these radiation monitors fail low.
Distracters:	A	Main Stack radiation monitors are powered from 20Y050 and 20Y034 (UPS powered panels), not the RPS Buses. Plausible because these are similar radiation monitors and their power supply is also 120 VAC.
	B	Main Stack radiation monitors are powered from 20Y050 and 20Y034 (UPS powered panels), not the RPS Buses. Plausible because these are similar radiation monitors and their power supply is also 120 VAC. The radiation monitors fail low, not as-is. Plausible because some other radiation monitors fail as-is on loss of certain power supplies (ex. RBCCW on loss of 30Y033).
	D	The Main Steam Line radiation monitors fail low, not as-is. Plausible because some other radiation monitors fail as-is on loss of certain power supplies (ex. RBCCW on loss of 30Y033).

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 32 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	1659126
User-Defined ID:	
Cross Reference Number:	272000 K6.01
Topic:	RPS Bus B loss affect on MSL radiation monitors
Num Field 1:	
Num Field 2:	A NRC
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b)(7)

Source Documentation

Source:	New	Modified	ILT Bank X (2114815)	Other Bank	Previous 2 NRC Exams X

Reference(s):	M-1-S-26, ARC 218 D-3, PLOT-5063	
Learning Objective:	PLOT-5063-7a	
K/A System:	272000 Radiation Monitoring	Importance; RO/SRO 3.0/3.2
K/A Statement:	K6.01 - Knowledge of the effect that a loss or malfunction of the following will have on the RADIATION MONITORING SYSTEM: Reactor protection system	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

33 **ID: 2130838** **Points: 1.00**

Unit 2 is at 100% power

- Adjustments are being made to FIC-8636 "Oxygen Flow Control" per chemistry request
- 230 C-2 "Offgas Oxygen Conc High/Low" on the Recombiner Panel alarms

Which one of the following describes the oxygen concentration that would cause this alarm and the automatic action associated with the alarm?

The oxygen concentration is __(1)__

AND

On Unit 2 a trip has occurred on the__(2)

A. 1) 30%
2) Entire Hydrogen Water Chemistry System

B. 1) 30%
2) Oxygen side of Hydrogen Water Chemistry system ONLY

C. 1) 45%
2) Entire Hydrogen Water Chemistry System

D. 1) 45%
2) Oxygen side of Hydrogen Water Chemistry system ONLY

Answer: C

Answer Explanation

<<Choice		Basis or Justification
Correct:	C	In accordance with ARC 230 C-2, the high alarm setpoint for oxygen concentration is 45%. The automatic actions associated with this alarm is a full trip of the Hydrogen Water Chemistry system
Distractors:	A	Plausible because when setting up Oxygen flow the concentration is set bewteen 16 and 25%, so a concentration of 30% is higher than this and the candidate may misinterpret this as high enough to bring in the alarm. Second part is correct
	B	Plausible because when setting up Oxygen flow the concentration is set bewteen 16 and 25%, so a concentration of 30% is higher than this and the candidate may misinterpret this as high enough to bring in the alarm. Plausible as the alarm is associated with a high Oxygen concentration and the candidate may misinterpret the system only isolating the Oxygen side to bring the concentration back within band.
	D	First part is correct Plausible as the alarm is associated with a high Oxygen concentration and the candidate may misinterpret the system only isolating the Oxygen side to bring the concentration back within band.

Question 33 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130838
User-Defined ID:	ILT-5015-4D
Cross Reference Number:	271000 A1.14
Topic:	ILT-5015-4d Oxygen gas concentration
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics			
Level of Knowledge			RO
Memory			10CRF55.41(b)(7)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC 230 C-2, PLOT-5015, SO 15.1.A-2, SO 8.1.A-2	
Learning Objective:	PLOT-5015-4d	
K/A System:	271000 - Offgas System	Importance: RO / SRO 2.7 / 3.0
K/A Statement:	A1.14 - Ability to predict and/or monitor changes in parameters associated with operating the OFFGAS SYSTEM controls including: Oxygen gas concentration	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A as oxygen is fed into the Offgas system just before the offgas recombiner pre-heater and is sampled before and after the guard bed. Adjustments of oxygen flow would affect recombination of hydrogen and oxygen. This question tests the candidates knowledge of the consequences of an out of band Oxygen gas concentration.	

34 **ID: 2129646** **Points: 1.00**

Unit 2 is at power during a startup with the following parameters:

- Reactor power is 80%
- Core flow is 74% (of rated)

During a control rod withdrawal, the Recirculation Loop "A" flow input into ARPM 1 fails downscale.

Which of the following states the impact on the plant, and what action can be taken to continue the startup?
(Note: APRM Scram: 0.60WD + 65.9%; ARPM Rodblock: 0.60WD + 56.5%)

		Plant Impact	Action
A.	•	A recirculation flow mismatch alarm generated by Rod Block Monitor "A".	Bypass APRM 1 IAW SO 62.7.A-2, "Receipt of Rod Blocks"
B.	•	A recirculation flow mismatch alarm generated by Rod Block Monitor "A".	Bypass RBM "A" IAW SO 62.7.A-2, "Receipt of Rod Blocks"
C.	•	A recirculation flow mismatch alarm generated by Rod Block Monitor "B".	Bypass APRM 1 IAW SO 62.7.A-2, "Receipt of Rod Blocks"
D.	•	A recirculation flow mismatch alarm generated by Rod Block Monitor "B".	Bypass RBM "B" IAW SO 62.7.A-2, "Receipt of Rod Blocks"

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	Each of 4 APRMs receives a separate flow input from each recirculation loop (drive flows from recirculation loops A and B.). APRM 1 inputs recirculation flow into Rod Block Monitor "A" (with APRM 3 as a backup), and APRM 2 inputs recirculation flow into Rod Block Monitor "B" (with backup from APRM 4). When one RBM senses a >10% in recirculation flows, that RBM generates a recirculation flow mismatch alarm. At 1/2 (37%) of the actual core flow (74%), the APRM power setpoint for a rodblock is 0.60x37 + 56.5% = 22.2 + 56.5% = 78.7% power. Since actual power of 80% is above the rodblock setpoint, APRM 1 will generate a control rod block. Thus, there is a recirculation flow mismatch alarm from RBM "A", and a control rod block from APRM 1. The procedure allows action to bypass APRM 1. When this is performed, RBM "A" now receives its recirculation flow input from APRM 3 instead of APRM 1, and the recirc flow alarm is cleared because it sees normal recirc flow indications from an APRM with normal recirculation flow inputs . Bypassing APRM 1 also bypasses the control rod block from APRM 1, and the startup may continue.
Distractors:	B	This answer is plausible since the first part of the answer is correct. The RBM in its current state, with 0 recirculation flow from 1 recirculation loop, can still perform its function to provide control rod blocks from over-power. There is a bypass joystick which does allow for bypass of a RMB, but it would not be pypassed under the conditions in the question stem.
	C	This answer is plausible since there will be a recirc flow mismatch alarm and control rod block. If the student misinterprets the RBM logic such that APRM 1 recirculation flow goes to RBM B, then this choice could be correct.
	D	This answer is plausible since there will be a recirc flow mismatch alarm and control rod block. If the student misinterprets the RBM logic such that APRM 1 recirculation flow goes to RBM B, then this choice could be correct.

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129646
User-Defined ID:	
Cross Reference Number:	
Topic:	7f. Determine the effect that a loss or malfunction of the following will have on the Power Range Ne
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(5)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	ARC 211 A-3, ARC 211 B-2, SO 62.7.A-2, ARC 211 A-4, GP-5-2 Exhibit 1, TS 3.3.1.1				
Learning Objective:	PLOT - 5060 7f				
K/A System:	215002 Rod Block Monitor			Importance: RO / SRO 3.3/3.3	
K/A Statement:	A2.02 Ability to (a) predict the impacts of the following on the ROD BLOCK MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss or reduction in recirculation system flow (flow comparator): BWR-3,4,5				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

35 **ID: 2130452** **Points: 1.00**

Unit 2 is at 100% reactor power with recirculation flow at 100%, when the following occurs:

- ALL Narrow Range level inputs to DFWC fail
- Reactor Water Narrow Range Level indicators (analog) are still functional

Which of the following states the plant impact if actual reactor water level were to rise uncontrollably with NO operator action?

A. There will be NO automatic feedwater pump trip from a high RPV water level.

B. The feedwater pumps will automatically trip at the DFWCS high water level setpoint, but ACTUAL water level (indicated on analog narrow range) will be higher.

C. The feedwater pumps will automatically trip at the DFWCS high water level setpoint, but ACTUAL water level (indicated on analog narrow range) will be lower.

D. The feedwater pumps will automatically trip at the DFWCS high water level setpoint, and ACTUAL water level (indicated on analog narrow range) will be the same.

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The Digital Feedwater Control System (DFWCS) uses the 3 narrow range RPV water level instruments (primary) to determine feedwater flow into the RPV. If all 3 water level inputs are found to be failed by DFWCS, it will disregard the narrow range inputs and swap over and use the 2 wide range instrument inputs. But, at high reactor power and high recirculation flow, as in the question stem, the wide range water level instruments indicate several inches lower than actual on narrow range (approximately 10 inches). Thus, when the control system swaps from narrow range to wide range, it will see RPV about 10 inches lower than actual on narrow range. When RPV water level does go very high, the feedwater pumps will trip at the high water level setpoint, but RPV ACTUAL on narrow range level will be higher than this (by about 10 inches).
Distractors:	A	This answer is plausible if the candidate misinterprets how the DFWCS works with failed RPV water level inputs. See above.
	C	This answer is plausible if the candidate misinterprets how the DFWCS works with failed RPV water level inputs. See above.
	D	This answer is plausible if the candidate misinterprets how the DFWCS works with failed RPV water level inputs. See above.

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130452
User-Defined ID:	
Cross Reference Number:	
Topic:	6a. Determine the effect that a loss or malfunction of the Feedwater/Feedwater Control System will h
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	PLOT - 5006, PLOT-5002b, SO 6D.7.E-2				
Learning Objective:	PLOT - 5006, PLOT-5002b				
K/A System:	216000 Nuclear Boiler Instrumentation			Importance: RO / SRO 3.4/3.4	
K/A Statement:	A3.01 Ability to monitor automatic operations of the NUCLEAR BOILER Instrumentation including: Relationship between meter/recorder readings and actual parameter values				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

36 **ID: 2131052** **Points: 1.00**

The following conditions exist on Unit 2:

October 1st at 08:00: Unit 2 is shutdown for a refueling outage
- Prior to the shutdown, Fuel Pool heat load is negligible.
- 320 Fuel Assemblies from the core are offloaded into the fuel pool.
- Fuel Pool Gates are re-installed

At 07:30 on October 11, the following annunciator alarmed:
- FP HX INLET HDR/RHR HX HPSW OUTLET HI TEMP (ARC 224 D-5)
- The control room operator reports Fuel Pool Heat Exchanger Inlet Header temperature (point 28) on TRS-2-10-131 at Panel 20C004C is 127°F.

October 11 at 08:00:
- Fuel Pool Heat Exchanger Inlet Header temperature is 130°F.
- A complete loss of cooling to the Fuel Pool is confirmed
- Fuel Pool cooling CANNOT be restored

Which one of the following is the earliest approximate amount of time it will take for the Fuel Pool water temperature to rise to 200°F?

A. 3.5 hours

B. 5.5 hours

C. 8 hours

D. 10 hours

Answer: C

Answer Explanation

Correct:	C	Per AO 19.3-2 for a 320 bundle offload at 10 days after shutdown, starting with a fuel pool water temperature of 130 degrees F, it will take approximately 8 hours.
Distractors:	A	This answer represents the length of time to reach 200 degrees F, if starting at a fuel pool water temperature of 130 degrees F for a full core off-load instead of just 320 bundles off-loaded, (different graph but correct water temperature).
	B	This answer represents the length of time to reach 200 degrees F, if starting at a fuel pool water temperature of 150 degrees F (same graph but incorrect water temperature).
	D	This answer represents the length of time to reach 200 degrees F, if starting at a fuel pool water temperature of 110 degrees F (same graph but incorrect water temperature).

Question 36 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	2131052
User-Defined ID:	
Cross Reference Number:	233000 A4.05
Topic:	ILT-5019-3a-002 Loss of FPC - time to 200F
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	Yes: AO 19.3-2
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation					
Source:	New	Modified X 2083811	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	AO 19.3-2				
Learning Objective:	PLOT - 5019, 6a				
K/A System:	233000 Fuel Pool Cooling and Clean-up			Importance: RO / SRO 2.7/3.1	
K/A Statement:	A4.05 Ability to manually operate and/or monitor in the control room: Pool temperature				
REQUIRED MATERIALS:	Copy of AO 19.3-2				
Notes and Comments:	None				

Original

The following conditions exist on Unit 3:

- Unit was shutdown for refueling outage on January 5th at 03:00.
- 320 Fuel Assemblies from the core have been offloaded (fuel placed in Fuel Pool).
- Prior to the shutdown, Fuel Pool heat load was negligible.
- At 03:00 on January 23rd of the same year, the Fuel Pool temperature is 100°F.

If a complete loss of cooling to the Fuel Pool occurs on January 23rd at 03:00, then determine the approximate amount of time it will take for the Fuel Pool water temperature to rise to 150 degrees (assuming cooling to the Fuel Pool is NOT restored).

A. 3 hours

B. 7 hours

C. 11 hours

D. 15 hours

Answer: B

Answer Explanation

Correct:	B	Per AO 19.3-3 for a 320 bundle offload at 18 days after S/D (initial 100 deg.)
Distractors:	A	Represents the time to 150 degrees from a complete core offload. Plausible if candidate misinterprets a 320 bundle offload as a complete core offload and chooses the wrong chart
	C	Represents the time to 150 degrees from a 320 bundle offload (initial 70 degrees). Plausible if candidate assumes highest curve on chart is the 100 degree curve.
	D	Represents the time to boil from a 320 bundle core offload. Plausible if candidate plots on the time to boil chart and not the 150 degree chart

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	2.00
System ID:	2083811
User-Defined ID:	B NRC 2019
Cross Reference Number:	233000 A4.05
Topic:	ILT-5019-3a-002 Loss of FPC - time to 150F
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(5)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank (2115421)	X Previous NRC Exam (2019) X Other Exam Bank (LORT 2034940)
Reference(s):	AO 19.3-3	
Learning Objective:	PLOT-5019-3a	
K/A System:	233000 - Fuel Pool Cooling and Clean-up	Importance: RO / SRO 2.7/ 3.1
K/A Statement:	A4.05 - **Ability to manually operate and/or monitor in the control room:** Pool temperature	
REQUIRED MATERIALS:	**candidates must be given a copy of AO 19.3-3**	
Notes and Comments:	None	

Associated objective(s):

6a. Determine the effect that a loss or malfunction of the Fuel Pool Cooling and Cleanup System will have on the following: Fuel Pool Temperature

37 **ID: 2129706** **Points: 1.00**

Which one of the following instrument scram setpoints listed below will require entry into or application of a Unit 2 Tech Spec, while in Mode 1?

A. Drywell pressure of 1.9 psig.

B. RPV water level of 2 inches.

C. Scram Discharge Volume of 48 gallons.

D. Main condenser vacuum of 20 inches Hg.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	The main condenser receives steam discharged from the final stages of the low pressure turbines. TS Table 3.3.1.1-1 lists scram setpoints for various parameters. If a scram setpoint exceeded the setpoint, the instrument would be inoperable and a TS entry or application will be required. The scram setpoint for main condenser vacuum is ≥ 21.5 inches Hg. Thus a setpoint of 20 inches Hg for condenser vacuum is less than allowed by TS.
Distractors:	A	TS Table 3.3.1.1-1 lists scram setpoints for various parameters. If a scram setpoint exceeded the setpoint, the instrument would be inoperable and a TS entry or application will be required. The scram setpoint for Drywell pressure is ≤ 2 psig. Thus a setpoint of 1.9 psig for drywell pressure meets the TS. This answer is plausible since Drywell pressure is monitored and does provide a scram signal on high Drywell pressure. All setpoints, including the correct answer, are close to the actual setpoint.
	B	TS Table 3.3.1.1-1 lists scram setpoints for various parameters. If a scram setpoint exceeded the setpoint, the instrument would be inoperable and a TS entry or application will be required. The scram setpoint for RPV water level is ≥ 1 inch. Thus a setpoint of 2 inches for RPV water level meets the TS. This answer is plausible since RPV water level is monitored and does provide a scram signal on low RPV water level. All setpoints, including the correct answer, are close to the actual setpoint.
	C	TS Table 3.3.1.1-1 lists scram setpoints for various parameters. If a scram setpoint exceeded the setpoint, the instrument would be inoperable and a TS entry or application will be required. The scram setpoint for SDV water level is ≤ 50 gallons. Thus a setpoint of 48 gallons for SDV water level meets the TS. This answer is plausible since SDV water level is monitored and does provide a scram signal on high SDV water level. All setpoints, including the correct answer, are close to the actual setpoint.

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129706
User-Defined ID:	
Cross Reference Number:	
Topic:	13. Given a set of conditions related to the Reactor Protection System (RPS) recognize system parame
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)()

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	TS 3.3.1				
Learning Objective:	PLOT - 5060F, 13				
K/A System:	239001 Main and Reheat Steam System			Importance: RO / SRO 3.9/4.6	
K/A Statement:	G2.42 Ability to recognize system parameters that are entry-level conditions for Technical Specifications.				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

38 **ID: 2130840** **Points: 1.00**

Which one of the following would be an effect of a loss of the Unit 2 PPC (Plant Process Computer) on the function of the Unit 2 RWM (Rod Worth Minimizer)?

A. RWM loses the ability to monitor control rod positions.

B. RWM loses the ability to enforce the loaded control rod sequence.

C. RWM loses the ability to provide both control rod permissives and blocks.

D. RWM loses the ability to display and interface with the HMI (Human Machine Interface).

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	PPC provides the human machine interface for the RWM. Without it the operator can no longer provide input into the RWM and the RWM will no longer display properly.
Distractors:	A	Plausible as the operator can monitor control rod positions through PPC, however the RWM receives its input directly from Rod Position Indication (RPIS) and will still receive positions if PPC is lost.
	B	Plausible as the control rod sequence is loaded through PPC, however the RWM stores this sequence locally and does not need PPC to access. PPC would be needed in order to load a different sequence.
	C	Plausible as the operator receives their information of RWM supplied permissives and rod blocks through the PPC interface, however even when PPC is down the RWM will still provide the permissives and rod blocks directly to the Reactor Manual Control System (RMCS)

Question 38 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130840
User-Defined ID:	ILT-5062A-7D
Cross Reference Number:	201006 K6.04
Topic:	ILT-5062A-7d loss of PPC on RWM
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	PLOT-5062A				
Learning Objective:	PLOT-5062A-7d				
K/A System:	201006 - Rod Worth Minimizer System (RWM)	Importance: RO / SRO 2.7 / 2.8			
K/A Statement:	K 6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) : Process computer				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

39 **ID: 2131802** **Points: 1.00**

Unit 2 is at 100% power

- T-104, "Radioactivity Release Control" is entered on valid radiation monitor alarms

In accordance with T-104 bases, which of the following correctly completes the statements:

The radiation monitor alarms used to enter T-104 "Radioactivity Release Control" are __(1)__ above normal release rates

AND

The release rate upon first entering T-104 "Radioactivity Release Control" __(2)__ pose an immediate threat to the public.

A. 1) slightly
2) does not

B. 1) significantly
2) does not

C. 1) slightly
2) does

D. 1) significantly
2) does

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	T-104 is entered on Main Stack or Vent Stack Rad above the Hi Hi alarm setpoint. In accordance with T-104 bases "Main and Vent Stack radiation high-high alarm levels are significantly above the normal release rates and are indicative of degrading plant conditions. However, these levels are low enough that the release does not pose an immediate threat to the public and subsequent actions could prevent exceeding ODCM limits."
Distracters:	A	Plausible as there are some radiation alarms that are just slightly above normal rad levels to indicate there is a problem. The ones used to enter T-104 are however the Hi-Hi rad alarms and would alarm at a much higher than normal release rate. Second part is correct
	C	Plausible as there are some radiation alarms that are just slightly above normal rad levels to indicate there is a problem. The ones used to enter T-104 are however the Hi-Hi rad alarms and would alarm at a much higher than normal release rate. Plausible as T-104 is designed to limit the radioactivity release into the public and further in the procedure are actions related to rad levels that are an immediate threat to the public. But not when first entering T-104
	D	First part is correct Plausible as T-104 is designed to limit the radioactivity release into the public and further in the procedure are actions related to rad levels that are an immediate threat to the public. But not when first entering T-104

Question 39 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131802
User-Defined ID:	
Cross Reference Number:	295038 K1.02
Topic:	T-104 entry and general public protection
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
MEMORY			10CFR55.41(b)(10)

Source Documentation

Source:	X New Exam item Previous NRC Exam Modified Bank Bank ILT Exam Bank	Other Exam
Reference(s):	T-104 and bases	
Learning Objective:	PLOT-PBIG-2104 5	
K/A System:	295038 High Off-site Release Rate	Importance; RO 4.2
K/A Statement:	K1.02 - Knowledge of the operational implications of the following concepts as they apply to High Off-site Release Rate: Protection of the general public	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

40 **ID: 994770** **Points: 1.00**

Unit 2 is operating in Mode 4:

- A sustained loss of shutdown cooling occurs.
- The best estimate to start a recirculation pump is 2 hours from now.

ON-125, "Loss of Shutdown Cooling", directs raising RPV level to above +50 inches.

IAW ON-125, which one of the following states the reason for this action?

A. Provides additional NPSH for placing a Recirculation pump in service.

B. Ensures temperatures and thermal stresses in the RPV head flange are minimized.

C. Promotes natural circulation and helps prevent stagnation of coolant in the core.

D. Establishes a longer "time to boil" while aligning alternate decay heat removal systems.

Answer: C

Answer Explanation		
Correct:	C	Per ON-125 Bases, raising level to above the separators (> +50 inches) promotes natural circulation, which will prevent stagnation (thermal stratification) of reactor coolant.
Distractors:	A	This is not the bases per ON-125, but is plausible since adding inventory will enhance recirc pump NPSH. In addition, +50 inches is more than is required for recirculation pump NPSH since normal RPV water level is less than 50 inches.
	B	This answer is plausible since if water level was raised to the flange area, it could mitigate the temperature at the flange. But the RPV flange is way above the water level of 50 inches.
	D	This is not the bases per ON-125, but this is plausible since adding inventory will lengthen the time to boil.

Question 40 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	1.00
System ID:	994770
User-Defined ID:	ILT-1550-28C-001
Cross Reference Number:	295021 AK1.02
Topic:	ILT-1550-28C-001 Unit 2 is operating in MODE 4 when a sustained loss of shutdown cooling occcurs.
Num Field 1:	
Num Field 2:	
Text Field:	NRC-09-1
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	OT-125, OT-125 Bases				
Learning Objective:	PLOT - PBIG-1550, 128c				
K/A System:	295021 Loss of Shutdown Cooling			Importance: RO / SRO 3.6/3.7	
K/A Statement:	AK1.04 Knowledge of the operational implications of the following concepts as they apply to LOSS OF SHUTDOWN COOLING: Natural circulation				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

41 **ID: 995495** **Points: 1.00**

The following initial conditions exist:

- Unit 2 is operating at full power
- Unit 3 is shutdown due to a small steam leak resulting in 2.3 psig in the Drywell

A trip of the SU-25 breaker (452-02) occurs, resulting in a partial loss of electrical power. Thirty seconds later, the PRO reviews the 4KV bus and annunciator status with the following results:

- E-13, E-22, E-33, E-42 are powered by their normal Emergency Auxiliary Bus
- E-12, E-32, and E-43 transferred to an alternate Emergency supply
- E-23 is deenergized with annunciator E23 BUS UNDERVOLTAGE (002 D-4) lit
- All four Diesel Generators are running normally

Which one of the following describes the cause of the undervoltage condition on the E23 bus?

A. ONLY the E-223 breaker failed to close on the auto transfer.

B. ONLY the E-323 breaker failed to close on the auto transfer.

C. BOTH the E-223 breaker and then the E-23 Diesel Generator output breaker failed to close on the auto transfer.

D. BOTH the E-323 breaker and then the E-23 Diesel Generator output breaker failed to close on the auto transfer.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The SU-25 powers the 2 SUE transformer, which is the normal supply of power to E-23 through E-223. With power lost to the 2 SUE transformer, the alternate supply breaker (E-323) should have closed in 0.25 seconds. With the diesel available, the diesel output breaker should have closed after 0.5 seconds if the bus was still deenergized.
Distracters:	A	Plausible if the candidate misinterprets electrical distribution system. The E-223 is the normal power supply to this bus and it has lost power due to the trip of the SU-25 breaker.
	B	Plausible as the answer is partly correct. Although E-323 should have closed, the Diesel Generator output breaker (E-23) has also failed to close.
	C	Plausible as the answer is partly correct as the Diesel Generator Output breaker (E-23) has failed to close, however E-223 is the normal power supply to the bus and lost power due to the trip of the SU-25 breaker. It did not fail to close. The alternate start up source breaker (E-323) failed to close.

Question 41 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00
System ID:	995495
User-Defined ID:	B CERT
Cross Reference Number:	295003 AK1.05
Topic:	ILT 5054-7b-006 A & B CERT
Num Field 1:	
Num Field 2:	A CERT
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(8)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	COL 54.1.A,				
Learning Objective:	PLOT - 5054-7b				
K/A System:	295003 Partial or Complete Loss of A.C. Power			Importance: RO / SRO 2.6/2.7	
K/A Statement:	AK1.05 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: Failsafe component design				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

42 **ID: 2129709** **Points: 1.00**

IAW the Plant Safety Analysis of the UFSAR (Chapter 14), during refuel activities, which of the following prevents inadvertent criticality due to a control rod withdrawal error by the panel operator?

A. The Reactor Mode switch is locked in the REFUEL position.

B. The enforcement of the Boundary Zone by the Refuel Bridge PLC.

C. An operable WRNM is in the core quadrant where fuel is being moved.

D. The RWM is verified operable, with it's keylock switch in NORMAL.

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Answer	A	The nuclear characteristics of the core assure that the reactor is subcritical even in its most reactive condition with the most reactive control rod fully withdrawn during refueling. When the mode switch is in REFUEL, only one control rod can be withdrawn at a time. Selection of a second rod initiates a rod block (in RMCS), thereby preventing the withdrawal of more than one rod at a time. Thus, if 1 control rod is withdrawn, RMCS will not allow the withdraw of a second control rod.
Distractors:	B	This answer is plausible since the system can prevent movement of a loaded hoist over the core. The Refuel Bridge PLC does enforce the Boundary Zone which is designed to prevent moving the bridge/hoist into the walls of the fuel pool, transfer canal, and the RPV. It will not prevent the inserting of a fuel bundle into an uncontrolled cell in the core.
	C	This answer is plausible since Operable WRNMs in the core quadrant is to ensure the ability of the control room to monitor counts as fuel is being withdrawn or inserted into the core. WRNM can enforce a rod block on high counts.
	D	This answer is plausible because the Rod Worth Minimizer backs-up control room operators, who follow procedural controls to limit the consequences of a Control Rod Drop Accident (CRDA), during the times when the fuel is most susceptible to damage induced by a Control Rod Drop Accident (CRDA) - during low powers at startups and shutdowns. The RWM is not required to be operable in Mode 5 (Refueling).

Question 42 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129709
User-Defined ID:	
Cross Reference Number:	295023 AK2.04
Topic:	Predict the operational implications or cause-effect relationships resulting from the operation of t
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous NRC Exam
Reference(s):	UFSAR 14.5.3.3				
Learning Objective:	PLOT - 5018				
K/A System:	295023 Refueling Accidents				Importance: RO / SRO 3.2/3.4
K/A Statement:	Ak2.04 Knowledge of the interrelations between REFUELING ACCIDENTS and the following: RMCS/Rod control and information system				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

43 **ID: 2129827** **Points: 1.00**

Unit 2 is at 100% power when the main generator trips.

1 minute later, the following parameters are noted:

- Reactor Pressure is 914 psig
- 15 control rods do NOT indicate full-in
- It is verified that the MAXIMUM SUBCRITICAL BANKED WITHDRAWAL POSITION criteria has been met

Which of the following identifies

1) The state of the reactor

AND

2) The operator action to be performed based on the conditions

A. 1) The reactor is NOT shutdown under ALL conditions
2) Maintain current reactor pressure until all control rods are full in

B. 1) The reactor is NOT shutdown under ALL conditions
2) Maintain current reactor pressure AND inject boron

C. 1) The reactor is shutdown under ALL conditions
2) Commence a normal cooldown

D. 1) The reactor is shutdown under ALL conditions
2) Maintain current reactor pressure until all control rods are full in

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	With a main generator trip at rated power, the unit will scram. Following the scram, indications show that 15 control rods do not indicate full-in, but the criteria for the MAXIMUM SUBCRITICAL BANKED WITHDRAWAL POSITION (MSBWP) has been met. IAW T-101 BASIS: "Note #24 defines when an ATWS is terminated. 1) By definition, all rods inserted to or beyond the Maximum Subcritical Banked Withdrawal Position (MSBWP) will maintain the reactor shutdown under all conditions without boron. or, 2) Any single rod withdrawn past 00 and all other rods full-in meets the design basis shutdown margin that assures the reactor will remain shutdown with single strongest control rod full-out and all other rods full-in. or, 3) The Reactor Engineer may also determine when the ATWS is terminated because the RE maintains the necessary qualifications and has access to resources necessary to make this determination." Since MSBWP has been met, regardless of how many control rods do not indicate full-in, the reactor will remain shutdown under all conditions, and any ATWS condition may be terminated and thus no ATWS event actions are required. With the reactor shutdown under all conditions, a cooldown may commence. Finally, although not all control rods fully inserted on a scram, the reactor is determined to be shutdown.
Distractors:	A	This answer is plausible since it states that 15 control rods do not indicate full-in, although their exact positions are not given. If the candidate misinterprets the definition of MSBWP, they may believe the reactor is not shutdown under all conditions. With the reactor not shutdown the candidate would be stopped in T-101 and maintain reactor pressure until the ATWS is no longer present or other criteria is met.
	B	This answer is plausible since it given that 15 control rods do not indicate full-in, although their exact positions are not given. If the candidate misinterprets the definition of MSBWP, they may believe the reactor state is not shutdown under all conditions. With the reactor not shutdown the candidate would be stopped in T-101 and maintain reactor pressure until the ATWS is no longer present and depending on power level would be injecting boron.
	D	Plausible since the reactor is shutdown under all conditions because the Maximum Subcritical Banked Withdrawal Position (MSBWP) has been met. However the candidate might misinterpret the definition of an ATWS, in that an ATWS is terminated when all but one control rod is inserted to position 00 and therefore the reactor should not be depressurized.

Question 43 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129827
User-Defined ID:	
Cross Reference Number:	
Topic:	4. State TRIP terms and definitions.
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)7()

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	T-101, T-101 Bases, TRIP CURVES, TABLES & LIMITS APPENDIX I				
Learning Objective:	PLOT - PBIG-2101, 4				
K/A System:	295006 Scram				Importance: RO / SRO 4.2/4.3
K/A Statement:	AK2.06 Knowledge of the interrelations between SCRAM and the following: Reactor Power				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

44 **ID: 2130463** **Points: 1.00**

Unit 2 is at 100% power

- Torus water level begins to lower
- All attempts to mitigate the rate of water level loss have failed
- Current torus water level is 12.4 feet, and lowering

IAW T-102, "Primary Containment Control", before Torus water level lowers another 2 feet, the Operator will be directed to open all ADS valves.

IAW T-102 Bases, which of the following states the reason for this action?

This will help to prevent ...

A. exceeding the SRV Tail Pipe Limit.

B. over-pressurizing the Torus air space if a LOCA occurs in the Drywell.

C. exceeding the Torus design negative pressure if Torus Sprays are initiated.

D. over-pressurizing the Torus air space if the SRV tail pipe vacuum breakers fail open.

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The question states that Torus water level is lowering, and all attempts to mitigate the water level loss have failed. The Drywell downcomers become uncovered in the Torus water space at 10.5 feet. Thus, any steam in the Drywell goes down the downcomers and into the Torus air space, and this will pressurize the Torus air space. With Torus water level above 10.5 feet, then the steam going down the downcomer into the Torus water space will be condensed with no direct pressurization of the Torus air space from steam. T-102 requires an emergency blowdown when Torus water level cannot be maintained above 10.5 feet. In the question with Torus water level at 12.4 feet, then water level lowering an additional 2 feet, Torus water level is 10.4 feet and emergency blowdown is required before this value. Blowdown is accomplished in T-112, by manual opening of all ADS safety relief valves. T-102 provides the following: "Torus level must be maintained above 10.5 feet, the elevation of the downcomer vent openings, to ensure that steam discharged from the drywell into the Torus following a primary system break will be adequately condensed." It also says: "10.5 feet is the Torus elevation of the LOCA downcomer vent openings. When the downcomer vent openings are not adequately submerged, steam from the RPV into Primary Containment may not be adequately condensed in the Torus before Torus pressure reaches unacceptable values. Emergency RPV depressurization is required by this step at or before Torus level drops to 10.5 feet." Thus, prior to reaching 10.4 feet water level in the Torus, all ADS valves must be manually opened to prevent Torus air space over-pressurization if a LOCA were to occur.
Distractors:	A	This answer is plausible since the SRV tail pipe limit is related to Torus water level, but is only a concern on high Torus water level.
	C	This answer is plausible since a primary containment negative pressure could occur through both evaporative and convective cooling, and through inappropriate operation of Drywell and Torus Sprays. There are actions in the T-102 procedure on when to start and stop the Drywell/Torus sprays to prevent a negative pressure in the Primary Containment. But, this is not a reason for the question, IAW T-102 Bases.
	D	This answer is plausible since if an SRV tail pipe vacuum breaker should fail open, then pressurizing the Torus air space could occur the next time the SRV was opened.

Question 44 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	2130463
User-Defined ID:	ILT-2102-7A-028
Cross Reference Number:	295030EK2.07
Topic:	ILT-2102-7A-028 Bases for blowdown at 10.5
Num Field 1:	COMP2 - 6467
Num Field 2:	N/A
Text Field:	A
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New	Modified X (994116)	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	T-102, T-102 Bases				
Learning Objective:	PLOT - PBIG-2102, 7a				
K/A System:	295030 Low Suppression Pool Water Level			Importance: RO / SRO 3.5/3.8	
K/A Statement:	EK2.07 Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following: Downcomer/ horizontal vent submergence				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

Original

Unit 2 was operating at 100% power when a pipe leak upstream of MO-13A, "2A RHR Pump Suction" has resulted in an unisolable leak in the Torus. Torus level is 13 feet and lowering.

In accordance with T-102, an Emergency blowdown must be performed at 10.5 ft. in order to:

A. minimize the driving force of the primary system breach.

B. depressurize the reactor due to the downcomer vents being uncovered.

C. depressurize the reactor due to the SRV tailpipes being uncovered.

D. prevent the Heat Capacity Temperature Limit curve from being exceeded.

Answer: B

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	994116
User-Defined ID:	ILT-2102-7A-022
Cross Reference Number:	295030EK2.07
Topic:	ILT-2102-7A-022 Bases for blowdown at 10.5
Num Field 1:	COMP2 - 6467
Num Field 2:	N/A
Text Field:	A
Comments:	Importance RO/SRO: 3.5 / 3.8 Reference: T-102 Bases A. Incorrect: B. Correct: C. Incorrect: SRV tailpipes uncover at 7 feet D. Incorrect:

Associated objective(s):

7a. State the purpose and applicability for each of the following support procedures directed from T-102, Primary Containment Control including system geography ans system implications/operational effects: [G2.4.34, G2.4.35, G2.4.16] T-200, Primary Containment Venting

45 **ID: 2130486** **Points: 1.00**

Unit 2 is at 100% power when the following event occurs:

- Condensate Pump 2A suction valve (MO-2093A) fails closed
- The plant stabilizes

Which of the following describes the expected change in flow indication, and the reason for this change? (Assume NO operator actions)

A. CORE PLATE FLOW (Red Pen) indication lowered due to an ASD Runback to 30% speed.

B. JET PUMP TOTAL FLOW (Black Pen) indication lowered due to an ASD Runback to 45% speed.

C. CORE PLATE FLOW (Red Pen) indication lowered due to a lowering APRM indication to 30% power.

D. JET PUMP TOTAL FLOW (Black Pen) indication lowered due to a lowering APRM indication to 45% power.

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The stem states that the suction valve to Condensate Pump 2A goes closed. When the suction valve comes off the open seat, the condensate pump will trip. When reactor power is > 85% power and any condensate pump breaker trips, the ASD recirculation pump control system will runback both recirculation pumps to 45% speed. This will result in a lowering of total core flow and a lowering of core delta-p.
Distractors:	A	The ASD recirculation pump control system also has a runback to 30% speed from several signals, but not the same signal as the 45% speed runback. Thus a 30% recirculation pump speed has not occurred. This answer is plausible if the candidate misinterprets ASD logic.
	C	It is indeed true that when reactor recirculation pumps runback to 45% speed, there is a reduction in reactor power and Core Plate Dp, but power does not go as low as 30%, as indicated in the distractor. Power lowers to within the capacity of 2 condensate pumps. Reactor power stabilizes at approx. 65% power. This answer is plausible if the candidate misinterprets the plant response to a condensate pump trip.
	D	It is indeed true that when reactor recirculation pumps runback to 45% speed, there is a reduction in reactor power and Jet Pump flow, but power does not go as low as 45%, as indicated in the distractor. Power lowers to within the capacity of 2 condensate pumps. Reactor power stabilizes at approx. 65% power. This answer is plausible if the candidate misinterprets the plant response to a condensate pump trip.

Question 45 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130486
User-Defined ID:	
Cross Reference Number:	
Topic:	3r. Describe the Reactor Recirculation / Recirculation Flow Control Systems design feature(s) and/or
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	ARC 203 E-2	
Learning Objective:	PLOT - 5002, 3r	
K/A System:	295001 Partial or Complete Loss of Forced Core Flow Circulation	Importance: RO / SRO 2.9/3.0
K/A Statement:	AK3.06 Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Core flow indication	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

46 **ID: 2131809** **Points: 1.00**

Unit 2 is at 100% power

- A fire is reported by the Hydrogen Seal Oil System
- Oil from the Main Seal Oil pump is spraying out and feeding the fire

In accordance with ON-114 "Actual Fire Reported in the Power Block, Diesel Generator Building, Emergency Pump, Inner Screen, or Emergency Cooling Tower Structures" which of the following states the required action and why?

	ACTION	REASON
A.	Shutdown Hydrogen Seal Oil ONLY	Mitigate damage by stopping oil supply to the fire
B.	Shutdown Hydrogen Seal Oil ONLY	Remove electrical power to components for Fire Brigade members safety
C.	Isolate AND Vent the Main Generator THEN Shutdown Hydrogen Seal Oil	Mitigate damage by stopping oil supply to the fire
D.	Isolate AND Vent the Main Generator THEN Shutdown Hydrogen Seal Oil	Remove electrical power to components for Fire Brigade members safety

Answer: C

Answer Explanation

<<<<Choice		Basis or Justification
Correct:	C	In accordance with ON-114, for a fire affecting the Hydrogen Seal Oil System attachment 3 would be performed. This vents the main generator and then secures the Hydrogen Seal oil system. This is done in accordance with ON-114 bases to rapidly shutdown the oil pumps to mitigate damage by stopping the oil supply to the fire.
Distractors:	A	Plausible as the fire is being fed by the Hydrogen Seal Oil system and rapidly shutting down oil pumps is part of the bases for ON-114, however due to the system affected, Hydrogen must be vented first before shutting down the seal oil system, otherwise Hydrogen mixed with air could cause a worse explosion. Reason given is correct
	B	Plausible as the fire is being fed by the Hydrogen Seal Oil system and rapidly shutting down oil pumps is part of the bases for ON-114, however due to the system affected, Hydrogen must be vented first before shutting down the seal oil system, otherwise Hydrogen mixed with air could cause a worse explosion. Plausible as removing power from components would be performed to protect the Fire Brigade members, however ON-114 and the SO procedures only shutdown the system and do not shutdown the power supplies to the system. This would be researched and relayed separately to have breakers opened to the related equipment for protection.
	D	First part is correct Plausible as removing power from components would be performed to protect the Fire Brigade members, however ON-114 and the SO procedures only shutdown the system and do not shutdown the power supplies to the system. This would be researched and relayed separately to have breakers opened to the related equipment for protection.

Question 46 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131809
User-Defined ID:	
Cross Reference Number:	600000 AK3.04
Topic:	19d Specific to ON-114, Actual Fire Reported in the Power Block, Diesel Generator Building
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

<<References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(10)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ON-114 and bases	
Learning Objective:	PLOT-1550	
K/A System:	600000 - Plant Fire on Site	Importance: RO / SRO 2.8 / 3.4
K/A Statement:	AK3.04 - Knowledge of the reasons for the following responses as they apply to Plant Fire on Site: Actions contained in the abnormal procedure for the plant fire on site	
REQUIRED MATERIALS:	None	
Notes and Comments:	none	

47 **ID: 2130848** **Points: 1.00**

The crew has entered and is executing SE-16, "Grid Emergency".

- The station emergency electrical system is in a degraded condition

In accordance with SE-16 "Grid Emergency", at shift managements discretion, the Station Blackout (SBO) Load Break Switch '00S079' would be __(1)__.

Performing this on the '00S079' Load Break Switch will __(2)__.

A. 1) OPENED or verified OPEN
2) improve the reliability of the 361-00 line

B. 1) OPENED or verified OPEN
2) ready the 191-00 line for dedicated use

C. 1) CLOSED or verified CLOSED
2) improve the reliability of the 361-00 line

D. 1) CLOSED or verified CLOSED
2) ready the 191-00 line for dedicated use

Answer: B

Answer Explanation

<<Choice		Basis or Justification
Correct:	B	In accordance with step 3.7 of SE-16, at shift managements discretion, if the station emergency electrical system is in a degraded condition, 00S079 would be opened. This is to take initial action to ready the 191-00 line for dedicated use.
Distractors:	A	First part is correct Second part is plausible as the load breaker switch 00S079 is connected to the 361-00 line and the candidate may misinterpret the connection as adding more instability to an already unstable grid.
	C	First part is plausible as normally the 00S079 lives opened and the candidate may misinterpret the step to close the 00S079 to improve the reliability of the 361-00 line or misinterpret grid lineup.
	D	First part is plausible as normally the 00S079 lives opened and the candidate may misinterpret the step to close the 00S079 or misinterpret grid lineup. Second part is correct

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	2130848
User-Defined ID:	ILT-1555-3-031
Cross Reference Number:	262001K3.05
Topic:	ILT-1555-031 SE-16 Purpose for opening SBO Load Break Switch 00S079
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b)(10)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-16 and bases, E-5343	
Learning Objective:	PLOT-1555	
K/A System:	700000-Generator Voltage and Electric Grid Disturbances	Importance: RO / SRO 3.6 / 3.9
K/A Statement:	AK3.02 - Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Actions contained in abnormal operating procedure for voltage and grid disturbances	
REQUIRED MATERIALS:	None	
Notes and Comments:	none	

48 **ID: 2131856** **Points: 1.00**

Unit 2 has experienced a loss of Drywell cooling and a steam leak in the Drywell with the following:

- Drywell spray has been initiated due to high Drywell temperature per T-102, "Primary Containment Control".
- Drywell temperature is 230°F and lowering slowly
- Drywell pressure is 6 psig and lowering slowly

Which one of the following identifies the correct parameters for when Drywell spray is required to be secured in accordance with T-102?

Secure Drywell spray before:

A. Drywell Pressure drops below 2 psig
OR
Torus Level reaches 18 ft

B. Drywell Pressure drops below -2 psig
OR
Torus Level reaches 18 ft

C. Drywell Pressure drops below 2 psig
OR
Torus Level reaches 21 ft

D. Drywell Pressure drops below -2 psig
OR
Torus Level reaches 21 ft

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	T-102 requires securing Drywell sprays before Drywell Pressure drops below 2 psig Or Torus level reaches 18ft
Distracters:	B	Plausible as -2 psig is also contained in T-102 in the PC/P leg to vent primary containment if it cannot be maintained above -2 psig and the candidate may misapply the numbers. Second part is correct
	C	First part is correct Plausible as 21 ft is mentioned in both the PC/P leg and DW/T leg of T-102 as a limitation on starting the Torus Sprays and the candidate may misapply this information.
	D	Plausible as -2 psig is also contained in T-102 in the PC/P leg to vent primary containment if it cannot be maintained above -2 psig and the candidate may misapply the numbers. Plausible as 21 ft is mentioned in both the PC/P leg and DW/T leg of T-102 as a limitation on starting the Torus Sprays and the candidate may misapply this information.

Question 48 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131856
User-Defined ID:	
Cross Reference Number:	295028 EA1.04
Topic:	PLOT-2102 - When to terminate sprays -2
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b) (10)

Source Documentation

Source:	New Exam item X Modified Bank (2114933) ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	T-102	
Learning Objective:	PLOT-PBIG-2102 5	
K/A System:	295028 - High Drywell Temperature	Importance; RO 3.9
K/A Statement:	EA1.04 - Ability to operate and/or monitor the following as they apply to High Drywell Temperature: Drywell pressure	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	The question meets the K/A by presenting a situation where Drywell sprays have been initiated due to high Drywell temperature and requiring knowledge of when Drywell sprays are terminated based on Drywell pressure.	

49 **ID: 2129852** **Points: 1.00**

Unit 2 is at 28% power on a plant startup when the following annunciator alarms:

- MAIN TURBINE EMERGENCY TRIP

Which of the following states the correct plant responses 30 seconds later? (assume GP-4 operator actions have NOT been performed yet.)

1. Both sets of Scram Group lights are de-energized on panels 20C015 and 20C017
2. The back-up scram valves solenoids are de-energized.
3. All scram discharge volume vent and drain valves indicate red lights on.
4. Annunciator SCRAM DISCH VOLUME NOT DRAINED is lit (ARC 210 B-2)
5. Annunciator MODE SWITCH SHUTDOWN SCRAM BYPASS is lit (ARC 211 A-2)

A. 1 and 4 ONLY

B. 2 and 3 ONLY

C. 1, 4, and 5

D. 1, 2, and 4

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The Plant was at 28% power when annunciator MAIN TURBINE EMERGENCY TRIP came in. This alarm indicates a turbine trip has occurred. IAW the ARC (205 B-4), if reactor power is greater than 26.3%, then an RPS actuated reactor scram also occurs. Since reactor power is 28%, then the turbine trip will result in a reactor scram. When a scram occurs, the control room Scram Group lights (2 sets of 4, which are normally energized) deenergize. Choice 1 s correct. On a scram, the normally energized scram pilot valves are energized and will de-energize to facilitate a scram. But the normally de-energized backup scram solenoids will energize to isolate and vent the scram air header, resulting in opening of the scram valves and scramming of the control rods. Since choice 2 states the backup scram solenoids are de-energized, and will energize on a scram, Choice 2 is incorrect. On a scram signal, all scram discharge volume vent and drain valves go from normally open to closed (green lights on). Thus Choice 3 is incorrect. On a scram signal, water from above the control rod drive piston goes into the scram discharge volume (SDV) and the Annunciator SCRAM DISCH VOLUME NOT DRAINED will illuminate. And since the SDV vents/drains are closed, it cannot drain without operator action. Thus Choice 4 is correct. IAW GP-4, "Manual Reactor Scram", the second verifiable action is to place the reactor Mode switch in SHUTDOWN. When this is done, then annunciator MODE SWITCH SHUTDOWN SCRAM BYPASS will come in. Since no GP-4 actions have occurred yet, then Choice 5 is incorrect. Thus, Answer A is correct since both choices are correct for the resultant reactor scram from the turbine trip.
Distractors:	B	Answer B is plausible if the candidate misinterprets the turbine-scram interconnection and the correct plant response to a reactor scram or misinterprets the annunciators provided in the question stem.
	C	Answer C is plausible if the candidate misinterprets the turbine-scram interconnection and the correct plant response to a reactor scram or misinterprets the annunciators provided in the question stem.
	D	Answer D is plausible if the candidate misinterprets the turbine-scram interconnection and the correct plant response to a reactor scram or misinterprets the annunciators provided in the question stem.

Question 49 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129852
User-Defined ID:	
Cross Reference Number:	
Topic:	3o. Describe the Reactor Protection System (RPS) design feature(s) and/or interlock(s) and {for init
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	ARC 205 B-4, ARC 210 B-2, ARC 211 A-2, PLOT-5060F				
Learning Objective:	PLOT - 5060F, 3o				
K/A System:	295005 Main Turbine Generator Trip			Importance: RO / SRO 3.6/3.6	
K/A Statement:	AA1.02 Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP: RPS				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

50 **ID: 2129867** **Points: 1.00**

Unit 2 is at 100% power when the following annunciator alarms:

- 2A DC POWER PANEL LO VOLTAGE (ARC 209 C-3)

Local investigation reveals that the 2A DC Power Panel has a fault and shows 0 volts.

Which of the following states the component which the Control Room Operator is NO longer able to manually control from the Control Room?

A. CRD Pump 2B

B. RHR Pump 2C

C. Emergency Diesel E-1

D. Core Spray Pump 2D

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	The annunciator provides in the question stem describes a low DC voltage condition on the 2A 125 VDC Distribution Panel (20D021). This panel supplies DC power for breakers for 4KV load breakers and power for other things such as logic power. This means that there is no DC electrical power needed to remotely close the breaker to various loads. These loads include breaker control and logic power: CRD Pump 2A, RHR Pump 2A, Core Spray Pump 2A, RCIC, and emergency diesel generator E-1. Should 4KV Bus E12 or E13 lose power, emergency diesel E-1 will NOT be able to start and load onto the bus from the control room and the Bus (E12 or E13) will be lost. The E-1 cannot also be manually started/loaded from the control room with the DC loss. Thus Answer C is correct.
Distractors:	A	This answer is plausible since it also requires DC power for operation, but that DC source is not the 2A Panel.
	B	This answer is plausible since it also requires DC power for operation, but that DC source is not the 2A Panel.
	D	This answer is plausible since it also requires DC power for operation, but that DC source is not the 2A Panel.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 50 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129867
User-Defined ID:	
Cross Reference Number:	
Topic:	2a. State the power supplies to system components: For AC components less than 4kV, state the type (
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	ARC 209 C-3, SE-13				
Learning Objective:	PLOT - 5057 2a				
K/A System:	295004 Partial or Complete Loss of D.C. Power			Importance: RO / SRO	
K/A Statement:	AA1.03 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: A.C. electrical distribution				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

51 **ID: 2129868** **Points: 1.00**

The control room must be evacuated.

Which of the following states a location where Unit 2 Torus temperature may be read?

A. The Remote Shutdown Panel

B. ADS Alternate Control Transfer Isolation Switch panel 2AC807

C. ADS Alternate Control Transfer Isolation Switch panel 2BC807

D. Alternate Control Transfer Isolation Switch panel 20C822

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	Unit 2 torus temperature indicates on the Remote Shutdown Panel.
Distractors:	B	This answer is plausible since it may be needed to be accessed during a control room evacuation, but it does not have torus temperature indication.
	C	This answer is plausible since it may be needed to be accessed during a control room evacuation, but it does not have torus temperature indication.
	D	This answer is plausible since it may be needed to be accessed during a control room evacuation, but it does not have torus temperature indication.

Question 51 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129868
User-Defined ID:	
Cross Reference Number:	
Topic:	5o. Describe the relationships between the Remote Shutdown Panel & Fire Safe Shutdown/Alternative Sh
Num Field 1:	N
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	SE-10, ST-O-013-750-2				
Learning Objective:	PLOT - 5038X, 5o				
K/A System:	295016 Control Room Abandonment			Importance: RO / SRO 3.9/4.1	
K/A Statement:	AA2.04 Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: Suppression pool temperature				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

52 **ID: 2129869** **Points: 1.00**

Unit 2 is at 100% power, with the Backup Air Compressor tagged out of service, when the following occurs:

0758 "A" INSTRUMENT AIR HEADER LO PRESS and "B" INSTRUMENT AIR HEADER LO PRESS annunciators alarms

0800 The Reactor Operator reports INST AIR HDR "A" and "B" both indicate 95 psig, and lowering 2 psig/minute.

0801 ON-119, "Loss of Instrument Air" is entered

0802 The Reactor Operator dispatches Equipment Operators to inspect the instrument air compressors and related components

0806 Instrument Air Compressor "A" trips

0808 INST AIR HDR "A" and "B" both indicate 79 psig, and lowering 4 psig/minute.

0812 One MSIV indicates split indication

0813 One control rod begins to drift

0814 One control rod scrams

IAW ON-119, which of the following represents the EARLIEST time that a GP-4 "Manual Reactor Scram" should be performed?

A. 0809

B. 0812

C. 0813

D. 0814

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	IAW ON-119, a manual scram is required under the following conditions: 1) "IF both Instrument Air header pressures lower to less than or equal to 75 psig OR equipment critical to continued plant operation begins to malfunction due to low air pressure, THEN PERFORM GP-4, "Manual Reactor Scram"; and, 2) "IF at any time during the performance of this procedure any control rod begins to drift "in" due to lowering Scram pilot air header pressure OR MSIVs start to close, THEN SCRAM AND ENTER T-100, "Scram" or T-101, "RPV Control" as appropriate AND EXECUTE concurrently with this procedure." Thus, at 0808, air header pressure is given at 79 psig and lowering at 4 psig/minute. At time 0809, air pressure indicates 75 psig and is the first event to meet the manual scram criteria in ON-119. Answer A is correct.
Distractors:	B	This answer is plausible since a closing MSIV is stated as a scram point in ON-119, but it is not the first scram point met.
	C	This answer is plausible since a drifting control rod is stated as a scram point in ON-119, but it is not the first scram point met.
	D	This answer is plausible since low air pressure can result in opening of the HCU scram valves and a control rod scrams.

Question 52 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129869
User-Defined ID:	
Cross Reference Number:	
Topic:	22c Specific to ON-119, Loss of Instrument Air (IA): For a sustained loss of IA, predict the impact
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(10)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):					
Learning Objective:	PLOT - PBIG-1550, 22c				
K/A System:	295019 Partial or Complete Loss of Instrument Air			Importance: RO / SRO 3.5/3.6	
K/A Statement:	AA2.01 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: Instrument air system pressure				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

53 **ID: 2129870** **Points: 1.00**

Unit 2 is at 100% power with the following conditions:

- A TBCCW is in service
- B TBCCW is in standby
- TBCCW pressure is 71 psig and slowly lowering due to a leak

T=0 the following occurs:

- Fault occurs on 480 VAC 2G4-G-B

T=1 minute

- TBCCW pressure is 50 psig slowly lowering
- Ann 217 C-5 "TURB BLDG COOLING WATER SUPPLY LO PRESS" Alarms

Which of the following describes the system response without operator action?

A. A TBCCW remains running, B TBCCW auto starts

B. A TBCCW remains running, B TBCCW does not start

C. A TBCCW trips, B TBCCW auto starts

D. A TBCCW trips, B TBCCW does not start

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The A TBCCW pump will remain running as there are no auto trips of the pump except Pump overload. The B TBCCW pump would not start as its power supply has a fault on it.
Distractors:	A	First part is correct Second part is plausible as the B TBCCW pump would auto start with pressure less then 70 psig after a 20 second time delay. However the B TBCCW pumps power supply has a fault and the pump will not start.
	C	Plausible as the A TBCCW pump is having problems supplying the correct pressure to components and the candidate may misapply this knowledge that the pump will automatically trip. However the auto trips of the A TBCCW pump is on a pump overload, and although the pump may eventually overload due to the leak, it will not trip within one minute. Second part is plausible as the B TBCCW pump would auto start with pressure less then 70 psig after a 20 second time delay. However the B TBCCW pumps power supply has a fault and the pump will not start.
	D	Plausible as the A TBCCW pump is having problems supplying the correct pressure to components and the candidate may misapply this knowledge that the pump will automatically trip. However the auto trips of the A TBCCW pump is on a pump overload, and although the pump may eventually overload due to the leak, it will not trip within one minute. Second part is correct

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2129870
User-Defined ID:	
Cross Reference Number:	
Topic:	21a Specific to ON-118, Loss of Turbine Building Closed Cooling Water (TBCCW) System: Given plant co
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(10)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	M-316, sheet 2	
Learning Objective:	PLOT - PBIG-1550 21a	
K/A System:	295018 Partial or Complete Loss of Component Cooling Water	Importance: RO / SRO 3.2/3.5
K/A Statement:	AA2.03 Cause for partial or complete loss	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

54 **ID: 994305** **Points: 1.00**

Unit 3 is at 100% power

- a Safety Relief Valve fails full open and cannot be closed
- Torus temperature is 95°F and rising

Over the next 30 minutes, continued Torus temperature rise will:

A. be prevented by placing one loop of Torus Cooling in service ONLY.

B. be prevented by placing both loops of Torus Cooling in service.

C. NOT be prevented unless reactor power is reduced to approximately 25% regardless of Torus Cooling alignment.

D. NOT be prevented while the plant is at power regardless of Torus Cooling alignment.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The plant must be shutdown and depressurized to prevent the Torus from continuing to heat up.
Distractors:	A	SRV heat input exceeds Torus Cooling capacity whether one or both loops are placed in service. Plausible if the candidate does not understand the relationship between the heat addition form the core and the ability of RHR to remove heat.
	B	SRV heat input exceeds Torus Cooling capacity whether one or both loops are placed in service. Plausible if the candidate does not understand the relationship between the heat addition form the core and the ability of RHR to remove heat.
	C	reducing power will only slightly lower pressure and is accomplished to try and shut the SRV. It does not reduce the heat input of an open SRV. Heat input is more a function of RPV pressure than power. Plausible if the candidate does not understand the relationship between the heat addition form the core and the ability of RHR to remove heat.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 54 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	994305
User-Defined ID:	ILT-1540-4-011
Cross Reference Number:	295026EA1.01
Topic:	ILT-1540-4-011-OT-114
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.41(b)(8)

Source Documentation		
Source:	New Exam item Modified Bank Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam
Reference(s):	OT-114 bases	
Learning Objective:	PLOT 1540-4	
K/A System:	295026 Suppression Pool High Water Temperature	Importance; RO / SRO 4.2/ 4.4
K/A Statement:	G2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A as the candidate has to interpret with the SRV full open, Torus temperature will continue to rise regardless of cooling alignment. This would be different if the SRV were just partially open.	

55 **ID: 2130987** **Points: 1.00**

Unit 2 is at 15% power when an event occurs. Current plant conditions include the following:

- Reactor water level lowered to +5 inches and is currently +10 inches rising slowly.
- Reactor pressure is 1095 psig and steady.
- Reactor power is downscale on APRMs.
- Drywell pressure is 1.7 psig and rising slowly.
- Drywell average temperature is 142° F and rising slowly.
- Torus water level is 15.2 feet and rising slowly.
- Torus temperature is 82° F and rising slowly.
- Annunciator 215 D-2, "REAC BLDG EQUIPMENT DRAIN SUMP HI – HI LEVEL", is in alarm.

Which one of the following lists ALL the Emergency Operating Procedures (Trip Procedures) that are required to be entered based on current conditions?

A. T-101 "RPV Control" and T-102 "Primary Containment Control"

B. T-101 "RPV Control" and T-103 "Secondary Containment Control"

C. T-100 "SCRAM" and T-102 "Primary Containment Control"

D. T-100 "SCRAM" and T-103 "Secondary Containment Control"

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	T-101 entry is required due to Reactor pressure above 1085 psig. T-102 entry is required due to Torus water level above 14.9'. T-103 entry is not required.
Distracters:	B	First part is correct. T-103 entry is not required. Plausible because the related Annunciator for hi-hi floor drain sump water level would require T-103 entry.
	C	Plausible as T-100 is entered under most low power scrams as the +1 entry condition into T-101 is not met. However, T-101 entry is required due to Reactor pressure above 1085 psig. Second part is correct.
	D	Plausible as T-100 is entered under most low power scrams as the +1 entry condition into T-101 is not met. However, T-101 entry is required due to Reactor pressure above 1085 psig. T-103 entry is not required. Plausible because the related Annunciator for hi-hi floor drain sump water level would require T-103 entry.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 55 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130987
User-Defined ID:	ILT-1560-1-6
Cross Reference Number:	295025 2.2.4
Topic:	ILT-1560-1-6 Assess T-101, T-102, and T-103 entry requirements
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(10)

Source Documentation

Source:	New	Modified X (1649623)	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	T-101, T-102, T-103, T-104	
Learning Objective:	PLOT-1560-6	
K/A System:	295025 High Reactor Pressure	Importance: RO / SRO 4.5/4.7
K/A Statement:	G2.2.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

Original

1 **ID: 1649623** **Points: 1.00**

Unit 2 has experienced a transient with the following:

- Reactor water level is +5" and rising slowly.
- Reactor pressure is 1095 psig and steady.
- Reactor power is downscale on APRMs.
- Drywell pressure is 1.7 psig and rising slowly.
- Drywell average temperature is 142°F and rising slowly.
- Torus water level is 15.2' and rising slowly.
- Torus temperature is 82°F and rising slowly.
- Annunciator 215 D-2, REAC BLDG EQUIPMENT DRAIN SUMP HI – HI LEVEL, is in alarm.

Which one of the following lists the Emergency Operating Procedures that are required to be entered based on current conditions?

A. T-101, RPV Control, and T-102, Primary Containment Control, only

B. T-101, RPV Control, and T-103, Secondary Containment Control, only

C. T-102, Primary Containment Control, and T-103, Secondary Containment Control, only

D. T-101, RPV Control, T-102, Primary Containment Control, and T-103, Secondary Containment Control

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	T-101 entry is required due to Reactor pressure above 1085 psig. T-102 entry is required due to Torus water level above 14.9'. T-103 entry is not required.
Distracters:	B	T-102 entry is required due to Torus water level above 14.9'. Plausible because multiple other conditions are elevated but below the T-102 entry condition. T-103 entry is not required. Plausible because the related Annunciator for hi-hi floor drain sump water level would require T-103 entry.
	C	T-101 entry is required due to Reactor pressure above 1085 psig. Plausible because Reactor water level is above the entry condition and Drywell pressure is below the entry condition. T-103 entry is not required. Plausible because the related Annunciator for hi-hi floor drain sump water level would require T-103 entry.
	D	T-103 entry is not required. Plausible because the related Annunciator for hi-hi floor drain sump water level would require T-103 entry.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory	3	3	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified X	ILT Bank	Other Bank	Previous NRC Exam
Reference(s):	T-101, T-102, T-103, T-104				
Learning Objective:	PLOT - 1560, 1				
K/A System:	295025 High Reactor Pressure			Importance: RO / SRO 4.5/4.7	
K/A Statement:	G2.2.4 Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

Question 1 Info	
Question Type:	Multiple Choice
Status:	
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	1649623
User-Defined ID:	
Cross Reference Number:	2.4.1
Topic:	Assess T-101, T-102, and T-103 entry requirements
Num Field 1:	
Num Field 2:	A NRC
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CFR55.41(b)(10)

Source Documentation

Source:	New Exam item **(2017)** Modified Bank Bank X ILT Exam Bank (2114943)	**X** Previous NRC Exam Other Exam
Reference(s):	T-101, T-102, T-103	
Learning Objective:	PLOT-1560 1	
K/A System:		Importance; RO 4.6
K/A Statement:	2.4.1 - Knowledge of EOP entry conditions and immediate action steps.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

Associated objective(s):

1. State the TRIP entry conditions and immediate action steps.

56 **ID: 2130038** **Points: 1.00**

Unit 2 is at 100% power when the SRO directs performance of GP-4. Current plant conditions include the following:

- Reactor Mode switch is in SHUTDOWN
- Scram pushbuttons have been depressed
- ARI is ARMED and depressed
- All scram blue lights are OFF
- All control rods are still in their original positions

Which of the following is the FASTEST method for the URO to insert all of control rods?

A. De-energize all the scram soleniods IAW T-213, "Scram Solenoid Deenergization".

B. Raise CRD cooling water Dp IAW T-246, "Maximizing CRD Flow to the Reactor Vessel".

C. Vent the CRD withdraw line IAW T-215, "Control Rod Insertion by Withdraw Line Venting".

D. Manually insert the control rods IAW T-220, "Driving Control Rods During Failure to Scram".

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The conditions show that an electric ATWS occurred at rated power, and no control rods changed position. All of the methods listed in Answers A-D are actual methods to insert control rods. Some of the listed methods are appropriate for an electric ATWS and some methods are appropriate for a hydraulic ATWS, and some can be used for either type of ATWS. De-energizing the scram solenoids, which is appropriate for an electric ATWS, can be performed by placing all CRD scram test switches (located in a single control room panel) in the DOWN or scram position. This can be performed very quickly by the URO and represents the fastest method to insert control rods IAW T-213. Answer A is correct.
Distractors:	B	This answer plausible since it has ATWS actions. Raising CRD cooling water procedure (T-246) requires the EO to open several valves in the plant, place the standby CRD drive water filter in service, secure recirc seal purge and manually open the CRD FCV, and direct the EO to secure CRD charging water. This is not the fastest method to insert the control rods. Answer B is incorrect.
	C	This answer plausible since it has ATWS actions. Venting the CRD withdraw line may be performed for both an electric and hydraulic ATWS. Venting the CRD withdraw line IAW T-215 requires that a vent cap be removed at an HCU and a single vent line be attached to a withdrawn control rod HCU. Then the withdraw line valve is manually opened. These actions are then duplicated at each HCU that has a withdrawn control rod. This is not the fastest method to insert the control rods. Answer C is incorrect.
	D	This answer plausible since it has ATWS actions. Manually inserting control rods IAW T-220 is applicable to both an electric and hydraulic ATWS. This requires that the CRD FCV be placed in Manual and opened and the EO will close the CRD charging water valve. The URO then bypasses the RWM and then begins selecting a control rod and inserting with RMCS. Each control rod will have to be selected and inserted. This is not the fastest method to insert the control rods. Answer D is incorrect.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 56 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130038
User-Defined ID:	
Cross Reference Number:	
Topic:	3. Describe the symptom-based TRIP mitigation strategies.
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(5)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	T-101, T-213, T-246, T-215, T-220	
Learning Objective:	PLOT - 1560, 3	
K/A System:	295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown	Importance: RO / SRO 4.4/4.7
K/A Statement:	G2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

57 **ID: 2130092** **Points: 1.00**

Unit 2 is at 100% power, when an event occurs with the timeline below:

0800 Annunciator 210 F-2, "DRYWELL HI-LO PRESS" alarms
0800 Drywell pressure is at 0.75 psig and rising
0801 OT-101, "High Drywell Pressure" has been directed
0802 "C" Drywell Chiller is started
0803 Drywell pressure is 1.2 psig and rising slowly
0803 GP-4 "Manual Reactor Scram
0804 All control rods inserted and feedwater is controlling RPV water level at 23 inches
0805 All scram actions complete IAW their respective RRCs
0807 The following plant indications then appear:

- Annunciator 210- F-1, DRYWELL HI PRESS TRIP alarms
- Annunciators E1 DIESEL RUNNING, E2 DIESEL RUNNING; E3 DIESEL RUNNING, E4 DIESEL RUNNING alarms
- Drywell pressure is now steady

Which of the following states the plant conditions over the next 2 minutes? (Assume NO further operator actions)

1. The emergency diesel generators are running with output breakers closed
2. RPV water level will rise above 23 inches
3. CST water level will lower
4. All DRYWELL COOLER Fans and DW CHILLERS indicate red lights ON

A. 1 and 3 ONLY

B. 1 and 4 ONLY

C. 2 and 3 ONLY

D. 2 and 4 ONLY

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	Unit 2 was at rated power when drywell pressure began to rise and T-101 was entered. DW pressure continued to rise the the operator manually scrammed the plant. All scram actions have been performed and feedwater is controlling RPV water level, and is stable at 23 inches. Minutes later, indications are provided that DW pressure has risen to/past 2 psig. When 2 psig DW pressure is reached, a scram signal is applied, high pressure coolant injection (HPCI) starts (with a suction from the condensate storage tank, CST) and injects into the RPV until an RPV water level signal high of 46 inches trips the HPCI turbine. Since the HPCI pump is taking a suction off the CST (but could be the torus as a suction), and is injecting into the RPV, regardless of feedwater level controls, CST water level will drop and RPV water level will rise above the feedwater level control setpoint of 23 inches. Thus answer options 2 and 3 are correct. Only Answer C selects these choices and is correct. 1. Plausible as on a DW high pressure of 2 psig, all 4 emergency diesels start but remain unloaded with their output breakers open until a loss of power is sensed. Since the diesel generators are producing 0 var and 0 watts (no reactive load and no real load), the diesel generators have no current power factor. 4. Plausible because at 2 psig DW pressure, all DW Cooler Fans trip, but the DW Chillers remain operating and the candidate may misinterpret the isolation logic. The chillers remain energized (red lights on) while only the cooler fans trip (green lights on).
Distractors:	A	This answer is plausible if the candidate misinterprets automatic actions on a Drywell pressure of 2 psig. See above for reason 1 being wrong.
	B	This answer is plausible if the candidate misinterprets automatic actions on a Drywell pressure of 2 psig. See above for reasons 1 and 4 being wrong.
	D	This answer is plausible if the candidate misinterprets automatic actions on a Drywell pressure of 2 psig. See above for reason 4 being wrong.

Question 57 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130092
User-Defined ID:	
Cross Reference Number:	
Topic:	3g. Describe the High Pressure Coolant Injection System design feature(s) and/or interlock(s) and {f
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	PLOT-5023, 3g	
Learning Objective:	PLOT - 5023, 3g	
K/A System:	295024 High Drywell Pressure	Importance: RO / SRO 4.1/4.0
K/A Statement:	EA1.01 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: HPCI	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

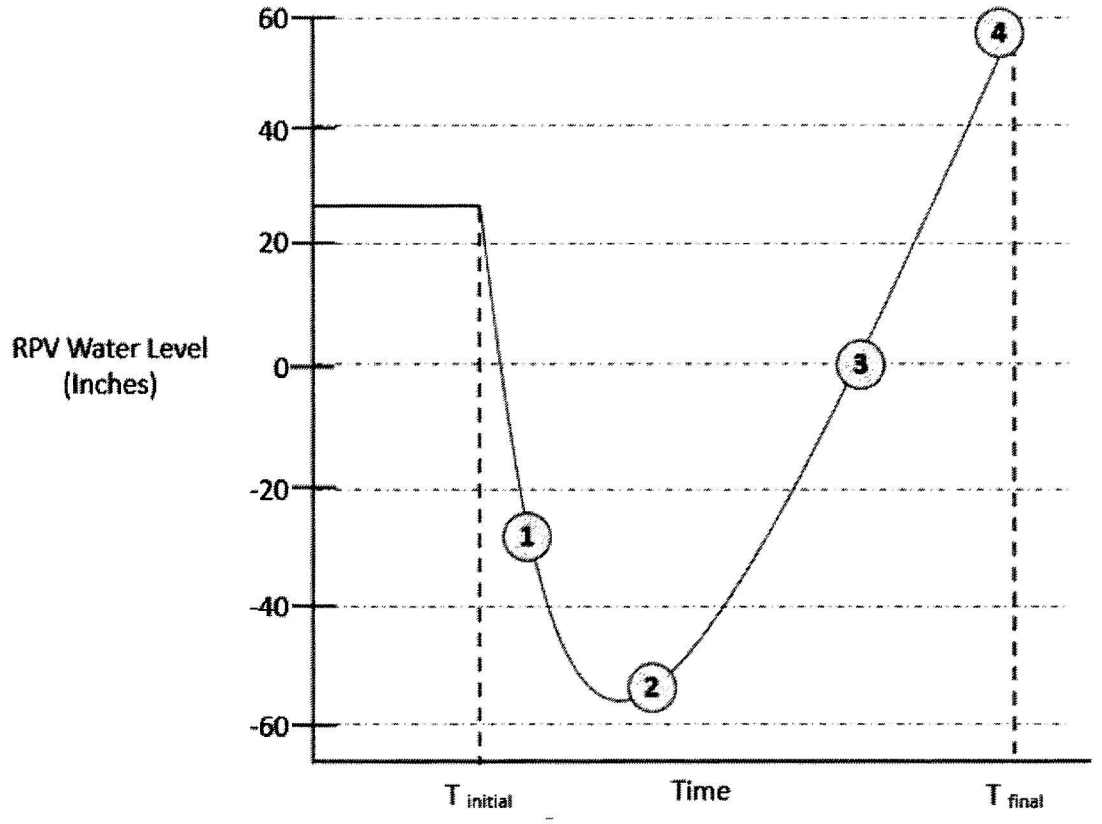
58 **ID: 2130150** **Points: 1.00**

Unit 2 is at 100% power when a reactor scram occurs.

The plot of RPV water level is shown as follows:

- Time $T_{initial}$ = time of the scram
- Time T_{final} = approximately 2 minutes after the scram

The SRO has directed an RPV water level band of +5 inches to +35 inches IAW T-101, "RPV Control".



Which of the following describe the correct operator action to establish RPV water level in the directed band?

A. At Point 1 on the graph: The Plant Reactor Operator will verify HPCI injection into the RPV at the 20C004B ECCS Panel

B. At Point 2 on the graph: The Unit Reactor Operator will manually trip all 3 feedwater pumps with the trip pushbuttons at the 20C005 Panel

C. At Point 3 on the graph: Once the Unit Reactor Operator reports they have control of RPV water level with feedwater, the Plant Reactor Operator should shutdown the HPCI system at the 20C004B ECCS Panel

D. At Point 4 on the graph: The Plant Reactor Operator will manually place the RCIC Flow Controller to 0 at the 20C004C ECCS Panel

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	The graph shows RPV water level following a scram. Answer C states that the operator has control of RPV water level with the feedwater system at Point 3, and that other injection systems may be removed. Both HPCI and RCIC auto started when RPV water level dropped to -48 inches. These systems can now be secured once control of RPV water level with feedwater (even though water level at Point 3 is lower then the normal setpoint, and is low in the band) is verified, and water level is above the low water initiating setpoint for HPCI/RCIC. Answer C is correct.
Distractors:	A	This answer is plausible since HPCI will auto start on a low RPV water level. Answer A says that the operator will verify HPCI injection into the RPV at Point 1. HPCI will auto start and inject into the RPV on a RPV water level of -48 inches. Point 1 is at about -28 inches and is above the HPCI auto initiation setpoint and HPCI will not yet have auto started and running and injecting. Answer A is incorrect.
	B	This answer is plausible since the operators do take control of feedwater when RPV level begins to recover. Answer B says to trip all 3 feedwater pumps at Point 2. Point 2 is where it shows that RPV water level is recovering and is starting to rise. RRC 94.1-2, "Reactor Operator Scram Actions", directs the operator to emergency stop all feedwater pumps when RPV water level begins to recover. Thus, Point 3 would be the point when the operator emergency stops the feedwater pumps - not trips the pumps. Answer B is incorrect.
	D	This answer is plausible since RCIC will be injecting. When RPV water reaches +46 inches, a turbine steam admission valve will auto close, and will then re-open when RPV water goes low again -48 inches. This Point 4 is above the setpoint for the steam valve to close, essentially preventing any injection flow. Since there is already no RCIC flow, there is no requirement to close the RCIC flow control valve (which would stop injection flow). Answer D is incorrect.

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130150
User-Defined ID:	
Cross Reference Number:	
Topic:	2. Discuss system setpoints/interlocks and automatic actions associated with TRIP entry conditions.
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	PLOT-PBIG-2100	
Learning Objective:	PLOT - PBIG-2100, 2	
K/A System:	295031 Reactor Low Water Level	Importance: RO / SRO 4.4/4.0
K/A Statement:	G2.1.30 Ability to locate and operate components, including local controls.	
REQUIRED MATERIALS:	embedded text	
Notes and Comments:	None	

59 **ID: 2084252** **Points: 1.00**

The intended order ADS valves are manually opened in accordance with T-100 "SCRAM" is __(1)___? This is done to __(2)__.

A. (1) A, B, C, G, K
(2) evenly distribute heat into the Torus

B. (1) A, B, C, G, K
(2) prevent opening Torus to Drywell vacuum breakers

C. (1) A, B, K, C, G
(2) evenly distribute heat into the Torus

D. (1) A, B, K, C, G
(2) prevent opening Torus to Drywell vacuum breakers

Answer: C

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	C	T-100 directs the operator to "Distribute Heat Evenly in the Torus." Above the ADS valves is a tag the directs the opening sequence.
Distractors:	A	Plausible if the candidate does not remember the opening sequence. ABCGK is the order given in the memory aid used to remember which SRVs are ADS valves. Correct reason is given.
	B	Plausible if the candidate does not remember the opening sequence. ABCGK is the order given in the memory aid used to remember which SRVs are ADS valves. Plausible if the candidate believes that opening a Vacuum breaker is an issue. An open vacuum breaker is only an issue if the valve does not reset.
	D	Opening sequence is correct. Plausible if the candidate believes that opening a Vacuum breaker is an issue. An open vacuum breaker is only an issue if the valve does not reset.

Question 59 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2084252
User-Defined ID:	B NRC 2019
Cross Reference Number:	295013 AK1.03
Topic:	ILT - 5001A-9c. For identified procedures associated with the Main Steam and Pressure Relief
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified	ILT Bank x (2115455)	Other Bank	Previous 2 NRC Exams X (2019)

Reference(s):	RRC 1G.2		
Learning Objective:	PLOT - 5001A-9c		
K/A System:	295013 - High Suppression Pool Temperature	Importance;	RO / SRO 3.0 / 3.3
K/A Statement:	AK1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH SUPPRESSION POOL TEMPERATURE : Localized heating		
REQUIRED MATERIALS:	None		
Notes and Comments:	This question meets the K/A because consideration must be given in accordance with the Rapid Response Card to prevent localized heating by opening up the SRV's in a certain order.		

60 **ID: 994215** **Points: 1.00**

The following conditions exist on Unit 3:

- Reactor scrammed due to low RPV water level.
- Reactor power is 50%.
- RPV water level is being controlled between -60 to -100 inches.
- 135 control rods did NOT insert.
- All scram valves are open.

In accordance with T-101, "RPV Control", and the referenced T-200 series procedures, select the statement below which identifies the proper operator actions needed to insert the remaining control rods.

A. Isolate instrument air to the scram air header and then vent the scram air header.

B. Maximize CRD Flow to the Reactor AND manually insert control rods concurrently

C. Bypass and reset both ARI and scram signals and open SDV vents and drains. When appropriate, insert a manual scram.

D. Open HV-3-03-56, "Charging Wtr Hdr Blk Vv", bypass the RWM, then manually insert control rods using the "Emergency In/Notch Override" switch.

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	The question stem shows that a hydraulic ATWS has occurred as evidenced by reactor power at 50% and all scram valves are open. T-101, RPV Control, lists several methods to insert control rods, depending on what type of ATWS: electric or hydraulic. T-216-3 for bypassing/resetting ARI and scram, and opening SDV vents/drains, is one method to insert control rods for a hydraulic ATWS. This will close all scram valves and will allow the CRD hydraulic system to recharge the CRD accumulators, plus it allows the scram discharge volume to drain. When the scram air header is re-pressurized and the SDV is drained, then another scram is manually input.
Distractors:	A	This answer is plausible since this is an action for an electric ATWS, however, since the scram air header is already de-pressurized as evidenced by the open scram valves, venting the scram air header is not necessary.
	B	This answer is plausible since maximizing CRD flow to the reactor vessel and manually inserting control rods are actions for a hydraulic ATWS, however they cannot be performed concurrently in accordance with T-246 "Maximizing CRD FLow to the Reactor Vessel"
	D	Driving control rods is always an effective method to insert control rods regardless of ATWS type. But the procedure requires closing the CRD charging water valve - not opening (or opening the CRD FCV). A scram and ARI signal is still in due to the RPV water level being controlled at below the scram setpoint for RPV water level, and thus with all scram valves open, all CRD flow is going to recharge the CRD accumulators, and ultimately into the RPV because the scram valves are open. There is insufficient flow to manually drive control rods.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 60 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.50
System ID:	994215
User-Defined ID:	A-ILT-1560-12-002
Cross Reference Number:	295015AK2.01
Topic:	A-ILT-1560-12-002 The following conditions exist on Unit 3: *Reactor scrammed due to low RPV level.
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	

Comments:

References Provided	None
K/A Justification	This question meets the K/A by requiring the candidate to determine that this is a hydraulic ATWS and actions related to the CRD hydraulics must be taken to correct.
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation

Source:	New	Modified X (508142)	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	T-101, T-214, T-213, T-216, T-220	
Learning Objective:	PLOT - 5057 2a	
K/A System:	295015 Incomplete SCRAM	Importance: RO / SRO 3.8/3.0
K/A Statement:	Ak2.01 Knowledge of the interrelations between INCOMPLETE SCRAM and the following: CRD hydraulics	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

61 **ID: 2131758** **Points: 1.00**

Unit 2 is at 80% power with the following conditions:

- Digital EHC Load Set is at 80% to limit Main Turbine loading, which is experiencing vibration issues at all higher loads
- Digital EHC Pressure Set is set at 912 psig
- Digital EHC Max Combined Flow Limit is set at 117%

A Positive Reactivity event occurs

Digital EHC will respond by opening __(1)__, in response to sensing a rise in __(2)__ pressure.

A. 1) Turbine Control Valves
2) Reactor

B. 1) Turbine Control Valves
2) PAM

C. 1) Bypass Valves
2) Reactor

D. 1) Bypass Valves
2) PAM

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	Digital EHC is set using Load set to limit the Load on the Turbine. When a positive reactivity event occurs reactor power will rise and will in turn raise reactor pressure. This in turn will cause a sensed pressure rise in PAM. DEHC will respond to this rising pressure by allowing more steam to flow through to lower PAM pressure. Since DEHC is limited by the load set, it will not open the Turbine Control Valves further and will start to open Bypass valves to allow more steam flow directly to the condenser to lower PAM pressure, which will then cause a lowering of Reactor Pressure.
Distractors:	A	Plausible because DEHC load set is normally set at 105% and would allow the Turbine Control Valves to open during all but the most limiting pressure transients. This would maintain the bypass valves closed during most positive reactivity events. Plausible as the positive reactivity event is causing the reactor pressure to rise. However DEHC only responds to the coresponding PAM pressure rise and not the reactor pressure rise. DEHC is controling PAM pressure and with the MSIV's open it relates to Reactor Pressure. If the MSIV's were closed, DEHC would still only respond to PAM pressure and not Reactor Pressure.
	B	Plausible because DEHC load set is normally set at 105% and would allow the Turbine Control Valves to open during all but the most limiting pressure transients. This would maintain the bypass valves closed during most positive reactivity events. Second Part is correct
	C	First part is correct Plausible as the positive reactivity event is causing the reactor pressure to rise. However DEHC only responds to the coresponding PAM pressure rise and not the reactor pressure rise. DEHC is controling PAM pressure and with the MSIV's open it relates to Reactor Pressure. If the MSIV's were closed, DEHC would still only respond to PAM pressure and not Reactor Pressure.

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131758
User-Defined ID:	
Cross Reference Number:	295007 AK3.06
Topic:	5b. Describe the relationships between the Electro-Hydraulic Control Logic System (EHC) and the foll
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CFR55.41(b)(5)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	PLOT-5001DL	
Learning Objective:	PLOT-5001DL-5b	
K/A System:	295007 - High Reactor Pressure	Importance: RO / SRO 3.7/ 3.8
K/A Statement:	AK3.06 - Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE: Reactor/turbine pressure regulating system operation	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	This question meets the K/A as the candidate is questioned on what (reason) the Reactor/turbine pressure regulating system is responding to, and how it responds.	

62 **ID: 2130904** **Points: 1.00**

The following alarms are received on Unit 3:

- 3 VENT STACK RAD MONITOR HI TROUBLE A (318 B-5)
- 3 VENT STACK RAD MONITOR HI TROUBLE B (318 C-5)

In accordance with ON-104, 'Vent Stack High Radiation', which radiation monitor must be checked to help determine the source of the high radiation?

A. Control Room

B. Radwaste Building

C. Recombiner Building

D. Steam Packing Exhauster

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	IAW ON-104, if the Unit 3 Vent Stack Radiation is high, the Recombiner Building exhaust radiation monitor should be checked.
Distractors :	A	The Control Room has its own exhaust to the roof of the control room. Although the Control Room ventilation exfiltrates to the turbine building and would possibly pass through the Unit 3 Vent Stack, the radiation monitors for the control room monitor incoming outside air and are not mentioned in ON-104. Plausible if the candidate misinterprets the alignment of the stations ventilation system.
	B	Plausible as the Radwaste Building would be checked if the Unit 2 vent stack rad monitor hi trouble alarm came it. The candidate may misinterpret the alignment of the station ventilation system.
	D	Plausible as the Steam Packing Exhauster could be a source of high radiation, however it would show up in the Main Stack rad monitors. The candidate may misinterpret the alignment of the station ventilation system.

Question 62 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130904
User-Defined ID:	ILT-1550-1-004
Cross Reference Number:	295017 A1.04
Topic:	ILT-1550-1-004 ON-104 execution
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.41(b) 10

Source Documentation

Source:	New Exam item Previous NRC Exam X Modified Bank (639549) Other Exam Bank ILT Exam Bank	
Reference(s):	ON-104	
Learning Objective:	PLOT -1550-1	
K/A System:	295017 - High Off-site Release Rate	Importance; RO / SRO 3.6 / 3.8
K/A Statement:	A1.04 - Ability to operate and or monitor the following as they apply to High Off-site Release Rate: Stack-gas monitoring system	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

63 **ID: 2131426** **Points: 1.00**

Unit 2 is operating at 100% power

- A fire occurs in the Unit 2 Reactor Building
- Secondary Containment Temperatures are rising

Which of the following describes the level instruments most affected by the fire and why?

A. Narrow Range Instruments due to long variable leg vertical runs in the Reactor Building

B. Narrow Range Instruments due to long reference leg vertical runs in the Reactor Building

C. Wide Range Instruments due to long variable leg vertical runs in the Reactor Building

D. Wide Range Instruments due to long reference leg vertical runs in the Reactor Building

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	T-103 includes a table to reference to determine whether an instrument can be used to determine level. This table uses Reactor Building Temperatures near the reference legs. Listed in the table are Wide Range and Fuel Zone instruments. This is because of their long vertical reference leg runs in the Reactor Building which can cause erroneous readings.
Distractors:	A	Plausible as the Narrow range instruments also have instrument runs in the Reactor building. However the Narrow Range have their longer reference leg vertical runs in the Drywell. Plausible as the variable leg will be affected by high temperatures, however the reference legs have the longer vertical run and will be more affected by the temperature.
	B	Plausible as the Narrow range instruments also have instrument runs in the Reactor building. However the Narrow Range have their longer reference leg vertical runs in the Drywell and are less affected than the Wide Range instruments with elevated Reactor Building temperatures. Long reference leg vertical runs would be a correct answer.
	C	Wide range instruments is correct Plausible as the variable leg will be affected by high temperatures, however the reference legs have the longer vertical run and will be more affected by the temperature.

Question 63 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	1
Difficulty:	1.00
System ID:	2131426
User-Defined ID:	ILT-5002B-5F-003
Cross Reference Number:	295032 EA2.02
Topic:	ILT-5002B-4f-003 high reactor building temp
Num Field 1:	
Num Field 2:	N/A
Text Field:	A
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
MEMORY			10CRF55.41(b)(2)

Source Documentation		
Source:	X New Exam item Exam Modified Bank Bank ILT Exam Bank	Previous NRC Other Exam
Reference(s):	PLOT-5002B, T-103	
Learning Objective:	PLOT 5002-4f	
K/A System:	295032- High Secondary Containment Area Temperature	Importance; RO / SRO 3.8/ 3.5
K/A Statement:	EA2.02 - Ability to determine and/or interpret the following as they apply to High Secondary Containment Area Temperature: Equipment operability	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A as the candidate will be determining which equipment's ability to perform will be most affected by High Secondary Containment Area Temperatures.	

64 **ID: 2130530** **Points: 1.00**

Unit 2 conditions are as follows:

- 10% power and 925 psig during a startup
- CRD Pump 2A tagged out for emergent repair
- Annunciator CRD ACCUMULATOR LO-PRESS HI LEVEL is in alarm for a single withdrawn control rod

3 minutes later, the following annunciators and indications are received:

- B CRD WATER PUMP OVLD (211 G-2)
- B CRD WATER PUMP TRIP (211 G-1)
- CRD HYDRAULIC HI TEMP (211 G-5)
- CRD Charging Header pressure is 930 psig and lowering
- A second accumulator trouble alarm on a withdrawn control rod

Which of the following states the next required action IAW ON-107, "Loss of CRD Regulating Function", and the reason for this action?

A. Scram the reactor immediately,
to ensure control rods can be inserted before the HCU accumulators depressurize and cannot complete the scram.

B. Scram the reactor immediately,
to protect control rods drive seals and bushings from damage due to high temperature

C. RESTORE charging header pressure to greater than 940 psig within 20 minutes, or Scram the reactor,
to ensure control rods can be inserted before the HCU accumulators depressurize and cannot complete the scram.

D. RESTORE charging header pressure to greater than 940 psig within 20 minutes, or Scram the reactor,
to protect control rods drive seals and bushings from damage due to high temperature

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	The question shows that during a startup with a single CRD pump tagged out for repair, the only remaining CRD pump trips and all CRD header pressure is lost, and a second CRD HCU trouble alarm has come in. It also shows that CRD charging header pressure has lowered to below 940 psig. With reactor pressure greater than 900 psig, ON-107 requires a manual scram after 20 minutes. IAW TS Bases 3.1.5, "The control rod scram accumulators are part of the Control Rod Drive (CRD) System and are provided to ensure that the control rods scram under varying reactor conditions. The control rod scram accumulators store sufficient energy to fully insert a control rod at any reactor vessel pressure. " Thus, the HCU accumulators must be able to scram control rods before HCU accumulator pressure becomes too low.
Distractors:	A	Plausible because if reactor pressure was less than 900 psig, with other listed conditions ON-107 would require an immediate scram. Second part is correct
	B	Plausible because if reactor pressure was less than 900 psig, with other listed conditions ON-107 would require an immediate scram. Plausible because ON-107 refers to a loss of CRD cooling leading to overheating of the drive seals and bushings. ON-107 will also call for a scram to be performed on a valid CRD high temperature, however the operators have one hour to correct the high temperature before the scram is required.
	D	First part is correct Plausible because ON-107 refers to a loss of CRD cooling leading to overheating of the drive seals and bushings. ON-107 will also call for a scram to be performed on a valid CRD high temperature, however the operators have one hour to correct the high temperature before the scram is required.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 64 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130530
User-Defined ID:	
Cross Reference Number:	2.4.21
Topic:	ON-107 when to scram and why
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(7)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	ON-107				
Learning Objective:	PLOT - DIG-1540, 7				
K/A System:	295022 - Loss of CRD Pumps			Importance: RO / SRO 4.0/4.6	
K/A Statement:	G2.4.21 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.				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

65 **ID: 2130953** **Points: 1.00**

Unit 2 is at 100% power when Drywell conditions began to degrade. Current conditions are as follows:

- Drywell Bulk Average Temperature is 149°F and rising slowly
- Drywell pressure is 1.3 psig and rising slowly
- T-101, "RPV Control" and T-102, "Primary Containment Control" have been entered
- ALL Reactor Operator and Plant Reactor Operator actions are complete for the reactor scram
- RPV water level is 23 inches and steady

Which of the following is the required operator action with regards to monitoring containment conditions?

A. Continue to monitor Primary Containment hydrogen and oxygen using CAC. Report when Primary Containment hydrogen reaches 0.5% to re-enter T-102.

B. Continue to monitor Primary Containment hydrogen and oxygen using CAC. Report when Primary Containment oxygen reaches 0.5% to re-enter T-102.

C. Place CAD Mode in service in accordance with the Rapid Response Card and monitor Primary Containment hydrogen and oxygen. Report when Primary Containment hydrogen reaches 0.5% to re-enter T-102.

D. Place CAD Mode in service in accordance with the Rapid Response Card and monitor Primary Containment hydrogen and oxygen. Report when Primary Containment oxygen reaches 0.5% to re-enter T-102.

Answer: C

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	C	T-102 says to monitor PC hydrogen and oxygen levels.The question shows degraded conditions in the Drywell. Following a manual scram (where RPV water level goes below a Group III isolation setpoint of +1 inch.). When this isolation occurs, the CAC system isolates and there is no H2/O2 monitoring in service. CAD mode can then be placed in service using the RRC. If hydrogen reaches 0.5%, then the RO will report this value as a re-entry into T-102.
Distractors:	A	This answer is plausible if the candidate misinterprets RPV water level response from a scram at 100% power. If there was no CAC isolation, this answer would be correct. Second part is correct
	B	This answer is plausible if the candidate misinterprets RPV water level response from a scram at 100% power and the CAC isolation. Plausible since the gas leg directs monitoring both hydrogen and oxygen, misinterpretation could lead to thinking that oxygen, instead of hydrogen, has any actionable steps in the gas leg.
	D	The first part is correct The second part is plausible since the gas leg directs monitoring both hydrogen and oxygen, and misinterpretation could lead to thinking that oxygen, instead of hydrogen, has any actionable steps in the gas leg.

Question 65 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130953
User-Defined ID:	
Cross Reference Number:	500000 EK3.01
Topic:	PBIG-2102-4. State the T-102, Primary Containment Control terms and definitions. [G.2.4.17]
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(5)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	T-102, T-102-BASES	
Learning Objective:	PLOT - PBIG-2102, 4	
K/A System:	500000 High Containment Hydrogen Concentration	Importance: RO / SRO 2.9/3.3
K/A Statement:	EK3.1 Knowledge of the reasons for the following responses as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: Initiation of containment atmosphere control system	
REQUIRED MATERIALS:	None	
Notes and Comments:	While the conditions do not currently indicate High Containment Hydrogen Concentration. The K/A is met as the conditions given required the CAD system to be initiated /placed in service to restore sampling, specifically for the identification rising / High Containment Hydrogen Concentration.	

66 **ID: 2131121** **Points: 1.00**

You have been tasked with coordinating a walkdown for an upcoming inspection. The walkdown requires the use of the Master Security Key / SE-10 key.

Which of the following states the key cabinet that contains the necessary keys?

A. Shift Manager (SM) key cabinet ONLY.

B. Shift Operations Assistant (SOA) key cabinet ONLY.

C. Work Execution Center Supervisor (WECS) key cabinet ONLY.

D. Shift Operations Assistant (SOA) key cabinet
AND
Work Execution Center Supervisor (WECS) key cabinet

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	IAW RT-O-100-960-2, the Master Security Key / SE-10 key is found only in the Shift Manager (SM) key cabinet.
Distractors:	B	This answer is plausible since it is a key location, but it does not hold the referenced keys.
	C	This answer is plausible since it is a key location, but it does not hold the referenced keys.
	D	This answer is plausible since it is a key location, but it does not hold the referenced keys.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 66 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131121
User-Defined ID:	
Cross Reference Number:	
Topic:	1d. In accordance with the Conduct of Operations Manual, describe the requirements for the following
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	OP-PB-108-101-1006, RT-O-100-960-2	
Learning Objective:	PLOT - DBIG-1529, 1d	
K/A System:	G2.1.8 Ability to coordinate personnel activities outside the control room.	Importance: RO / SRO 3.4/4.1
K/A Statement:	NA	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

67 **ID: 994571** **Points: 1.00**

IAW HU-AA-104-101, Procedure Use and Adherence, which of the following lists conditions that allow taking deliberate action that departs from procedural guidance during an emergency, when no other course of action is immediately apparent?

Action(s) taken to.....

1. protect the health and safety of the public
2. prevent damage to plant safeguards equipment
3. maintain grid stability during an Emergency Generation condition

A. 1 ONLY

B. 1 and 2 ONLY

C. 1 and 3 ONLY

D. 1, 2, and 3

Answer: A

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	A	The reference procedure provides the following: The licensee may take reasonable action that departs from a license condition or a Technical Specification in an emergency when: 1. The action is immediately needed to protect the public health and safety. Answer A is correct.
Distractors:	B	Plausible since there are many programs designed to maintain the health of safety and safeguards systems (logging of TS systems, protected systems, etc).
	C	Plausible since grid stability is important to the public, but this is controlled by the TSO who would give Peach Bottom direction.
	D	Plausible since there are many programs designed to maintain the health of safety and safeguards systems (logging of TS systems, protected systems, etc). Plausible since grid stability is important to the public, but this is controlled by the TSO who would give Peach Bottom direction.

Question 67 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	994571
User-Defined ID:	ILT-1529-1A-002
Cross Reference Number:	2.1.1
Topic:	ILT-1529 Departing from procedure due to an emergency
Num Field 1:	4721
Num Field 2:	N/A
Text Field:	B
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	HU-AA-104-101				
Learning Objective:	PLOT - DBIG-1529, 1a				
K/A System:	G2.1.1 Knowledge of conduct of operations requirements.			Importance: RO / SRO 3.8/4.2	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

68 **ID: 1140387** **Points: 1.00**

Which of the following conditions is a violation of a Unit 2 Safety Limit?

A. Reactor Coolant pressure reaches 1400 psig during a hydro.

B. RPV level drops to -165 inches during an ATWS.

C. Reactor power is 17% at 650 psig reactor pressure during an ATWS.

D. MCPR is 1.22 at 100% power and 1034 psig Reactor pressure.

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	All of the choices are safety limits with values below the safety limit violation except for choice "A". The Safety Limit is reactor steam dome pressure shall be ≤1340 psig. With a pressure of 1400 psig the safety limit for RPV pressure is violated. Since all of the choices are actual parameters that challenge the safety limits all of the distractors are plausible.
Distractors:	B	This answer is plausible. The RPV level safety limit is; Reactor vessel water level shall be greater than top of active fuel. The value of -165 inches has not exceeded this limit (-172 inches). Thus no SL violation.
	C	This answer is plausible. The low RPV pressure or low flow safety limit requires that Reactor power be below 22.6% when RPV dome pressure is less than 700 psia or core flow is less that 10% or rated. With RPV pressure less than 700 psia, power must be less than 22.6%, and the this answer has power at 17%. Thus no SL violation.
	D	This answer is plausible. The high RPV pressure and core flow safety limit requires MCPR be ≥ 1.15. Conditions are given for high flow and normal RPV pressure and the MCPR value is above the limit as required. Thus no SL violation.

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1140387
User-Defined ID:	
Cross Reference Number:	G2.2.22
Topic:	ILT 1800-8-006
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(5)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	Unit 2 Tech Spec Safety Limits				
Learning Objective:	PLOT - 1800, 8				
K/A System:	G2.2.22 Knowledge of limiting conditions for operations and safety limits.			Importance: RO / SRO 4.0/4.7	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

69 **ID: 2130729** **Points: 1.00**

Unit 2 is at full power when an ATWS occurs:

- T-246-2, "Maximizing CRD Flow To The Reactor Vessel" is being performed
- All CRD hydraulic components are in a normal lineup.

In order to maximize flow in accordance with T-246-2 the following valves would be in what position?

	Drive Wtr Press MO-2-03-020	CRD Flow Control AO-2-3-019A
A.	Closed	Closed
B.	Open	Closed
C.	Closed	Open
D.	Open	Open

Answer: D

Answer Explanation

<<<<<<Justification: Choice		Basis or Justification
Correct:	D	T-246-2 is used to maximize CRD cooling water underneath the CRD blade to insert control rods. CRD provides HCU charging, control rod drive water, and CRD blade cooling water. Per the P&ID, HCU charging taps off before (upstream) of both the CRD FCV and the drive water valve. Drive water water taps off after the CRD FCV and before the drive water valve. CRD blade cooling taps off after (downstream) of both the CRD FCV and the drive water valve. Thus, both valves must be opened. The procedure requires that the Drive Water valve and CRD Flow valve both be opened.
Distractors:	A	CRD provides HCU charging, control rod drive water, and CRD blade cooling water. Per the P&ID, HCU charging taps off before (upstream) of both the CRD FCV and the drive water valve. Drive water taps off after the CRD FCV and before the drive water valve. CRD blade cooling taps off after (downstream) of both the CRD FCV and the drive water valve. Misinterpretation of the P&ID makes this answer plausible.
	B	CRD provides HCU charging, control rod drive water, and CRD blade cooling water. Per the P&ID, HCU charging taps off before (upstream) of both the CRD FCV and the drive water valve. Drive water taps off after the CRD FCV and before the drive water valve. CRD blade cooling taps off after (downstream) of both the CRD FCV and the drive water valve. Misinterpretation of the P&ID makes this answer plausible.
	C	CRD provides HCU charging, control rod drive water, and CRD blade cooling water. Per the P&ID, HCU charging taps off before (upstream) of both the CRD FCV and the drive water valve. Drive water taps off after the CRD FCV and before the drive water valve. CRD blade cooling taps off after (downstream) of both the CRD FCV and the drive water valve. Misinterpretation of the P&ID makes this answer plausible.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 69 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130729
User-Defined ID:	PBIG-2101-6
Cross Reference Number:	2.2.2
Topic:	PBIG-2101-6 State the bases for each step of T-101, RPV Control [G2.4.18]
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(6)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	T-246-2, M-356				
Learning Objective:	PLOT - PBIG-2101, 6				
K/A System:	G2.2.2 Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.			Importance: RO / SRO 4.6/4.1	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

70 **ID: 2130206** **Points: 1.00**

The plant is responding to conditions requiring venting the CRD withdraw lines IAW T-215-2, "Control Rod Insertion by Withdraw Line Venting".

- SRO has declared this activity as "saving plant equipment"

Which of the following is correct when performing this activity?

A. There is no need to notify Radiation Protection as the activity is being performed in response to an emergency.

B. There is no need to notify Radiation Protection since the activity is covered on worker common RWPs.

C. Radiation Protection must create a new RWP prior to the start of work.

D. Radiation Protection shall be notified to monitor the work. There is no need to create a new RWP prior to the start of work.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	The vent activity in the question takes place on a catwalk above the HCUs and this is greater than 7 feet from the floor. The catwalk is not a commonly traveled area and is not commonly surveyed by radiation protection and normal RWPs do not allow to entry into these types of areas. To access this area, some sort of radiation protection actions is required. RP-AA-403 provides the following: :When immediate action is required to save personnel or plant equipment or to respond to plant security events, then entry to an area without an RWP may be PERMITTED." It also says "If authorization is given for the entry without an RWP, then PROVIDE RP coverage, as required, to meet the objectives of the RWP program." When the job/situation is completed, then DOCUMENT the performance of the job/situation through the corrective action process and ENSURE accounting of dose equivalent received during the unplanned activities. Notifying RP is required to monitor, and no new RWP is required.
Distractors:	A	Plausible as during an emergency some actions are expedited, however Radiation Protectin is a safety issue and is not bypassed.
	B	Plausible as the floor elevation area is covered by the common RWP, and entry into non-contaminated areas is allowed by their common RWP, however performance of parts of the activity are at elevations above 7 feet and are not covered under the common RWP.
	C	Plausible as parts of the activity are not covered under the common RWP, however, there is no requirement for a new approved RWP for this "saving plant equipment" activity.

Test Answer Key

2020 NRC RO Exam rev0
Test ID: 330066

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130206
User-Defined ID:	ILT-1760-4-5
Cross Reference Number:	2.3.7
Topic:	ILT-1760-4-5 Discuss RWP requirements under emergency conditions.
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(12)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	T-215-2, RP-AA-108, RP-AA-403				
Learning Objective:	PLOT - 1760-4				
K/A System:	G2.3.7 Ability to comply with radiation work permit requirements during normal or abnormal conditions.			Importance: RO / SRO 3.5/3.6	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

71 **ID: 2130748** **Points: 1.00**

You have been tasked with performing an action IAW an Operational Transient (OT) procedure.

- The general area radiation level in the area of the task is 1003 mr/hr.
- The Shift Manager has NOT declared an emergency

IAW RP-AA-460-003, "Access To HRAS/LHRAS And Contaminated Areas In Response To A Potential Or Actual Emergency".

which of the following states ALL the radiological requirements for entry into the task area?

A. There are NO additional radiological requirements other than those associated with your normal RWP.

B. Task/area specific RWP, and
High radiation area brief prior to entry. ONLY

C. Task/area specific RWP,
High radiation area brief prior to entry, and
Issuance of a LHRA key ONLY

D. Task/area specific RWP,
High radiation area brief prior to entry,
issuance of a LHRA key, and
RP coverage of your entry.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	IAW NISP-RP-013, an accessible area with dose rates greater than 100 mr/hr at 30 cm requires posting as a high radiological area (HRA), and an area greater than 1000 mr/hr requires posting as a locked high radiological area (LHRA), along with other barriers (locked gate, etc). In the question stem, the dose rates in the task area are 1003 mr/hr, which makes the task area a LHRA. IAW RP-AA-460-003, entry into the area under the given circumstances, requires an HRA brief, a key, and escort by RP personnel. LHRA's are also not covered under the normal RWP and a task/area specific one would be issued.
Distractors:	A	This distractor is plausible if the student mis-applies RP guidance. The majority of tasks in the plant for everyday activities only require the normal RWP conditions be met.
	B	This distractor is plausible if the student mis-applies RP guidance. The majority of tasks in the plant for everyday activities do not require RP assistance. For instance, entry into a posted HRA only requires a brief, but no RP coverage.
	C	This distractor is plausible if the student mis-applies RP guidance. There are rad areas where a key and a brief are all that is required, however a locked hi rad area would require a brief, a key, and RP escort.

Question 71 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130748
User-Defined ID:	PLOT-1770-3
Cross Reference Number:	2.3.13
Topic:	3. Given a work situation and accompanying radiological information, evaluate the job to determine A
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(12)

Source Documentation					
Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	NISP-RP-013, RP-AA-460, RP-AA-460-003				
Learning Objective:	PLOT - 1770, 3				
K/A System:	G2.3.13 Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.			Importance: RO / SRO 3.4/3.8	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

72 **ID: 993740** **Points: 1.00**

In T-103 "Secondary Containment Control", ALARM and ACTION level thresholds (for radiation, water levels, and temperature) are established to determine the applicable steps to be taken to mitigate or terminate the event. Which of the below statements is the basis for establishing the "ACTION" Levels for the T-103 control parameters?

IAW the T-103 Bases, the ACTION levels are the.....

A. maximum limits that the Secondary Containment can structurally withstand by design.

B. minimum limits which must be exceeded before entry into T-103 is warranted.

C. minimum values used to alert the operator to a potential radioactive release.

D. maximum safe operating limits above which damage may result to equipment required for safe shutdown.

Answer: D

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	D	T-103 Bases, Secondary Containment Control Bases, provides the following: "The Action Levels contained in Tables SC/R-1, SC/L-2 and SC/T-3 correspond to the Maximum Safe Operating values (MSO) for the respective Secondary Containment parameters. The MSO is the value at which neither equipment necessary for the safe plant shutdown will fail nor personnel access necessary for the safe plant shutdown will be precluded."
Distractors:	A	This distractor is plausible since exceeding the action levels in 2 areas requires an emergency blowdown, which represents a drastic thermodynamic stress on the RPV itself.
	B	Several T-103 entries are when the ALERT levels are reached (and not the Action levels). The Alert levels are less than the Action levels. The distractor is plausible if the student misinterprets the procedure entry requirements.
	C	One purpose of the T-103 procedure is to limit radioactivity release from the Secondary Containment. High temperatures, high radiation levels, high water levels, etc. can be all related to a primary system discharging into the secondary containment. This makes this distractor plausible.

Question 72 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	993740
User-Defined ID:	ILT-2103-6-001
Cross Reference Number:	2.4.18
Topic:	ILT-2103-6-001. Basis for establishing Action Levels
Num Field 1:	3161
Num Field 2:	N/A
Text Field:	B
Comments:	

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
Memory	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified	ILT Bank X	Other Bank	Previous 2 NRC Exams
Reference(s):	T-103, T-103 Bases				
Learning Objective:	PLOT - PBIG-2103, 6				
K/A System:	G2.4.18 Knowledge of the specific bases for EOPs.			Importance: RO / SRO 3.3/4.0	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

73 **ID: 2131771** **Points: 1.00**

Unit 2 is 100% power

- A fire is reported in Unit 2 Circulating Water Pump room
- Fire Brigade is dispatched along with the Floor Supervisor

The person responsible for deciding a strategy to extinguish the fire is the __(1)__

AND

IAW ON-114 "Actual Fire Reported...", if the fire cannot be extinguished and Off-site assistance is required the control room will perform a __(2)__ on the affected Unit

A. 1) Incident Commander
2) GP-3-2(3) "Normal Plant Shutdown"

B. 1) Incident Commander
2) GP-4 "Manual Reactor Scram"

C. 1) Floor Supervisor
2) GP-3-2(3) "Normal Plant Shutdown"

D. 1) Floor Supervisor
2) GP-4 "Manual Reactor Scram"

Answer: A

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	A	in accordance with FF-01 the incident commander is responsible for deciding on the strategy to extinguish the fire. In accordance with ON-114 if the fire cannot be extinguished and off-site assitance is required the control room will commence a GP-3 normal plant shutdown for the affected unit.
Distractors:	B	First part is correct Plausible as a fire requiring off-site assistance would be a large fire and a GP-4 might be neccesary at sometime as more systems are affected by the fire, however ON-114 does not mandate a GP-4 is performed on the affected unit and only says to commence a GP-3 shutdown.
	C	Plausible as the Floor Supervisor would respond to the command post and being in a supervisory role the candidate may mistinterpret their duties during the fire. The floor supervisor would act as a technical liaison between the control room and the Incident Commander, the fire fighting decisions are left to the Incident Commander. Second part is correct
		Plausible as the Floor Supervisor would respond to the command post and being in a supervisory role the candidate may mistinterpret their duties during the fire. The floor supervisor would act as a technical liaison between the control room and the Incident Commander, the fire fighting decisions are left to the Incident Commander. Plausible as a fire requiring off-site assistance would be a large fire and a GP-4 might be neccesary at sometime as more systems are affected by the fire, however ON-114 does not mandate a GP-4 is performed on the affected unit and only says to commence a GP-3 shutdown.

Question 73 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131771
User-Defined ID:	
Cross Reference Number:	2.4.35
Topic:	29. In accordance with FF-01 describe the requirements for requiring off site assistence
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics			
Level of Knowledge	Diffic ulty	Time Allowance (minutes)	RO
Memory			10CFR55.41(b)(10)

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	FF-01 and ON-114	
Learning Objective:	PLOT - 1570 - 29	
K/A System:	2.4.35 Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects	Importance: RO / SRO 3.8/ 4.0
K/A Statement:		
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	This question meets the K/A as the incident commander is a local auxiliary operator and the decisions they make in that role could cause the control room to shutdown the plant.	

74 **ID: 2130210** **Points: 1.00**

Unit 2 is at 100% power with the following:

- An inspection must be performed on a 120 VAC electrical panel.
- The 120 VAC electrical panel provides indication to some control room switches. These control room switches do NOT provide a Zone Of Protection.
- The Electricians performing the inspection need to be able to open the panel's disconnect switch for personnel protection during some portions of the inspection.
- The Electricians performing the inspection also need to be able to close the panel's disconnect switch for periodic verifications. This will cause the control room switch indications to light up.
- It is desired for the Tagout to be continuously hung during the activity, so repeated tag clearing and re-hanging is NOT required.

Which one of the following describes the tagging arrangement needed to support the requested maintenance activity in accordance with OP-AA-109-101, "Personnel and Equipment Tagout Process" with regards to the control room switches?

Tag the Control Room switches with...

A. Danger Tags ONLY.

B. Information / Caution Tags ONLY.

C. Special Condition Tags ONLY.

D. Danger Tags and Information Tags simultaneously.

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	In accordance with OP-AA-109-101 section 7.4.1.3 When Main Control Board switches are tagged to indicate tagout conditions, then apply an Information/Caution Tag
Distracters:	A	Plausible as control room switches can be used as energy isolation points for zone of protection, however the control room switch indications are the only thing affected and they are not isolation points as they receive power and do not provide a connection for power.
	C	Plausible as Special Condition Tags would be used for the electrical panels disconnect switch which acts as personnel protection but allows the tagged component to be manipulated. The candidate might misapply this knowledge to the changing light indications and believe a Special Condition Tag is also required for the Control Room switches
	D	Plausible as Danger and Information Tags can be hung together, however there is no requirement to hang a Danger tag on the Control Room switch as the switch is not providing personnel protection.

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130210
User-Defined ID:	
Cross Reference Number:	2.2.13
Topic:	SCT-2
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	None
SRO-Only Justification	None
Additional Information	None

Psychometrics	
Level of Knowledge	RO
High	10CFR55.41(b)(10)

Source Documentation					
Source:	New	Modified **X** (1649621)	ILT Bank	Other Bank	Previous 2 NRC Exams
Reference(s):	OP-AA-109-101				
Learning Objective:	ILT Clearance and Tagging - Clearance Writer/Preparer - Describe Clearance Tag Standards related to Clearance and Tagging process				
K/A System:	G2.2.13 Knowledge of tagging and clearance procedures.			Importance: RO / SRO 4.1/4.3	
K/A Statement:	NA				
REQUIRED MATERIALS:	None				
Notes and Comments:	None				

Original

1 **ID: 1649621** **Points: 1.00**

Unit 2 is operating at 100% power with the following:

- An inspection must be performed on a 120 VAC electrical panel.
- The Electricians performing the inspection need to be able to open the panel's disconnect switch for personnel protection during some portions of the inspection.
- The Electricians performing the inspection also need to be able to close the panel's disconnect switch for periodic verifications.
- It is desired for the Tagout to be continuously hung during the activity, so repeated tag clearing and re-hanging is NOT required.

Which one of the following describes the tagging arrangement needed to support the requested maintenance activity in accordance with OP-MA-109-101, Clearance and Tagging?

Tag the electrical panel's disconnect switch with...

A. a Danger Tag only.

B. an Information Tag only.

C. a Special Condition Tag only.

D. both a Danger Tag and a Special Condition Tag simultaneously.

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	A Special Condition Tag has equal authority to a Danger Tag to provide personnel protection, but also allows the tagged component to be manipulated without clearing the tag, as required by this maintenance activity.
Distracters:	A	A Danger Tag would not allow re-positioning the disconnect switch without clearing the tag. Plausible because the Danger Tag does provide the personnel protection required.
	B	An Information Tag does not provide the required personnel protection. Plausible because the Information Tag would allow re-positioning the disconnect switch without clearing the tag.
	D	A Danger Tag and Special Condition Tag are not allowed to be placed on the same component at the same time. Plausible because the Danger Tag does provide the personnel protection required and the Special Condition Tag is used to allow manipulation of a tagged component.

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	1649621
User-Defined ID:	
Cross Reference Number:	2.2.17
Topic:	SCT
Num Field 1:	
Num Field 2:	A NRC
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
MEMORY			10CFR55.41(b)(10)

Source Documentation

Source:	New Exam item (2017) Modified Bank Bank X ILT Exam Bank (2114939)	X Previous NRC Exam Other Exam
Reference(s):	OP-MA-109-101	
Learning Objective:	O2.0-007	
K/A System:		Importance; RO 2.6
K/A Statement:	2.2.17 - Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, and coordination with the transmission system operator.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

Associated objective(s):

DESCRIBE the Clearance Tag Standards related to the Clearance and Tagging process.

75 **ID: 2130810** **Points: 1.00**

Unit 2 is at 100% power. You are directed to perform a task in the plant.

- Your annual cumulative TEDE is 1600 mrem
- You are performing work in the RCA under an RWP with the following setpoints
  - Dose: 400 mrem
  - Dose rate: 1000 mrem/hr

While still performing work in the RCA you look at your ED and see the following::

- 325 mrem

IAW RP-AA-1008, "Unescorted Access To And Conduct In Radiologically Controlled Areas", what action is required, if any?

A. No specific action is required since your RWP dose limit has NOT been exceeded.

B. You must exit the RCA since 80% of your RWP dose limit has been exceeded.

C. You must exit the RCA since your annual accumulated dose limit has been exceeded.

D. You must stop work, travel to a low dose waiting area, and call RP since 80% of the RWP dose limit has been exceeded.

Answer: B

Answer Explanation

Justification:	Choice	Basis or Justification
Correct:	B	The normal operations RWP dose limit is 400 mrem. IAW RP-AA-1008, if 80% of the dose limit is reached, then RCA exit is required. IAW RP-AA-203, the administrative dose control levels have been established for Total Effective Dose Equivalent (TEDE) as 2000 mrem/year. Thus, the RWP 80% dose limit has been exceeded, whereas the administrative dose limit has not been exceeded.
Distractors:	A	This answer is plausible if the candidate misinterprets the RWP does limit or makes a calculational error, since the 80% dose limit of 320 mrem is close to the dose received of 325 mrem.
	C	This answer is plausible if the candidate misinterprets the administrative dose limit or makes a calculational error, since the 2000 dose limit is close to the accumulated dose of 325 + 1600 = 1925 mrem.
	D	This answer is plausible since the operator leaves the high dose area and waits in a low dose area. But leaving the RCA is required.

Question 75 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130810
User-Defined ID:	
Cross Reference Number:	2.3.15
Topic:	4. State the administrative exposure limits in accordance with RP-AA-203.
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	This question meets the K/A because the candidate must use their knowledge of what information is being provided by their personnel monitoring device (electronic dosimetry) and using that knowledge along with Rad procedures recognize limitations on work.
SRO-Only Justification	None
Additional Information	None

Psychometrics

Level of Knowledge	RO
High	10CFR55.41(b)(12)

Source Documentation

Source:	New X	Modified	ILT Bank	Other Bank	Previous 2 NRC Exams

Reference(s):	RP-AA-203, RP-AA-1008	
Learning Objective:	PLOT - 1730, 4	
K/A System:	G2.3.15 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	Importance: RO / SRO 2.9/3.1
K/A Statement:	NA	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

Test Answer Key

2020 NRC SRO Exam rev0
Test ID: 332227

1 **ID: 1140449** **Points: 1.00**

T-116, "RPV Flooding" Sheet 1 (non-ATWS) was entered due to a transient in Unit 2.

The following conditions exist:

- Prior to losing level indications the Shift Technical Advisor calculated a leak rate from the RPV of approximately 15,000 gpm
- Only the 'D' RHR pump is injecting into the RPV
- RPV pressure is currently 90 psig and down slowly
- Four SRVs indicate open
- Open SRV tailpipe temperatures are 335 degrees F and rising slowly
- Torus level is 14.5 feet and lowering slowly

For these conditions, (1) what is the status of the Main Steam Lines and (2) what action is required?

The Main Steam Lines are __(1)__. The required action is to __(2)__.

A. (1) flooded
(2) close MSIVs and MSL drain valves

B. (1) flooded
(2) pursue alternate depressurization

C. (1) NOT flooded
(2) continue injecting with 'D' RHR; DO NOT add additional injection sources

D. (1) NOT flooded
(2) continue injecting with 'D' RHR; add additional injection sources

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Per T-116 Sheet 1 Note 41, a combination of indications must be used to determine if the main steam lines are flooded. In this case, there is only one indication that the main steam lines may be flooded (SRV open). All other indications indicate the main steam lines are not flooded (tail pipes are not subcooled, Torus level is still dropping). Since the Main steam lines are not flooded T-116 bases says that to fill the RPV, the injection rate must at least be greater than the rate of inventory losses from any system leaks or breaks. Since the leak rate was calculated at 15,000 gpm, one RHR pump is not enough to fill the RPV. Additional injection sources would be used.
Distractors:	A	Plausible if the candidate fails to recognize that the main steam lines are not flooded based on their evaluation of the conditions. Plausible because if flooded to the main steam lines one of the actions is to close the MSIVs and MSL drains.
	B	Plausible if the candidate fails to recognize that the main steam lines are not flooded based on their evaluation of the conditions. T-116 has direction to use alternate depressurization if at least 2 SRVs are not open. Plausible if the candidate does not recall the number of SRVs needed before using alternate depressurization .
	C	First part is correct. Plausible since the RPV is not flooded to the steam lines and T-116 bases state injection need not be immediately maximized as unnecessarily rapid flooding will only increase the possibility of equipment damage. The candidate may misapply this step and not provide enough water for flooding.

Test Answer Key

2020 NRC SRO Exam rev0
Test ID: 332227

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1140449
User-Defined ID:	
Cross Reference Number:	295006 A2.03
Topic:	ILT2116-5-001-SRO
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(5)

Source Documentation

Source:	New Exam item Modified Bank **X** ILT Exam Bank (2114437)	Previous 2 NRC Exam Other Exam Bank
Reference(s):	T-116	
Learning Objective:	PLOT-1560-11	
K/A System:	295006 - SCRAM	Importance: RO / SRO 3.8/ 4.3
K/A Statement:	A2.03 - Ability to determine and/or interpret the following as they apply to SCRAM: Reactor water level	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A and 10CFR55.43 criteria for an SRO question because the candidate must determine Reactor water level when a full SCRAM has occurred and without level indication by interpreting the data given in the stem. They must then make a determination on the next step to perform.	

2 **ID: 1455488** **Points: 1.00**

Unit 2 is operating at 100% power with the following:

- Annunciator 217 F-5, REACT BLDG COOLING WATER SUPPLY LO PRESS, alarms.
- RBCCW pressure is 65 psig and fluctuating.
- The "A" RBCCW pump is operating.
- The "B" RBCCW pump CANNOT be started.
- Annunciator 217 E-5, REACT BLDG COOLING WATER SUPPLY HI TEMP, alarms.
- RBCCW supply temperature is 120°F and rising slowly.
- There is NO evidence of system leakage.
- An operator in the field reports that the "A" RBCCW pump sounds like it is experiencing severe cavitation.
- Venting the RBCCW pump has had no effect on the cavitation.

Which one of the following describes the required control of the plant in accordance with ON-113 "Loss of RBCCW" if RBCCW system continues to degrade?

A. NO Reactor power reduction or securing of equipment is required.

B. Shutdown the running RWCU pump(s) and lower Reactor power per GP-9-2, Fast Reactor Power Reduction.

C. Lower Reactor power per GP-9-2, Fast Reactor Power Reduction, and trip one Recirc pump.

D. Scram the Reactor per GP-4, Manual Reactor Scram, and trip both Recirc pumps.

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	ARC 217 F-5 requires entry into ON-113 based on low RBCCW pressure and failure of standby pump to restore pressure. Since the standby pump is unavailable, the running pump is operating abnormally, and system temperature is high and degrading, restoration of RBCCW is not imminent. Therefore, ON-113 step 2.2 requires shutting down the running RWCU pumps and lowering Reactor power per GP-9-2.
Distracters:	A	Since conditions show degradation of RBCCW and restoration is not imminent, ON-113 requires securing RWCU pumps and lowering power. Plausible because if conditions were given that system pressure restoration was imminent, then no securing of equipment or power reduction would be required.
	C	No indications are given for degraded Recirc pump temperatures, therefore tripping of a Recirc pump is not required. Plausible because tripping of RWCU pumps is required to reduce heat load and tripping one Recirc pump is possible and would also reduce heat load. Also plausible because if a Recirc pump experienced a high temperature, then tripping of the pump would become necessary per ON-113.
	D	Scramming the Reactor is not required. Plausible because ON-113 step 2.6 provides this exact direction if it becomes necessary to shutdown both Recirc pumps due to high temperatures.

Test Answer Key

2020 NRC SRO Exam rev0
Test ID: 332227

Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	1455488
User-Defined ID:	
Cross Reference Number:	295018 A2.05
Topic:	ON-113 - Degraded pressure
Num Field 1:	
Num Field 2:	A NRC
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b)(5)

Source Documentation

Source:	New Exam item (2017) Modified Bank X ILT Exam Bank (2114974)	X Previous NRC Exam Other Exam Bank
Reference(s):	ARC 217 F-5, ON-113	
Learning Objective:	PLOT-5035-9e	
K/A System:	295018 Partial or Total Loss of CCW	Importance; SRO 2.9
K/A Statement:	A2.05 - Ability to determine and/or interpret the following as they apply to Partial or Total Loss of CCW: System pressure	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

3 **ID: 994782** **Points: 1.00**

The following conditions exist on Unit 3:

- The crew is executing procedure T-111 “Level Restoration”
- RPV level is -200 inches and slowly lowering
- RPV pressure is 550 psig and stable
- No injection source is available
- Efforts are being made to restore 'B' RHR for injection

Based on these conditions, Adequate Core Cooling (ACC) is ___(1)____ maintained and the Control Room Supervisor shall ____(2)____.

A. (1) being
(2) continue to execute T-111, "Level Restoration"

B. (1) being
(2) enter and execute T-112 "Emergency Blowdown"

C. (1) NOT being
(2) continue efforts to restore ACC via submergence using T-111, "Level Restoration"

D. (1) NOT being
(2) exit T-111, "Level Restoration" and enter and execute the SAMPs

Answer: A

Answer Explanation

Correct:	A	When RPV water level cannot be maintained above the top of active fuel TAF (-172 inches), adequate steam flow (cooling) is established by maintaining RPV water level above the Minimum Zero-Injection RPV Water Level (-205 inches). Operation should continue until RPV level is recovered or until a decision is made that ACC is no longer assured and a blowdown would be performed.
Distractors:	B	ACC is being maintained by MZIRWL because there is no injection and the vessel is above -205 inches. Plausible as a blowdown would be the next step performed if either level lowers below -205 inches, or the RHR pump is restored. However, until one of those events happens the operators would remain in the steam cooling section of T-111.
	C	ACC is being maintained. Plausible if the candidate misinterprets, based on the question stem what constitutes ACC. A level of less than -195 inches with injection, would not constiture ACC, however we have no injection available and can therefore take credit for MZIRWL in the steam cooling section of T-111 second part is correct as efforts to restore ACC via submergence will be in progress
	D	ACC is being maintained. Plausible if the candidate misinterprets, based on the question stem what constitutes ACC and where they are in T-111. If after a blowdown was performed and level is below -195 inches ACC is not being met. Believing that level cannot be restored and maintained above -195 inches, an entry into SAMPs is required.

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	994782
User-Defined ID:	ILT-2111-4-002
Cross Reference Number:	295031 EA2.04
Topic:	ILT-2111-4-003
Num Field 1:	2015 NRC
Num Field 2:	
Text Field:	NRC-09-1
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(5)

Source Documentation

Source:	New Exam item Modified Bank **X**ILT Exam Bank (2113868)	Previous 2 NRC Exam Other Exam Bank
Reference(s):	T-BAS (Intro); TRIP/SAMP Curves, Tables & Limits Bases; T-111 and Bases	
Learning Objective:	PLOT-2111-4	
K/A System:	295031 Reactor Low Water Level	Importance: RO / SRO 4.6/ 4.8
K/A Statement:	EA2.04 - Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: Adequate core cooling	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

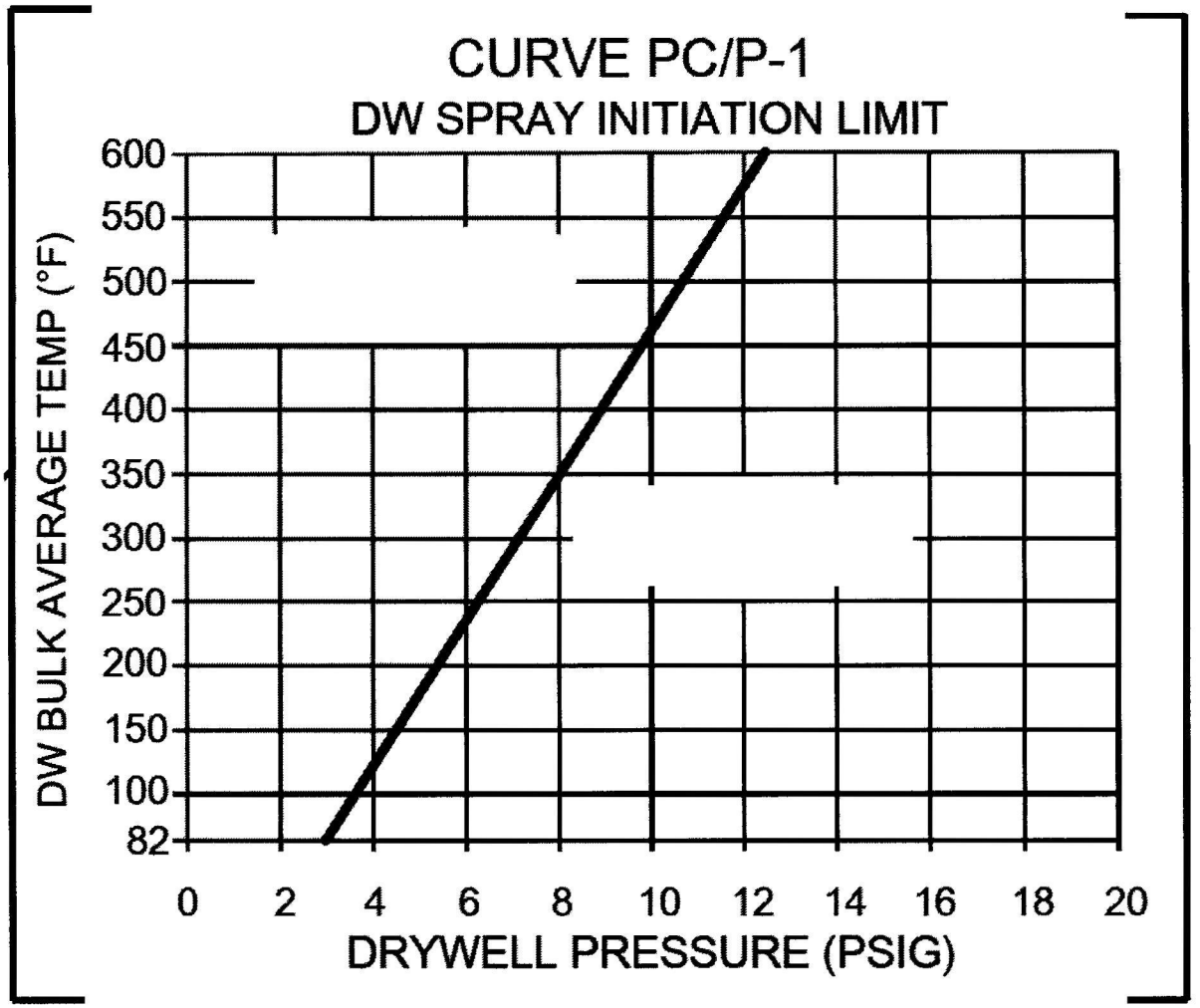
4 **ID: 1006402** **Points: 1.00**

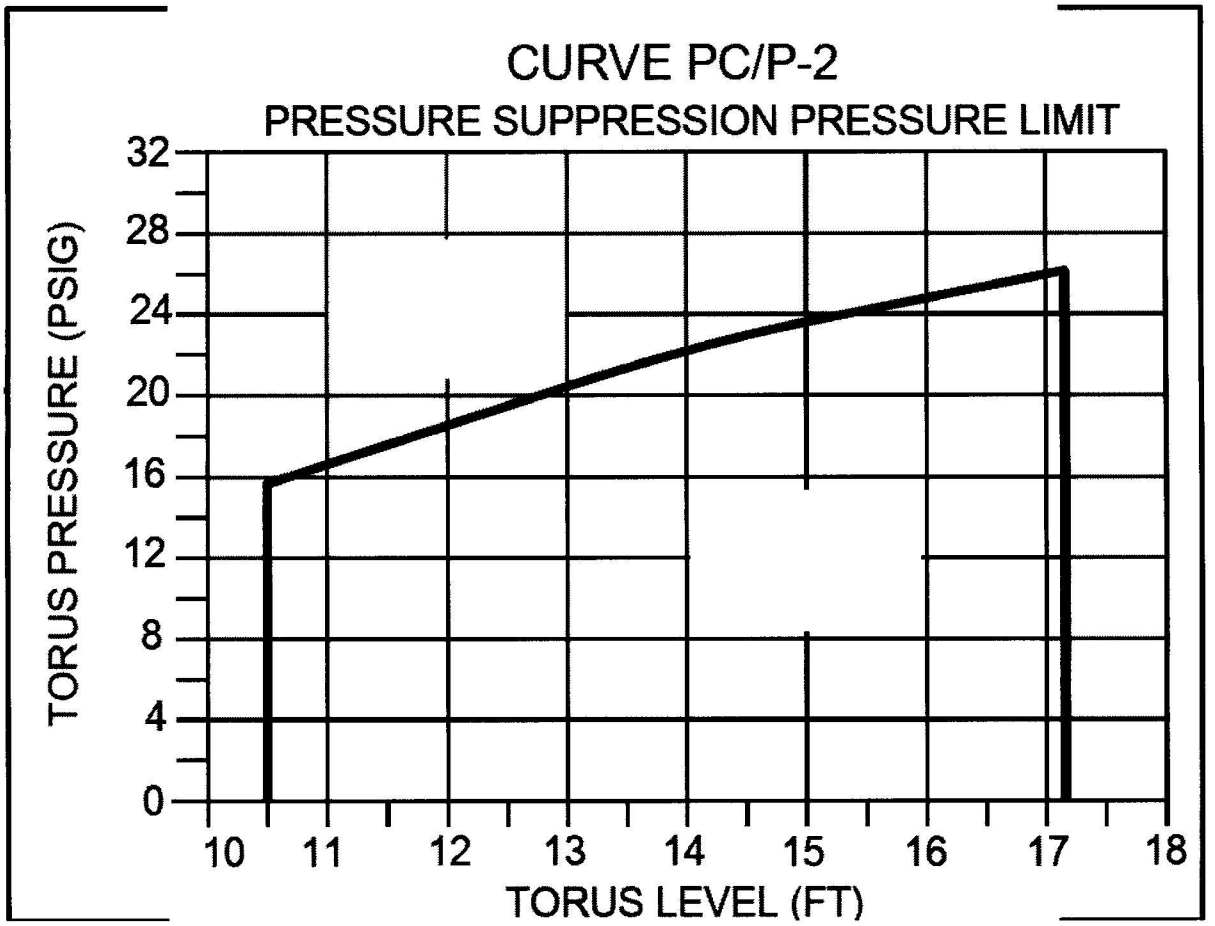
A LOCA is in progress on Unit 2 with the following conditions:

- Reactor pressure is 800 psig
- Drywell pressure is 22 psig and up slow
- Drywell temperature is 345 degrees F and up slow
- Torus pressure is 20 psig and up slow
- Torus level is 15 feet and up slow
- Containment Sprays have NOT been attempted from the control room

The following curves are PROVIDED ON THE NEXT TWO PAGES:

1. Drywell Spray Initiation Limit (DWSIL)
2. Pressure Suppression Pressure (PSP) Limit


CURVE PC/P-1
DW SPRAY INITIATION LIMIT
DW BULK AVERAGE TEMP (°F)
600
550
500
450
400
350
300
250
200
150
100
82
0
2
4
6
8
10
12
14
16
18
20
DRYWELL PRESSURE (PSIG)


CURVE PC/P-2
PRESSURE SUPPRESSION PRESSURE LIMIT
TORUS PRESSURE (PSIG)
32
28
24
20
16
12
8
4
0
10
11
12
13
14
15
16
17
18
TORUS LEVEL (FT)

Based on these conditions, which one of the following describes the highest priority required operator action and the reason for this action?

A.

ACTION	BASIS
Spray the Torus AND Drywell per T-204 "Initiation of Containment Sprays Using RHR"	Reduce containment pressure before exceeding the capacity of the pressure suppression curve

B.

ACTION	BASIS
Perform T-112 "Emergency Blowdown"	Reduce containment pressure before exceeding the capacity of the pressure suppression curve

C.

ACTION	BASIS
Spray the Torus AND Drywell per T-204 "Initiation of Containment Sprays Using RHR"	Reduce containment temperature due to exceeding the Drywell temperature limit

D.

ACTION	BASIS
Perform T-112 "Emergency Blowdown"	Reduce containment temperature due to exceeding the Drywell temperature limit

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Correct action; correct reason. Per T-102, the drywell temperature limit is 340 degrees F, which has been exceeded. Since DW sprays have not been attempted, this action should be attempted before performing a Blowdown.
Distractors:	A	Correct action, incorrect reason Although the given conditions require drywell sprays, and operation is on the safe side of the DWSIL curve, the PSP curve challenge is less important than the DW/T issue. Plausible since the action of spraying the drywell will address both problems, but the reason the drywell must be sprayed at this time is because of drywell temperature.
	B	Incorrect action, incorrect reason. Plausible since a Blowdown is an action that would be performed during a violation of the PSP curve, however the curve is not violated yet and is not the highest priority in the given conditions.
	D	Incorrect action; correct basis. Plausible since a Blowdown could be performed for a high drywell temperature condition and the drywell temperature limit is violated. However Per T-102, since DW sprays have not be attempted, they should be attempted before performing a Blowdown.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	1006402
User-Defined ID:	B CERT
Cross Reference Number:	295028 G2.1.32
Topic:	ILT 2102-004 SRO B CERT
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b)(5)

Source Documentation

Source:	☐ New Exam Item ☐ Previous NRC Exam: ☐ Modified Bank Item ☐ Other Exam Bank: ☒ ILT Exam Bank		
Reference(s):	T-102 and Bases		
Learning Objective:	PLOT-2102-6, -9b		
K/A System:	295028 – High Drywell Temperature	Importance:	SRO 4.0
K/A Statement: G2.1.32 – Ability to explain and apply system limits and precautions.			
REQUIRED MATERIALS:	embedded reference		
Notes and Comments:			

5 **ID: 994314** **Points: 1.00**

Unit 2 is initially operating at 100% power when the following conditions occur:

- The reactor scrams due to a loss of all off-site power
- Diesel Generator E-1 fails to start automatically and manually.
- 2A DC POWER PANEL LO VOLTAGE (209 C-3) is in alarm.
- 2A DC Bus voltage at Panel 20D021 (CSR) is 90 VDC.

Which one of the following identifies a system impacted by the above plant conditions, and the action needed to restore the system?

A. RCIC is inoperable.
RPV level can be maintained with HPCI using RRC 23.1-2, "HPCI System Operation During a Plant Event" or with RCIC using SE-13.1-2, "RCIC Manual Operation on Loss of 125/250 VDC Bus 2DA-W-A.

B. 2A CRD pump tripped.
Restart the 2A CRD Pump in accordance with SO 3.1.B-2,"CRD Hydraulic System Startup with the System Filled and Vented".

C. 2A Core Spray Loop is inoperable.
Place the alternate 2A battery charger in service in accordance with SO 57B.1-2, "125/250 Volt Station Battery Charger Operations".

D. #1 Aux. Bus control and protection circuits are inoperable.
Transfer the 2A battery charger power source from E-124-T-B to E-134-T-B in accordance with AO 57B.6-2,"Transfer of 125V Battery Charger 2AD003 to Alternate Power and Return to Normal".

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Correct - RCIC is inoperable due to loss of power but can be operated without DC IAW SE-13.1-2 or can use HPCI.
Distractors:	B	Plausible as the 2A CRD pump has tripped, however E-12 is still de-energized and the 2A CRD Pump cannot be restarted due to no power available to the E-12 bus
	C	Plausible as the 2A Core Spray is inoperable, however both the normal and alternate supply to the battery charger come from the same source, which is the E-12 bus.
	D	Plausible as #1 Aux control and protection are inoperable-no power available however this evolution can only be done when in MODE 4 or 5, as specified in AO 57B.6-2, Prerequisite 2.1, also with the LOOP and failure of E1 diesel, there is no power supply to E-134-T-B

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	994314
User-Defined ID:	
Cross Reference Number:	295004 2.4.31
Topic:	ILT-1555-1 SRO
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	This question satisfies the requirements of 10CFR55.43(b)(5),

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO 4.1
High			10CRF55.43(b)(5)

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ARC 209 C-3, SE-13, AO 57B.6-2	
Learning Objective:	PLOT-1555-1	
K/A System:	295004 – Partial or Complete Loss of D.C. Power	Importance: RO / SRO 4.2 / 4.1
K/A Statement: 2.4.31– Knowledge of annunciator alarms, indications, or response procedures.		
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

6 **ID: 1110315** **Points: 1.00**

Unit 2 is in a refueling outage. The following conditions exist:

- The reactor is in Mode 4
- The "B" loop of RHR is blocked for maintenance
- The "A" and "B" loop of Core Spray is available
- The Condensate and Feedwater systems are drained for feedwater heater replacement
- CST is not available as a Suction for Core Spray
- The "A" RHR pump is in service for Shutdown Cooling
- Maintenance has a Work Order activity to lower Torus level to 10 feet.

Maintenance ___(1)___ proceed with the activity.

The "A" loop of RHR ___(2)___ "Protected Equipment" per OP-AA-108-117, "Protected Equipment Program".

A. (1) can
(2) is

B. (1) can
(2) is not

C. (1) can not
(2) is

D. (1) can not
(2) is not

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Maintenance cannot proceed because lowering Torus level to 10 feet will INOP Core Spray and RHR. Core Spray and RHR are the Tech Spec required injection system in Mode 4. For this reason maintenance can not continue with their activity. Per OP-AA-108-117 section 4.2 RHR would be protected equipment and is currently the ONLY protected equipment as it is used for Shutdown Cooling. There is currently no protected equipment for injection since. since both loops of Core Spray and the 'A' Loop of RHR is availble to align for injection. This is explained in TS 3.5.4 RPV WIC, which allows RHR in SDC to count as injection source.
Distractors:	A	Plausible if the candidate misinterprets that lowering Torus level to 10 feet will INOP ALL ECCS due to exceeding the vortex limit. Second part is correct
	B	Plausible if the candidate misinterprets that lowering Torus level to 10 feet will INOP ALL ECCS due to exceeding the vortex limit. Plausible because the "A" loop of RHR does not need to be considered Protected Equipment for its role as an injection source, but must be considered Protected Equipment in its role as Shutdown Cooling. The candidate may misinterpret the required roles.
	D	First part is correct Plausible because the "A" loop of RHR does not need to be considered Protected Equipment for its role as an injection source, but must be considered Protected Equipment in its role as Shutdown Cooling. The candidate may misinterpret the required roles.

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1110315
User-Defined ID:	
Cross Reference Number:	295030 2.2.18
Topic:	ILT-1529-1r-001-SRO
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(2)

Source Documentation

Source:	New Exam item Modified Bank X ILT Exam Bank (2113878)	Previous NRC Exam Other Exam Bank
Reference(s):	OP-AA-108-117, Tech Specs 3.5.4 and bases	
Learning Objective:	PLOT-1529-1r	
K/A System:	295030 Low Suppression Pool Water Level	Importance: RO / SRO 2.6 / 3.9
K/A Statement:	2.2.18 - Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

7 **ID: 2132466** **Points: 1.00**

Unit 2 is at 95% power with the following conditions:

- Drywell temperature is 139°F and rising very slowly
- Drywell pressure is 0.75 psig and rising very slowly
- Drywell cooling in maximized
- Drywell venting is in progress

Per OT-101 "High Drywell Pressure", RCIC MO-2-13-015 is closed with the following results

- Drywell temperature is 138°F and lowering slowly
- Drywell pressure is 0.74 psig and lowering slowly

Which one of the following would be the correct action to direct?

A. Maintain MO-2-13-15 closed ONLY
RCIC can be reestablished if required for adequate core cooling

B. Maintain MO-2-13-15 closed AND de-energize the valve
RCIC can be reestablished if required for adequate core cooling

C. Maintain MO-2-13-15 closed ONLY
RCIC cannot be reestablished under any circumstances

D. Maintain MO-2-13-15 closed AND de-energize the valve
RCIC cannot be reestablished under any circumstances

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The stem indicates that MO-2-13-15 is the source of the leak as when it was closed the Drywell parameters improved. OT-101 then states that MO-2-13-15 should remain closed and be de-energized. This is to maintain the valve closed in case an automatic injection signal is received. With the valve closed and deenergized, RCIC would be declared inoperable and Tech Specs would be entered. Step 3.11.4 of OT-101 says to maintain the valve closed OR as directed by shift managment. In accordance with the bases, this allows shift managment discretion to open the valve for short term activities such as troubleshooting or to maintain equipement availability if needed.
Distractors:	A	Plausible as maintaining the MO-2-13-15 closed would isolate the leak and RCIC could be placed into service quickly if needed. However the procedure states to de-energize the valve to prevent an automatic initiation that could admit a large amount of steam to cool piping. This could lead to a waterhammer event and damage the system further. Second part is correct.
	C	Plausible as maintaining the MO-2-13-15 closed would isolate the leak and RCIC could be placed into service quickly if needed. However the procedure states to de-energize the valve to prevent an automatic initiation that could admit a large amount of steam to cool piping. This could lead to a waterhammer event and damage the system further. Plausible as closing the valve has isolated a steam leak in the drywell which leads to EOP entries if re-opened. However other EOP entries and transients could lead to worse consequences then a high drywell pressure, such as a loss of ACC. The procedure states that the shift management is able to use their discretion and plant status in order to open the valve.
	D	First part is correct Plausible as closing the valve has isolated a steam leak in the drywell which leads to EOP entries if re-opened. However other EOP entries and transients could lead to worse consequences then a high drywell pressure, such as a loss of ACC. The procedure states that the shift management is able to use their discretion and plant status in order to open the valve.

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	2132466
User-Defined ID:	ILT-1540-4-024
Cross Reference Number:	2.4.11
Topic:	SRO ILT-1540-4-024 OT-101 RCIC valve leak
Num Field 1:	NA
Num Field 2:	NA
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 5

Source Documentation

Source:	X New Exam item NRC Exam Modified Bank Exam Bank ILT Exam Bank	Previous Other
Reference(s):	OT-101 Bases	
Learning Objective:	PLOT - 1540-4	
K/A System:	295024 - High Drywell Pressure	Importance; RO / SRO 4.2
K/A Statement:	2.4.11 - Knowledge of abnormal condition procedures	
REQUIRED MATERIALS:	none	
Notes and Comments:	This question meets 10CFR55.43 criteria as an SRO question because consideration of placing systems in a lineup not aligned with their tech spec required positions is an SRO function.	

8 **ID: 1120210** **Points: 1.00**

Unit 3 is operating at 100% power when the following occurs:

- An Equipment operator reports a steam leak in the Unit 3 Reactor Building
- Annunciator 317 K-5, "Reac Bldg. Hi-Lo Diff Pressure" alarms
- Annunciator 317 L-1 "Reac Bldg. Refueling Area Hi-Lo Diff Press" alarms
- GP-4 "Manual Reactor Scram" is performed on Unit 3
- RPV level is -25 inches and steady
- 8 control rods are at Position 12
- Reactor power is 1.5 E0%
- The Shift Manager has declared a Site Area Emergency (SAE) for an Unisolable Main Steam Line break in the Reactor Building
- Entry into the Reactor Building is necessary to perform operation of the TRIPS

Based on the above conditions, the Crew shall _____

A. Reduce Secondary Containment temperature/pressure using SO 40B.1.A-2, "Reactor Building Ventilation System Startup and Normal Operation".

B. Reduce Secondary Containment temperature/pressure using T-222, "Secondary Containment Ventilation Bypass per T-103, "Secondary Containment Control".

C. Perform a normal depressurization per T-103, "Secondary Containment Control".

D. Perform a rapid depressurization IAW RC/P-12 of T-101, "RPV Control".

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The Reactor Building will be positive with the report of a large steam break in the reactor building and the Hi-lo Differential pressure alarms. T-103 "Secondary Containment Control" must be entered for the high Secondary Containment pressure condition. T-103 will drive performance of T-222 to restore RB ventilation and reduce RB temperature and pressure.
Distractors:	A	Plausible as both T-103 and T-101 will drive restoration of Reactor Building Ventilation, however with RPV level at -25 inches a Group III isolation is present. The action of restoring ventilation is the correct action however it can not be performed with the normal procedure. The T-103 step directs performing T-222, if necessary. The SRO candidate must determine if ventilation can be restored without use of T-222, in this scenario, it cannot.
	C	Plausible as we are in T-103, which with a primary system discharging into the Reactor would lead us to depressurize to limit the driving force of the steam. However with the ATWS present and the reactor not shutdown (1.5% power) depressurization is not allowed.
	D	Plausible as entering T-101 out of T-103 is a correct action however with three rods at position 12 RC/P-12 can not be used to perform the depressurization. The SRO candidate must determine based on the status of rods if a rapid depressurization can be conducted. With the above conditions a rapid depress is not allowed.

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1120210
User-Defined ID:	ILT-2103-1-006
Cross Reference Number:	295035EA2.01
Topic:	ILT-2103-2-008-SRO
Num Field 1:	
Num Field 2:	N/A
Text Field:	A
Comments:	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(5)

Source Documentation		
Source:	New Exam item Modified Bank X ILT Exam Bank (2114427)	Previous 2 NRC Exam Other Exam Bank
Reference(s):	T-103, T-104, T-222	
Learning Objective:	PLOT-5009-2b	
K/A System:	295035 Secondary Containment High Differential Pressure	Importance: RO / SRO 3.8/ 3.9
K/A Statement:	EA2.01 - Ability to determine and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment pressure	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

9 **ID: 2078625** **Points: 1.00**

The following conditions exist on Unit 2 following an Emergency Blowdown with 5 ADS valves:

Wide range RPV level	-150 inches
Narrow range RPV level	-20 inches
Fuel Zone level indicators	+60 inches
LI-86 level indicator	+350 inches
TI 2501 pts 126 and 127	475 F

INSTRUMENT	MIN INDICATED LEVEL IS ABOVE	OR	MAX RUN TEMP IS BELOW
NARROW RANGE	10 IN.	OR	450°F
WIDE RANGE	-120 IN.	OR	500°F

Chose the correct actions based on the above information.

A. Raise RPV level to 5-35 inches using the Narrow range level indicator.

B. Raise RPV level to 5-35 inches using the Wide range level indicator.

C. Raise RPV level to the Main Steam lines.

D. Raise RPV injection until RPV pressure is above 270 psig.

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The wide range level indicator is the only accurate indicator. T-101 directions would be to raise RPV level to 5-35 inches.
Distractors:	A	The Narrow range level indicator is not accurate because the Minimum indicator level is below 10 inches AND the maximum run temperature is above 450 F. Plausible if the candidate misapplies implementation of the requirements of DW/T-1 and believes that MIL and MRT are not violated for the narrow range.
	C	RPV level is known so an entry to T-116 does not exist. Plausible as candidate may misinterpret that as both level instruments are either above MRT or below MIL the instruments can not be used, and consequential actions for level unknown must be taken. An instrument must be below Min Indicated level and above Max run temperature to be considered inoperable.
	D	RPV level is known so an entry to T-116 does not exist. Plausible as candidate may misinterpret that as both level instrumentss are either above MRT or below MIL the instruments can not be used, and consequential actions for level unknown must be taken. An instrument must be below Min Indicated level and above max run temperature to be considered inoperable. Plausible if the candidate confuses the ACC actions of T-116 ATWS and Non-ATWS.

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	2078625
User-Defined ID:	
Cross Reference Number:	295012 2.4.47
Topic:	ILT- 2102-5-005-SRO
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CRF55.43(b) 5

Source Documentation

Source:	**X** New Exam item Previous NRC Exam Modified Bank ILT Exam Bank	Other Exam Bank
Reference(s):	T-102 and bases T-116 and bases	
Learning Objective:	PLOT - 2102.5	
K/A System:	295012 - High Drywell Temperature	Importance; RO / SRO 4.2
K/A Statement:	2.4.47 - Ability to diagnosis and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	
REQUIRED MATERIALS:	embedded reference	
Notes and Comments:	This question meets 10CFR43b criteria because the candidate must use the chart in determining what indicator could be used. Then using that knowledge make a determination of their place within the trip procedures and the next action to take.	

10 **ID: 1109936** **Points: 1.00**

Unit 3 is at 85% power when the following occurs:

- AO-3-01A-080A "Inboard MSIV" drifts closed.

Based on the above, the crew shall _____.

A. maintain Reactor power until the MSIV can be re-opened using SO 1A.7.D-3 "Isolation of One Main Steam Line at Power".

B. maintain Reactor power until the MSIV can be re-opened using SO 1A.7.B-3, "Main Steam Line Recovery"

C. enter OT-102, "Reactor High Pressure" and reduce Reactor Power until Reactor Power is less than 65% RTP

D. enter OT-102, "Reactor High Pressure" and reduce Reactor Power until Reactor Power is less than 75% RTP

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Reactor power of 85% is higher than three main steam lines can pass and will result in RPV pressure rising. The rise in RPV pressure from 85% is enough for an operator to enter OT-102. The follow-up action in OT-102 is lower Reactor power low enough to re-establish the margin to the Main Steam Line high flow isolation. Reducing reactor power to 65% (based on 4016 MWth) ensures that each steam line flow is reduced back to maintaining the maximum individual value used in the safety analysis (based on 3514 MWth)
	A	Plausible since the SO 1A.7.D-3 for isolating a MSIV at power does contain a restoration section (4.3) to reopen the MSIV, however this procedure would not be used during a transient and one of the prerequisites is to have power less than or equal to 65%.
	B	Plausible since the SO 1A.7.B-3 is the correct procedure for reopening the closed MSIV, however the candidate must understand that three Main Steam lines cannot support 85% reactor power without reactor pressure rising. Reactor power must be lowered, not maintained.
	D	Plausible if the candidate simply applies a logic that 3 out of 4 valves can maintain 75% power, which is true, however it does not meet our safety analysis for the closure of one MSIV which is still based on a power level of 3514 MWt. The safety analyses only supports Main Steam Line isolation at a power level of up to 75% of 3514 MWt (2635.5 MWt) which relates conservatively to 65% of 4016MWt.

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1109936
User-Defined ID:	
Cross Reference Number:	295020AA2.04
Topic:	ILT-5007G-5g-001
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CRF55.43(b)(5)

Source Documentation

Source:	New Exam item Modified Bank X ILT Exam Bank (2114423)	Previous 2 NRC Exam Other Exam Bank
Reference(s):	OT-102	
Learning Objective:	PLOT 5007G-5g-001	
K/A System:	295020 Inadvertent Containment Isolation	Importance: RO / SRO 3.9 / 3.9
K/A Statement:	AA2.04 - Ability to determine and/or interpret the following as they apply to INADVERTENT CONTAINMENT ISOLATION: Reactor pressure	
REQUIRED MATERIALS:	None	
Notes and Comments:	This meets the requirements of 10CFR55.43(b)(5) as the answer cannot be obtained by solely knowing immediate operator actions and must have knowledge of how to implement the procedure.	

11 **ID: 1140429** **Points: 1.00**

Given the following:

- A loss of off-site power has occurred.
- The Crew is performing SE-11, "Loss of Off-Site Power".
- SE-11 Attachment A, "Diesel Generator Lockout from the Main Control Room" has been performed on the E-1, E-2 and E-3 Diesel Generators.
- The E-22, E-23 and E-33 breakers are inoperable and can not be closed.
- The E-4 Diesel Generator will not start.

Per SE-11, what Sheet should be entered and executed for the conditions listed?

A. SE-11 Sheet 6 "Extended Loss of AC Power (ELAP)"

B. SE-11 Sheet 4 "Loss of Off-Site Power with Only 1 D/G Available"

C. SE-11 Sheet 3 "Loss of Off-Site Power With Only 2 D/Gs Available"

D. SE-11 Sheet 2 "Loss of Off-Site Power With 3 or More D/Gs Available"

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per SE-11, D/Gs that have been shutdown due to a lack of cooling (which is the purpose of SE-11 Attachment A), but are capable of back-feeding an operable ESW or ECW pump, should be counted as available . Therefore, the E-1 and E-3 D/Gs are available and Sheet 3 would be entered.
Distractors:	A	Plausible because the E-1, E-2 and E-3 were shutdown. If the candidate misinterprets what makes an operable D/G and believes that if a D/G is shutdown it is not available this would be the correct answer. However, E-1 and E-3 D/Gs have operable output breakers and they are available even though they were shutdown.
	B	Plausible if the candidate misinterprets that the E-3 D/G is not available because one of its output breakers is not available. E-1 and E-3 are available because they have operable output breakers. .
	D	Plausible if candidate misinterprets the start of the E-1, E-2, and E-3 diesels as being able to consider them all operable, however due to both output breakers on E-2 Diesel generator being INOP only E-1 and E-3 D/G are available.

Test Answer Key

2020 NRC SRO Exam rev0
Test ID: 332227

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	1140429
User-Defined ID:	
Cross Reference Number:	264000 A2.09
Topic:	ILT-1555-3-24-SRO-SE-11
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(2)

Source Documentation		
Source:	New Exam item NRC Exams Modified Bank Bank **X** ILT Exam Bank (639215)	Previous 2 Other Exam
Reference(s):	SE-11 and bases	
Learning Objective:	PLOT-1555-9, 11	
K/A System:	264000 - Emergency Generators (Diesel/Jet)	Importance; RO / SRO 3.7 / 4.1
K/A Statement:	A2.09 - Ability to (a) predict the impacts of the following on the EMERGENCY GENERATORS (DIESEL/JET) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of A.C. power	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question is designated as SRO ONLY because: • It cannot be answered by knowing immediate operator actions of TRIP entry conditions (must know followup actions). • It requires recall of a strategy or action that is written into a plant procedure, including when the strategy or action is taken. • It is an SRO job function to determine the SE-11 requirements and conditions for how the Loss of Off-site power affected D/G availability. • The SRO would then use this information to choose the correct procedure to mitigate the event	

12 **ID: 2131129** **Points: 1.00**

Unit 2 has experienced a Loss of Off-site Power (LOOP). The following conditions are present:

- The reactor is shutdown.
- RPV pressure is 1000 psig and rising.
- RPV level is -30 inches and lowering.
- Group I, II, and III isolations have gone to completion.
- All Diesels have automatically started and are supplying their associated buses.
- AO-2969A "A Drywell" and AO-2969B "B Drywell" have no light indication

If current trends continue, with no operator action:

The ADS valves initially will _____(1)_____ on a valid ADS initiation signal.
_____(2)_____ must be directed to open and/or support long term ADS SRV operation.

A. (1) NOT OPEN
(2) SO 16A.7.A-2 "Backup Instrument Nitrogen to ADS System Manual Actuation"

B. (1) NOT OPEN
(2) GP-8.E "Primary Containment Isolation Bypass" Instrument N2 Supply section

C. (1) OPEN
(2) SO 16A.7.A-2 "Backup Instrument Nitrogen to ADS System Manual Actuation"

D. (1) OPEN
(2) GP-8.E "Primary Containment Isolation Bypass" Instrument N2 Supply section

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	ADS valves would open due to their accumulators. SO 16A.7.A-2 or RRC 16.1-2 would need to be used. This supplies nitrogen directly from the bottles to the ADS valves. Bypassing the primary containment isolation would supply all N2 valves in the drywell through both headers of instrument nitrogen, however AO-2969A "A Drywell" and AO-2969B "B Drywell" have no light indication and cannot be repositioned to bypass. Therefore GP-8.E will not supply valves in the Drywell.
Distractors:	A	Valves would open due to their accumulators, plausible as not all SRV valves have accumulators. Second part is correct
	B	Valves would open due to their accumulators, plausible as not all SRV valves have accumulators. Plausible as GP-8.E is used in most scenarios and bypassing the primary containment isolation would supply all N2 valves in the drywell through both headers of instrument nitrogen, however AO-2969A "A Drywell" and AO-2969B "B Drywell" have no light indication and cannot be repositioned to bypass. Therefore GP-8.E will not supply valves in the Drywell.
	D	First part is correct Plausible as GP-8.E is used in most scenarios and bypassing the primary containment isolation would supply all N2 valves in the drywell through both headers of instrument nitrogen, however AO-2969A "A Drywell" and AO-2969B "B Drywell" have no light indication and cannot be repositioned to bypass. Therefore GP-8.E will not supply valves in the Drywell.

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2131129
User-Defined ID:	ILT-5001G-6D-002
Cross Reference Number:	218000A2.03
Topic:	ILT-5001G-002 ADS without Inst N2 supply
Num Field 1:	
Num Field 2:	NA
Text Field:	B

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 5

Source Documentation

Source:	New Exam item NRC Exam X Modified Bank (994169) Exam Bank ILT Exam Bank	Previous Other
Reference(s):	T-101; SO 16A.1.A-2; T-261	
Learning Objective:	PLOT - 5001G-6d	
K/A System:	218000 - Automatic Depressurization System	Importance; RO / SRO 3.6
K/A Statement:	A2.03 - Ability to (a) predict the impacts of the following on the AUTOMATIC DEPRESSURIZATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of air supply to ADS valves:	
REQUIRED MATERIALS:	none	
Notes and Comments:	This question meets the K/A and 10CFR55.43 criteria by testing the ability of the SRO to make a proper evaluation of plant status and then choose the correct procedure to mitigate the event.	

Original

1 **ID: 994169** **Points: 1.00**

Unit 2 has experienced a Loss of Off-site Power (LOOP). The following conditions are present:

- The reactor is shutdown.
- RPV pressure is 1000 psig and rising.
- RPV level is -30 inches and lowering.
- Group I, II, and III isolations have gone to completion.
- All Diesels have automatically started and are supplying their associated buses.

As conditions deteriorate, with no operator action:

(1) describe the response of the ADS valves to a valid ADS initiation, AND
(2) provide the action necessary to allow valve operation and/or support long term ADS operation.

The ADS valves initially would _____(1)_____.
_____(2)_____ must be directed to open and/or support long term ADS SRV operation.

A. (1) NOT OPEN
(2) SO 16.1.A-2, Inst Nitrogen System Startup and Normal Operations

B. (1) NOT OPEN
(2) T-261, Placing the Backup Inst Nitrogen Supply from CAD Tank in Service

C. (1) OPEN
(2) SO 16.1.A-2, Inst Nitrogen System Startup and Normal Operations

D. (1) OPEN
(2) T-261, Placing the Backup Inst Nitrogen Supply from CAD Tank in Service

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Valves would open due to their accumulators. T-261 is required for long term operation
Distractors:	A	Valves would open due to their accumulators, plausible as not all SRV valves have accumulators. Plausible as SO 16.1.A-2 is a choice to restore instrument nitrogen, however it cannot be started normally due to 1" isolation signal.
	B	Valves would open due to their accumulators, plausible as not all SRV valves have accumulators. T-261 is required for long term operation.
	C	Valves would open due to their accumulators. Plausible as SO 16.1.A-2 is a choice to restore instrument nitrogen, however it cannot be started normally due to 1" isolation signal.

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	994169
User-Defined ID:	ILT-5001G-6D-001
Cross Reference Number:	218000A2.03
Topic:	ILT-5001G-001 ADS without Inst N2 supply
Num Field 1:	
Num Field 2:	NA
Text Field:	B

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 5

Source Documentation

Source:	New Exam item NRC Exam Modified Bank Exam Bank X ILT Exam Bank	Previous Other
Reference(s):	T-101; SO 16A.1.A-2; T-261	
Learning Objective:	PLOT - 5001G-6d	
K/A System:	218000 - Automatic Depressurization System	Importance; RO / SRO 3.6
K/A Statement:	A2.03 - Ability to (a) predict the impacts of the following on the AUTOMATIC DEPRESSURIZATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of air supply to ADS valves:	
REQUIRED MATERIALS:	none	
Notes and Comments:	This question meets the K/A and 10CFR55.43 criteria by testing the ability of the SRO to make a proper evaluation of plant status and then choose the correct procedure to mitigate the event.	

Ref:

4.6

Associated objective(s):

7d. Determine the effect that a loss or malfunction of the following will have on the ADS: Pneumatic supply to ADS valves

13 **ID: 2131141** **Points: 1.00**

Unit 2 is at 100% power

- Loss of Off-site power occurs
- Only 1 D/G is available
- To conserve CST inventory both RCIC and HPCI suctions have been swapped to the Torus

50 minutes into the event

- Torus Temperature is reading 181°F and rising

Regarding suction sources, the CRS would direct the RO to:

A. Continue to run HPCI on Torus suction
And
Continue to run RCIC on Torus suction

B. Continue to run HPCI on Torus suction
And
Swap RCIC suction back to CST in accordance with SO 13B.7.A-2 "Transfer of RCIC Pump Suction from CST to Torus"

C. Swap HPCI suction back to CST in accordance with SO 23.7.B-2 "Transfer of HPCI Pump Suction from CST to Torus"
And
Continue to run RCIC on Torus suction

D. Swap HPCI suction back to CST in accordance with SO 23.7.B-2 "Transfer of HPCI Pump Suction from CST to Torus"
And
Swap RCIC suction back to CST in accordance with SO 13B.7.A-2 "Transfer of RCIC Pump Suction from CST to Torus"

Answer: C

Answer Explanation

<<Choice		Basis or Justification
Correct:	C	in accordance with SE-11 sheet 4, HPCI should remain on Torus suction until Torus temperature reaches above 180°F and then use the CST for suction.
Distractors:	A	Plausible because in SE-11 sheet 4 both HPCI and RCIC are swapped to Torus suction in order to conserve CST inventory and should remain there until unable to use Torus suction any longer. HPCI maximum temperature to run on Torus suction is 180°F and it must be swapped back to CST to prevent damage RCIC remaining on Torus suction is correct.
	B	Plausible because in SE-11 sheet 4 both HPCI and RCIC are swapped to Torus suction in order to conserve CST inventory and should remain there until unable to use Torus suction any longer. However, HPCI maximum temperature to run on Torus suction is 180°F and it must be swapped back to CST to prevent damage Plausible since HPCI and RCIC need to be returned to CST suction however RCIC can run on Torus suction up to 215°F and the candidate may misapply the 2 temperatures.
	D	HPCI swap is correct Plausible since HPCI and RCIC need to be returned to CST suction however RCIC can run on Torus suction up to 215°F and the candidate may misapply the 2 temperatures.

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2131141
User-Defined ID:	
Cross Reference Number:	206000 2.1.20
Topic:	ILT-1555-3-32 SRO SE-11 HPCI with 1 DG
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Memory			10CRF55.43(b)(5)

Source Documentation

Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-11 sheet 4	
Learning Objective:	PLOT-1555	
K/A System:	206000 - High Pressure Coolant Injection System	Importance: RO / SRO 4.6
K/A Statement:	2.1.20 - Ability to interpret and execute procedure steps	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the K/A for 10CFR55.43 for an SRO question because the steps being performed are not in the general flow path of an EOP and are within a specific sheet of an SE procedure. The candidate must interpret the conditions and make a decision that entails HPCI operations.	

14 **ID: 2130316** **Points: 1.00**

Unit 2 is at 100% power when the following occur:

- 203 D-4 "Condensate Transfer Pump Low Disch Press" Alarms
- 224 A-4 "A Core Spray Line Vent Accumulator Low Level" Alarms
- Unit 2 CST and Unit 3 CST levels are 34 feet and steady
- PI-2-14-048A "'A' Loop Core Spray Discharge" is reading 25 psig and lowering
- PI-2-14-048B "'B' Loop Core Spray Discharge" is reading 80 psig and steady
- An Equipment Operator sent to inspect the condensate transfer pump reports that it is running with no issues
- ST-O-014-350-2 "Core Spray Loop A Valve Alignment and Filled and Vented Verification" was completed UNSAT

Using the indications given:

The 'A' Loop Core Spray should be considered __(1)__

AND

The Control Room Supervisor should direct __(2)

A. 1) OPERABLE
2) starting the second condensate transfer pump in accordance with SO 27.1.A "Condensate Transfer and Storage System Startup and Normal Operation"

B. 1) OPERABLE
2) performing ST-M-014-601-2, "A Core Spray Loop Filled And Vented Verification"

C. 1) INOPERABLE
2) starting the second condensate transfer pump in accordance with SO 27.1.A "Condensate Transfer and Storage System Startup and Normal Operation"

D. 1) INOPERABLE
2) performing ST-M-014-601-2, "A Core Spray Loop Filled And Vented Verification"

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	In accordance with ARC 224 A-4, the 'A' loop of Core Spray would be considered INOPERABLE. This can be concluded by the fact that the Discharge Pressure is lowering indicating a leak in the piping. This accompanied by the vent accumulator low level alarm indicating the 'A' Loop Core Spray piping is not full and completed ST-O-014-350-2 UNSAT will make 'A' loop Core Spray be declared INOPERABLE. In accordance with ARC 224 A-4, ST-M-014-601-2 must be performed prior to declaring the 'A' Core Spray operable again.
Distractors:	A	Plausible as in accordance with ARC 224 A-4, the 'A' Core Spray Loop is operable until evidence exist that the discharge piping did not remain full. However there is evidence shown with the discharge head lowering as compared to the 'B' Loop Core Spray that has a normal discharge head pressure and an UNSAT ST-O-014-350-2. Plausible as ARC-203 D-4 is associated with a problem in the condensate transfer system. However with the pump running with no issues, and a clear leak within the 'A' loop of Core Spray, starting a second pump would not solve the problem. Also the SO listed is used to only start one pump and it would be an abnormal alignment to have both condensate transfer pumps running.
	B	Plausible as in accordance with ARC 224 A-4, the 'A' Core Spray Loop is operable until evidence exist that the discharge piping did not remain full. However there is evidence shown with the discharge head lowering as compared to the 'B' Loop Core Spray that has a normal discharge head pressure and an UNSAT ST-O-014-350-2. Second part is correct.
	C	First part is correct Plausible as ARC-203 D-4 is associated with a problem in the condensate transfer system. However with the pump running with no issues, and a clear leak within the 'A' loop of Core Spray, starting a second pump would not solve the problem. Also the SO listed is used to only start one pump and it would be an abnormal alignment to have both condensate transfer pumps running.

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130316
User-Defined ID:	ILT-5014-6F
Cross Reference Number:	209001 2.4.45
Topic:	SRO - CS low accumulator alarms
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 5

Source Documentation

Source:	**X** New Exam item NRC Exam Modified Bank Exam Bank ILT Exam Bank	Previous Other
Reference(s):	ARCs 224 A-4, 225 C-4, 203 D-4	
Learning Objective:	PLOT - 5014-6f	
K/A System:	209001 - Low Pressure Core Spray System	Importance; RO / SRO 4.3
K/A Statement:	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	
REQUIRED MATERIALS:	none	
Notes and Comments:	This question meets the K/A and 10CFR55.43 criteria by testing the ability of the SRO to make a proper evaluation of system status.	

15 **ID: 2131209** **Points: 1.00**

Unit 3 is at 100% power with no testing in progress

Unit 2 is at 100% power 2 days following a refueling outage. The following conditions exist:

- Fuel bundles are being moved in the Unit 2 fuel pool in preparation for loading of an ISFSI cask
- ST-O-09A-325-2, "Standby Gas Treatment (SBGT) Subsystem Operability Test" is in progress
- "B" SBGT Fan runs for 10 minutes during testing and then trips on overcurrent

For the above conditions,

(1) What is the Technical Specification required action for Unit 2?

AND

(2) What is the Technical Specification required action for Unit 3?

A. (1) Enter a Potential TS 3.6.4.3
(2) Enter a Potential TS 3.6.4.3

B. (1) Enter a Potential TS 3.6.4.3
(2) Restore SBGT subsystem to operable in 7 days.

C. (1) Restore SBGT subsystem to operable in 7 days.
(2) Enter a Potential TS 3.6.4.3

D. (1) Restore SBGT subsystem to operable in 7 days.
(2) Restore SBGT subsystem to operable in 7 days.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The "B" SBGT fan tripped on overcurrent making the fan INOPERABLE. This fan is listed in the bases of Tech Specs as part of a subsystem for both Unit 2 and Unit 3. SBGT is a common system with two redundant filter trains. The filter trains are common for both units, however the 'A' SBGT fan is related to Unit 2 and 'C' SBGT fan is related to Unit 3. The 'B' SBGT fan is the second operable fan for BOTH units. Therefore a loss of the 'B' SBGT fan would cause a loss of one subsystem on each unit.
Distractors:	A	Plausible as the SBGT system is common to both units. The candidate may misapply this knowledge that since there are still 2 SBGT fans available (A and C) and both trains are still functioning that they meet the Tech Spec criteria of having 2 SBGT subsystems operable. However there is one operable for Unit 2 and one operable for Unit 3.
	B	Plausible as although SBGT system is common to both Units and share a lot of components, certain components are specific to a unit and the candidate may misapply what component relates to what unit. This would be correct if the 'C' fan tripped on overcurrent.
	C	Plausible as although SBGT system is common to both Units and share a lot of components, certain components are specific to a unit and the candidate may misapply what component relates to what unit. This would be correct if the 'A' fan tripped on overcurrent.

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	2131209
User-Defined ID:	ILT-5009A-14-002
Cross Reference Number:	295017 2.2.12
Topic:	ILT-5009A-14-002-SRO 'B' SBGT Fan Trip
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(2)

Source Documentation

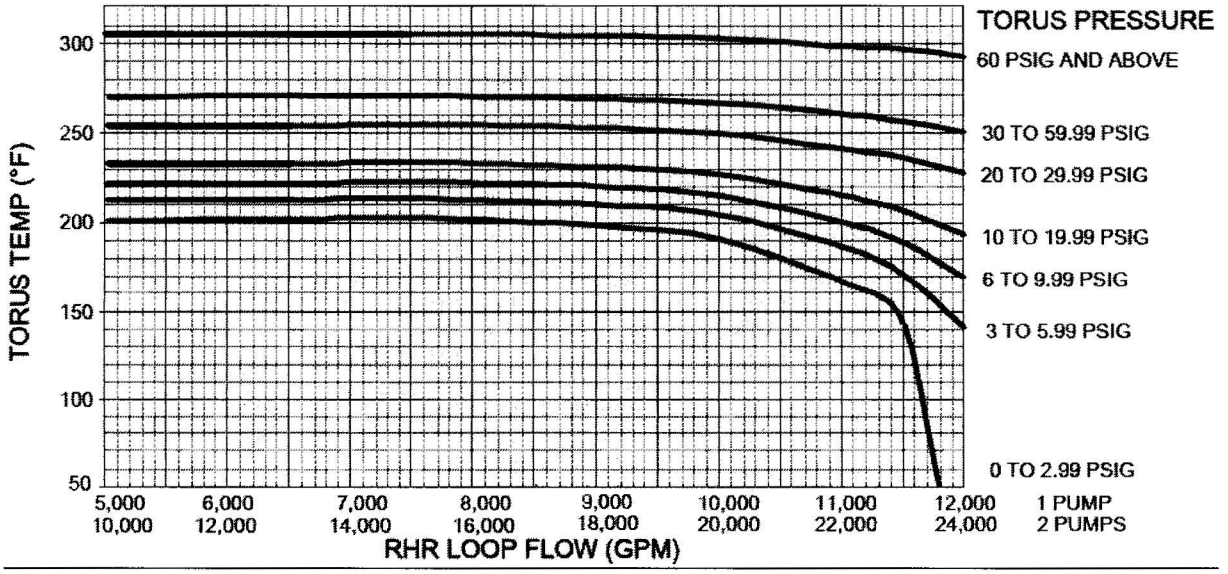
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	Tech Spec 3.6.4.3 Unit 2 and Unit 3, Tech Spec Bases, ST-O-09A-325-2 SBGT Subsystem Operability Test	
Learning Objective:	PLOT-5009A-14	
K/A System:	261000 - Standby Gas Treatment System	Importance: RO / SRO 3.0 / 3.1
K/A Statement:	Ability to (a) predict the impacts of the following on the STANDBY GAS TREATMENT SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Fan trips	
REQUIRED MATERIALS:	**Tech Spec section 3.6.4.3 (SBGT System) Unit 2 and Unit 3**	
Notes and Comments:	None	

16 **ID: 2130211** **Points: 1.00**

The following conditions exist on Unit 2

- A steam leak in the Drywell exists
- Pressure Suppression Function is Lost
- Reactor pressure is 550 psig and steady
- Torus temperature is 200°F and rising slowly
- Torus level is 13 ft and steady
- A and C RHR pumps are in Torus Cooling
- Drywell Sprays are currently in service using the B RHR pump
- Drywell pressure is 5 psig and slowly rising
- B RHR pump Amps are oscillating
- FI-136B "Test/Spray" is oscillating between 10,000 and 10,500 gpm

Below is T-102 "Primary Containment Control" sht 3 for Torus level 12.3 feet to 13.64 feet



For the above conditions, choose the statement below that correctly describes the appropriate Torus pressure band and select the appropriate procedural guidance for Torus level recovery.

Torus pressure band per T-102 should be __(1)__ and Torus level is to be restored using __(2)__.

A. 1) 3 - 5.99 psig
2) T-231 "HPSW Injection into the Torus"

B. 1) 3 - 5.99 psig
2) T-233 "CST Makeup to the Torus via HPCI Minimum Flow Line"

C. 1) 6 - 9.99 psig
2) T-231 "HPSW Injection into the Torus"

D. 1) 6 - 9.99 psig
2) T-233 "CST Makeup to the Torus via HPCI Minimum Flow Line"

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The B RHR pump is experiencing cavitation due to inadequate net positive suction head as indicated by the oscillating amps and flow. A Torus pressure band of 6 - 9.99 feet would increase Net positive suction head on the RHR pumps and prevent cavitation. This pressure band would put you on the safe side of the T-102 curve. T-233 "CST Makeup to the Torus via HPCI Minimum Flow Line" would be used to raise torus level. Although T-231 "HPSW injection into the Torus" has more flow available to input into the torus it uses the B loop RHR piping to inject into the Torus. The B loop of RHR is currently being used for Drywell Sprays and cannot be used to inject into the Torus. Since torus level is steady, there is not an urgent need for the additional flow.
Distractors:	A	First part is plausible as this is the normal level band given when controlling Drywell pressure with Drywell Sprays and Drywell pressure would affect Torus pressure. However this pressure band would put us on the unsafe side of the T-102 curve. Second part is plausible as T-231 "HPSW injection into the Torus" has more flow available to input into the torus however it uses the B loop RHR piping to inject into the Torus. The B loop of RHR is currently being used for Drywell Sprays and cannot be used to inject into the Torus. Since torus level is steady, there is not an urgent need for the additional flow.
	B	First part is plausible as this is the normal level band given when controlling Drywell pressure with Drywell Sprays and Drywell pressure would affect Torus pressure. However this pressure band would put us on the unsafe side of the T-102 curve. Second part is correct
	C	First part is correct Second part is plausible as T-231 "HPSW injection into the Torus" has more flow available to input into the torus however it uses the B loop RHR piping to inject into the Torus. The B loop of RHR is currently being used for Drywell Sprays and cannot be used to inject into the Torus. Since torus level is steady, there is not an urgent need for the additional flow.

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	2.00
System ID:	2130211
User-Defined ID:	PLOT-5010-10L
Cross Reference Number:	226001 A2.01
Topic:	SRO - RHR cavitation on drywell sprays
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	T-102 sht 3 RHR curve with Torus level 12.3ft to 13.64ft
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 5

Source Documentation

Source:	**X** New Exam item NRC Exam Modified Bank Exam Bank ILT Exam Bank	Previous Other
Reference(s):	T-102 sht 1,3 and bases	
Learning Objective:	PLOT - 5010 -10l	
K/A System:	226001 - RHR/LPCI: Containment Spray System Mode	Importance; RO / SRO 2.6
K/A Statement:	A2.01 - Ability to (a) predict the impacts of the following on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Inadequate net positive suction head	
REQUIRED MATERIALS:	T-102 sht 3 RHR curve with Torus level 12.3ft to 13.64ft	
Notes and Comments:		

17 **ID: 2132844** **Points: 1.00**

Unit 2 Traversing In-Core Probe (TIP) System operation is in progress for an LPRM calibration.

A subsequent Feedwater transient results in the following conditions:

- The Reactor was manually scrammed
- RPV level lowered to -10 inches and is now at +20 inches
- The in-service TIP detector is in the core.

Which of the following is correct for the above conditions?

A. Manually withdraw the TIP detector and close the Ball Valve IAW SO 7F.7.A-2 "TIP System Isolation in Event of Containment Isolation"

B. Manually fire the shear valve IAW SO 7F.7.A-2 "TIP System Isolation in Event of Containment Isolation"

C. Manually withdraw the TIP detector and close the ball valve IAW COL GP-8F, "Groups IV, and IV-B Isolation

D. Manually fire the shear valve IAW COL GP-8.F, "Groups IV and IV-B Isolation"

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	For a TIP failure to isolate, a COL directs manual isolation IAW SO 7F.7.A-2, which directs manually withdrawing the TIP detector to shield and closing the ball valve. SO 7F.7.A-2 lists the order to take the actions to attempt to withdraw before firing the shear valve.
Distractors:	B	The shear valve is only fired if the detector can not be retracted and then only if directed by the Shift Manager. Plausible if the candidate does not understand the requirements following an isolation signal.
	C	Plausible as a COL will direct verifying the Ball Valve closed and then manual isolation with SO 7F.7.A with the detector in the core the Ball Valve not closed. However that checklist is GP-8.B "Groups II and III Isolation" and the candidate may confuse the Group Isolation that TIPs belongs to.
	D	The shear valve is only fired if the detector can not be retracted and then only if directed by the Shift Manager. Plausible if the candidate does not understand the requirements following an isolation signal. Plausible as a COL will direct verifying the Ball Valve closed and then manual isolation with SO 7F.7.A with the detector in the core the Ball Valve not closed. However that checklist is GP-8.B "Groups II and III Isolation" and the candidate may confuse the Group Isolation that TIPs belongs to.

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2132844
User-Defined ID:	
Cross Reference Number:	215001 2.1.23
Topic:	ILT-5007F-7d-002-SRO C CERT
Num Field 1:	C CERT
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(5)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank (639656)	Previous 2 NRC Exam Other Exam Bank
Reference(s):	GP-8.B, SO 7F.7.A-2, GP-8.F	
Learning Objective:	PLOT-5007F-7d	
K/A System:	215001 Traversing In-Core Probe	Importance: SRO 4.4
K/A Statement:	2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

18 **ID: 2130186** **Points: 1.00**

Unit 2 is at 100% Power when the following occurs:

- A leak in the Drywell has resulted in rising Drywell temperature and pressure.
- All plant systems responded as designed as Drywell pressure exceeded 2 psig.
- T-101 "RPV Control" and T-102 "Primary Containment Control" have been entered
- Adequate Core Cooling is currently being maintained by Feedwater
- There has been no rise in Main Stack radiation monitors
- When attempting to spray the Drywell in accordance with T-204 "Initiation of Containment Sprays Using RHR" the following valves did not open
  - MO-2-10-031A "D/W Spray Inboard"
  - MO-2-10-026B "D/W Spray Outboard"
- Drywell Pressure is currently 6 psig and rising slowly

Under these conditions what would the CRS direct next?

A. RRC 44A.1-2 "Maximize Drywell Cooling"

B. T-223 "Drywell Cooler Fan Bypass"

C. T-205 "Initiation of Containment Sprays Using HPSW"

D. T-200 "Primary Containment Venting"

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	With Containment Sprays unable to spray into the Drywell to reduce pressure and temperature, re-starting DW ventilation is the preferred option. Since Drywell pressure has exceeded 2 psig the DW fans are tripped. This trip must be bypassed in order to place DW ventilation back in service. T-223 provides the direction to bypass the trip and place DW ventilation back in service
Distractors:	A	Plausible as maximizing Drywell Ventilation is a response to rising drywell temperature and pressure, however since the Drywell Ventilation trips at 2 psig in the Drywell, the trip signal needs to be bypassed in order to restart ventilation. The Rapid Response Card 44A does not provide that direction.
	C	Plausible as T-205 is another way to spray containment to bring down Pressure and Temperature, however T-205 uses the same valves that failed to open when attempting T-204.
	D	Plausible as venting containment is another way to control Pressure in T-102, however venting containment is a check / re-check statment and should be performed to restore and maintain ACC or to reduce total offsite radiation dose. As stated in the stem ACC is maintained and there is no rise in offsite dose. This would not be performed at this time

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130186
User-Defined ID:	PLOT-5040C-10A
Cross Reference Number:	288000 A2.03
Topic:	SRO DW ventilation during LOCA and Sprays unavailable
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CRF55.43(b) 5

Source Documentation		
Source:	X New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank	
Reference(s):	T-102, T-204, T-205, T-223, RRC 44A.1	
Learning Objective:	PLOT - 5040C-10A	
K/A System:	288000 - Plant Ventilation Systems	Importance; SRO 3.7
K/A Statement:	A2.03 - Ability to (a) predict the impacts of the following on the PLANT VENTILATION SYSTEMS ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of coolant accident	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the requirements of 10CFR55.43(b)5 because the SRO must evaluate plant conditions and then make a decision on what to perform next.	

19 **ID: 994298** **Points: 1.00**

Per OP-AB-300-1003, "BWR Reactivity Maneuver Guidance", a Reactivity Maneuver Approval (ReMA) Package is required for which of the following activities?

A. Inserting control rods to clear APRM Hi alarms.

B. Adjusting reactor recirculation flow to maintain full reactor power.

C. Unplanned insertion of a control rod for operability concerns.

D. Withdrawing control rods during continuation of a reactor startup above 25% power.

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Correct - Per OP-AB-300-1003, "BWR Reactivity Maneuver Guidance" continuation of a reactor startup is a complex maneuver and requires a ReMA.
Distractors:	A	Plausible as this is a reactivity Maneuver and is covered by OP-AB-300-1003, however inserting control rods to clear APRM Hi alarm is considered a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.
	B	Plausible as this is a reactivity Maneuver and is covered by OP-AB-300-1003 however routine load changes with reactor recirculation flow is considered a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.
	C	Plausible as this is a reactivity Maneuver and is covered by OP-AB-300-1003, however unplanned insertion of a control rod for operability concerns is a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.50
System ID:	994298
User-Defined ID:	ILT-1535-4-001
Cross Reference Number:	2.1.37
Topic:	ILT-1535-4-001 A Reactivity Maneuver (ReMA) Form is required for which of the following activities
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Memory			10CRF55.43(b) 6

Source Documentation

Source:	New Exam item NRC Exam Modified Bank X ILT Exam Bank	Previous Other Exam Bank
Reference(s):	OP-AB-300-1003, BWR Reactivity Maneuver Guidance, GP-5	
Learning Objective:	PLOT - 1535-4	
K/A System:		Importance; RO / SRO 4.6
K/A Statement:	2.1.37 - Knowledge of procedures, guidelines, or limitations associated with reactivity management.	
REQUIRED MATERIALS:	None	
Notes and Comments:	This question meets the requirements of 10CFR55.43 because the SRO is responsible to approve the ReMA package before power changes meeting the requirements of OP-AB-300-1003	

20 **ID: 2130151** **Points: 1.00**

You are the Unit 2 control room supervisor

E1 Diesel Generator Supplemental Supply fan requiring minor maintenance to repair a cracked support piece, is awaiting your approval

- This Maintenance requires placing the E1 Diesel Generator in Pull to Lock
- Current outside temperature is 50° F

An Equipment Operator reports the following:

- Starting Air Reservoir (Automatic Start) for the E3 Diesel Generator is reading 0 psig,
- Starting Air Reservoir (Manual Start) for the E3 Diesel Generator is reading 260 psig.

Which one of the following describes the actions of the control room supervisor:

1) Declare E3 Diesel Generator OPERABLE or INOPERABLE

AND

2) Do you APPROVE or NOT APPROVE Maintenance on the E1 Diesel Generator Supplemental Supply fan

A. 1) OPERABLE
2) APPROVE

B. 1) INOPERABLE
2) APPROVE

C. 1) OPERABLE
2) NOT APPROVE

D. 1) INOPERABLE
2) NOT APPROVE

Answer: D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Since the Automatic Starting Air is 0 psig, the E3 Diesel Generator will not Automatically start from a standby on a Loss of Power Condition. This makes the Diesel Generator INOPERABLE. The maintenance would not be approved at this time because although maintenance is required at this time the E1 Diesel Generator is considered operable. When the E1 Diesel Generator is placed in Pull to Lock the E1 Diesel Generator would then be considered INOPERABLE and would put both Units in a Tech Spec for 2 INOPERABLE diesels.
Distractors:	A	First part is plausible as the Manual Starting air is pressurized and the Diesel could be started with the Manual Starting air. This makes the diesel available, however it is still INOPERABLE and the candidate may misapply the two terms. Second part is plausible since the maintenance is required on the E1 Diesel Supplemental Supply Fan which is only required to be operable if outside air temperature is > 80° F, however since this maintenance requires the E1 Diesel Generator to be placed in Pull to Lock, the E1 Diesel Generator would be considered INOPERABLE and the maintenance would not be approved at this time.
	B	First Part is correct Second part is plausible since the maintenance is required on the E1 Diesel Supplemental Supply Fan which is only required to be operable if outside air temperature is > 80° F, however since this maintenance requires the E1 Diesel Generator to be placed in Pull to Lock, the E1 Diesel Generator would be considered INOPERABLE and the maintenance would not be approved at this time.
	C	First part is plausible as the Manual Starting air is pressurized and the Diesel could be started with the Manual Starting air. This makes the diesel available, however it is still INOPERABLE and the candidate may misapply the two terms. Second Part is correct

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	2130151
User-Defined ID:	PLOT-DBIG-1529
Cross Reference Number:	2.2.21
Topic:	PLOT-1529 - Approve testing while Diesel INOP
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:

References Provided	None
K/A Justification	
SRO-Only Justification	
Additional Information	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CFR55.43(b) 2

Source Documentation

Source:	**X** New Exam item NRC Exam Modified Bank Exam Bank ILT Exam Bank	Previous Other
Reference(s):	OP-AA-108-104, TS 3.8.1 and 3.8.3, TS 3.0	
Learning Objective:	PLOT - 1529 1k	
K/A System:		Importance; RO / SRO 4.1
K/A Statement:	2.2.21 - Knowledge of pre- and post-maintenance operability requirements.	
REQUIRED MATERIALS:	None	
Notes and Comments:	This meets the requirements of the K/A as the candidate must evaluate a situation that involves the addressing of system operability in conjunction with approval of maintenance testing.	

21 **ID: 2130409** **Points: 1.00**

Unit 2 is at 100% power

The following alarms are received:

- 003 D-2 "Main Stack Radiation High"
- 003 D-1 "Main Stack Radiation High-High"

No other alarms or changes in plant status occur

The RO obtains the following readings:

- RI-0-17-050A is reading 6.24E05 uCi/sec
- RI-0-17-050B is reading 3.56E01 uCi/sec

Which one of the following is the required action regarding these indications?

A. Place 17A-S8 "High Rad Trip Inbd Isol Byp" switch to BYPASS ONLY

B. Enter T-104 "Radioactivity Release" AND Place 17A-S8 "High Rad Trip Inbd Isol Byp" switch to BYPASS

C. Perform AO 63E.1-2 "Bypassing a Failed Main Stack Radiation Monitor Channel To Prevent Masking Operable Main Stack Radiation Channel Annunciators" ONLY

D. Place 17A-S8 "High Rad Trip Inbd Isol Byp" switch to BYPASS
AND
Perform AO 63E.1-2 "Bypassing a Failed Main Stack Radiation Monitor Channel To Prevent Masking Operable Main Stack Radiation Channel Annunciators"

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Actions out of ARC 003 D-2 say to perform AO 63E.1-2 if only one channel is indicating high and that indication has been determined as not real. The 'A' channel of main stack rad monitor is reading high and with no other changes in plant status or alarms can be considered a false reading.
Distractors:	A	Plausible as the candidate may misapply the fact that the rad monitor is malfunctioning and bypass its isolation capability. Performing this would also mask further alarms for the operable Main Stack Radiation Monitor.
	B	Plausible if the candidate misinterprets indications given as a failed instrument and enter T-104 on Main Stack Rad above the HI HI Alarm Setpoint out of the ARC and then bypass the monitor to clear the alarm and exit T-104.
	D	Plausible as the candidate may misapply the fact that the rad monitor is malfunctioning and bypass its isolation capability. Performing this would also mask further alarms for the operable Main Stack Radiation Monitor. Performing AO 63E.1-2 would be the proper response.

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	2130409
User-Defined ID:	
Cross Reference Number:	2.3.5
Topic:	PLOT-5063C-9-002 Failed Main Stack Rad monitor
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CRF55.43(b)(5)

Source Documentation

Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC-003 D-1, ARC-003 D-2, ARC-003 D-3	
Learning Objective:	PLOT-5063C-9	
K/A System:	2.3 Radiation Control	Importance: RO / SRO 2.9
K/A Statement:	2.3.5 - Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.	
REQUIRED MATERIALS:	None	
Notes and Comments:	This meets the K/A as it is the SRO's job function on whether to bypass installed equipment.	

22 **ID: 2096147** **Points: 1.00**

A General Emergency is declared due to a loss of the Reactor Coolant System and Containment barriers and a potential loss of the Fuel Cladding Barrier.

- Wind direction is from 280 degrees
- The TSC is staffed but command and control has not been transferred
- Dose assessment indicates 1100 mRem TEDE beyond the site boundary

Based on the above conditions the Shift Emergency Director's initial PAR shall recommend Evacuate 2 Mile Radius

AND

_____.

A. Evacuate 2 - 10 miles in sectors LMNPQ

B. Evacuate 2 - 5 miles in sectors LMNPQ

C. Evacuate 2 - 10 miles in sectors CDEFG

D. Evacuate 2 - 5 miles in sectors CDEFG

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Using the PAR flowchart in EP-AA-111-F-08, we are led to Evacuate 2 - 10 miles. This is because the event constitutes a Rapidly Progressing Severe Accident as the conditions have been met for an EAL RG1 (>1000 mRem TEDE beyond site boundary) The wind direction is from 280 degrees and using Table 1 sectors CDEFG should be evacuated.
Distracters:	B	Plausible if EP-AA-111-F-08 is misapplied and it is believed the Rapidly Progressing Severe Accident threshold has not been met. This leads the flow chart to evacuate 2 - 5 miles. Plausible if table is misapplied as the sectors listed are 180 degrees opposite and considered upwind.
	D	Plausible if EP-AA-111-F-08 is misapplied and it is believed the Rapidly Progressing Severe Accident threshold has not been met. This leads the flow chart to evacuate 2 - 5 miles. The downwind sectors are correct
	A	Evacuating 2 - 10 miles is correct. Plausible if table is misapplied as the sectors listed are 180 degrees opposite and considered upwind.

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2096147
User-Defined ID:	
Cross Reference Number:	2.4.44
Topic:	ILT G5-6-003 SRO - PAR recommendation
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(4)

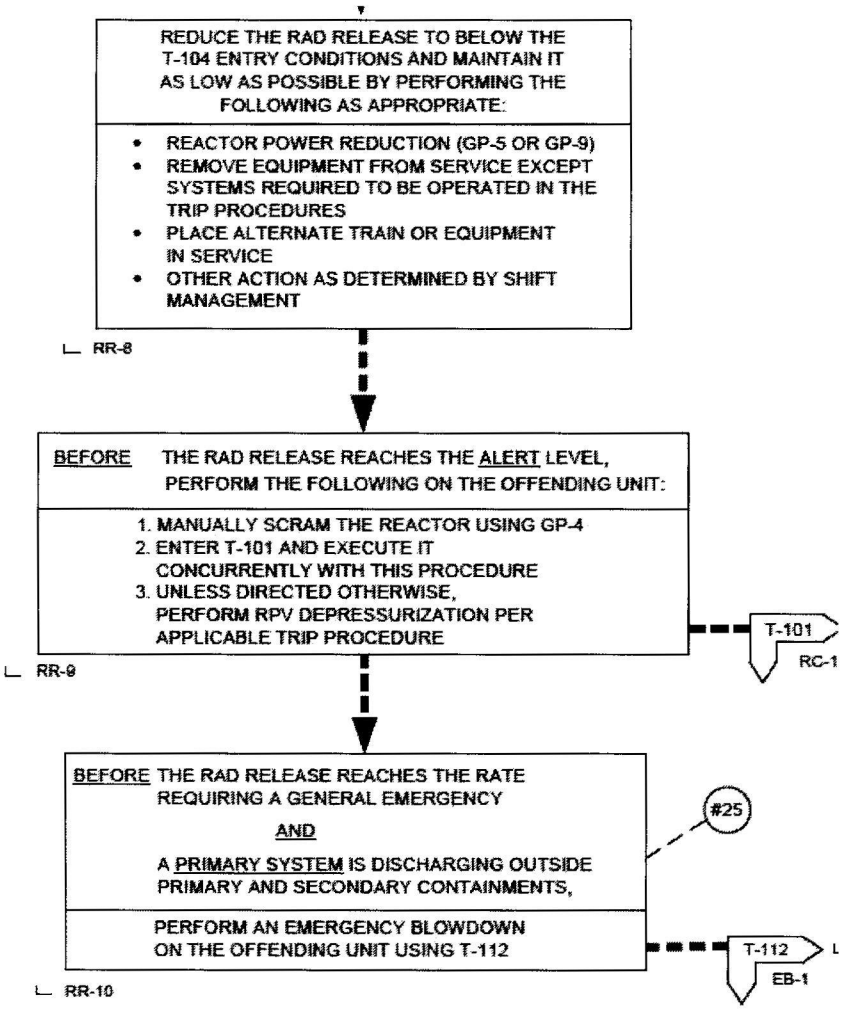
Source Documentation

Source:	New Exam item X Modified Bank (2115519) Bank ILT Exam Bank	Previous NRC Exam Other Exam
Reference(s):	EP-AA-111-F-08	
Learning Objective:	G5-6	
K/A System:	G2.4 – Emergency Plan	Importance; SRO 4.4
K/A Statement:	2.4.44 – Knowledge of emergency plan protective action recommendations.	
REQUIRED MATERIALS:	**EP-AA-111-F-08, EP-AA-1007 Addendum 3 (pg 2-1 ONLY)**	
Notes and Comments:		

23 **ID: 993749** **Points: 1.00**

A Unit 2 is at 100% power when a primary system breach occurs resulting in the following:

- Annunciator 003 D-2 "MAIN STACK RADIATION HIGH" alarming
- Annunciator 003 D-1 "MAIN STACK RADIATION HIGH-HIGH" alarming
- RI-0-17-050A/B main stack radiation recorder reads 2.1 E+6 uCi/sec and rising
- RI-0-17-050A/B main stack radiation recorder rate of rise is 1.0 E+6 uCi/sec per minute
- Calculated offsite dose rate is 0.58 mRem/hr TEDE
- Activities are ongoing to identify and isolate the leak



Which of the following is the required action in accordance with T-104 "Radioactivity Release"?

A. GP-9-2 "Fast Reactor Power Reduction"

B. GP-4 "Manual Reactor Scram" with depressurization < 100°F/HR

C. GP-4 "Manual Reactor Scram" with rapid depressurizing regardless of cooldown rates using bypass valves

D. T-112 "Emergency Blowdown"

Answer: A

Answer Explanation

Choice		Basis or Justification
Correct:	A	This is correct as the readings for the radiation recorder are still a factor of 10 away from the ALERT Level. With the rising rate there is sufficient time to attempt power reduction before performing a manual scram.
Distractors:	B	Plausible because this would be correct if the radiation reading were closer to the ALERT level or the rate of rise were more aggressive. Given the current rate of rise there is more than 50 minutes before an ALERT would be reached allowing ample time to perform a power reduction. Placing the plant in a transient by performing a SCRAM that may be avoided by other measures is not a conservative decision.
	C	Plausible as this would be correct if the radiation reading were much higher (approaching a General emergency) and rapidly rising. In this case the CRS would direct the GP-4 and begin a rapid depressurization using bypass valves before proceeding to an Emergency Blowdown if necessary
	D	Plausible as this would be correct if radiation was approaching a General Emergency level and the rate of rise would not allow rapid depressurization before performing an Emergency Blowdown

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	993749
User-Defined ID:	ILT-2104-1-001
Cross Reference Number:	G 2.3.11
Topic:	SRO ILT-PBIG2104 Required action for High rad
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CRF55.43(b) 5

Source Documentation

Source:	New Exam item Previous NRC Exam Modified Bank Other Exam Bank X ILT Exam Bank	
Reference(s):	T-104 and bases, EP-AA-1007 addendum 3	
Learning Objective:	PLOT - 2104	
K/A System:		Importance; RO / SRO 4.3
K/A Statement:	2.3.11 - Ability to control Radiation Releases	
REQUIRED MATERIALS:	EP-AA-1007 Addendum 3 (pg 2.1 ONLY)	
Notes and Comments:	This question meets 10CFR43b criteria because the candidate must use the chart to make a determination of their place within the trip procedure and the next action to take.	

24 **ID: 2130408** **Points: 1.00**

Both Units are operating at 100% power with the following:

The 4KV system is in a normal line-up with the following exceptions:
- E-312 breaker is racked out for elevator mechanism preventative maintenance.
- E-233 breaker is racked out for emergent maintenance

10 minutes later:

- E-322 breaker spuriously trips open

All other plant equipment operates as designed

Based on these conditions, the following LCO('s) will be entered:

A. Unit 2 - Potential LCO 3.8.1 condition 'A' - One Offsite circuit inoperable
Unit 3 - Potential LCO 3.8.1 condition 'A' - One Offsite circuit inoperable

B. Unit 2 - LCO 3.8.1 condition 'A' - One Offsite circuit inoperable
Unit 3 - Potential LCO 3.8.1 condition 'A' - One Offsite circuit inoperable

C. Unit 2 - Potential LCO 3.8.1 condition 'A' - One Offsite circuit inoperable
Unit 3 - LCO 3.8.1 condition 'A' - One Offsite circuit inoperable

D. Unit 2 - LCO 3.8.1 condition 'A' - One Offsite circuit inoperable
Unit 3 - LCO 3.8.1 condition 'A' - One Offsite circuit inoperable

Answer: B

Answer Explanation

Choice		Basis or Justification
Correct:	B	On Unit 2 LCO 3.8.1 would be entered with the trip of the E-322 breaker. Both the E-312 Breaker and E-322 breaker are fed from the 3 SUE off-site source. With both breakers open the 3 SUE off-site circuit in INOPERABLE for Unit 2 since it is unable to provide power to 3 out of 4 4kV buses. On Unit 3 there is a potential for LCO 3.8.1 as E-233 is racked out. This has limited the 2 SUE startup source to 3 out of 4 kV buses and a potential would be entered because another failure would cause entry into that LCO.
Distracters:	A	Plausible as both Units are in a potential LCO and could enter another Potential. Depending on the next failure, another potential may be entered on a Unit. If 212, 222, 232, or 242 were to trip open there would be another potential Unit 2. Second part is correct.
	C	Plausible if the candidate misinterprets what constitutes an offsite circuit on which unit. If 212, 222, 232, or 242 were to trip open there would be another potential Unit 2. Plausible as the candidate may misapply the offsite circuit of 3 SUE being related to the Unit 3 4kv system. This is a common error.
	D	First part is correct Plausible as the candidate may misapply the offsite circuit of 3 SUE being related to the Unit 3 4kv system. This is a common error.

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	2130408
User-Defined ID:	
Cross Reference Number:	2.2.36
Topic:	SRO off-site circuit TS entry
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
HIGH			10CFR55.43(b)(2)

Source Documentation

Source:	X New Exam item NRC Exam Modified Bank Bank ILT Exam Bank	Previous Other Exam
Reference(s):	PLOT-5054; SO 52A.1.B; Tech Spec 3.8.7, Tech Spec 3.8.1	
Learning Objective:	PLOT-5054 13	
K/A System:		Importance; SRO 4.2
K/A Statement:	2.2.36 - Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

25 **ID: 2130407** **Points: 1.00**

Unit 2 is at 85% power during end of cycle coast down.

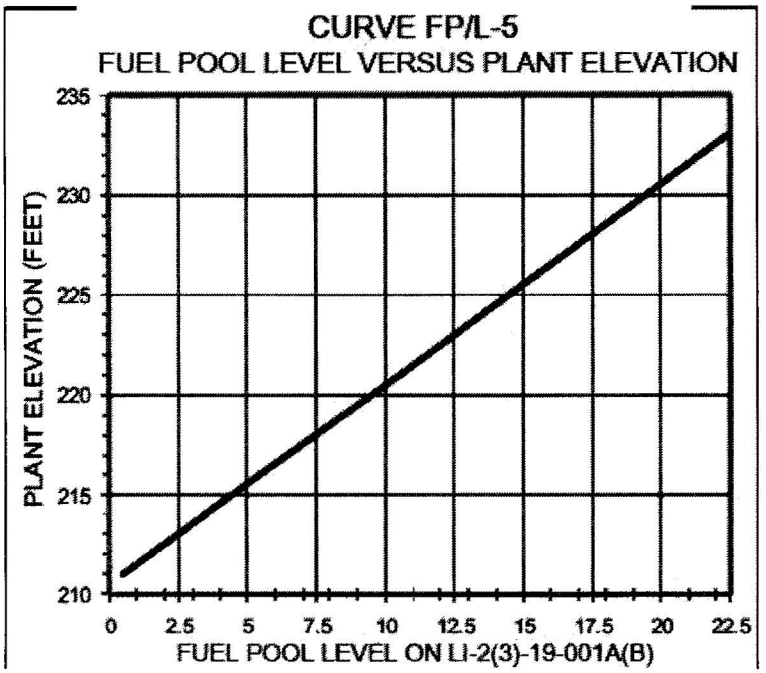
- New fuel is being moved in the fuel pool in preparations for the upcoming outage
- The Reactor Services Supervisor reports that Fuel pool level has unexpectedly lowered to 232 ft 2 in

The CRS must _____(1)_____.

10 minutes later

- Fuel pool level is 12.5 ft on LI-2-19-001A.

The CRS must ___(2)_____.



A. (1) enter ON-124 "Fuel Floor and Fuel Handling Problems" ONLY
(2) makeup to the fuel pool (only)

B. (1) enter ON-124 "Fuel Floor and Fuel Handling Problems" ONLY
(2) makeup to the fuel pool and spray the fuel pool

C. (1) enter ON-124 "Fuel Floor and Fuel Handling Problems" AND T-103 "Secondary Containment Control"
(2) makeup to the fuel pool (only)

D. (1) enter ON-124 "Fuel Floor and Fuel Handling Problems" AND T-103 "Secondary Containment Control"
(2) makeup to the fuel pool and spray the fuel pool

Answer: C

Answer Explanation

Choice		Basis or Justification
Correct:	C	ON-124 is entered as the Fuel pool level has dropped unexpectedly. T-103 would be entered on a low Fuel Pool level of 232 Ft 4 inches. Fuel Pool level at 12.5 ft as indicated on LI-2-19-001A is about 10 feet below normal level and requires the fuel pool to be restored and maintained by using fuel pool makeup sources.
Distractors:	A	Plausible if the candidate believes that conditions require entry into ON-124 only for the unexpected drop in fuel pool level, however T-103 would also be entered when the Fuel Pool Cooling Trouble alarm comes in on a low Fuel Pool level of 232 Ft 4 inches. Second part is correct
	B	Plausible if the candidate believes that conditions require entry into ON-124 only for the unexpected drop in fuel pool level, however T-103 would also be entered when the Fuel Pool Cooling Trouble alarm comes in on a low Fuel Pool level of 232 Ft 4 inches. Plausible as the Fuel Pool level has lowered substantially and Fuel Pool Sprays are a way to combat lowering Fuel Pool Level, however sprays are not required to be lined up until Fuel Pool level cannot be maintained above 220 Feet elevation. With LI-2-19-001A indicating 12.5 ft we are at approximately 223 Feet elevation.
	D	First part is correct Plausible as the Fuel Pool level has lowered substantially and Fuel Pool Sprays are a way to combat lowering Fuel Pool Level, however sprays are not required to be lined up until Fuel Pool level cannot be maintained above 220 Feet elevation. With LI-2-19-001A indicating 12.5 ft we are at approximately 223 Feet elevation.

Test Answer Key

2020 NRC SRO Exam rev0
Test ID: 332227

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	1.00
System ID:	2130407
User-Defined ID:	ILT-2103-3-002
Cross Reference Number:	2.4.8
Topic:	ILT- 2103 3 - 002 SRO Describe how event-based Emergency/Abnormal operating procedures are u
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	

Psychometrics

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CRF55.43(b) 5

Source Documentation

Source:	New Exam item Previous NRC Exam X Modified Bank (2115498) Other Exam Bank ILT Exam Bank	
Reference(s):	ON-124, T-103 and bases	
Learning Objective:	PLOT- 2103 3	
K/A System:		Importance; RO / SRO 4.5
K/A Statement:	2.4.8 - Knowledge of how abnormal operating procedures are used in conjunction with EOPs	
REQUIRED MATERIALS:	None	
Notes and Comments:	Graph is embedded as it is necessary to answer the question. The graph is used to make decisions on the EOP, to better match the K/A.	