Constellation

VISION Report

(Test Key) LC 23-1 RO NRC Exam

Development Area for the ILT NRC Exam

Generated April 12, 2024

Test	LC 23-1 RO NRC Exam
VISION ID	374346
Status	

EXAMINATION COVER SHEET

Exam Title (ID)	LC 23-1 RO NRC Exam (374346)			
Training Program	Development Area for the ILT NRC Exam			
LMS Component ID		**Total Points**	75.00	**Pass Criteria** ≥ 80 %

Trainee Name		**Employee ID**	
Graded By / Date		**Grade**	____ / 75.00 = _____ %

Review and Approval			
Instructor		**Date**	
Technical Review		**Date**	
Training Supv		**Date**	

Examination Rules

1. References may NOT be used during this exam, unless otherwise stated.
2. Read each question carefully before answering. If you have any questions or need clarification during the exam, contact the exam proctor.
3. Conversation with other trainees during the exam is prohibited.
4. Partial credit will NOT be considered, unless otherwise stated. Show **all** work and state **all** assumptions when partial credit may be given.
5. Restroom trips are limited and only one examinee at a time may leave.
6 . For exams with time limits, you have ____ minutes to complete the exam.
7. The examinee agrees to refrain from discussing the content of the exam until the end of the exam cycle.

Examination Integrity Statement

Cheating or compromising the exam will result in disciplinary actions up to and including termination.

“I acknowledge that I am aware of the Exam Rules stated above. Further, I have not given, received, or observed any aid or information regarding this exam prior to or during its administration that could compromise this exam.”

Examinee Signature _____ Date _____

Review Acknowledgement

“I acknowledge that the correct answers to the exam questions were indicated to me following the completion of the exam. I have had the opportunity to review the exam questions with the instructor to ensure my understanding.”

Examinee Signature _____ Date _____

Question 1	ID: 2505014	Points: 1.00

Unit 2 is at 45% power following a trip of the 'B' Recirc pump:

- 'A' Recirc Pump is running at 650 RPM (30% speed).
- OT-112, Unexpected/Unexplained Change in Core Flow, has been entered.
- Black Pen Core Flow = 41 Mlbm/hr.
- Jet Pump Total Flow for the 'A' Loop = 37 Mlbm/hr.
- Jet Pump Total Flow for the 'B' Loop = 4 Mlbm/hr.

Which of the following values identifies actual core flow?

A. 41

B. 37

C. 33

D. 29

Answer	C

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	C	With a tripped recirculation pump, flow through the tripped pump's loop is reversed. To calculate actual core flow, use the equation: Black Pen Core Flow - 1.95(Tripped Loop Flow). In this case, 41 Mlbm/hr - 1.95(4 Mlbm/hr) = 33.2 Mlbm/hr.
Distractors:	A	Incorrect. Plausible because this would be true if both recirculation pumps were running. Since the B Recirc Pump tripped, the flow is reversed, and the equation listed above must be used.
	B	Incorrect. Plausible because this would be true if it were inferred that without forced circulation, the loop flow is disregarded and only operating loops should be counted. But with the reverse flow, this will cause actual core flow to be lower.
	D	Incorrect. Plausible because this would be true if you subtracted double the tripped loop flow from the running loop. (Loop A - 1.95(Loop B)) The equation should use black pen core flow, not loop A flow.

Question Information

Topic	Determining Core Flow with a Tripped Recirc Pump				
User ID	ILT-5002-EO-07-1			**System ID**	2505014
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.2 General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.

References Provided	None
K/A Justification	Tests operator knowledge of how to interpret loop flow indications during a partial loss of forced core flow.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(2)

Source Documentation		
Source:	**X**New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	GP-5-2 Exhibit 1 Rev 3	
Learning Objective:	PLOT-5002-EO-07	
K/A System:	295001 - Partial or Complete Loss of Forced Core Flow Circulation	Importance: RO 3.6
K/A Statement:	AA2.11: Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Individual Loop flow(s)	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295001.AA2.11	Safety Function	Tier 1	Group	RO Imp: 3.6	SRO Imp: 3.6
Ability to determine and/or interpret the following as they apply to Partial or Complete Loss of Forced Core Flow Circulation: (CFR: 41.10 / 43.5 / 45.13) Individual loop flow(s)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 2	ID: 2505022	Points: 1.00

Unit 2 and 3 were operating at 100% power when:

- A loss of offsite power occurred.
- All diesel generators failed to start.
- No operator actions have been taken.

Which of the following identifies the implications of this event in relation to Extended Loss of AC Power (ELAP) strategies?

A. An ELAP must be declared within a maximum of 2 hours.

B. DC Load Shed is required to extend battery life.

C. Portable generators will be aligned to Division II battery chargers.

D. SAFER equipment should be utilized before FLEX equipment.

Answer	B

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	B	Per the ELAP strategy, without the AC battery chargers or reducing DC loading, station batteries may be depleted in 2 hours. Therefore, reducing DC loading is required to extend battery life.
Distractors:	A	Incorrect. Plausible because an ELAP is required to be declared, but it must be declared within one hour of the event, not two.
	C	Incorrect. Plausible because portable generators will be aligned to supply power to battery chargers, but they are aligned to Division I, not Division II.
	D	Incorrect. Plausible because the use of SAFER equipment is an option in the ELAP strategy, but it is only utilized if needed. Per SE-11, installed plant equipment is the preferred equipment. If it cannot be used, then on-site FLEX equipment is used. SAFER equipment is only used as a last resort as it is located at an off-site location and isn't expected to arrive to site until 24 hours after it is requested.

Question Information

Topic	Operational Implications of a Station Blackout				
User ID	ILT-1556-EO-10-1			**System ID**	2505022
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Tests operator knowledge of operational implications for various plant operations during a station blackout
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X**New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-11 Bases, Rev 31	
Learning Objective:	PLOT-1556-EO-10	
K/A System:	295003 - Partial or Complete Loss of AC Power	Importance: RO 4.3
K/A Statement:	AK1.06 - Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to PARTIAL OR COMPLETE LOSS OF AC POWER: Station Blackout	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295003.AK1.06	Safety Function	Tier 1	Group	RO Imp: 4.3	SRO Imp:
Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Partial or Complete Loss of AC Power: (CFR: 41.8 to 41.10) Station blackout					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 3	ID: 2505047	Points: 1.00

The following conditions exist at Peach Bottom:

- A loss of all off-site power has occurred.
- The Emergency Diesel Generators (DGs) are running and supplying their respective 4KV switchgear.
- 10 minutes later, a loss of 125 VDC to 20D021, 125VDC Power Distribution Panel 2A, occurs.

Which of the following is true regarding the loss of DC power?

A. RCIC can be used for injection using RRC13.1, RCIC System Operation during a Plant Event.

B. Core Spray Loop B must be manually started on a LOCA initiation signal.

C. E12 bus breakers must be operated locally.

D. The E1 Diesel Generator will automatically trip.

Answer	C

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	C	A loss of power to the 20D021 panel, control power for the E12 and E13 bus breakers will be lost. Therefore, the breakers can only be operated locally.
Distractors:	A	Plausible because RCIC can be used for injection, but RRC 13.1-2 will not start RCIC. SE-13.1-2, RCIC Manual Operations on a Loss of 125VDC, must be used.
	B	Plausible because Core Spray is degraded, but the A loop of Core Spray is the one that will require manual initiation. Core Spray Loop B will automatically start on a LOCA signal.
	D	Plausible because the E-1 Diesel cannot be started during a loss of DC power, but since it is already running, it will continue to run. It does not trip on a loss of DC power.

Question Information

Topic	Loss of DC to 4KV System				
User ID	ILT-5052-EO-07-1			**System ID**	2505047
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Tests operator ability to operate safety related systems with a loss of DC power.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-13, Rev 20	
Learning Objective:	PLOT-5052-EO-07	
K/A System:	295004 - Partial or Complete Loss of DC Power	Importance: RO 4.3
K/A Statement:	AA1.02 - Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: Systems necessary to ensure safe plant shutdown	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295004.AA1.02	Safety Function	Tier 1	Group	RO Imp: 4.3	SRO Imp:
Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of DC Power: (CFR: 41.7 / 45.6) Systems necessary to ensure safe plant shutdown					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 4	ID: 2505423	Points: 1.00

Unit 2 is conducting a reactor startup per GP-2, Normal Plant Startup.

- Reactor power is 28%.
- The Main Turbine startup is complete.
- 1 minute later, alarm 205 B-4, Main Turbine Emergency Trip, comes in.

RPS will generate an automatic reactor scram initially due to...

A. low RPV Water Level.

B. high RPV Pressure.

C. high Reactor Power.

D. the Main Turbine trip.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The turbine trip reactor scram signal becomes active when reactor power goes above 26% power. With reactor power at 28%, the turbine trip reactor scram signal is active. Therefore, RPS will generate a scram signal when the turbine trips at 28% power.
Distracters:	A	Plausible because RPV water level will eventually lower and generate a scram signal, but it would not be the initial scram signal.
	B	Plausible because the high power scram setpoints are lower due to core flow being reduced at this reactor power, but a turbine trip at 28% power will not cause reactor power to rise high enough to exceed the high reactor power scram setpoint.
	C	Plausible because the reactor pressure will rise on the turbine trip, but a turbine trip at 28% power will not cause reactor pressure to rise high enough to exceed the high reactor pressure scram setpoint.

Question Information

Topic	Response of RPS to Turbine Trip				
User ID	ILT-5060F-EO-05-1			**System ID**	2505423
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	Question tests knowledge of turbine trip effect on RPS based on reactor power.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(4)

Source Documentation			
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR	
Reference(s):	ARC 205 B-4 Rev 6, T-101 Rev 25		
Learning Objective:	PLOT-5060F-EO-05		
K/A System:	295005 Main Turbine Generator Trip	Importance;	RO 4.1
K/A Statement:	AK2.01 - Knowledge of the relationship between MAIN TURBINE GENERATOR TRIP and the following components: RPS		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:			

K/A Reference(s)

295005.AK2.01	Safety Function	Tier 1	Group	RO Imp: 4.1	SRO Imp:
Knowledge of the relationship between Main Turbine Generator Trip and the following systems or components: (CFR: 41.7 / 45.8) RPS					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 5	ID: 2505424	Points: 1.00

Unit 2 was operating at 100% power when the following events occurred:

- A loss of 20Y050 has occurred.
- Both Scram Pushbuttons have been depressed.

Which of the following identifies an available indication of reactor power?

The reactor operator should observe...

A. APRM ODA indications.

B. WRNM ODA indications.

C. Full Core Display indications.

D. APRM Downscale lights.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	During a reactor scram, when reactor power lowers below 4%, the APRM downscale lights are lit and they are an indication that reactor power is downscale.
Distracters:	A	Plausible because this would normally be true, but APRM ODAs lose power when 20Y050 is lost.
	B	Plausible because this would normally be true, but WRNM ODAs lose power when 20Y050 is lost.
	C	Plausible because this would normally be true, but RPIS loses power when 20Y050 is lost.

Question Information

Topic	WRNM Scram Signals				
User ID	ILT-5060C-EO-06-1			**System ID**	2505424
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests ability to check APRM indications to verify the reactor is shutdown.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR	
Reference(s):	ARC 211 B-1, Rev 12		
Learning Objective:	PLOT-5060C-EO-06		
K/A System:	295006 - Scram	Importance;	RO 3.9
K/A Statement:	AA1.05 - Ability to operate and/or monitor the following as they apply to SCRAM: Neutron Monitoring System		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:			

K/A Reference(s)

295006.AA1.05	Safety Function	Tier 1	Group	RO Imp: 3.9	SRO Imp:
Ability to operate and/or monitor the following as they apply to SCRAM: (CFR: 41.7 / 45.6) Neutron monitoring system					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 6	ID: 2505425	Points: 1.00

Unit 3 is operating at 100% power when the following occurs:

- A fire develops in the Cable Spread Room.
- CRS determines that safe shutdown is jeopardized.
- SE-10, Plant Shutdown from the Alternative Shutdown Panels, is entered.
- CRS directs you to place all transfer isolation switches in EMERGENCY at the HPCI ASD Panel.

Which of the following describes the reason for placing the transfer isolation switches in EMERGENCY?

A. 1. Isolates the ASD circuitry from the Main Control Room ONLY.
   2. HPCI controls are still functional in the Control Room.

B. 1. Isolates the ASD circuitry from the Main Control Room, Cable Spread Room, and Remote Shutdown Panel.
   2. HPCI controls are still functional in the Control Room.

C. 1. Isolates the ASD circuitry from the Main Control Room, Cable Spread Room, and Remote Shutdown Panel.
   2. HPCI controls are NOT functional in the Control Room.

D. 1. Isolates the ASD circuitry from the Main Control Room ONLY.
   2. HPCI controls are NOT functional in the Control Room.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Taking the transfer switches on the HPCI ASD panels to EMERGENCY will isolate the ASD circuitry from the Main Control Room, Cable Spread Room, and the Remote Shutdown Panel. Additionally, control is removed from the Main Control Room and transferred to the HPCI ASD Panel.
Distracters:	A	Plausible because the Remote Shutdown Panel can be used to control plant equipment after the control room is evacuated, but the circuits are still isolated from the ASD circuits.

		Plausible because there are other circuits that can be controlled in additional locations (such as the SBLC pumps) while maintaining control in the Main Control Room, but the ASD switches removes control from the Main Control Room.
	B	First part is correct. Plausible because there are other circuits that can be controlled in additional locations (such as the SBLC pumps) while maintaining control in the Main Control Room, but the ASD switches removes control from the Main Control Room.
	D	Plausible because the Remote Shutdown Panel can be used to control plant equipment after the control room is evacuated, but the circuits are still isolated from the ASD circuits. Second part is correct.

Question Information

Topic	Purpose of Transferring Control in SE-10				
User ID	ILT-1555-EO-07-1			**System ID**	2505425
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests the understanding of why equipment controls are transferred to the ASD panel when the control room is evacuated.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR	
Reference(s):	SE-10 Bases, Rev 32		
Learning Objective:	PLOT-1555-EO-07		
K/A System:	295016 - Control Room Abandonment	Importance;	RO 4.0

K/A Statement:	AK3.03 - Knowledge of the reasons for the following responses or actions as they apply to CONTROL ROOM ABANDONMENT: Disbling/Transferring Control Room Controls
REQUIRED MATERIALS:	**NONE**
Notes and Comments:	

K/A Reference(s)

295016.AK3.03	Safety Function	Tier 1	Group	RO Imp: 4.0	SRO Imp:
Knowledge of the reasons for the following responses or actions as they apply to Control Room Abandonment: (CFR: 41.5 / 45.6) Disabling/transferring control room controls					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 7	ID: 2505426	Points: 1.00

Unit 2 is operating at 100% power when a total loss of RBCCW occurs.

- ON-113, Loss of RBCCW, has been entered.
- Both Recirculation Pumps are running.

In accordance with ON-113, operators must __(1)__ when recirc pump bearing temperatures exceed a maximum temperature of __(2)__.

A. 1. perform GP-9
2. 180°F

B. 1. perform GP-9
2. 200°F

C. 1. trip the affected recirc pump
2. 200°F

D. 1. trip the affected recirc pump
2. 180°F

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per ON-113, the affected recirc pump must be tripped when pump bearing temperatures exceed 200°F.
Distracters:	A	Plausible because GP-9 is required for seal temperatures exceeding 200°F. However, this is not a requirement for bearing temperatures.
	B	Plausible because GP-9 is required for seal temperatures exceeding 200°F. However, this is not a requirement for bearing temperatures.
	D	Plausible because action is required for pump temperatures exceeding 180°F, but it is lowering pump speed for seal temperatures, not bearing temperatures.

Question Information

Topic	Loss of RBCCW effect on Recirc Pumps				
User ID	ILT-5002-EO-07-1			**System ID**	2505426
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests the knowledge of the requirements during a loss of Reactor Building Component Cooling Water (RBCCW) for the recirculation pumps.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR
Reference(s):	ON-113, Rev 21	
Learning Objective:	PLOT-5002-EO-07	
K/A System:	295018 - Partial or Complete Loss of Component Cooling Water	Importance; RO 3.7
K/A Statement:	AK2.04 - Knowledge of the relationship between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following systems or components: Reactor Recircuation System	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295018.AK2.04	Safety Function	Tier 1	Group	RO Imp: 3.7	SRO Imp:
Knowledge of the relationship between Partial or Complete Loss of Component Cooling Water and the following systems or components: (CFR: 41.7 / 45.8) Reactor recirculation system					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 8	ID: 2505427	Points: 1.00

Unit 2 is experiencing a loss of Instrument Air transient.

- Alarm 216 D-3, A Instrument Air Header Lo Pressure, is in.
- A Instrument Air Header pressure is 70 psig.
- B Instrument Air Header pressure is 105 psig.

Based on these pressures, a reactor scram _____ required. _____ will restore the A Instrument Air Header pressure to normal.

A. is
ONLY starting the backup air compressor

B. is not
Starting AND manually aligning the backup air compressor

C. is
Starting AND manually aligning the backup air compressor

D. is not
ONLY starting the backup air compressor

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per ON-119, a reactor scram is only required when both air header pressures are below 75 psig. Since there was only 1, no scram is required. The backup air compressor is normally aligned to the B instrument air header. Starting and manual aligning the backup air compressor is required to restore the A IA header pressure to normal.
Distracters:	A	Plausible because this would be true if both headers were below 75 psig, but a scram is not required if only 1 is below 75 psig. Plausible because this would be true for low pressure on the B header, but not the A.

	C	Plausible because this would be true if both headers were below 75 psig, but a scram is not required if only 1 is below 75 psig. Second part is correct.
	D	First part is correct. Plausible because this would be true for low pressure on the B header, but not the A.

Question Information

Topic	Low Air Pressure Requirements				
User ID	ILT-5036-EO-06-1			**System ID**	2505427
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	Question tests the ability to recognize how the Instrument Air system will respond as air pressure lowers.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(4)

Source Documentation			
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR	
Reference(s):	ON-119, Rev 32		
Learning Objective:	PLOT-5036-EO-06		
K/A System:	295019 - Partial or Complete Loss of Instrument Air	Importance;	RO 4.1
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 Pressure		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:			

K/A Reference(s)

295019.AA2.01	Safety Function	Tier 1	Group	RO Imp: 4.1	SRO Imp: 3.9
Ability to determine and/or interpret the following as they apply to Partial or Complete Loss of Instrument Air: (CFR: 41.10 / 43.5 / 45.13) Instrument air pressure					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 9	ID: 2505447	Points: 1.00

Unit 2 is in MODE 5 with the vessel head removed, following extended full power operation. The following conditions exist:

- No recirc pumps are in service.
- Fuel Gates are installed.
- All MSIVs are closed.
- 2B RHR pump is operating in the Shutdown Cooling Mode.
- 2D RHR pump is available.
- Reactor Coolant Temperature is 90°F and steady.
- Reactor water level is being maintained at +460 inches.

5 minutes later, the 2B RHR pump trips.

- Reactor Coolant temperature is 92°F and slowly rising.

Which of the following identifies how the plant will respond and what actions are required?

The crew will immediately enter _____.

If shutdown cooling is not restored, RPV water temperature will _____.

A. ON-125, Loss of Shutdown Cooling ONLY
rise until bulk boiling occurs

B. ON-125, Loss of Shutdown Cooling, and T-131, Decay Heat Removal
rise until bulk boiling occurs

C. ON-125, Loss of Shutdown Cooling ONLY
rise to a higher temperature, but bulk boiling does NOT occur

D. ON-125, Loss of Shutdown Cooling, and T-131, Decay Heat Removal
rise to a higher temperature, but bulk boiling does NOT occur

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Loss of the 2B RHR pump requires entry into ON-125, Loss of Shutdown Cooling. Since an alternate RHR pump is available for shutdown cooling, entry into T-131 is not required at this point. The loss of shutdown cooling will allow decay heat to raise coolant temperature until bulk boiling occurs.
Distracters:	B	Plausible because this would be true if an alternate shutdown cooling source was not available, but since the 2D RHR pump is available, entry into T-131 is not immediately required. Second part is correct.
	C	First part is correct. Plausible because this would be true if the plant was in Mode 4, but since it is in Mode 5, the RPV head is detensioned and bulk boiling will occur.
	D	Plausible because this would be true if an alternate shutdown cooling source was not available, but since the 2D RHR pump is available, entry into T-131 is not immediately required. Plausible because this would be true if the plant was in Mode 4, but since it is in Mode 5, the RPV head is detensioned and bulk boiling will occur.

Question Information

Topic	Effects of Decay Heat on Coolant Temperature				
User ID	ILT-1550-EO-06-1			**System ID**	2505447
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

References Provided	None
K/A Justification	Question tests the knowledge of how decay heat will affect coolant temperatures during a loss of shutdown cooling.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam Item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR
Reference(s):	ON-125 Rev 15	
Learning Objective:	PLOT-1550-EO-06	
K/A System:	295021 - Loss of Shutdown Cooling	Importance; RO 4.4
K/A Statement:	AK1.01 - Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to LOSS OF SHUTDOWN COOLING: Decay Heat	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295021.AK1.01	Safety Function	Tier 1	Group	RO Imp: 4.4	SRO Imp:
Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Loss of Shutdown Cooling: (CFR: 41.8 to 41.10) Decay heat					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 10	ID: 2505464	Points: 1.00

Unit 2 is in a refueling outage.

- Fuel is being loaded into the reactor pressure vessel.
- The fuel being loaded is NOT directly adjacent to any WRNM.

Which one of the following set of conditions would be the FIRST to require entry into ON-124 "Fuel Floor and Fuel Handling Problems"?

WRNM ___(1)___ ___(2)___ between Core Component Transfer Authorization Sheet (CCTAS) steps during fuel handling.

A. (1) period
(2) less than 50 seconds

B. (1) period
(2) 250 seconds

C. (1) count rate
(2) doubles

D. (1) count rate
(2) doubles two times

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	ON-124 entry is required if/when WRNM count rate "doubles two times between CCTAS steps" during fuel handling. ON-124 directs operator actions to ensure inadvertent criticality does not occur during fuel handling activities.
Distractors:	A	Plausible because period is monitored during startup and 50 seconds is a procedural limit for startup, but it does not apply to fuel moves.
	B	Plausible because period is monitored during startup and 250 seconds is a procedural limit for startup, but it does not apply to fuel moves.

	C	First part is correct. Plausible because the operator is monitoring for doubling for procedure entry, but it would need to double twice, not just once.

Question Information

Topic	ON-124 Entry Conditions				
User ID	ILT-1550-EO-05-1			**System ID**	2505464
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests the knowledge of entry conditions for the response procedure for a refueling accident.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ON-124	
Learning Objective:	PLOT-1550-EO-05	
K/A System:	295023 - Refueling Accidents	Importance: RO 4.2
K/A Statement:	G2.4.31 - Knowledge of annunciator alarms, or response procedures.	
REQUIRED MATERIALS:	**NONE**	

Notes and Comments:	

K/A Reference(s)

B2.4.31	Safety Function	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.1
Knowledge of annunciator alarms, indications, or response procedures (CFR: 41.10 / 45.3)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 11	ID: 2505468	Points: 1.00

Unit 2 was operating at 100% power when a steam leak developed in the drywell.

- A GP-4 Shutdown was conducted.
- T-101, RPV Control, and T-102, Primary Containment Control were entered.
- Drywell pressure reached 2 psig at time 12:00 and continues to rise.
- All diesel generators have started.
- All emergency buses are being powered by offsite power.

Which of the following identifies the status of the diesel generators at time 12:05?

EDGs are running in __(1)__ and __(2)__ be shutdown using the Control Room Start/Stop control switch.

A. 1. Droop mode
2. can

B. 1. Droop mode
2. cannot

C. 1. Isochronous mode
2. can

D. 1. Isochronous mode
2. cannot

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The diesel generators will automatically start when drywell pressure reaches 2 psig in Isochronous mode. The MCA signal (2 psig drywell pressure) will bypass the control room start/stop switch for 10 minutes, and only allow the diesel to be shut down locally.
Distractors:	A	Plausible because the diesel generators will start in droop for a normal start, but the MCA signal causes the diesels to start in Isochronous mode.

		Plausible because this would be true if 10 minutes had elapsed since drywell pressure reached 2 psig, but since it has only been 5 minutes, the control room switch is bypassed.
	B	Plausible because the diesel generators will start in droop for a normal start, but the MCA signal causes the diesels to start in Isochronous mode. Second part is correct.
	C	First part is correct. Plausible because this would be true if 10 minutes had elapsed since drywell pressure reached 2 psig, but since it has only been 5 minutes, the control room switch is bypassed.

Question Information

Topic	High Drywell Start Signal to EDGs				
User ID	ILT-5052-EO-03-1			**System ID**	2505468
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how the diesel generator can be operated during elevated drywell pressure conditions.
SRO-Only Justification	Not applicable
Additional Information	N/A

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

Source Documentation			
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank LOR	
Reference(s):	P-S-07, Rev 18		
Learning Objective:	PLOT-5052-EO-03		
K/A System:	295024 - High Drywell Pressure	Importance;	RO 4.2
K/A Statement:	EK2.06 - Knowledge of the relationship between HIGH DRYWELL PRESSURE and the following systems or components: Emergency Generators		

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

K/A Reference(s)

295024.EK2.06	Safety Function	Tier 1	Group	RO Imp: 4.2	SRO Imp:
Knowledge of the relationship between High Drywell Pressure and the following systems or components: (CFR: 41.7 / 45.8) Emergency generators					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 12	ID: 2505471	Points: 1.00

Unit 3 was operating at 100% power when a turbine trip occurred and resulted in the following:

- The reactor automatically scrammed.
- RPV steam dome pressure peaked at 1345 psig and lowered to 950 psig.
- RPV water level lowered to -165" and was returned to +15".
- All but 2 control rods fully inserted.

Based on the above information, the reactor pressure safety limit _____ exceeded and an ATWS _____ in progress.

A. was
is not

B. was not
is not

C. was
is

D. was not
is

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Based on the information provided, RPV pressure exceeded the safety limit of 1340 psig, therefore a safety limit violation has occurred. with 2 control rods not fully inserted, an ATWS is in progress.
Distractors:	A	First part is correct. Plausible because reactor power would be downscale in this condition, but all but one control rod have to be inserted to conclude an ATWS is not in progress.
	B	Plausible because pressure did lower below the safety limit, but it does not matter that pressure lowered below the setpoint. A safety limit violation still has occurred.

		Plausible because reactor power would be downscale in this condition, but all but one control rod have to be inserted to conclude an ATWS is not in progress.
	D	Plausible because pressure did lower below the safety limit, but it does not matter that pressure lowered below the setpoint. A safety limit violation still has occurred. Second part is correct.

Question Information

Topic	Pressure Safety Limit				
User ID	ILT-1800-EO-08-1			**System ID**	2505471
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.3 Mechanical components and design features of the reactor primary system.

References Provided	None
K/A Justification	Question tests knowledge of the reactor pressure safety limit.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Previous NRC Exam: ☐ Modified Bank Item ☐ Other Exam Bank: ☐ ILT Exam Bank	
Reference(s):	Tech Specs, Section 2.0, Amendment 329	
Learning Objective:	PLOT-1800-EO-08	
K/A System:	295025 - High Reactor Pressure	Importance: RO 4.0

K/A Statement:	G2.2.22 – Knowledge of limiting conditions for operation and safety limits.
REQUIRED MATERIALS:	**NONE**
Notes and Comments:	

K/A Reference(s)

B2.2.22	Safety Function	Tier 3	Group	RO Imp: 4.0	SRO Imp: 4.7
Knowledge of limiting conditions for operation and safety limits (CFR: 41.5 / 43.2 / 45.2)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 13	ID: 2505481	Points: 1.00

Unit 2 was operating at 100% power when an SRV failed open.

- A GP-4 shutdown was conducted.
- T-102, Primary Containment Control, was entered.
- HPCI and RCIC are being used for injection due to a loss of Condensate.
- HPCI and RCIC suctions are from the Torus.
- Torus water temperature is 190°F and steady.
- Torus water level is 16 ft.
- The failed SRV is now closed.

Which of the following statements is true?

A. There is inadequate cooling to the lube oil for HPCI ONLY.

B. There is inadequate cooling to the lube oil for RCIC ONLY.

C. There in inadequate cooling to the lube oil for HPCI AND RCIC.

D. There in adequate cooling to the lube oil for HPCI AND RCIC.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Per the T-102 bases, operation with torus temperature above 180°F will inadequately cool HPCI lube oil.
Distractors:	B	Plausible because this is a concern for RCIC with high Torus water temperatures, but this occurs at 215°F. Since temperatures are below 215°F, the lube oil is adequately cooled for RCIC.
	C	Plausible because there is a concern for HPCI with temperatures above 180°F, but not for RCIC since temperature is below 215°F.
	D	Plausible because this is true for RCIC, but there is inadequate cooling for HPCI since temperature is above 180°F.

Question Information

Topic	High Torus Temp Effects on HPCI				
User ID	ILT-5023-EO-05-1			**System ID**	2505481
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of operational restrictions on HPCI when Torus water temperature is high. Tier 1 is justified because the question requires knowledge of specific information from the EOP bases. (ES-4.2.B.2.a(1))
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	T-102 Bases Rev 24	
Learning Objective:	PLOT-5023-EO-05	
K/A System:	295026 - Suppression Pool High Water Temperature	Importance: RO 3.8
EK2.07 - Knowledge of the relationship between SUPPRESSION POOL HIGH WATER TEMPERATURE and the following systems or components: HPCI		
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295026.EK2.07	Safety Function	Tier 1	Group	RO Imp: 3.8	SRO Imp:
Knowledge of the relationship between Suppression Pool High Water Temperature and the following systems or components: (CFR: 41.7 / 45.8) HPCI					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

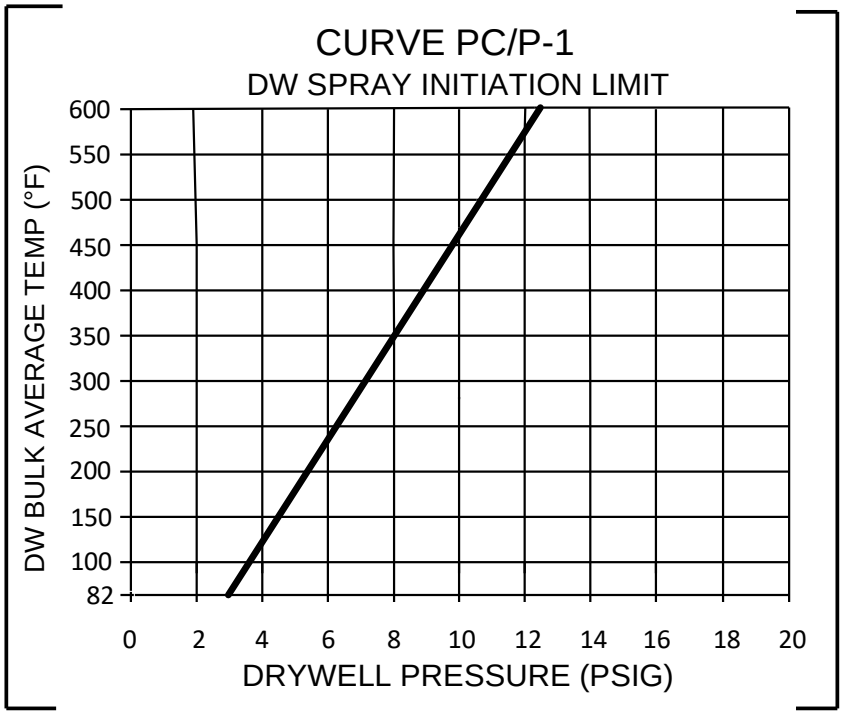
Cross Reference Links

None

The following plant conditions exist on Unit 3 following a small-break LOCA:

- Drywell temperature is 250 degrees F and rising slowly.
- Drywell pressure is 7 psig and rising slowly.
- Torus pressure is 5 psig and rising slowly.
- Torus level is 15.2 feet and rising slowly.
- Reactor level is -60 inches and lowering.
- Reactor pressure is 825 psig and lowering.

Which one of the following is correct regarding initiation of Drywell sprays for the above conditions per T-204, Initiation of Containment Sprays using RHR?



Drywell sprays are _____.

A. NOT allowed with current conditions

B. allowed but must be terminated if Torus level exceeds 17.1 feet

C. allowed but must be terminated when Drywell pressure drops to 2 psig

D. allowed but must be terminated before conditions exceed the DWSIL Curve (PC/P-1)

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Based on the given conditions and the DWSIL curve, Drywell sprays are allowed.
Distractors:	A	Plausible because this would be true if Torus pressure is used to plot on the graph instead of Drywell pressure.
	B	Plausible because T-102 does require sprays be terminated at a high Torus water level and 17.1ft is a limit, but T-102 specifies that sprays should be stopped before Torus level exceeds 18 feet. 17.1ft is the limit for SRV tailpipes.
	D	Plausible because you are required to be on the good side of the curve to initiate drywell sprays, but once sprays are initiated, you no longer are required to be on the good side of the curve.

Question Information

Topic	Use of DW Spray Initiation Curve				
User ID	ILT-2102-EO-06-1			**System ID**	2505648
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	DW Spray Initiation Curve (Embedded)
K/A Justification	Question tests ability to determine if drywell sprays can be initiated based on drywell temperature.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☐ New Exam Item ☐ Previous NRC Exam: ☐ Modified Bank Item ☐ Other Exam Bank: ☒ ILT Exam Bank	
Reference(s):	T-102, Sheet 1 Rev 26, T-102 Bases Rev 24	
Learning Objective:	PLOT-DBIG-2102-EO-06	
K/A System:	295028 – High Drywell Temperature	Importance: RO 4.0
EA1.01 – Ability to operate and/or monitor the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell Spray		
REQUIRED MATERIALS:	**DW Spray Initiation Curve (Embedded)**	
Notes and Comments:	None	

K/A Reference(s)

295028.EA1.01	Safety Function	Tier 1	Group	RO Imp: 4.0	SRO Imp:
Ability to operate and/or monitor the following as they apply to High Drywell Temperature: (CFR: 41.7 / 45.6) Drywell spray					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

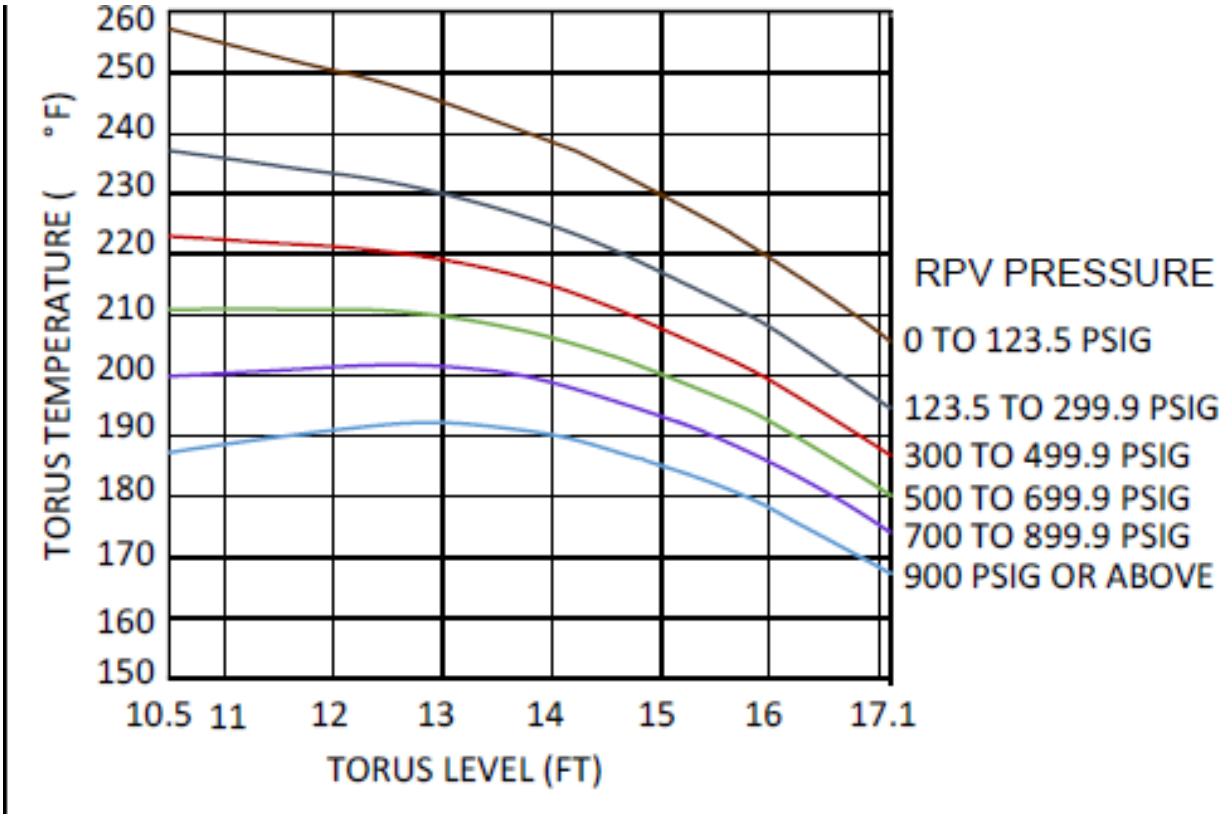
None

Question 15	ID: 2505649	Points: 1.00

Unit 2 is operating at 100% power when a Main Turbine trip and high-power ATWS result in the following:

- A breakthrough the Torus wall has occurred.
- T-102, Primary Containment Control, has been entered.
- Torus water level is 12ft and lowering.
- Reactor pressure is 900 psig and steady.
- Torus water temperature is 195°F.

Which one of the following is true in regards to Heat Capacity Temperature Limit (HCTL)?



HCTL _____ been violated.

If an RPV Blowdown is performed during a HCTL violation, it will result in exceeding the maximum temperature capability of the _____ before the rate of energy transfer is within the capacity of the primary containment vent.

A. has
Torus

B. has
Drywell

C. has NOT.
Torus

D. has NOT
Drywell

Answer	**A**

Answer Explanation

Choice		Basis or Justification
Correct:	A	With Torus temperature at 195^{o}F and Torus level at 12.0', operation is above the 900psig and above HCTL curve, which is a violation of HCTL. Per T-102 bases, HCTL is the highest torus temperature at which initiation of an RPV Depressurization will not result in exceeding the maximum temperature capability of the suppression chamber (Torus) before the rate of energy transfer is within the capability of the primary containment vent.
Distracters:	B	First part is correct. Plausible because this would be true if the energy was released into the drywell, but the energy would be released to the Torus.
	C	Plausible because this would be true if required to have an operating point above the pressure curves, but the requirement is to be below the curve. Second part is correct.
	D	Plausible because this would be true if required to have an operating point above the pressure curves, but the requirement is to be below the curve. Plausible because this would be true if the energy was released into the drywell, but the energy would be released to the Torus.

Question Information

Topic	HCTL Definition				
User ID	ILT-2102-EO-05-1			**System ID**	2505649
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	HCTL Curve (Embedded)
K/A Justification	This question tests operator ability to evaluate reactor pressure as compared to a low Torus water level.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	New Exam item Modified Bank **X** ILT Exam Bank	**X** Previous NRC Exam (2021) Other Exam Bank	
Reference(s):	T-102 Sheet 1,Rev 26, T-102 Bases Rev 24		
Learning Objective:	PLOT-DBIG-2102-EO-05		
K/A System:	295030 - Low Suppression Pool Water Level	Importance;	RO 4.1
K/A Statement:	EA2.03 - Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Reactor Pressure		
REQUIRED MATERIALS:	**HCTL Curve (Embedded)**		
Notes and Comments:	None		

K/A Reference(s)

295030.EA2.03	Safety Function	Tier 1	Group	RO Imp: 4.1	SRO Imp: 3.7
Ability to determine and/or interpret the following as they apply to Low Suppression Pool Water Level: (CFR: 41.10 / 43.5 / 45.13) Reactor pressure					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 16	ID: 2505650	Points: 1.00

T-111, Alternate Level/Pressure Control requires an RPV Blowdown be performed when RPV water level lowers to -245".

Which one of the following identifies the basis for this value of indicated level?

An RPV water level above this value will maintain peak clad temperatures below ____(1)____°F by the ____(2)____ method of ACC.

A. (1) 1500
(2) Steam Cooling

B. (1) 1500
(2) Spray Cooling

C. (1) 1800
(2) Spray Cooling

D. (1) 1800
(2) Steam Cooling

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Per the T-111 Bases, a blowdown is not performed until level drops to -245" because steam cooling is sufficient to prevent cladding temperatures from exceeding 1800°F
Distracters:	A	Plausible because this would be true if spray cooling was the method of adequate core cooling, but that does not apply to zero injection steam cooling. Second part is correct.
	B	Plausible because this would be true if spray cooling was the method of adequate core cooling, but that does not apply to zero injection steam cooling. Plausible because spray cooling is a form of adequate core cooling, but it corresponds to an RPV water level of -226", not -245".

	C	First part is correct. Plausible because spray cooling is a form of adequate core cooling, but it corresponds to an RPV water level of -226", not -245".

Question Information

Topic	Methods to Assure ACC				
User ID	ILT-2111-EO-04-1			**System ID**	2505650
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	This question tests knowledge of methods of adequate core cooling during low water level conditions.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			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-111 Bases Rev 21		
Learning Objective:	PLOT-DBIG-2111-EO-04		
K/A System:	295031 - Reactor Low Water Level	Importance;	RO 4.3
K/A Statement:	EK3.04 - Knowledge of the reasons for the following responses or actions as they apply to REACTOR LOW WATER LEVEL: Steam Cooling		
REQUIRED MATERIALS:	**None**		
Notes and Comments:	None		

K/A Reference(s)

295031.EK3.04	Safety Function	Tier 1	Group	RO Imp: 4.3	SRO Imp:
Knowledge of the reasons for the following responses or actions as they apply to Reactor Low Water Level: (CFR: 41.5 / 45.6) Steam cooling					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 17	ID: 2505706	Points: 1.00

Unit 2 was scrammed after a loss of the #1 Bus and is experiencing an electric ATWS.

- T-117, ATWS RPV Control, has been entered.
- 2A Condensate pump has tripped.
- Reactor power is 30%.
- The Main Turbine is tripped.
- 480V Load Centers have NOT been crosstied.
- RPV water level was lowered to -90" per T-240, Termination and Prevention of Injection into the RPV using the 2C Feedwater pump.
- 2B and 2C Condensate pumps are operating.
- CRS directs RPV pressure be lowered to 350 psig.
- The PRO adjusts DEHC to lower RPV pressure.
- RPV pressure is 550 psig and lowering.
- No other actions were taken.

Which of the following identifies how the plant will respond to the lowering RPV pressure?

A. Reactor power will rise due to the rising water level.

B. Reactor power will lower due to the pressure drop.

C. Bypass valves will close due to low condenser vacuum.

D. Cladding temperatures may exceed 1500°F.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	With a loss of the #1 Bus and 480V load centers not transferred, the A feedwater pump discharge valve has lost power and cannot be remotely closed. With both the B and C Condensate Pumps running, when RPV pressure lowers below 650 psig, the Condensate Pumps will begin to inject into the RPV via the A Feedwater Pump line, causing RPV water level to rise uncontrollably. The rising RPV water level will in turn, cause reactor power to rise.

Distracters:	B	Plausible because reducing reactor pressure does normally cause reactor power to lower, but the rising water level will have a larger effect and reactor power will rise, not lower.
	C	Plausible because the A Circulating Water Pump was lost due to the loss of the #1 Bus, but the B and C Circulating Water Pumps are still running and they will maintain condenser vacuum above 20" Hg, where the bypass valves would go closed.
	D	Plausible because this is a concern for lowering pressure, but only if RPV pressure is lowered below the Minimum ATWS RPV Pressure (MARP), which is 350 psig. As long as pressure remains above 350 psig, then cladding temperatures will remain below 1500°F

Question Information

Topic	Uncontrolled Condensate Injection during ATWS				
User ID	ILT-2116-EO-05-1			**System ID**	2505706
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

References Provided	None
K/A Justification	This question tests knowledge of the implications of lowering RPV pressure below 650 psig as it relates to condensate injection and how that will effect reactor power. Tier is met due to question asking the progression of an event, which is off-normal due to the component failures.
SRO-Only Justification	N/A
Additional Information	None

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):	T-117 Bases Rev 21	
Learning Objective:	PLOT-DBIG-2116-EO-05	

K/A System:	295037 - Scram Condition Present and Reactor Power above APRM Downscale or Unknown	Importance; RO 4.3
K/A Statement:	EK1.01 - Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor Pressure Effects on Reactor Power	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

295037.EK1.01	Safety Function	Tier 1	Group	RO Imp: 4.3	SRO Imp:
Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown: (CFR: 41.8 to 41.10) Reactor pressure effects on reactor power					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 18	ID: 2505711	Points: 1.00

The following plant conditions exist on Unit 2:

- A fuel element failure has occurred.
- A steam leak exists in the Turbine Building.
- T-104, Radioactivity Release, has been entered.
- Alarm 003 A-2, Control Room Rad Monitor Div I Initiated, is in.
- Alarm 003 A-3, Control Room Rad Monitor Div II Initiated, is in.
- Control Room radiation monitors read as follows:
  - RIS-0760A - 360 cps
  - RIS-0760B - 345 cps
  - RIS-0760C - 340 cps
  - RIS-0760D - 355 cps

Which of the following identifies the status of Control Room Emergency Ventilation and the required action?

CREV _____ automatically initiated. ON-115, Loss of Normal Main Control Room Ventilation, _____ required to be entered.

A. has
is

B. has
is not

C. has not
is

D. has not
is not

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	CREV automatically initates when RIS-0760A or B AND RIS0760C or D read greater than 350 cpm. Since the A and D radiation monitors are greater than 350 cpm, CREV will

		have automatically initaited. Alarms 003 A-2 and A-3 are entry conditions for ON-115, so entry is required.
Distractors:	B	First part is correct. Plausible because there are other entry conditions for ON-115, such as low control room ventilation flow or low pressure, and the candidate must recognize that high radiation is an entry requirement as well.
	C	Plausible because this would be true if the A and B, or C and D radiation monitors were above the alarm setpoint, but since it was the A and D, CREV has automatically initiated. Second part is correct.
	D	Plausible because this would be true if the A and B, or C and D radiation monitors were above the alarm setpoint, but since it was the A and D, CREV has automatically initiated. Plausible because there are other entry conditions for ON-115, such as low control room ventilation flow or low pressure, and the candidate must recognize that high radiation is an entry requirement as well.

Question Information

Topic	CREV Initiation Logic				
User ID	ILT-5040D-EO-03			**System ID**	2505711
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.13 Procedures and equipment available for handling and disposal of radioactive materials and effluents.

References Provided	None
K/A Justification	Question tests knowledge of the initiation logic for control room ventilation during a high radiation condition. This meets the KA tier due to T-104 directing entry into ON-115 when control room ventilation rad levels reach the high alarm setpoint during a radioactivity release condition. This meets the KA because control room ventilation takes a suction from the external environment and for radiation levels to rise in the system, an offsite radiation release is required.
SRO-Only Justification	N/A

Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ON-115, Rev 25	
Learning Objective:	PLOT-5040D-EO-03	
K/A System:	295038 – High Off-Site Release Rate	Importance: RO 3.6
K/A Statement:	EA1.06 - Ability to operate and/or monitor the following as they apply to HIGH OFFSITE RADIOACTIVITY RELEASE RATE: Plant Ventilation Systems	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

295038.EA1.06	Safety Function	Tier 1	Group	RO Imp: 3.6	SRO Imp:
Ability to operate and/or monitor the following as they apply to High Offsite Radioactivity Release Rate: (CFR: 41.7 / 45.6) Plant ventilation systems					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 19	ID: 2505714	Points: 1.00

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

- Fire Alarm 007 G-7A, 2 T.B. Cond Pump Rm. 2 Gen. BØ Trans. Deluge Valve A20, Elev. 116'-0', comes in.
- The Motor Driven Fire Pump automatically started.

What are the required actions of the Control Room in regards to the Fire Brigade?

A. The entire Fire Brigade must be dispatched.
The Fire Brigade must be re-alerted if no acknowledgement is received after 20 minutes.

B. The entire Fire Brigade must be dispatched.
The Fire Brigade must be re-alerted if no acknowledgement is received after 2 minutes.

C. The closest operator or Incident Commander AND RP must be dispatched.
The Fire Brigade must be re-alerted if no acknowledgement is received after 20 minutes.

D. The closest operator or Incident Commander AND RP must be dispatched.
The Fire Brigade must be re-alerted if no acknowledgement is received after 2 minutes.

Answer	B

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	B	Per FF-01, Fire Brigade, the entire Fire Brigade must be dispatched if a fire alarm is received in conjunction with an automatic fire pump start. Also, if no response is heard from the Fire Brigade within 2 minutes, then the control room should re-alert the Fire Brigade.
Distractors:	A	First part is correct. Plausible because there is a 20 minute requirement for the Incident Commander to report the status of the fire, but this is separate from the initial acknowledgement of the alarm, which has a 2 minute time requirement.

	C	Plausible because this would be true if the fire pump did not automatically start, but since it did, the entire Fire Brigade must be dispatched. Plausible because there is a 20 minute requirement for the Incident Commander to report the status of the fire, but this is separate from the initial acknowledgement of the alarm, which has a 2 minute time requirement.
	D	Plausible because this would be true if the fire pump did not automatically start, but since it did, the entire Fire Brigade must be dispatched. Second part is correct.

Question Information

Topic	Fire Brigade Requirements				
User ID	ILT-1550-EO-02-1			**System ID**	2505714
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of crew responsibilities regarding dispatching the Fire Brigade and determination of fire strategy.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			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 Rev 21	
Learning Objective:	PLOT-1550-EO-02	
K/A System:	600000 Plant Fire On Site	Importance: RO 4.0
K/A Statement:	G2.4.12 - Knowledge of operating crew responsibilities during emergency and abnormal operations.	

REQUIRED MATERIALS:	NONE
Notes and Comments:	None

K/A Reference(s)

B2.4.12	Safety Function	Tier 3	Group	RO Imp: 4.0	SRO Imp: 4.3
Knowledge of operating crew responsibilities during emergency and abnormal operations (CFR: 41.10 / 45.12)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 20	ID: 2505763	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 management's 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 Delta/Local Power line

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

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

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

Answer	B

Answer Explanation

<<Choice		Basis or Justification
Correct:	B	In accordance with step 3.8 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

Question Information

Topic	Purpose of Opening SBO Load Break Switch				
User ID	ILT-1555-EO-07-1			**System ID**	2505763
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of required actions during a grid emergency and the reasons for the actions.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	**X** Previous NRC Exam (2021) Other Exam Bank
Reference(s):	SE-16 Rev 19, SE-16 Bases, Rev 20	
Learning Objective:	PLOT-1555-EO-07	
K/A System:	700000- Generator Voltage and Electric Grid Disturbances	Importance: RO / SRO 3.8
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	

K/A Reference(s)

700000.AK3.02	Safety Function	Tier 1	Group	RO Imp: 3.8	SRO Imp:
Knowledge of the reasons for the following responses or actions as they apply to Generator Voltage and Electric Grid Disturbances: (CFR: 41.4 / 41.5 / 41.7 / 41.10 / 45.8) Actions contained in abnormal operating procedure for voltage and grid disturbances					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 21	ID: 2505771	Points: 1.00

Unit 2 is operating at 100% power. A steam leak has developed in the drywell and the following conditions are present:

- MO-2-13-15, RCIC Inboard Steam Supply valve, was cycled closed and back open.
- MO-2-23-15, HPCI Inboard Steam Supply valve, was cycled closed and back open.
- Drywell pressure is 1.3 psig and slowly rising.
- Drywell temperature is 147ºF and slowly rising.

Per plant conditions, tech spec entry is required for _____.

A. HPCI

B. RCIC

C. Drywell Temperature

D. Drywell Pressure

Answer	C

Answer Explanation

<<Choice		Basis or Justification
Correct:	C	Per tech spec 3.6.1.4, a drywell temperature above 145ºF requires entry into tech specs.
Distractors:	A	Plausible because this would be true if HPCI was to be maintained isolated with the supply valve de-energized, but since it was re-opened, the spec is not entered.
	B	Plausible because this would be true if RCIC was to be maintained isolated with the supply valve de-energized, but since it was re-opened, the spec is not entered.
	D	Plausible because a scram is required when drywell pressure exceeds 1.2 psig, but this is not a tech spec limit.

Question Information

Topic	Tech Spec Requirements for High Drywell Temperature				
User ID	ILT-1550-EO-02-1			**System ID**	2505771
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge entry conditions for tech specs with a high drywell temperature.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics

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

Source Documentation

Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	Tech Spec 3.6.1.4, Amendment 278	
Learning Objective:	PLOT-1550-EO-02	
K/A System:	295012 - High Drywell Temperature	Importance: RO 3.9
K/A Statement:	G2.2.42 - Ability to recognize system parameters that are entry level conditions for technical specifications	
REQUIRED MATERIALS:	None	
Notes and Comments:	none	

K/A Reference(s)

B2.2.42	Safety Function	Tier 3	Group	RO Imp: 3.9	SRO Imp: 4.6
Ability to recognize system parameters that are entry-level conditions for technical specifications (CFR: 41.7 / 41.10 / 43.2 / 43.3 / 45.3)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 22	ID: 2505778	Points: 1.00

Unit 3 was manually scrammed due to a steam leak.

- A LOCA signal is in.
- HPCI and RHR pumps are running.
- Torus water temperature is 97^{o}F and rising.
- CRS has directed placing the 'A' loop of RHR in Torus Cooling.

Which of the following identifies (1) the method for starting HPSW Pumps and (2) why?

A. (1) Place the HPSW Mode Keylock Switch, 10A-S19A, in Manual Override.
(2) Bypasses the LOCA auto trip and lockout signal to the HPSW pumps.

B. (1) Place the HPSW Mode Keylock Switch, 10A-S19A, in Manual Override.
(2) Allows for opening the associated MO-3-32-89 valve to prevent starting a HPSW pump without a flowpath.

C. (1) HPSW Pumps are locked out for 5 minutes and can be started once the time delay has expired.
(2) Bypasses the LOCA auto trip and lockout signal to the HPSW pumps.

D. (1) HPSW Pumps are locked out for 5 minutes and can be started once the time delay has expired.
(2) Allows for opening the associated MO-3-32-89 valve to prevent starting a HPSW pump without a flowpath.

Answer	A

Answer Explanation

Choice'		Basis or Justification
Correct:	A	Per the design basis document, with a LOCA signal present, HPSW pumps are prevented from starting to protect the diesel generator from an overload condition. To bypass this trip, the HPSW Mode keylock switch must be placed in the Manual Override position.
Distracters:	B	First part is correct.

		Plausible because there is a 5 minute lockout time delay associated with a LOCA signal which prevents operating the MO-3-10-154 valves, but it does not prevent operating the MO-3-32-89 valves.
	C	Plausible because there is a 5 minute lockout time delay associated with a LOCA signal and the HPSW pumps do automatically trip when a LOCA signal is received, but the HPSW pumps cannot be started until the HPSW Mode keylock switch is placed in Manual Override, regardless of the 5 minute time delay. Second part is correct.
	D	Plausible because there is a 5 minute lockout time delay associated with a LOCA signal and the HPSW pumps do automatically trip when a LOCA signal is received, but the HPSW pumps cannot be started until the HPSW Mode keylock switch is placed in Manual Override, regardless of the 5 minute time delay. Plausible because there is a 5 minute lockout time delay associated with a LOCA signal which prevents operating the MO-3-10-154 valves, but it does not prevent operating the MO-3-32-89 valves.

Question Information

Topic	Purpose of HPSW Mode Switch				
User ID	ILT-5032-EO-03-1			**System ID**	2505778
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	This question tests the operator knowledge of why bypass switches must be operated for Torus Cooling when a LOCA signal is present.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CFR55.41(b)(4)

Source Documentation		
Source:	New Exam item **X** Previous NRC Exam (2021) Modified Bank Other Exam Bank **X** ILT Exam Bank	
Reference(s):	P-S-04 Rev 12, RRC 10.1 Rev 14	
Learning Objective:	PLOT-5032-EO-03	
K/A System:	295013 - High Suppression Pool Water Temperature	Importance; RO 4.1
K/A Statement:	AK3.01 - Knowledge of the reasons for the following responses or actions as they apply to HIGH SUPPRESSION POOL TEMPERATURE: Suppression Pool cooling operation	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

295013.AK3.01	Safety Function	Tier 1	Group	RO Imp: 4.1	SRO Imp:
Knowledge of the reasons for the following responses or actions as they apply to High Suppression Pool Water Temperature: (CFR: 41.5 / 45.6) Suppression pool cooling operation					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 23	ID: 2505780	Points: 1.00

Unit 2 is operating at 100% power when a loss of feedwater heating occurred.

- URO is maintaining reactor power below MAPL with recirc flow.
- The plant is operating in the MELLLA+ region.
- CRS has determined that the MELLLA+ region must be exited.

Which of the following identifies the appropriate method for exiting the MELLLA+ region of the Power to Flow map?

A. Raise recirc flow.

B. Withdraw control rods.

C. Lower recirc flow.

D. Insert control rods.

Answer	D

Answer Explanation

Choice'		Basis or Justification
Correct:	D	Per OT-104, with a loss of feedwater heating, the MELLLA+ region is exited by inserting control rods.
Distracters:	A	Plausible because raising recirc flow would move the plant out of the MELLLA+ region, however, raising reactor power during a positive reactivity addition condition is not appropriate and OT-104 directs inserting control rods.
	B	Plausible because control rods are moved to exit the MELLLA+ region, however, control rods are inserted, not withdrawn.
	C	Plausible because lowering recirc flow would exit MELLLA+, but it would also put the plant in the unanalyzed region of the power to flow map, which is not an allowed operating point. Additionally, OT-104 directs inserting control rods to exit MELLLA+, not lowering flow.

Question Information

Topic	Exiting MELLA+ Region per OT-104				
User ID	ILT-1540-EO-04-1			**System ID**	2505780
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	This question tests the operator knowledge of how RMCS is operated to exit the MELLA+ region during a positive reactivity addition casualty.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	OT-104, Rev 34	
Learning Objective:	PLOT-1540-EO-04	
K/A System:	295014 - Inadvertent Reactivity Addition	Importance; RO 3.8
K/A Statement:	AK2.08 - Knowledge of the relationship between the INADVERTENT REACTIVITY ADDITION and the following system or components: RMCS	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

295014.AK2.08	Safety Function	Tier 1	Group	RO Imp: 3.8	SRO Imp:
Knowledge of the relationship between Inadvertent Reactivity Addition and the following systems or components: (CFR: 41.7 / 45.8) RMCS					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 24	ID: 2224668	Points: 1.00

Unit 2 is at 100% power when an event occurred, resulting in the following plant conditions:

- A small steam leak is in progress in the Turbine Building.
- Operators have verified indications of fuel failure.
- Turbine Building ventilation is operating normally.
- Turbine Bldg ΔP remains NEGATIVE.

Which of the following is correct regarding offsite radioactive release?

A. There is a monitored ground level release in progress ONLY.

B. There is an unmonitored ground-level release in progress ONLY.

C. There is a monitored elevated release in progress ONLY.

D. There is an unmonitored ground-level release AND a monitored elevated release in progress.

Answer	A

Answer Explanation

Choice'		Basis or Justification
Correct:	A	With a fuel leak in progress, a steam leak into the Turbine Building and a negative Turbine Building d/p, all effluent will be going through the Vent Stack. The Vent Stack is considered a ground level release; therefore, a monitored ground level release is in progress.
Distracters:	B	Plausible because this would be true if d/p was positive, but since it is negative, all effluent flow is going out of the stack, which is a monitored release path.
	C	Plausible because this would be true if flow was through the Main Stack, but since it is in the vent stack, it is not an elevated release path.
	D	Plausible because this would be true if it were a steam leak in the Reactor Building and d/p was positive, but since it is in the Turbine

		Building and d/p is negative, it is a monitored ground release path only.

Question Information

Topic	Elevated vs. Ground Release				
User ID	ILT-5009-EO-05-1			**System ID**	2224668
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.
10CFR55 Content	CFR: 41.13 Procedures and equipment available for handling and disposal of radioactive materials and effluents.

References Provided	None
K/A Justification	Question tests the knowledge of the impact of a high RB differential pressure effects on containment integrity and radiation release locations.
SRO-Only Justification	Not applicable
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(13)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	EP-AA-114-F-20 Rev A	
Learning Objective:	PLOT-5009-EO-05	
K/A System:	295017 - High Offsite Radioactive Release Rate	Importance; RO 3.7
K/A Statement:	AK1.04 - Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to the HIGH OFFSITE RADIOACTIVE RELEASE RATE: Elevated vs Ground Level Release	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

295017.AK1.04	Safety Function	Tier 1	Group	RO Imp: 3.7	SRO Imp:
Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to High Offsite Radioactive Release Rate: (CFR: 41.8 to 41.10) Elevated vs. ground level release					
295035.EK1.01	Safety Function	Tier 1	Group	RO Imp: 3.9	SRO Imp:
Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Secondary Containment High Differential Pressure: (CFR: 41.8 to 41.10) Secondary containment integrity					

Learning Objective(s)

1. RO Exam
   User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 25	ID: 2505786	Points: 1.00

Unit 2 is operating at 100% power when a steam leak occurs in the Reactor Building.

- An RPV Blowdown is in progress.
- RB General Area 165' Elevation (Point 22) is reading 325°F.
- Reactor pressure is 70 psig and lowering.
- All RPV level instruments are reading approximately +10" and trending.

Which of the following identifies the availability of RPV level instrumentation?

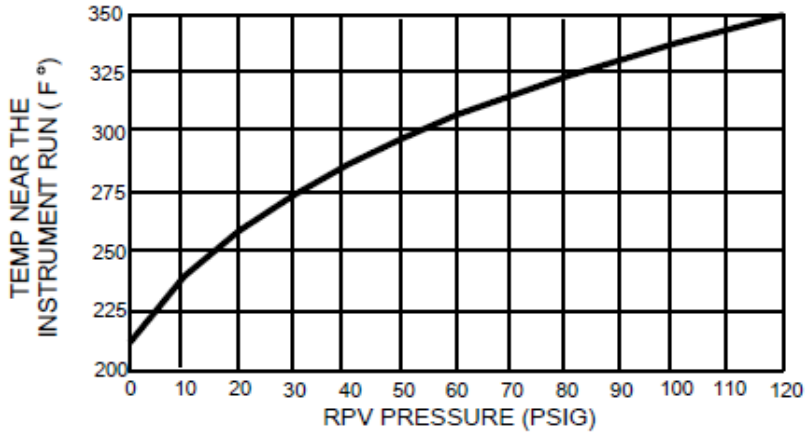
TABLE SC/T-4

RPV LEVEL INSTRUMENT STATUS

AN RPV LEVEL INSTRUMENT MAY BE USED TO DETERMINE RPV LEVEL ONLY WHEN THE FOLLOWING CONDITIONS ARE SATISFIED

ALL RPV LEVEL INSTRUMENTS

RPV SATURATION CURVE



A. RPV level instruments are available. Vigilant monitoring is required.

B. RPV level instruments are available. Vigilant monitoring is NOT required.

C. RPV level instruments are NOT available. Fill RPV level instrument reference legs.

D. RPV level instruments are NOT available. Enter T-116, RPV Flooding.

Answer	A

Answer Explanation

Choice'		Basis or Justification
Correct:	A	With Point 22 temperature at 325°F and RPV pressure at 70 psig, the plant is operating on the bad side of the RPV Instrumentation curve, therefore vigilant monitoring is required. T-103 allows for continued use of RPV level instruments as long as indications are not exhibiting an unexplained trend or oscillating.
Distracters:	B	First part is correct. Plausible because this would be true if the plant was operating below the curve, but since it is above, vigilant monitoring is required.
	C	Plausible because this would be true if there was an unexplained trend of oscillations, but since instruments are reading normally, then they can continue to be used. Plausible because this would mitigate the issue, however, there is no procedural guidance to do this action in T-103.
	D	Plausible because this would be true if there was an unexplained trend of oscillations, but since instruments are reading normally, then they can continue to be used. Plausible because entry into T-116 would be appropriate for a loss of all level instruments, but level instrumentation is still available.

Question Information

Topic	Effects of High RB Temps on RPV Level Instruments				
User ID	ILT-2103-EO-08-1			**System ID**	2505786
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	T-103 RPV Level Instrumentation Graph (Embedded)

K/A Justification	This question tests the operator ability to evaluate high reactor building area temperatures and determine their effects on RPV level instruments.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			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-103 Rev 23	
Learning Objective:	PLOT-DBIG-2103-EO-08	
K/A System:	295032 - High Secondary Containment Area Temperature	Importance; RO 3.9
K/A Statement:	EA2.01 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE: Area Temperature	
REQUIRED MATERIALS:	**T-103 RPV Level Instrumentation Graph (Embedded)**	
Notes and Comments:	None	

K/A Reference(s)

295032.EA2.01	Safety Function	Tier 1	Group	RO Imp: 3.9	SRO Imp: 4.0
Ability to determine and/or interpret the following as they apply to High Secondary Containment Area Temperature: (CFR: 41.10 / 43.5 / 45.13) Area temperature					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 26	ID: 2505833	Points: 1.00

Unit 2 was at 100% power when the following events occurred:

- A loss of normal feedwater has occurred, and the reactor was scrammed.
- RPV level has lowered to -30 inches and was restored to +15".
- Reactor Building Ventilation has isolated.
- The A and B SBGT Fans are NOT running.
- RB Differential Pressure is +.15" H_2O Water Pressure.

What is the status of the Standby Gas Treatment (SBGT) system and what action is required (if any)?

A. SBGT is functioning normally.
Manually initiate SBGT.

B. SBGT is functioning normally.
Restore normal Reactor Building Ventilation.

C. SBGT is NOT functioning normally.
Manually initiate SBGT.

D. SBGT is NOT functioning normally.
Restore normal Reactor Building Ventilation.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With RPV water level lowering below 1", a Group II/III signal would be received which would cause Reactor Building Ventilation to isolate and SBGT to automatically initiate. With Reactor Building d/p reading positive and no indication of a steam leak in the Reactor Building, that indicates that SBGT has failed to automatically start and must be placed in service.
Distractors:	A	Plausible because this would be true if RPV water level did not lower below +1", but since it did, SBGT failed to start. Second part is correct.

	B	Plausible because this would be true if RPV water level did not lower below +1", but since it did, SBGT failed to start. Plausible because T-103, Secondary Containment Control, does allow for placing normal Reactor Building Ventilation back in service when there is no high radiation condition, however, since SBGT failed to automatically start, placing the system in service is required.
	D	First part is correct. Plausible because T-103, Secondary Containment Control, does allow for placing normal Reactor Building Ventilation back in service when there is no high radiation condition, however, since SBGT failed to automatically start, placing the system in service is required.

Question Information

Topic	Verifying SBGT Initiation				
User ID	ILT-5009A-EO-07-1			**System ID**	2505833
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests ability to evaluate reactor building d/p to determine if SBGT is operating properly.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item	☐ Previous NRC Exam:
	☐ Modified Bank Item	☐ Other Exam Bank:

	☐ ILT Exam Bank	
Reference(s):	P-S-32, Rev 10	
Learning Objective:	PLOT-5009A-EO-07	
K/A System:	295035 - Secondary Containment High Differential Pressure	Importance: RO 3.8
K/A Statement:	EA1.02 - Ability to operate and/or monitor the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: SGTS/FRVS	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	This question requires knowledge of the low RPV water level Group II/III isolation/initiation signal to RB Ventilation and SBGT.	

K/A Reference(s)

295035.EA1.02	Safety Function	Tier 1	Group	RO Imp: 3.8	SRO Imp:
Ability to operate and/or monitor the following as they apply to Secondary Containment High Differential Pressure: (CFR: 41.7 / 45.6) SGTS/FRVS					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 27	ID: 2505836	Points: 1.00

Unit 2 is shutdown with plant cooldown in progress when the following occurs:

- An electrical transient causes a loss of 20D023, 125 VDC Power Distribution Panel 2C.
- A steam leak develops in the drywell and drywell pressure rises to 2.2 psig.
- Reactor pressure is 420 psig and slowly lowering.

Which of the following describes the response of the 2A and 2C RHR pumps?

A. The 2C RHR pump started and the 2A RHR Pump failed to start.

B. The 2A RHR pump started and the 2C RHR Pump failed to start.

C. Both the 2A and 2C RHR pumps failed to start.

D. Both the 2A and the 2C RHR pumps have started.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	With drywell pressure above 2 psig and RPV pressure below 450 psig, the plant will receive a LOCA signal. A loss of 20D023 will cause a loss of power to the 2A RHR loop logic, but the logic is cross-tied with the 2B RHR loop logic, so either logic system will cause all 4 RHR pumps to start, so both the 2A and 2C RHR pumps will start with the LOCA signal.
Distractors:	A	Plausible because the 2C RHR pump is running and power is lost to certain functions of the 2A RHR pump (Min Flow protection, manual lockout functions, etc.), but the LOCA logic is cross-tied, so the 2A RHR pump would still receive a start signal and automatically start.
	B	Plausible because the 2A RHR pump is running and power is lost to certain functions of the 2C RHR pump (Min Flow protection, manual lockout functions, etc.), but the LOCA logic

		is cross-tied, so the 2C RHR pump would still receive a start signal and automatically start.
	C	Plausible because power is lost to the 2A RHR LOCA logic train, but the logic is cross-tied, so the pumps will still receive a start signal from the 2B RHR LOCA logic train and start both the 2A and 2C RHR pumps.

Question Information

Topic	Loss of DC to RHR Initiation Logic				
User ID	ILT-5010-EO-02-1			**System ID**	2505836
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of system operation upon a loss of DC power to the initiation logic circuit.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	P-S-09, Rev 19	
Learning Objective:	PLOT-5010-EO-02	
K/A System:	203000 - RHR/LPCI: Injection Mode	Importance: RO 3.7

K/A Statement:	K2.03 - Knowledge of electrical power supplies to the following: Initiation Logic
REQUIRED MATERIALS:	**NONE**
Notes and Comments:	N/A

K/A Reference(s)

203000.K2.03	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Knowledge of electrical power supplies to the following: (CFR: 41.7) Initiation logic					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 28	ID: 2506395	Points: 1.00

Unit 2 is shutdown for a refuel outage, with Shutdown Cooling in-service (Loop 'A'), when an event occurred. Present plant conditions include the following:

- A Loss of Offsite Power (LOOP) has occurred.
- Annunciator E-3 DIESEL FAILED TO START (004 G-2) is in alarm.
- Annunciator E-4 DIESEL FAILED TO START (005 F-2) is in alarm.
- No backfeeding operations have been performed.

Under the given conditions, which of the following states the RHR/HPSW Pumps that are available to re-establish SDC?

A. '2A' RHR and '2C' HPSW

B. '2B' RHR with '2A' HPSW

C. '2C' RHR with '2B' HPSW

D. '2D' RHR with '2A' HPSW

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct	B	SDC normally utilizes a Residual Heat Removal (RHR) Pump (in SDC Mode) with cooling supplied by High Pressure Service Water (HPSW). RHR 2A Pump (EDG 1, E12 Bus) and RHR 2C Pump (EDG 3, E32 Bus) are in one loop, while RHR 2B Pump (EDG 2, E22 Bus) and RHR 2D Pump (EDG 4, E42 Bus) are in the second loop. The 2 annunciators show that EDG E3 and E4 have failed to start and load onto their respective busses (E12 and E32). Thus, with EDGs 3 and 4 de-energized, RHR/HPSW Pumps 2C and 2D are not available, and RHR/HPSW Pumps 2A and 2B are available. HPSW can be cross-tied from the 'A' Loop (Pumps 2A/2C) into the 'B' Loop (Pumps 2B/2D). Meaning, HPSW Pumps 2A/2C can supply cooling to the heat exchangers being fed from the 2B/2D RHR Pumps through cross-tie MO-2-32-2344. The question states that SDC is using the 'A' Loop, and thus the cross-tie is closed. This cross-tie is powered from Bus E124-R-C, which is powered from EDG E1 through Bus E12, and is currently energized. Thus, the cross-tie is available. Thus, RHR/HPSW pumps from Bus E-12 and E-22 have power ('2A' and '2B' RHR and HPSW). 2B RHR and 2A HPSW have powered and use the available crosstie.
Distracters	A	Plausible because this would be true if the E32 and E33 buses had power. But since the E-3 DG failed to start, the buses are de-energized and the 2C HPSW pump is not available.
	C	Plausible because this would be true if the E32 and E33 buses had power. But since the E-3 DG failed to start, the buses are de-energized and the 2C RHR pump is not available.
	D	Plausible because this would be true if the E42 and E43 buses had power. But since the E-4 DG failed to start, the buses are de-energized and the 2D RHR pump is not available.

Question Information

Topic	HPSW/RHR Response to LOOP				
User ID	ILT-5010-EO-02-1			**System ID**	2506395
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of what high pressure service water pumps are available with a loss of offsite power occurs when in shutdown cooling.
SRO-Only Justification	N/A
Additional Information	None

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):	E-8 Rev 27	
Learning Objective:	PLOT-5010-EO-02	
K/A System:	205000 Shutdown Cooling System (RHR Shutdown Cooling Mode)	Importance; RO 3.3
K/A Statement:	K6.08 Knowledge of the effect that a loss or malfunction of the following will have on the SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): Service water	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

205000.K6.08	Safety Function	Tier 2	Group	RO Imp: 3.3	SRO Imp:
Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Shutdown Cooling System (RHR Shutdown Cooling Mode): (CFR: 41.7 / 45.7) Service water					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 29	ID: 2505850	Points: 1.00

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

- The HPCI Turbine isolated from a false high steam flow signal.
- I&C Technicians corrected the problem, the isolation signal is clear.
- HPCI isolation relays have not been reset.

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

Which of the following identifies the status of HPCI and what is required to start HPCI for injection?

A. The HPCI system remains isolated.
Start HPCI using SO 23.1.B-2, HPCI System Manual Operation.

B. The HPCI system remains isolated.
Reset the HPCI isolation using SO 23.7.C-2, High Pressure Coolant Injection (HPCI) System Recovery from System Isolation or Turbine Trip.

C. The HPCI system will unisolate but does not automatically start.
Start HPCI using RRC 23.1-2, HPCI System Operation during a Plant Event.

D. The HPCI system automatically starts.
Verify proper HPCI operation using SO 23.7.A-2, High Pressure Coolant Injection System Automatic Initiation Response.

Answer	B

Answer Explanation

Justification: Choice		Basis or Justification
Correct:	B	With the isolation signal not reset, HPCI will remain isolated when an initiation signal is received. The isolation signal must be reset using SO 23.7.C-2 before HPCI can be used for injection. With the initiation signal still present, HPCI will automatically start when the isolation signal is reset.
Distractors:	A	Plausible because HPCI does remain isolated, but this would be a correct method to start HPCI if the HPCI relays were reset, but since they have not been reset, HPCI cannot be started with this procedure.

	C	Plausible because this would be true if the isolation relays automatically reset, but they are manually reset; not automatically. Additionally, RRC 23.1-2 does not provide guidance for resetting the isolation signal.
	D	Plausible because this would be true for a HPCI trip signal as that would automatically reset once the condition is clear and an initiation signal is received, but an isolation signal must be manually reset which will prevent HPCI from starting.

Question Information

Topic	HPCI Isolation with an Initiation Signal				
User ID	ILT-5023-EO-07-1			**System ID**	2505850
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how HPCI would respond to an initiation signal when isolated and what is required to restore HPCI to operation.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X**New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 23.7.C-2, Rev 10	
Learning Objective:	PLOT-5023-EO-07	
K/A System:	206000 - HPCI	Importance: RO 4.7
K/A Statement:	A2.10 - Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM and (b) based on those	

	predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: System Isolation
REQUIRED MATERIALS:	**NONE**
Notes and Comments:	None

K/A Reference(s)

206000.A2.10	Safety Function	Tier 2	Group	RO Imp: 4.7	SRO Imp: 4.0
Ability to (a) predict the impacts of the following on the High-Pressure Coolant Injection System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) System isolation					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 30	ID: 2505852	Points: 1.00

Unit 2 was operating at 100% power when a loss of offsite power occurred.

- The E1 and E2 diesel generators have started and are powering their buses.
- The E3 and E4 diesel generators failed to start.
- RPV water level is -100" and slowly lowering.
- SE-11, Attachment P, Backfeeding Safe Shutdown Loads with E1 & E2 Diesel Generators Available, has been performed.
- CRS has directed starting Core Spray pumps in preparation for RPV Blowdown.

Per SE-11 Attachment P, what is the expected loading for each Core Spray pump to be started on the diesel generators?

A. 1450 kW

B. 750 kW

C. 450 kW

D. 200 kW

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per SE-11 Att. P, approximately 450 kW should be available for starting Core Spray pumps on the diesel generators.
Distracters:	A	Plausible because this is true for the RHR pumps, but not Core Spray.
	B	Plausible because this is true for the Unit 3 HPSW pumps, but not Core Spray.
	D	Plausible because this is true for the ESW/ECW pumps, but not Core Spray.

Question Information

Topic	Core Spray Start Effects on Diesel Generators				
User ID	ILT-5014-EO-05-1			**System ID**	2505852
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.5 Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

References Provided	None
K/A Justification	Question tests knowledge of the timing of diesel generator loading changes upon intiation of the Core Spray system.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	**X** New Exam item Modified Bank BWR K/A	Previous NRC Exam Other Exam Bank	
Reference(s):	SO 14.7.A-2, Rev 7		
Learning Objective:	PLOT-5014-EO-05		
K/A System:	209001 - Low Pressure Core Spray System	Importance;	RO 3.9
K/A Statement:	A1.07 - Ability to predict and/or monitor changes in parameters associated with operation of the LOW PRESSURE CORE SPRAY SYSTEM, including: Emergency Generator Loading		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

209001.A1.07	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp:
Ability to predict and/or monitor changes in parameters associated with operation of the Low-Pressure Core Spray System, including: (CFR: 41.5 / 45.5) Emergency generator loading					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 31	ID: 2505853	Points: 1.00

ST-O-011-301-3 “Standby Liquid Control Pump 'A' Functional Test for IST” is in progress for Post Maintenance Test of the 3A SBLC pump.

The 3A SBLC pump is started ____(1)____ and the red pump running light indication is ____(2)____.

A. (1) from the MCR
(2) in the MCR

B. (1) locally at the pump
(2) locally at the pump

C. (1) from the MCR
(2) locally at the pump

D. (1) locally at the pump
(2) in the MCR

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The pumps are started using the control switch locally at the pump which prevents the squib valves from firing. The light indication for the pump is located in the control room.
Distractors:	A	Plausible because the pumps can be started from the MCR, but that would result in the squib valves firing, therefore the pumps are started locally. Second part is correct.
	B	First part is correct. Plausible because it would make sense for there to be running indications locally at the pump, but the indication is in the MCR.
	C	Plausible because the pumps can be started from the MCR, but that would result in the squib valves firing, therefore the pumps are started locally. Plausible because it would make sense for there to be running indications locally at the pump, but the indication is in the MCR.

Question Information

Topic	Local Operation of SBLC				
User ID	ILT-5011-EO-03-1			**System ID**	2505853
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests knowledge of where SBLC pumps are operated for testing and location of pump indications.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank Previous NRC Exam Other Exam Bank	
Reference(s):	ST-O-011-301-3 Rev 39	
Learning Objective:	PLOT-5011-EO-03	
K/A System:	211000 - Standby Liquid Control System	Importance: RO 4.4
K/A Statement:	G2.1.30 - Ability to locate and operate components, including local controls.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

B2.1.30	Safety Function	Tier 3	Group	RO Imp: 4.4	SRO Imp: 4.0
Ability to locate and operate components, including local controls (CFR: 41.7 / 45.7)					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 32	ID: 2505864	Points: 1.00

Unit 2 is operating at 100% power with both 2A and 2B RPS buses being powered from their normal sources when the following occurs:

- A loss of one off-site startup feed occurred causing a 4kV Emergency Bus Fast Transfer.
- The transfer occurred as designed and restored power to the impacted Emergency Buses from the other startup feed.

Which one of the following identifies the designed amount of time that power will be lost to the RPS MG Set?

A. 0.25 seconds

B. 3.25 seconds

C. 8.0 seconds

D. 13.0 seconds

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The 4KV bus will fast transfer in 0.25 seconds, then 3 seconds later the Emergency Bus MCC will reclose providing 480 VAC power back to the RPS MG Set. The RPS MGs have an inertia flywheel connected which will maintain RPS MG energized throughout the transfer.
Distractors:	A	Plausible because this is how long it will take for the fast transfer to occur, but the MCC does not repower for an additional 3 seconds after the transfer, so the MG set will not regain normal power until that occurs.
	C	Plausible because 8 seconds does correspond to a time delay for the RPS MG sets, but it is the time delay for the supply breakers to open on a loss of power; not for when power is restored.
	D	Plausible because this would be true if all offsite power was lost and power was restored by the diesel generators, but only one power

		source was lost and a manual restart of the RPS bus would be required.

Question Information

Topic	RPS Response to Fast Transfer				
User ID	ILT-5060F-EO-03-1			**System ID**	2505864
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how RPS MG sets will respond upon transfer of RPS power supplies from it's normal to alternate power supply.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SO 54.7.A, Rev 15	
Learning Objective:	PLOT-5060F-EO-03	
K/A System:	212000 - Reactor Protection System	Importance: RO 3.7
K/A Statement:	K4.03 - Knowledge of REACTOR PROTECTION SYSTEM design features and/or interlocks that provide for the following: Transferring RPS Power Supplies	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

212000.K4.03	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Knowledge of Reactor Protection System design features and/or interlocks that provide for the following: (CFR: 41.7) Transferring RPS power supplies					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 33	ID: 2505868	Points: 1.00

Unit 2 is operating at 50% power with the following conditions:

- SO 1A.7.D-2, Isolation of One Main Steam Line at Power, is in progress.
- The 2A Inboard MSIV control switch is placed in CLOSE, and the valve strokes closed.
- 1 minute later, the 2D Inboard MSIV drifts off it's open seat and stops at 80% open.

What effect will this condition have on the Reactor Protection System? (Assume the reactor does not scram on high main steam flow)

A. No scram or half scram signals are generated.

B. There is a half scram on RPS A ONLY.

C. There is a half scram on RPS B ONLY.

D. A full scram has occurred.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	The logic on RPS is set up to only generate a half scram if 2 certain MSIVs have closed. With this design, closing both the A and D MSIVs will not cause a scram signal on either RPS A or RPS B, therefore no scram signal is generated.
Distractors:	B	Plausible because this would be true if the B MSIV drifted closed, but since it was the D MSIV, no scram signal would be generated.
	C	Plausible because this would be true if the C MSIV drifted closed, but since it was the D MSIV, no scram signal would be generated.
	D	Plausible because this would happen if 3 MSIVs drifted closed, but since it was only 2, no full scram signal would be received.

Question Information

Topic	RPS Response to MSIV Closure				
User ID	ILT-5060F-EO-05-1			**System ID**	2505868
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests knowledge of how RPS will respond to inadvertent closure of Main Steam Isolation Valves
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	M-1-S-23, Sheet 10, Rev 100	
Learning Objective:	PLOT-5060F-EO-05	
K/A System:	212000 - Reactor Protection System	Importance: RO 3.5
K/A Statement:	K6.12 - Knowledge of hte effect of the following plant conditions, system malfunctions, or component malfunctions on the REACTOR PROTECTION SYSTEM: Main Steam System	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

212000.K6.12	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Reactor Protection System: (CFR: 41.7 / 45.7) Main steam system					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 34	ID: 2505871	Points: 1.00

A reactor startup is in progress on Unit 2 with the following conditions:

- The Mode Switch in STARTUP.
- 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 and remain cleared?

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	Plausible because this would be true if the H WRNM provided input to RPS A, but it provides input to RPS B and therefore will bring in the B WRNM Trip/INOP alarm. Plausible because this would be true if it was on RPS A, but since it is on B, it cannot be bypassed with the D WRNM already bypassed. Therefore, the alarm will remain in.
	B	Plausible because this would be true if the H WRNM provided input to RPS A, but it provides input to RPS B and therefore will bring in the B WRNM Trip/INOP alarm. Second part is correct.
	C	First part is correct. Plausible because this would be true if it was on RPS A, but since it is on B, it cannot be bypassed with the D WRNM already bypassed. Therefore, the alarm will remain in.

Question Information

Topic	Bypassing Multiple WRNMs				
User ID	ILT-5060C-EO-03-1			**System ID**	2505871
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests ability to monitor response of the wide range nuclear instruments (instruments used in place of intermediate range nuclear instruments) to inop conditions with instruments in bypass.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(6)
Source Documentation			
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank	

Reference(s):	ARCs 210 G-3 Rev 6, and H-3 Rev 6	
Learning Objective:	PLOT-5060C-EO-03	
K/A System:	215003 - Intermediate Range Monitor (IRM) System	Importance: RO 3.5
K/A Statement:	A4.05 - Ability to manually operate and/or monitor in the control room: Trip Bypasses	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

215003.A4.05	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) Trip bypasses					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 35	ID: 2505873	Points: 1.00

Unit 2 is in Mode 2, with a reactor startup in progress. Plant conditions include the following:

- The Reactor has just achieved criticality.
- The first control rod is being withdrawn following criticality.
- Reactor Period is currently 27 seconds and shortening.

Which of the following identifies the response of the WRNMs and the required action per GP-2, Normal Plant Startup?

A. A rod block will occur.
Insert a control rod to lengthen Reactor Period.

B. A rod block will NOT occur.
Insert a control rod to lengthen Reactor Period.

C. A rod block will occur.
Stop all rod motion and allow Reactor Period to lengthen.

D. A rod block will NOT occur.
Stop all rod motion and allow Reactor Period to lengthen.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct	A	When operating in the source range, if Reactor Period shortens below 28 seconds, the WRNM will generate a rod block due to the short reactor period. GP-2 directs the operator to reinsert the control rod to lengthen Reactor Period to longer than 50 seconds.
Distracters	B	Plausible because this would be true if Reactor Period was longer than 28 seconds. Second part is correct.
	C	First part is correct. Plausible because reactor period will shorten on its own, but GP-2 directs control rods be inserted to lengthen period.
	D	Plausible because this would be true if Reactor Period was longer than 28 seconds. Plausible because reactor period will shorten on its own, but GP-2 directs control rods be inserted to lengthen period.

Question Information

Topic	WRNM Short Period Actions				
User ID	ILT-5060C-EO-07-1			**System ID**	2505873
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests ability to monitor and predict changes in control rod block status based on Source Range indications and what actions are required. Wide Range Nuclear Monitors (WRNMs) are used at PBAPS for Source Range instruments.
SRO-Only Justification	Not applicable
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO

High			10CFR55.41(b)(6)

Source Documentation		
Source:	X New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank	
Reference(s):	ARC 210 G-3 Rev 6, ARC 211 D-3 Rev 4, ARC 210 F-3 Rev 4, SO 62.7.A-2 Rev 31, GP-2-2 Rev 29	
Learning Objective:	PLOT-5060C-EO-07	
K/A System:	215004 Source Range Monitor (SRM) System	Importance; RO 3.6
K/A Statement:	A1.04 - Ability to predict and/or monitor changes in parameters associated with operation of the SOURCE RANGE MONITOR SYSTEM, including: Control Rod Block Status	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

215004.A1.04	Safety Function	Tier 2	Group	RO Imp: 3.6	SRO Imp:
Ability to predict and/or monitor changes in parameters associated with operation of the Source Range Monitor System, including: (CFR: 41.5 / 45.5) Control rod block status					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 36	ID: 2505874	Points: 1.00

Unit 2 is in MODE 1 at 35% power.

- The OPRM system is in service and operable.
- Alarm 211 B-3, OPRM Trip Enabled, is in.
- APRM 3 is inoperable and bypassed.
- APRM 2 fails upscale, but not INOP.
- OPRM 4 fails upscale.

What is the response of the RPS system, and the reason for this response?

	Response of the RPS system	Reason for this response
A.	No RPS activation	one vote exists for OPRM HI-HI AND one vote exists for APRM HI-HI / INOP
B.	No RPS activation	one vote exists for APRM self test fault AND one vote exists for APRM HI-HI / INOP
C.	Full Scram	one vote exists for OPRM HI-HI AND one vote exists for APRM HI-HI / INOP
D.	Full Scram	one vote exists for APRM self test fault AND one vote exists for APRM HI-HI / INOP

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	APRM and OPRM are each providing one vote, however APRM and OPRM are separate voter inputs. There would be no RPS activation under these circumstances.
Distractors:	B	First part is correct. Plausible because two APRMs are faulted in a manner to cause a vote, but one is bypassed and does not provide a vote.
	C	Plausible because two votes would cause a scram, but they would need to come from either two APRMs or two OPRMs. One vote from each will not cause a half scram. part 2 - correct
	D	Both choices are plausible because two APRMs are faulted in a manner to cause a vote, but one is bypassed and does not provide a vote.

Question Information

Topic	OPRM Connection to APRMs and RPS				
User ID	ILT-5060-EO-06-1			**System ID**	2505874
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	This question tests the knowledge of how inputs from the APRMs and OPRMs work together to generate a scram signal.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(6)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC 211 A-3 Rev 11	
Learning Objective:	PLOT-5060-EO-06	
K/A System:	215005 - Average Power Range Monitor / Local Power Range Monitor System	Importance: RO / SRO 3.9
K/A Statement:	K1.18 - Knowledge of the physical connections and/or cause and effect relationships between the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM and the following systems: OPRM	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

215005.K1.18	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp:
Knowledge of the physical connections and/or cause and effect relationships between the Average Power Range Monitor/Local Power Range Monitor System and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) OPRM					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 37	ID: 2505893	Points: 1.00

Unit 2 was operating at 100% power when a small LOCA occurs.

- Operators scrammed the reactor due to high drywell pressure.
- HPCI and RCIC automatically started on RPV low level.
- HPCI was placed in Short Term Shutdown.
- RPV Level is being manually controlled by RCIC.
- 5 minutes later, RCIC trips due to overspeed.
- RPV water level is -10" and slowly lowering.

Which of the following describes a method that will allow a restart of RCIC?

A. No operator action is required. RCIC will automatically restart when an initiation signal is received.

B. Close MO-4487, Trip Throttle Vlv, and MO-2-13-131, Supply. Then reopen MO-4487 when MO-2-13-131 is fully closed.

C. Close MO-4487, Trip Throttle Vlv and locally reset the overspeed trip.

D. Verify MO-4487, Trip Throttle Vlv, is closed. Close MO-2-13-131, Supply. Then cycle MO-4487 control switch to close and open.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	When RCIC trips on overspeed, the mechanical overspeed linkage must be manually reset locally at the RCIC turbine before RCIC can be restarted.
Distractors:	A	Plausible because this is true for HPCI, but not for RCIC.
	B	Plausible because this is how to reset a RCIC turbine trip with an initiation signal, but there is no initation signal present.
	D	Plausible because this is how to reset a RCIC turbine trip, but the overspeed linkage must be manually reset locally.

Question Information

Topic	Resetting RCIC Overspeed				
User ID	ILT-5013-EO-03-1			**System ID**	2505893
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how to reset the RCIC turbine for operation after an overspeed trip.
SRO-Only Justification	Not applicable
Additional Information	

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 13.7.A-2 Rev 18	
Learning Objective:	PLOT-5013-EO-03	
K/A System:	217000 - Reactor Core Isolation Cooling System	Importance: RO 3.5
K/A Statement:	K5.06 - Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the REACTOR CORE ISOLATION COOLING SYSTEM: Turbine Operation	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

217000.K5.06	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Reactor Core Isolation Cooling System: (CFR: 41.5 / 45.3) Turbine operation					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 38	ID: 2505904	Points: 1.00

Unit 2 was operating at full power when the following conditions occurred:

- Annunciator 209 C-2, 2 DA RCIC 250 VDC Bus Lo Voltage, alarm comes in.
- The crew enters SE-13, Loss of a 125 or 250 VDC Safety Related Bus.
- The investigation determines that 20D012, 250 VDC Division I Bus, is de-energized.

Which of the following identifies the effect on the operation of the Reactor Core Isolation Cooling (RCIC) System.

A. Operation in all modes will be unaffected.

B. Operation in the CST-CST Mode is unavailable ONLY.

C. RCIC can be started and controlled locally.

D. RCIC cannot be started.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With a loss of power to 20D012, most of RCIC's valves have lost power and cannot be operated from the control room. However, RCIC can still be started and controlled by local means using SE-13.1-2, RCIC Manual Operations on Loss of 125/250VDC Bus 2DA-W-A.
Distractors:	A	Plausible because this would be true for a loss of Division II power, but a loss of Division I will prevent RCIC operation from the Control Room. Additionally, with a loss of Division II, RCIC would not be able to operate in CST-CST mode.
	B	Plausible because this is true for a loss of Division II power, but not a loss of Division I.
	D	Plausible because this is true for the Control Room, but RCIC can still be locally started.

Question Information

Topic	RCIC Black Start				
User ID	ILT-5013-EO-02-1			**System ID**	2505904
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how the loss of dc power will prevent control of RCIC valves and flow control from the Control Room, but how RCIC valves and flow can be operated locally.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	SE-13.1-2, Rev 0	
Learning Objective:	PLOT-5013-EO-02	
K/A System:	217000 - Reactor Core Isolation Cooling System	Importance: RO 3.5
K/A Statement:	K2.03 - Knowledge of electrical power supplies to the following: RCIC Flow Controller	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

217000.K2.03	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Knowledge of electrical power supplies to the following: (CFR: 41.7) RCIC flow controller					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 39	ID: 2505906	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 diesel generators have failed to start.
- No operator actions have been taken.

Describe the response of the ADS valves when operating the SRV control switch AND provide the action necessary to allow valve operation and/or support long term ADS operation.

The ADS valves initially would _____(1)_____.
Performance of _____(2)_____ would support long term ADS SRV operation.

A. (1) NOT OPEN
(2) RRC 16.1-2, Bypass and Restore Instrument N_2 Supply to Drywell

B. (1) NOT OPEN
(2) T-261, Placing the Backup Inst Nitrogen Supply from CAD Tank in Service

C. (1) OPEN
(2) RRC 16.1-2, Bypass and Restore Instrument N_2 Supply to Drywell

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	The ADS valves have accumulators that would supply enough pneumatic pressure to open ADS valves initially. For long term ADS valve pneumatic supply, performance of T-261 is required.

Distractors:	A	Plausible because there are some SRVs that do not have accumulators, but the ones designated for ADS are equipped with them and will open with the control switch. Plausible because this is the normal method for restoring pneumatics and steps are provided for aligning the backup source of pneumatics to the SRVs, but there is no power to the solenoid valves required for the backup bottles. T-261 is required.
	B	Plausible because there are some SRVs that do not have accumulators, but the ones designated for ADS are equipped with them and will open with the control switch. Second part is correct.
	C	First part is correct. Plausible because this is the normal method for restoring pneumatics and steps are provided for aligning the backup source of pneumatics to the SRVs, but there is no power to the solenoid valves required for the backup bottles. T-261 is required.

Question Information

Topic	Pneumatic Supply to ADS Valves				
User ID	ILT-5001G-EO-07-1			**System ID**	2505906
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests ability to determine how ADS valves will respond to a loss of the normal pneumatic source and procedures that would restore pneumatics.
SRO-Only Justification	N/A
Additional Information	None

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):	SE-11 Bases Rev 31	
Learning Objective:	PLOT-5001G-EO-07	
K/A System:	218000 - Automatic Depressurization System	Importance; RO 3.9
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 Pneumatic Supply to ADS Valves	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

218000.A2.03	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp: 3.8
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 operations: (CFR: 41.5 / 43.5 / 45.6) Loss of pneumatic supply to ADS valves					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 40	ID: 2508825	Points: 1.00

The following conditions currently exist on Unit 2.

- The reactor has been scrammed.
- The backup N_2 bottles have been placed in service.
- SV-2-16A-8130A and B, Backup Instrument Nitrogen to ADS, are open.

Which of the following identifies when SV-2-16A-8130A and B will automatically close?

A. System flow > 10 scfm or Backup Instrument Nitrogen supply pressure < 20 psig above Drywell pressure.

B. System flow > 10 scfm or Backup Instrument Nitrogen supply pressure > 20 psig above Drywell pressure.

C. System flow < 10 scfm or Backup Instrument Nitrogen supply pressure < 20 psig above Drywell pressure.

D. System flow < 10 scfm or Backup Instrument Nitrogen supply pressure > 20 psig above Drywell pressure.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	The PCIV Group VIII signal will cause SV-2-16A-8130A and B to automatically close when system flow is high (> 10 scfm) or when system pressure is $\leq$ 20 psig above drywell pressure.
Distracters:	B	Plausible because these are the input signals to PCIS, but it is less than 20 psig above drywell pressure, not greater than.
	C	Plausible because these are the input signals to PCIS, but it is high system flow, not low flow.
	D	Plausible because these are the input signals to PCIS, but it is less than 20 psig above drywell pressure, not greater than, and high system flow, not low.

Question Information

Topic	Backup N2 Supply Isolations				
User ID	ILT-5016-EO-03-1			**System ID**	2508825
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.9 Shielding, isolation, and containment design features, including access limitations.

References Provided	None
K/A Justification	Question tests ability to recognize when backup N_2 valves will isolate on a containment isolation signal.
SRO-Only Justification	N/A
Additional Information	None

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(9)

Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous 2 NRC Exams Other Exam Bank
Reference(s):	ARC 229 A-5, Rev 2	
Learning Objective:	PLOT-5016-EO-03	
K/A System:	223002 Primary Containment Isolation System/Nuclear Steam Supply Shut-off	Importance: RO 4.3
K/A Statement:	A3.02- Ability to monitor automatic operations of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUTOFF including: Valve Closures	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

223002.A3.02	Safety Function	Tier 2	Group	RO Imp: 4.3	SRO Imp:
Ability to monitor automatic operation of the Primary Containment Isolation System/Nuclear Steam Supply Shutoff, including: (CFR: 41.7 / 45.7) Valve closures					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 41	ID: 2505909	Points: 1.00

A plant startup is in progress on Unit 2. The following conditions exist:

- The Reactor Mode Switch is in STARTUP.
- Two Turbine Bypass Valves are open.
- Reactor Pressure is 940 psig and steady.

Which one of the following describes the plant response (if any) when the "PCIS System I Main Steam Line High Flow" pressure transmitter (DPT-2-118A) fails high?

A. No effect, this isolation is bypassed with the Mode Switch out of RUN.

B. The associated steam line MSIVs will close.

C. a Half Group I Isolation will occur.

D. All of the MSIVs will close.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With the high steam flow signal failed high, the A channel will receive a Group I isolation signal, which will cause a half Group I Isolation. A signal from both the A and B channel are required for MSIVs to close, so no valve movement will occur.
Distractors:	A	Plausible because there are MSIV closures that are bypassed with the Mode Switch not in STARTUP (specifically the low pressure and low vacuum isolation signals), but the high steam flow is not one of them.
	B	Plausible because this would be true if only 1 signal is needed to close the MSIVs and each signal only controlled it's associated MSIV, but you would need both the A and B channel signals to initiate the closure.
	D	Plausible because this would be true if only 1 signal is needed to close the MSIVs, but you would need both the A and B channel signals to initiate the closure.

Question Information

Topic	Half Group I Isolation Signal Functions				
User ID	ILT-5007G-EO-03-1			**System ID**	2505909
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how failures in PCIS will affect plant operations.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(9)

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank Previous NRC Exam Other Exam Bank	
Reference(s):	GP-8A Rev 12	
Learning Objective:	PLOT-5007G-EO-03	
K/A System:	223002 - Primary Containment Isolation System/Nuclear Steam Supply Shutoff	Importance: RO 3.8
K/A Statement:	K4.01 - Knowledge of PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUTOFF design features and/or interlocks that provide for the following: Redundancy	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

223002.K4.01	Safety Function	Tier 2	Group	RO Imp: 3.8	SRO Imp:
Knowledge of Primary Containment Isolation System/Nuclear Steam Supply Shutoff design features and/or interlocks that provide for the following: (CFR: 41.7) Redundancy					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 42	ID: 2505923	Points: 1.00

Unit 2 is at 100% power.
A loss of the Division I 125V DC power supply 20D021 (2PPA) has occurred to the Safety Relief Valve (SRV) Solenoids.
The following conditions exist:

- Annunciator 227 C-5 BLOWDOWN VALVES POWER MONITOR alarm is received.
- Division II 125V DC solenoid power is energized and available.
- Both Divisions of 125V DC ADS Logic power are energized and available.

Based on the above conditions, which one of the following is correct regarding the capability to manually open ADS and non-ADS SRVs from the Control Room?

	ADS valves that can be manually operated	Non-ADS valves that can be manually operated
A.	ALL	ALL
B.	ALL	Only Division II
C.	Only Division II	Only Division II
D.	Only Division II	NONE

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Each SRV (ADS or Not) has both normal 20D21 (Div 1) and alternate 20D24 (Div II) 125V DC power to solenoids. A loss of one supply will not prevent SRV (ADS or Not) operation manually.
Distractors:	B	Plausible because this would be true if only the ADS valves had backup power and the remaining SRVs were only supplied by one power source, but backup power is provided to all SRVs. So, both Division I and Division II SRVs will have power.
	C	Plausible because this would be true with a loss of ADS logic power, but the SRV power is separate from the ADS logic and provides a backup to all SRVs.

	D	Plausible because this would be true if none of the SRVs had backup power, but they all are provided power from both Division I and Division II.

Question Information

Topic	SRV Normal and Alternate Power Supply				
User ID	ILT-5001A-EO-02-1			**System ID**	2505923
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of the normal and alternate power supplies to the SRVs.
SRO-Only Justification	N/A
Additional Information	None

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):	P-S-42 Rev 13	
Learning Objective:	PLOT-5001A-EO-02	
K/A System:	239002 - Safety Relief Valves	Importance: RO 3.7
K/A Statement:	K2.01 - Knowledge of electrical power supplies to the following: SRV Solenoids	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

239002.K2.01	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Knowledge of electrical power supplies to the following: (CFR: 41.7) SRV solenoids					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 43	ID: 2505924	Points: 1.00

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

- RPV level is +23 inches and stable.
- Digital Feedwater Control System (DFCS) is in "Normal High Power Operation" mode.
- DFCS suffers a complete loss of all WR PRESSURE signals.

When conditions stabilize, indicated RPV level will be ____(1)____ AND actual RPV level will be ____(2)____ .

A. (1) lower
(2) lower

B. (1) lower
(2) unchanged

C. (1) unchanged
(2) lower

D. (1) unchanged
(2) unchanged

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	On the loss of all Wide Range pressure signals the DFCS selects a default value of 1085 psig. This higher than normal value for reactor pressure input will cause compensated level to be slightly high. DFCS will lower the indicated water level to the original setpoint, resulting in actual RPV level being slightly lower than normal.
Distractors:	A	Plausible because actual water level would be lower, but the difference between indicated and actual RPV water level would result DFWC raising indicated RPV water level to the original setpoint.
	B	Plausible because this would be true for a lower pressure input, but since the input is higher, the opposite effect would occur.

	D	Plausible because this would be true if the system used the previous good pressure signal for RPV water level, but it inputs a higher default pressure, therefore a change would occur.

Question Information

Topic	RPV Level Response to Water Level Control Failures				
User ID	ILT-5006-EO-03-1			**System ID**	2505924
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests ability to evaluate level control failures to determine the status of the level control system.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10 CFR 55.41 (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, Rev 19	
Learning Objective:	PLOT-5006-EO-03	
K/A System:	259002 - Reactor Water Level Control System	Importance: RO / SRO 3.9/ 3.8
K/A Statement:	G2.1.19 - Ability to use available indications to evaluate system or component status.	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

B2.1.19	Safety Function	Tier 3	Group	RO Imp: 3.9	SRO Imp: 3.8
Ability to use available indications to evaluate system or component status (CFR: 41.10 / 45.12)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 44	ID: 2505925	Points: 1.00

Unit 2 is operating at 100% power when the 2A RFPT trips.

Which of the following describes the expected plant response to this situation?

Recirc Pumps will runback to:

A. 30% upon RPV level reaching +17 inches with 2A RFP flow < 20%.

B. 30% due to the reactor scram and RPV water level being below +17".

C. 45% upon RPV level reaching +17 inches with RFP 2A flow < 20%.

D. 45% due to the reactor scram and RPV water level being below +17".

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	A 45% recirc runback will occur when RPV water level lowers to +17" and any individual feedwater pump flow is < 20%.
Distractors:	A	Plausible because 30% is a recirc runback limit, but the pump will runback to 45%, not 30% in that condition.
	B	Plausible because the recirc pumps would run back to 30% in this condition, but a loss of one feedwater pump will not cause RPV water level to lower to the scram setpoint.
	D	Plausible because this condition would cause a recirc runback, but the reactor would not scram on a loss of one feedwater pump.

Question Information

Topic	Recirc Pump Runback Circuitry				
User ID	ILT-5006-EO-06-1			**System ID**	2505925
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	Question tests knowledge of how a drop in feedwater flow and RPV water level will affect recirc pump speed; which is how recirc flow is controlled.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10 CFR 55.41(b)(6)

Source Documentation		
Source:	New Exam item Modified Bank X ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC 214 B-3, Rev 19	
Learning Objective:	PLOT-5006-EO-06	
K/A System:	259002 - Reactor Water Level Control System	Importance: RO 3.3
K/A Statement:	K3.05 - Knowledge of the effect that a loss or malfunction of the REACTOR WATER LEVEL CONTROL SYSTEM will have on the following systems or system parameters: Recirculation Flow Control	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

259002.K3.05	Safety Function	Tier 2	Group	RO Imp: 3.3	SRO Imp:
Knowledge of the effect that a loss or malfunction of the Reactor Water Level Control System will have on the following systems or system parameters: (CFR: 41.7 / 45.4 to 45.8) Recirculation flow control system					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 45	ID: 2507153	Points: 1.00

Unit 2 is operating at 100% power. A Reactor Operator is performing SO 9A.1.B, Standby Gas Treatment System Manual Startup, to support HPCI operations. Which of the following identifies which SBGT fans can be used per SO 9A.1.B?

A. 'A' SBGT Fan ONLY

B. 'A' or 'B' SBGT Fan ONLY

C. 'B' or 'C' SBGT Fan ONLY

D. 'C' SBGT Fan ONLY

Answer	B

Answer Explanation

Choice'		Basis or Justification
Correct:	B	Per the note in SO 9A.1.B, the A SBGT Fan shall be used to support operations on Unit 2 and the C SBGT Fan shall be used to support operations on Unit 3. An exception is made where the B SBGT Fan may be used to support HPCI operations on either unit ONLY. Since the operations are on Unit 2, the A and B SBGT fans are correct.
Distracters:	A	Plausible because this is true for lining up for HPCI operations on Unit 2 and since the B SBGT fan is typically used for the Refuel Floor, but an exception is allowed for the B SBGT fan for HPCI operations for either unit, so both A and B can be used.
	C	Plausible because this would be true if we were lining up on Unit 3, but we are lining up on Unit 2, which is the A and B fans.
	D	Plausible because 'C' is the designated fan for use on Unit 3, but an exception allows for using the 'B' SBGT fan for HPCI operations and operations are being performed on Unit 2.

Question Information

Topic	SBGT Fan Use for HPCI				
User ID	ILT-5009A-EO-03-1			**System ID**	2507153
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.8 Components, capacity, and functions of emergency systems.

References Provided	None
K/A Justification	This question tests the operator's ability to determine which SBGT fans can be manually operated to perform the intended function.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CFR55.41(b)(8)

Source Documentation		
Source:	New Exam item Modified Bank X ILT Exam Bank X Previous NRC Exam (2022) Other Exam Bank	
Reference(s):	SO 9A.1.B, Rev 9	
Learning Objective:	PLOT-5009A-EO-03	
K/A System:	261000 - Standby Gas Treatment	Importance; RO 3.7
K/A Statement:	A4.03 - Ability to manually operate and/or monitor in the control room: Fan	
REQUIRED MATERIALS:	**None**	
Notes and Comments:		

K/A Reference(s)

261000.A4.03	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) Fan					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 46	ID: 2505930	Points: 1.00

The site has experienced a loss of offsite power with the following conditions:

- E1, E3, and E4 Diesel Generators have started and are powering their buses.
- The E2 Diesel Generator failed to start.
- No operator actions have been taken.

Which one of the following describes the expected status of Emergency Service Water (ESW) and Emergency Cooling Water (ECW) 40 seconds after the diesel generators close in on their associated buses?

A. The A and B ESW Pumps are running.
The ECW pump is not running.

B. The A and B ESW Pumps are running.
The ECW pump is running.

C. Only the A ESW Pump is running.
The ECW pump is not running.

D. Only the B ESW Pump is running.
The ECW pump is running.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	When the diesel generator closes in and restores power to the E32 bus, the B ESW pump and the ECW pump will both start to supply cooling water to the diesel generators. The A ESW pump will fail to start since the E2 Diesel Generator is not powering the E22 bus and the ECW pump will not trip until 45 seconds has elapsed since the B ESW pump is running.
Distractors:	A	Plausible because this would be true if the E2 Diesel Generator had closed in on the E22 bus and after 45 seconds has passed. But the A ESW pump will not start, and the ECW pump is still running since it has only been 40 seconds.

	B	Plausible because this would be true if the E2 Diesel Generator had closed in on the E22 bus. But the A ESW pump will not start.
	C	Plausible because this would be true if the E32 bus did not have power and if 45 seconds has passed. But the A ESW pump will not start, and the ECW pump is still running since it has only been 40 seconds.

Question Information

Topic	ESW Starting Sequence				
User ID	ILT-5054-EO-03-1			**System ID**	2505930
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests the ability to monitor the 4KV Electrical Distribution system for sequential starting and stopping of equipment.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	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):	SE-11 attachment K		
Learning Objective:	PLOT-5054-EO-03		
K/A System:	262001 - A.C. Electrical Distribution		Importance: RO 3.9
K/A Statement:	A3.04 - Ability to monitor automatic operation of the AC ELECTRICAL DISTRIBUTION including: Load Sequencing		
REQUIRED MATERIALS:	None		
Notes and Comments:	None		

K/A Reference(s)

262001.A3.04	Safety Function	Tier 2	Group	RO Imp: 3.8	SRO Imp:
Ability to monitor automatic operation of the AC Electrical Distribution, including: (CFR: 41.7 / 45.7) Load sequencing					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 47	ID: 2505931	Points: 1.00

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

- The 20Y050 Panel power supply from the Static Inverter is in a normal lineup.
- A fault occurs on the 20Y050 Panel results in drawing an excessive amount of current (> 300 amp setpoint).
- Annunciator INVERTER TROUBLE (220 F-5) alarms.

Which of the following is correct under the conditions provided?

A. The Inverter Static Switch automatically repositions to the alternate power supply.
The 20Y050 Panel will de-energize, then will re-energize after the power transfer ("break before make" logic).

B. The Static Inverter LOAD TO BYPASS pushbutton must be pressed to align to the alternate power supply.
The 20Y050 Panel will de-energize, then will re-energize after the power transfer ("break before make" logic).

C. The Inverter Static Switch automatically repositions to the alternate power supply.
The 20Y050 Panel remains energized during the power transfer ("make before break" logic).

D. The Static Inverter LOAD TO BYPASS pushbutton must be pressed to align to the alternate power supply.
The 20Y050 Panel remains energized during the power transfer ("make before break" logic).

Answer	C

Answer Explanation

Choices		Basis or Justification
Correct:	C	Under the conditions provided of high current draw by 20Y050 Panel, the Static Inverter Static Switch will automatically switch to the alternate power supply (E-124-R-C). This transfer is seamless (make before break) and the 20Y050 Panel remains energized.

Distracters:	A	Under the conditions provided oh high current draw by 20Y050 Panel, the Static Inverter Static Switch will automatically switch to the alternate power supply (E-124-R-C). This transfer is seamless (make before break) and the 20Y050 Panel remains energized. Transferring RPS power from normal to the alternate supply is a "break before make" logic and results in the loss of RPS power during the switching evolution.
	B	Under the conditions provided oh high current draw by 20Y050 Panel, the Static Inverter Static Switch will automatically switch to the alternate power supply (E-124-R-C). This transfer is seamless (make before break) and the 20Y050 Panel remains energized. The LOAD TO BYPASS pushbutton is used when a planned transfer to the alternate power supply is performed (ie, there is no call for an automatic switch). This also is a seamless transfer. Transferring RPS power from normal to the alternate supply is a "break before make" logic and results in the loss of RPS power during the switching evolution.
	D	Under the conditions provided oh high current draw by 20Y050 Panel, the Static Inverter Static Switch will automatically switch to the alternate power supply (E-124-R-C). This transfer is seamless (make before break) and the 20Y050 Panel remains energized. The LOAD TO BYPASS pushbutton is used when a planned transfer to the alternate power supply is performed (ie, there is no call for an automatic switch). This also is a seamless transfer.

Question Information

Topic	UPS Transfer Logic				
User ID	ILT-5058-EO-02-1			**System ID**	2505931
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how the UPS will transfer from one power supply to another.
SRO-Only Justification	N/A
Additional Information	None

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	**X** Previous NRC Exam (2021) Other Exam Bank	
Reference(s):	ARC 220 F-5 Rev 9, SO 58B.7.A-2 Rev 8		
Learning Objective:	PLOT-5058-EO-02		
K/A System:	262002 Uninterruptable Power Supply (A.C./D.C.)	Importance; RO 3.5	
K/A Statement:	K4.01 Knowledge of UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) design features and/or interlocks that provide for the following: Transfer of Power Supplies		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

262002.K4.01	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Knowledge of Uninterruptable Power Supply (AC/DC) design features and/or interlocks that provide for the following: (CFR: 41.7) Transfer of power supplies					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 48	ID: 2505932	Points: 1.00

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

- Battery Charger 2AD003 is placed in the equalize charge mode in accordance with SO 57B.1-2, 125/250 Volt Station Battery Charger Operations.
- During the charge, AC power to the charger is lost due to a momentary loss of power to the E-12 bus.
- Power is subsequently restored to the E-12 bus by the Emergency Diesel Generator.

Which one of the following describes the status of the 2A Battery Charger when power is restored?

The 2A Battery Charger…

A. automatically returns to the float charge mode.

B. automatically returns to the equalize charge mode and the timer resets to the original starting value.

C. automatically returns to the equalize charge mode and the timer picks up where it was interrupted.

D. is de-energized and must be manually returned to service.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	From Note 2 in SO 57B.1-2: "Upon a loss of AC input power, the battery charger will return to the same mode it was in once power is restored. IF the battery charger was in the Equalize mode, THEN the timer will pick up where it was interrupted AND time out."
Distracters:	A	The charger will return to the equalize charge mode. Plausible if the applicant remembers the charger will automatically restart but does not remember it will return to the same mode it was in prior to the power loss. Float mode is the normal mode and carries less risk to the battery.

	B	Plausible because the charger will return to the equalize mode, but the timer will pick up where it left off; not restart.
	D	Plausible since procedure precaution requires waiting 15-20 seconds after closing AC input switch before closing DC input switch when placing charger in service to prevent blowing fuses in battery charger. Applicant may believe charger design would prevent automatic restoration (DC switch closure) following a loss of AC power to the charger for the same reason.

Question Information

Topic	Loss of AC during Equalizing Charge				
User ID	ILT-5057-EO-07-1			**System ID**	2505932
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of how the DC battery chargers will respond when AC power is lost during an equalize charge.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	SO 57B.1-2 Rev 10		
Learning Objective:	PLOT-5057-EO-07		
K/A System:	263000 DC Electrical Distribution	Importance;	RO 4.0
K/A Statement:	K1.01 - Knowledge of the physical connections and/or cause-effect relationships between DC ELECTRICAL DISTRIBUTION and the following systems: A.C. Electrical Distribution		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

263000.K1.01	Safety Function	Tier 2	Group	RO Imp: 4.0	SRO Imp:
Knowledge of the physical connections and/or cause and effect relationships between the DC Electrical Distribution and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) AC electrical distribution					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 49	ID: 2505934	Points: 1.00

Unit 2 has scrammed due to a steam leak in the drywell. The following conditions exist:

- A loss of offsite power has occurred.
- Drywell pressure is 3.5 psig and slowly rising.
- RPV water level is +10" and steady.
- All 4 diesel generators have started and have been powering their respective buses for 5 minutes.

Which one of the following will result in a trip of the diesel generators?

A. Manual CARDOX initiation

B. Low fuel oil pressure

C. Diesel Generator high crankcase pressure

D. Low lube oil pressure

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	With drywell pressure above 2 psig, an MCA signal is present for the diesel generators. This signal will cause the diesels to start and will bypass several diesel trip functions for 10 minutes. Manual CARDOX initiation is one of the trips that is not bypassed when an MCA signal is received.
Distracters:	B	Plausible because this is a trip signal to the diesel generator, but it is bypassed when an MCA signal is received.
	C	Plausible because this is a trip signal to the diesel generator, but it is bypassed when an MCA signal is received.
	D	Plausible because this is a trip signal to the diesel generator, but it is bypassed when an MCA signal is received.

Question Information

Topic	Diesel Generator Trips				
User ID	ILT-5052-EO-03-1			**System ID**	2505934
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	None
K/A Justification	Question tests knowledge of the signals that would cause a trip of the diesel generator.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	P-S-07 Rev 18	
Learning Objective:	PLOT-5052-EO-03	
K/A System:	264000 Emergency Generators (Diesel/Jet)	Importance; RO 4.0
K/A Statement:	K4.01 - Knowledge of EMERGENCY GENERATORS design features and/or interlocks that provide for the following: Generator Trips	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

264000.K4.01	Safety Function	Tier 2	Group	RO Imp: 4.0	SRO Imp:
Knowledge of Emergency Generators design features and/or interlocks that provide for the following: (CFR: 41.7) Generator trips					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 50	ID: 2505936	Points: 1.00

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

- The air line to CV-2045A, 2A Heater Drain Valve, and CV-2046A, 2A Dump Valve, has ruptured.

Which of the following identifies the effect on the 2A Feedwater Heater?

A. CV-2045A, Heater Drain Valve, will fail closed.
CV-2046A, Dump Valve, will fail closed.

B. CV-2045A, Heater Drain Valve, will fail closed.
CV-2046A, Dump Valve, will fail open.

C. CV-2045A, Heater Drain Valve, will fail open.
CV-2046A, Dump Valve, will fail open.

D. CV-2045A, Heater Drain Valve, will fail open.
CV-2046A, Dump Valve, will fail closed.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	On a loss of air to the FWH drain valves, the valves will fail closed and the dump valves will fail open to prevent a high water level condition in the FWHs.
Distracters:	A	First part is correct. Plausible because the dump valves do fail, but they fail open; not closed.
	C	Plausible because the drain valves will fail, but they fail closed; not open. Second part is correct.
	D	Plausible because the drain valves will fail, but they fail closed; not open. Plausible because the dump valves do fail, but they fail open; not closed.

Question Information

Topic	Loss of Air to FWH Drain Valves				
User ID	ILT-5006-EO-07-1			**System ID**	2505936
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	Question tests knowledge of the effects of a loss of instrument air to the feedwater heater drain valves.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CFR55.41(b)(4)

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ON-119, Rev 32	
Learning Objective:	PLOT-5006-EO-07	
K/A System:	300000 - Instrument Air System	Importance; RO 3.1
K/A Statement:	K3.17 - Knowledge of the effect that a loss or malfunction of the INSTRUMENT AIR SYSTEM will have on the following systems or system parameters: Heater Drain System	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

300000.K3.17	Safety Function	Tier 2	Group	RO Imp: 3.1	SRO Imp:
Knowledge of the effect that a loss or malfunction of the Instrument Air System will have on the following systems or system parameters: (CFR: 41.7 / 45.6) Heater drain system					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 51	ID: 2505938	Points: 1.00

Unit 2 was operating at 100% power when the following occurs:

- The 2A TBCCW pump trips due to an overcurrent condition.
- The 2B TBCCW pump fails to automatically start.
- Attempts to manually start the 2B TBCCW pump have failed.
- Both TBCCW pump switches are placed in OFF.
- Pumps have been tripped for 1 minute.

Which of the following components (if any) are being supplied cooling water from RBCCW?

A. CRD pumps and Instrument Air Compressors

B. Isophase Bus coolers and Radwaste Air Compressor

C. Condensate Pumps and Turbine Building Sample Station Coolers

D. No TBCCW loads are being cooled by RBCCW

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	With a loss of both TBCCW pumps and after a 40 second time delay, valves will reposition to align RBCCW flow to the CRD pumps and the Instrument Air Compressors as they are vital loads. Cooling water flow is lost to all other TBCCW cooled components.
Distracters:	B	Plausible because these are TBCCW cooled components, but they do not receive cooling from RBCCW.
	C	Plausible because these are TBCCW cooled components, but they do not receive cooling from RBCCW.
	D	Plausible because this would be true if the time since the trip was less than 40 seconds, but since it is a minute, the swapover occurred and RBCCW flow is supplying the CRD pumps and the IA compressors.

Question Information

Topic	TBCCW Components Supplied by RBCCW				
User ID	ILT-5034-EO-07-1			**System ID**	2505938
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	Question tests knowledge of what TBCCW loads would be supplied upon a loss of power to the TBCCW pumps.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(4)

Source Documentation			
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	ON-118, Rev 10		
Learning Objective:	PLOT-5034-EO-07		
K/A System:	400000 - Component Cooling Water System	Importance;	RO 3.9
K/A Statement:	K3.01 - Knowledge of the effect that a loss or malfunction of the COMPONENT COOLING WATER SYSTEM will have on the following systems or system parameters: Loads Cooled by CCW		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

400000.K3.01	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp:
Knowledge of the effect that a loss or malfunction of the Component Cooling Water System will have on the following systems or system parameters: (CFR: 41.7 / 45.6) Loads cooled by CCW					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 52	ID: 2506393	Points: 1.00

Unit 2 and 3 are shutdown with the Emergency Service Water system operating in Closed Loop.

Bay water level is being monitored by float type level transmitter LT-2804A(B), A(B) Bay Level, and controlled by MO-2804A(B), Bay Inlet.

If the Intake Bay water temperature increased by 20°F, what is the expected response of the Emergency Service Water System?

LT-2804A(B) will...

A. sense a drop in Bay level and open MO-2804A(B).

B. sense a rise in Bay level and close MO-2804A(B).

C. sense a rise in Bay level and open MO-2804A(B).

D. sense a drop in Bay level and close MO-2804A(B).

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	When operating in closed loop, MO-2804A(B) will operate to control return water flow to the intake bay to control bay water level. If bay water temperature increased by 20°F, then water density will go down, resulting in a rise in water level. The level detectors will then close MO-2804A(B) to return water level to the normal value.
Distractors:	A	Plausible because there is a drop in water density, but that causes a rise in water level, not a drop. Plausible because this would be true if the valves diverted water away from the bays, but they are returns. Therefore if they open, bay water level will rise, not lower.
	C	First part is correct.

		Plausible because this would be true if the valves diverted water away from the bays, but they are returns. Therefore if they open, bay water level will rise, not lower.
	D	Plausible because there is a drop in water density, but that causes a rise in water level, not a drop. Second part is correct.

Question Information

Topic	GFES Level Detector Operation				
User ID	B711			**System ID**	2506393
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

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

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(4)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	SO 48.1.B, Rev 22	
Learning Objective:	GF Sensors and Detectors Objective 8	
K/A System:	510000 - Service Water 291002 - Sensors and Detectors - Level	Importance: RO 3.2
K/A Statement:	K1.07 - Theory and operation of level detectors.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

291002.K1.07	Safety Function	Tier	Group	RO Imp: 3.2	SRO Imp:
Theory and operation of level detectors					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 53	ID: 2505971	Points: 1.00

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

- Recirculation loop calculated total drive flow input to APRM "1" fails to zero.
- Recirculation loop calculated total drive flow input to APRM "3" fails to zero.

Which of the following identifies the expected response of the plant?

A. Alarm received, NO Rod Block, NO half or full scram.

B. Alarm and Rod Block received, NO half or full scram.

C. Alarm, Rod Block and 'A' channel 1/2 scram received.

D. Alarm and full scram received.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	A loss of flow input to the APRM will result in a Hi-Hi vote from each APRM and the APRM Flow Bias Off Normal alarm. Since there are 2 APRMs providing a vote, the 2/4 logic is met and a reactor scram will occur.
Distractors:	A	Plausible because this would be true if power was below the rod block limit, but since it is above, votes would be received and a scram would occur.
	B	Plausible because this would be true if it was just 1 APRM that experienced the fault, but since it is 2, a scram will occur.
	C	Plausible because this would be true if APRM 1 and APRM 3 provided inputs to one RPS bus, but all 4 APRMs provide a signal to all voters, therefore any 2 APRMs will cause a scram.

Question Information

Topic	Loss of Flow Input to APRMs				
User ID	ILT-5002-EO-06-1			**System ID**	2505971
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of how APRMs would respond to a loss of total flow input from the recirculation flow control system.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ARC 211 A-3 Rev 11, ARC 211 A-4, Rev 4	
Learning Objective:	PLOT-5002-EO-06	
K/A System:	202002 - Recirculation Flow Control System	Importance: RO 4.1
K/A Statement:	K3.07 - Knowledge of the effect that a loss or malfunction of the RECIRCULATION FLOW CONTROL SYSTEM will have on the following systems or system parameters: APRM/LPRM	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

202002.K3.07	Safety Function	Tier 2	Group	RO Imp: 4.1	SRO Imp:
Knowledge of the effect that a loss or malfunction of the Recirculation Flow Control System will have on the following systems or system parameters: (CFR: 41.7 / 45.4) APRM/LPRM					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

Table: NRC-10CFR55-41
41.7, 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Question 54	ID: 2505974	Points: 1.00

Unit 2 is experiencing ATWS conditions. The following conditions exist.

- Reactor Power is 25%.
- Both Recirc Pumps have been tripped.
- The URO started the 2A SBLC Pump with the keylock switch.

Which of the following describes the expected response of the Reactor Water Cleanup System?

RWCU pumps will trip and...

A. MO-2-12-15, RWCU Inboard Isol, MO-2-12-18, RWCU Outboard Isol, and MO-2-12-068, RWCU Outlet, will close.

B. ONLY MO-2-12-18, RWCU Outboard Isol, and MO-2-12-068, RWCU Outlet, will close.

C. ONLY MO-2-12-15, RWCU Inboard Isol, and MO-2-12-068, RWCU Outlet, will close.

D. ONLY MO-2-12-068, RWCU Outlet, will close.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Initiation of SBLC will generate an isolation signal to the RWCU system causing the RWCU pumps to trip and MO-2-12-15, 18, and 068 to close.
Distractors:	B	Plausible because this will isolate RWCU, but all 3 valves will close.
	C	Plausible because this is the normal method for manually isolating RWCU, but the isolation signal will close all 3 valves.

	D	Plausible because this is the normal method for manually securing RWCU, but the isolation signal closes all 3 valves.

Question Information

Topic	RWCU Response to SBLC Initiation				
User ID	ILT-5012-EO-03-1			**System ID**	2505974
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of how RWCU will respond when SBLC is initiated.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(6)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	P-S-36, Rev 8	
Learning Objective:	PLOT-5012-EO-03	
K/A System:	204000 - Reactor Water Cleanup System	Importance: RO 3.7
K/A Statement:	K6.07 - Knowledge of the effect the following plant conditions, system malfunctions, or component malfunctions on the REACTOR WATER CLEANUP SYSTEM: SLCS Logic	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

204000.K6.07	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Reactor Water Cleanup System: (CFR: 41.7 / 45.7) SLCS logic					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

Table: NRC-10CFR55-41
41.6, 55.41(6) Design, components, and functions of reactivity control mechanisms and instrumentation.

Question 55	ID: 2505993	Points: 1.00

A TIP trace is in progress on Unit 2 when the following occurs:

- A steam leak developed in the drywell.
- The reactor was scrammed at 1.2 psig.
- Drywell pressure is 1.5 psig and rising slowly.
- RPV water level lowered to -15" and was restored to +20".

Which of the following states the response of the TIP system?

A. The inserted detector withdraws to the indexer mechanism and the associated ball valve will close.

B. The inserted detector withdraws to the "in-shield" position and the associated ball valve will close.

C. The shear valve associated with the inserted detector fires isolating that detector. Other TIP guide tubes are isolated by the normally closed ball valve.

D. The TIP trace continues unaffected by the plant conditions.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	When RPV water level lowered below +1", a Group II isolation signal was generated with will cause the TIP system to retract to the in-shield position and the associated ball valve to close.
Distractors:	A	Plausible because the indexer is a component of the TIP system and the detector does withdraw to the indexer, but it continues withdrawing to the in shield position. It does not stop at the indexer.
	C	Plausible because the shear valve can fire and will isolate the TIP system, but it is a manual actuation, not automatic.
	D	Plausible because this would be true if there was no isolation signal, but since RPV water level lowered below +1", a Group II/III isolation signal was received and the TIP will retract.

Question Information

Topic	TIP Response to PC Isolation				
User ID	ILT-5007G-EO-05-1			**System ID**	2505993
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests ability to monitor automatic response of the TIP system when a isolation signal is received.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(6)

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	SO 7F.7.A-2, Rev 2	
Learning Objective:	PLOT-5007G-EO-05	
K/A System:	215001 - Traversing In Core Probe	Importance: RO 3.3
K/A Statement:	A3.03 - Ability to monitor automatic operation of the TRAVERSING IN CORE PROBE, including: Valve Operation	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

215001.A3.03	Safety Function	Tier 2	Group	RO Imp: 3.3	SRO Imp:
Ability to monitor automatic operation of the Traversing In-Core Probe, including: (CFR: 41.7 / 45.7) Valve operation (BWR 2, 3, 4, 5)					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

Table: NRC-10CFR55-41
41.6, 55.41(6) Design, components, and functions of reactivity control mechanisms and instrumentation.

Question 56	ID: 2508853	Points: 1.00

Unit 2 is conducting a reactor startup.

- Unit 2 is at 70% power.
- Operators are withdrawing control rods per the control rod sequence.
- Alarm 211 C-4, RBM Downscale/Trouble, comes in.
- RBM B has failed downscale.
- No other actions have been taken.

Which of the following identifies whether there are any tech spec implications for this condition and the effect on control rod motion?

A. Tech Spec entry is required.
Control Rods can be withdrawn.

B. Tech Spec entry is required.
Control Rods cannot be withdrawn.

C. Tech Spec entry is NOT required.
Control Rods can be withdrawn.

D. Tech Spec entry is NOT required.
Control Rods cannot be withdrawn.

Answer	B

Answer Explanation

Correct:	B	Per T.S. 3.3.2.1, both Rod Block Monitors are required, so tech spec entry is required. With RBM B failed downscale, a rod block is inserted and control rods cannot be withdrawn until RBM B is bypassed.
Distractors:	A	First part is correct. Plausible because RBM A is available and monitoring control rods, but RBM B must be bypassed to continue rod motion.
	C	Plausible because there are 2 RBMs, but both are required for tech specs. Plausible because RBM A is available and monitoring control rods, but RBM B must be bypassed to continue rod motion.

	D	Plausible because there are 2 RBMs, but both are required for tech specs. Second part is true.

Question Information

Topic	RBM Downscale Rod Block				
User ID	ILT-5060-EO-07-1			**System ID**	2508853
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.6 Design, components, and functions of reactivity control mechanisms and instrumentation.

References Provided	None
K/A Justification	This question tests the knowledge of how RBM failure will affect the ability to move control rods. Question is RO level because it tests knowledge of Tech Specs 'above the line' information and does not require 'below the line' information to answer correctly.
SRO-Only Justification	Not applicable
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(6)

Source Documentation		
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC 211 C-3 Rev 10	
Learning Objective:	PLOT-5060-EO-07	
K/A System:	215002 - Rod Block Monitor System	Importance: RO / SRO 3.7
K/A Statement:	K1.03 - Knowledge of the physical connections and/or cause and effect relationship between the ROD BLOCK MONITOR SYSTEM and the following systems: Reactor Manual Control System	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

215002.K1.03	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp:
Knowledge of the physical connections and/or cause and effect relationships between the Rod Block Monitor System and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Reactor manual control system					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 57	ID: 2505994	Points: 1.00

A startup and heatup is in progress on Unit 2. The following events occur:

- Excess flow check valve XFC-2-2-17A fails shuts.

Which of the following identifies how indicated level on LI-94A will respond if the plant heatup continues? (Assume RPV water level is maintained constant)

As reactor pressure rises...

A. indicated level will rise higher than actual level due to the rise in pressure on the reference leg.

B. indicated level will lower below actual level due to the lower pressure on the variable leg.

C. indicated level will be unaffected because PT-53A will provide the necessary density compensation.

D. indicated level will be unaffected because the pressure rise is felt on both the reference and variable legs equally.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per the drawing, EFCV 2-2-17A connects the variable leg to LT-52A which sends the variable leg signal to LI-94A. As pressure rises, pressure on the reference leg (high pressure side) will rise, but the EFCV holds pressure constant on the variable leg (low pressure side). Differential pressure will rise, which will cause indicated level to lower. Since RPV water level is being held constant, indicated water level will be lower than actual water level on LI-94A.
Distractors:	A	Plausible because this would be true if the EFCV was connected to the high pressure side. Since it is connected to the low pressure side, d/p will rise causing indicated water level to lower.

	C	Plausible because PT-53A provides a pressure input to the control circuit that provides input to LI-94A, but PT-53A provides a signal for feedwater control system, not LI-94A
	D	Plausible because this would be true if the EFCV did not isolate the variable leg to LT-52A, but since it does, it will also isolate the pressure input to LI-94A and indicated level will be lower.

Question Information

Topic	Excess Flow Valve Failure Effects				
User ID	ILT-5002B-EO-07-1			**System ID**	2505994
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	OPEN
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I

References Provided	M-352 Sheet 1
K/A Justification	Question tests knowledge of how indicated RPV water level will be affected by closure of an Excess Flow Check Valve to level instruments.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	M-352 Sheet 1 Rev 65	
Learning Objective:	PLOT-5002B-EO-07	
K/A System:	216000 - Nuclear Boiler Instrumentation	Importance: RO 3.5
K/A Statement:	K5.10 - Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to NUCLEAR BOILER INSTRUMENTATION: Indicated Level vs. Actual Vessel Level during Vessel Heatups or Cooldowns	

REQUIRED MATERIALS:	M-352 Sheet 1
Notes and Comments:	N/A

K/A Reference(s)

216000.K5.10	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp:
Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Nuclear Boiler Instrumentation: (CFR: 41.5 / 45.3) Indicated level versus actual vessel level during vessel heatups or cooldowns					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

Table: NRC-10CFR55-41
41.2, 55.41(2) General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.

Question 58	ID: 2231257	Points: 1.00

Which of the following will cause a Refuel Equip in Use Rod Block?

Mode Switch in _____ and the Refueling Platform over the core and any refueling platform hoist _____.

A. SHUTDOWN
loaded OR unloaded

B. SHUTDOWN
loaded ONLY

C. REFUEL
loaded ONLY

D. REFUEL
loaded OR unloaded

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per SO 62.7.A-2, when a loaded fuel bundle is being moved over the core and the Mode Switch is in REFUEL, the Refuel Equip In Use rod block is active.
Distracters:	A	Plausible because the Refuel Bridge Reverse Motion rod block also could also be active with the bridge over the core and loaded or unloaded, but it also requires a control rod withdrawn and de-selected. The Refuel Equip in Use rod block does not require control rods withdrawn, but it does requires the hoist to be loaded, which makes this answer incorrect.
	B	Plausible because the Refuel Bridge Reverse Motion rod block also could also be active with the bridge over the core and loaded or unloaded, but it also requires a control rod withdrawn and de-selected. The Refuel Equip in Use rod block does not require control rods withdrawn, but it does requires the hoist to be loaded, which makes this answer incorrect.

	D	Plausible because this is part of the logic for the Refuel Platform reverse motion rod block, but not the Refuel Equip in Use Rod Block.

Question Information

Topic	Refueling Interlocks				
User ID	PLOT-5018-EO-03			**System ID**	2231257
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Requires knowledge of Mode Switch positions in relation to fuel handling equipment.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	X New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	SO 62.7.A Rev 31		
Learning Objective:	PLOT-5018-EO-03		
K/A System:	234000 Fuel Handling Equipment	Importance;	RO 3.7
K/A Statement:	A4.03 - Ability to manually operate and/or monitor at the equipment location/control room: Mode Switch		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

234000.A4.03	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp: 3.5
Ability to manually operate and/or monitor at the equipment location/control room: (CFR: 41.7 / 45.5 to 45.8) Mode switch					
B2.1.19	Safety Function	Tier 3	Group	RO Imp: 3.9	SRO Imp: 3.8
Ability to use available indications to evaluate system or component status (CFR: 41.10 / 45.12)					

Learning Objective(s)

1. RO Exam
   User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 59	ID: 2505996	Points: 1.00

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

- A malfunction in the DEHC system has caused the pressure signal from PT-2184, Main Steam Line Pressure, to rise.
- PT-2184 remains in good quality.
- No operator action has been taken.

Which of the following identifies how this failure will affect the reactor?

A. Reactor pressure will rise until the reactor scrams due to high RPV pressure or high power.

B. Reactor pressure will lower until the reactor scrams due to MSIV closure.

C. Reactor pressure will lower and the cooldown rate will be violated.

D. Reactor pressure will lower and stabilize when the backup pressure regulator takes over control.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	When the pressure transmitters rise, the DEHC system will interpret the signal as reactor pressure rising and will open the Turbine Control Valves in an attempt to restore reactor pressure to the setpoint. Reactor pressure will continue to lower until the MSIVs close at 825 psig with the Mode Switch in RUN.
Distractors:	A	Plausible because this would be true if reactor pressure rose, but the failure will cause reactor pressure to lower.
	C	Plausible because this would be true if the Mode Switch was in STARTUP since that would bypass the 850 psig MSIV closure interlock. But since the Mode Switch is in RUN, the MSIVs will close at 850 psig and stop the pressure reduction before the cooldown rate is exceeded.

	D	Plausible because there is a backup regulator, but it guards against high pressure, not low pressure.

Question Information

Topic	Turbine Inlet Pressure vs Reactor Pressure				
User ID	ILT-5001B-EO-07-1			**System ID**	2505996
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.3 Mechanical components and design features of the reactor primary system.

References Provided	None
K/A Justification	Question tests knowledge of how reactor pressure will respond to changing turbine input pressure.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	P-S-59 Rev 5	
Learning Objective:	PLOT-5001B-EO-07	
K/A System:	241000 - Reactor/Turbine Pressure Regulating System	Importance: RO 3.6
K/A Statement:	K5.04 - Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the REACTOR/TURBINE PRESSURE RGULATING SYSTEM: Turbine Inlet Pressure vs. Reactor Pressure	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

241000.K5.04	Safety Function	Tier 2	Group	RO Imp: 3.6	SRO Imp:
Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Reactor/Turbine Pressure Regulating System: (CFR: 41.5 / 45.3) Turbine inlet pressure vs. reactor pressure					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

Table: NRC-10CFR55-41
41.7, 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Question 60	ID: 2506005	Points: 1.00

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

- Alarm 220 A-5, 2 Gen Stator Coolant or H2 Seal Oil Trouble, is in.
- Alarm 206 D-4, Main Seal Oil Pump Trip, is in.
- An EO is dispatched to investigate.
- The EO reports the following:
  - Alarm 20C081 C-2, Emergency Seal Oil Pump Running, is in.
  - The green light is lit, and the red light is out for the Main Seal Oil Pump.

Which of the following describes the status of the Hydrogen Seal Oil system after one hour?

A. All system functions are operating normally with the ESOP in service.

B. Seal oil pressure has lowered to 8 psig.

C. Hydrogen gas purity has lowered due to the Vacuum Tank being bypassed.

D. HV-2-50B-47533, PCV-4307 Bypass Valve, must be placed in service due to loss of PCV-2-50B-4307, Seal Oil Pressure Regulator.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With a loss of the Main Seal Oil pump, the Emergency Seal Oil Pump will start and supply seal oil flow. This also causes the Vacuum Tank to be bypassed which will stop deaerating and dehydrating the seal oil, therefore hydrogen purity will lower.
Distractors:	A	Plausible because this would be true if the ESOP performed all functions of the MSOP, but the vacuum tank is bypassed when the ESOP is in service.
	B	Plausible because this would be true if seal oil pressure was supplied by the Mail Lube Oil system, which would happen with a loss of both the MSOP and the ESOP, but with the ESOP running, MLO is not supplying oil pressure.

	D	Plausible because there would be an initial drop in seal oil pressure and this is a correct action for a low seal oil pressure, but the ESOP will return pressure to above the point that would require the bypass be placed in service.

Question Information

Topic	Loss of Main Seal Oil Pump				
User ID	ILT-5001B-EO-04-1			**System ID**	2506005
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	Question tests ability to recognize the status of the Hydrogen Seal Oil system based on provided alarms and indications.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(4)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ARC 20C081 C-2, Rev 2	
Learning Objective:	PLOT-5001B-EO-04	
K/A System:	245000 - Main Turbine Generator/Auxiliary Systems	Importance: RO 3.2
K/A Statement:	A1.09 - Ability to predict and/or monitor changes in parameters associated with operation of the MAIN TURBINE GENERATOR/AUXILIARY SYSTEMS including: Lights and Alarms	
REQUIRED MATERIALS:	**NONE**	

Notes and Comments:	None

K/A Reference(s)

245000.A1.09	Safety Function	Tier 2	Group	RO Imp: 3.2	SRO Imp:
Ability to predict and/or monitor changes in parameters associated with operation of the Main Turbine Generator and Auxiliary Systems, including: (CFR: 41.5 / 45.5) Lights and alarms					

Learning Objective(s)

1. RO Exam
   User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 61	ID: 2506006	Points: 1.00

Unit 2 is operating at 100% power with no equipment out of service.

- CRD flow controller is in automatic with a setpoint of 60gpm.
- A reactor scram has occurred.

Which of the following identifies how the CRD flow controller will respond?

The CRD flow controller will throttle _____ in an attempt to _____ CRD system flow.

A. open
raise

B. closed
raise

C. open
lower

D. closed
lower

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	The charging water line is upstream of the flow control valve and downstream of the flow detector. On a scram, all flow goes through the charging line. This results in the flow control valve seeing a rise in system flow. This will result in the flow control valve throttling closed in an attempt to lower system flow.
Distractors:	A	Plausible because this would be true if flow was sensed downstream of the charging line, but flow is sensed upstream, therefore the flow control valve will see a high flow and close to attempt to lower flow. Plausible because flow through the flow control valve is low, but the system sees a high flow.

	B	First part is correct. Plausible because this would be true if the charging line was downstream of the flow control valve, but it is upstream of the valve.
	C	Plausible because this would be true if flow was sensed downstream of the charging line, but flow is sensed upstream, therefore the flow control valve will see a high flow and close to attempt to lower flow. Second part is correct.

Question Information

Topic	GF - CRD Controllers and Positioners				
User ID	ILT-5003A-EO-03-1			**System ID**	2506006
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.4 Secondary coolant and auxiliary systems that affect the facility.

References Provided	None
K/A Justification	GF Question on controllers and positioners.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(4)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	GF Controllers and Positioners	
Learning Objective:	PLOT-5003A-EO-03	
K/A System:	201001 - Control Rod Drive Hydraulic System 291003 - Controllers and Positioners	Importance: RO

		3.7
K/A Statement:	K1.01 - Function and operation of flow controller in manual and automatic modes.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

291003.K1.01	Safety Function	Tier	Group	RO Imp: 3.7	SRO Imp:
Function and operation of flow controller in manual and automatic modes					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 62	ID: 2506391	Points: 1.00

Unit 3 is in a refueling outage with the following conditions:

- Reactor water level is +474 inches.
- The 3A Recirc Pump is operating.

An earthquake causes a complete shear of the 3A Recirc Pump Suction Line. The following occurs:

- All ECCS systems start and inject as expected.

RPV water level will stabilize at the top of the Jet Pump suction, which is approximately _____.

A. -160"

B. -195"

C. -226"

D. -245"

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	A full shear of a recirc loop is the design basis accident for the RPV level will stabilize at the top of the jet pumps, which correlates to 2/3 core height. 2/3 core height corresponds to -226".
Distracters:	A	Plausible because this an RPV water control level that correlates to the level for automatic start of low pressure ECCS pumps, but level will stabilize at 2/3 core height which is -226".
	B	Plausible because this an RPV water control level that correlates to a form of adequate core cooling, but level will stabilize at 2/3 core height which is -226".
	D	Plausible because this an RPV water control level that correlates to a form of adequate core cooling, but level will stabilize at 2/3 core height which is -226".

Question Information

Topic	2/3 Core Coverage during LOCA				
User ID	ILT-5004-EO-07-1			**System ID**	2506391
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.3 Mechanical components and design features of the reactor primary system.

References Provided	None
K/A Justification	Question tests knowledge of how the plant will respond to a design basis accident.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	**X** New Exam item Modified Bank Exam Bank	Previous NRC Exam Other Exam Bank	ILT
Reference(s):	P-S-42 Rev 13		
Learning Objective:	PLOT-5004-EO-07		
K/A System:	290002 - Reactor Vessel Internals	Importance;	RO 4.6
K/A Statement:	K4.01 - Knowledge of REACTOR VESSEL AND INTERNALS design features and/or interlocks that provide for the following: 2/3 core coverage following a design-basis LOCA.		
REQUIRED MATERIALS:	**None**		
Notes and Comments:	None		

K/A Reference(s)

290002.K4.01	Safety Function	Tier 2	Group	RO Imp: 4.6	SRO Imp:
Knowledge of Reactor Vessel and Internals design features and/or interlocks that provide for the following: (CFR: 41.7) 2/3 core coverage following a design-basis LOCA (BWR 3, 4, 5, 6)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 63	ID: 2506007	Points: 1.00

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

- Alarm 003 A-1, Control Room Vent Supply Flow Hi Lo, comes in.
- Operator reports flow is 500 scfm and lowering.

2 minutes later, the following indications are observed:

- Control Room temperature is 98^{o}F.
- 0AV079 and 0BV079, Fresh Air Supply fans, have tripped.
- 0AV028 and 0BV028, Air Conditioning Supply fans, have tripped.
- 0AV029 and 0BV029, Return Air fans, have tripped.
- 00V326, Control Room Office Cooling Unit, has tripped.
- 0AV030 and 0BV030, Emergency Ventilation fans, are not running.
- 00V033, Toilet Exhaust Fan, is not running.

Which of the following identifies (1) the status of CREV and (2) the required operator action?

A. 1. CREV is operating as designed.
   2. Enter SE-17, Main Control Room Atmosphere Non-Radioactive Contamination.

B. 1. CREV is operating as designed.
   2. Enter ON-115, Loss of Normal Main Control Room Ventilation.

C. 1. CREV is NOT operating as designed.
   2. Enter SE-17, Main Control Room Atmosphere Non-Radioactive Contamination.

D. 1. CREV is NOT operating as designed.
   2. Enter ON-115, Loss of Normal Main Control Room Ventilation.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	CREVs will initiate on a low flow signal (<500scfm) for greater than 60 seconds, therefore CREVs is not functioning properly and is required to be manually initiated due to the low flow condition. ON-

		115 is the appropriate procedure to enter in this condition as there is no indication of an agent or irritant in the control room.
Distracters:	A	Plausible because this would be true if it had been less than 60 seconds, but since the time limit was exceeded, then CREVs is not functioning normally and is required to be manually initiated due to the low flow condition. Plausible because this is a procedure that is entered for issues with Control Room ventilation and atmosphere, but only if there is a contaminant in the control room atmosphere. Since there is not, ON-115 is the only procedure entered.
	B	Plausible because this would be true if it had been less than 60 seconds, but since the time limit was exceeded, then CREVs is not functioning normally and is required to be manually initiated due to the low flow condition. Second part is correct.
	C	First part is correct. Plausible because this is a procedure that is entered for issues with Control Room ventilation and atmosphere, but only if there is a contaminant in the control room atmosphere. Since there is not, ON-115 is the only procedure entered.

Question Information

Topic	CREVs Initiation Logic				
User ID	ILT-5040D-EO-06-1			**System ID**	2506007
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.13 Procedures and equipment available for handling and disposal of radioactive materials and effluents.

References Provided	None
K/A Justification	Question tests ability to recognize the failure of CREV to initiate and required actions.
SRO-Only Justification	
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(13)

Source Documentation			
Source:	**X** New Exam item Modified Bank Exam Bank	Previous NRC Exam Other Exam Bank	ILT
Reference(s):	ON-115 Rev 25, ARC 003 A-1 Rev 5		
Learning Objective:	PLOT-5040D-EO-06		
K/A System:	290003 - Control Room Ventilation	Importance;	SRO 3.8
K/A Statement:	A2.03 - Ability to (a) predict the impact of the following on the CONTROL ROOM VENTILATION and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Initiation/Reconfiguration Failure		
REQUIRED MATERIALS:	**None**		
Notes and Comments:	None		

K/A Reference(s)

290003.A2.03	Safety Function	Tier 2	Group	RO Imp: 3.5	SRO Imp: 3.8
Ability to (a) predict the impacts of the following on the Control Room Ventilation and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) Initiation/reconfiguration failure					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 64	ID: 2506008	Points: 1.00

With respect to Reactivity Management, all of the following are Reactor Operator responsibilities, EXCEPT:

A. Monitoring WRNM indication during refueling activities.

B. Responsible for trainees who are performing reactivity manipulations.

C. Notifying the Shift Manager of an emergent reactivity change.

D. Notifying all unit control room personnel prior to making a reactivity change.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per OP-AA-300, notifying the Shift Manager of emergent reactivity changes is a responsibility of the Unit Supervisor (CRS)
Distracters:	A	Plausible because all control room personnel are responsible to observe power indication, but it is listed as a duty of the Reactor Operator.
	B	Plausible because all control room personnel are responsible to observe trainees and a Reactivity SRO is normally assigned, but it is listed as a duty of the Reactor Operator.
	D	Plausible because all control room personnel are responsible to announce reactivity changes, but it is listed as a duty of the Reactor Operator.

Question Information

Topic	RO Responsibilities				
User ID	ILT-1529-1D-1			**System ID**	2506008
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of required reports from the Reactor Operator
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	New Exam item Modified Bank Exam Bank	Previous NRC Exam Other Exam Bank	**X** ILT
Reference(s):	OP-AA-300 Rev 14		
Learning Objective:	PLOT-DBIG-1529-1D		
K/A System:	G2.1 - Conduct of Operations	Importance;	RO 4.1
K/A Statement:	G2.1.2 - Knowledge of operator responsibilities during any mode of plant operation.		
REQUIRED MATERIALS:	**None**		
Notes and Comments:	None		

K/A Reference(s)

B2.1.02	Safety Function	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.4
Knowledge of operator responsibilities during any mode of plant operation (CFR: 41.10 / 43.1 / 45.13)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 65	ID: 2506009	Points: 1.00

A tagout has just been removed by two operators as described below:

- Operator A has removed the tagout.
- Operator B provided a peer check for removing the tagout.
- The Authorizer is ready to have the tagout removal Independently Verified (IV).

Which of the following is the proper method for conducting the IV?

A. Either Operator A or Operator B can perform the IV IF the verification is performed on a different day.

B. Operator B can perform the IV IF Operator A is NOT involved in the verification process.

C. ONLY Operator B can perform the IV, IF the verification is performed on a different day.

D. Neither Operator A NOR Operator B can perform the IV.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Since both Operator A and B were involved in the tagout removal process, neither can perform the IV.
Distracters:	A	Plausible because this would be acceptable if this was not an IV, but since it is an IV, this does not meet the requirements.
	B	Plausible because this would be acceptable if this was a concurrent verification, but since it is an IV, this does not meet the requirements.
	C	Plausible because this is acceptable for normal valve lineups, but the IV requirement adds on additional required actions.

Question Information

Topic	Independent Verifications				
User ID	ILT-1529-1I-1			**System ID**	2506009
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of how independent verifications are performed for system lineups.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation			
Source:	New Exam item Modified Bank Exam Bank	Previous NRC Exam Other Exam Bank	**X** ILT
Reference(s):	HU-AA-101 Rev 14		
Learning Objective:	PLOT-DBIG-1529-1I		
K/A System:	G2.1 - Conduct of Operations	Importance;	RO 4.1
K/A Statement:	G2.1.29 - Knowledge of how to conduct system lineups, such as valves, breakers, or switches.		
REQUIRED MATERIALS:	**None**		
Notes and Comments:	None		

K/A Reference(s)

B2.1.29	Safety Function	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.0
Knowledge of how to conduct system lineups, such as valves, breakers, or switches (CFR: 41.10 / 45.1 / 45.12)					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 66	ID: 2205818	Points: 1.00

Both Units are at 100% power when an event occurred.

- A LOCA signal on BOTH Units.

Under the conditions given, which of the following RHR Pumps auto start in LPCI Mode, on each Unit?

A. Unit 2: 2B and 2D
Unit 3: 3A and 3C

B. Unit 2: 2A and 2B
Unit 3: 3C and 3D

C. Unit 2: 2B and 2C
Unit 3: 3A and 3D

D. Unit 2: 2C and 2D
Unit 3: 3A and 3B

Answer	B

Answer Explanation

Correct:	B	RHR Pumps A and C are in one loop, and B and D are in a second loop. All pumps are powered by a different emergency bus. When a LOCA signal is present (on a single Unit), all 4 RHR Pumps auto start in LPCI mode. When there is a dual-Unit LOCA signal, then only the 2A and 2B RHR Pumps auto start (different power supplies and different piping) on Unit 2, and only the 3C and 3D RHR Pumps auto start (different power supplies and different piping) on Unit 3.
Distractors:	A	RHR Pumps A and C are in one loop, and B and D are in a second loop. All pumps are powered by a different emergency bus. When a LOCA signal is present (on a single Unit), all 4 RHR Pumps auto start in LPCI mode. When there is a dual-Unit LOCA signal, then only the 2A and 2B RHR Pumps auto start (different power supplies and different piping) on Unit 2, and only the 3C and 3D RHR Pumps auto start (different power supplies and different piping) on Unit 3. This choice is plausible since all answers are RHR pumps that could have started.

	C	RHR Pumps A and C are in one loop, and B and D are in a second loop. All pumps are powered by a different emergency bus. When a LOCA signal is present (on a single Unit), all 4 RHR Pumps auto start in LPCI mode. When there is a dual-Unit LOCA signal, then only the 2A and 2B RHR Pumps auto start (different power supplies and different piping) on Unit 2, and only the 3C and 3D RHR Pumps auto start (different power supplies and different piping) on Unit 3. This choice is plausible since all answers are RHR pumps that could have started.
	D	RHR Pumps A and C are in one loop, and B and D are in a second loop. All pumps are powered by a different emergency bus. When a LOCA signal is present (on a single Unit), all 4 RHR Pumps auto start in LPCI mode. When there is a dual-Unit LOCA signal, then only the 2A and 2B RHR Pumps auto start (different power supplies and different piping) on Unit 2, and only the 3C and 3D RHR Pumps auto start (different power supplies and different piping) on Unit 3. This choice is plausible since all answers are RHR pumps that could have started.

Question Information

Topic	LPCI Start Circuit				
User ID	ILT-5010-EO-03-1			**System ID**	2205818
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.7 Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

References Provided	
K/A Justification	
SRO-Only Justification	Not applicable
Additional Information	

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

Source Documentation		
Source:	New Exam item	Previous NRC Exam

	Modified Bank Other Exam Bank X ILT Exam Bank	
Reference(s):	SO 10.7.b-2	
Learning Objective:	PLOT-5010-EO-03	
K/A System:	2.2 Equipment Control	Importance; RO 3.8
K/A Statement:	2.2.3 Knowledge of the design, procedural, and operational differences between units.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:		

K/A Reference(s)

B2.2.03	Safety Function	Tier 3	Group	RO Imp: 3.8	SRO Imp: 3.9
(Multi-unit license) Knowledge of the design, procedural, or operational differences between units (CFR: 41.5 / 41.6 / 41.7 / 41.10 / 45.12)					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 67	ID: 2506010	Points: 1.00

Unit 2 is at 100% power with the following:

- A tagout is being hung on the 2A Core Spray Loop.
- Control Room switches are NOT being used as isolation points.

Which of the following identifies the type of tags hung on the Control Room switches in this condition?

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 they are not being used as isolation points, so danger tags are not appropriate.
	C	Plausible because these are tags that can be used in the Control Room, but not in this condition.
	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 Information

Topic	Tagging Control Room Switches				
User ID	ILT-TAGOUT-1			**System ID**	2506010
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of how Control Room switches are tagged in the tagout process.
SRO-Only Justification	N/A
Additional Information	None

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

Source Documentation		
Source:	New Exam item Modified Bank **X** ILT Exam Bank Previous NRC Exam Other Exam Bank	
Reference(s):	OP-AA-109-101 Rev 18	
Learning Objective:	ILT Clearance and Tagging - Clearance Writer/Preparer - Describe Clearance Tag Standards related to Clearance and Tagging process	
K/A System:	2.2 Equipment Control	Importance; RO 4.1
K/A Statement:	2.2.13 - Knowledge of tagging and clearance procedures.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

B2.2.13	Safety Function	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.3
Knowledge of tagging and clearance procedures (CFR: 41.10 / 43.1 / 45.13)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

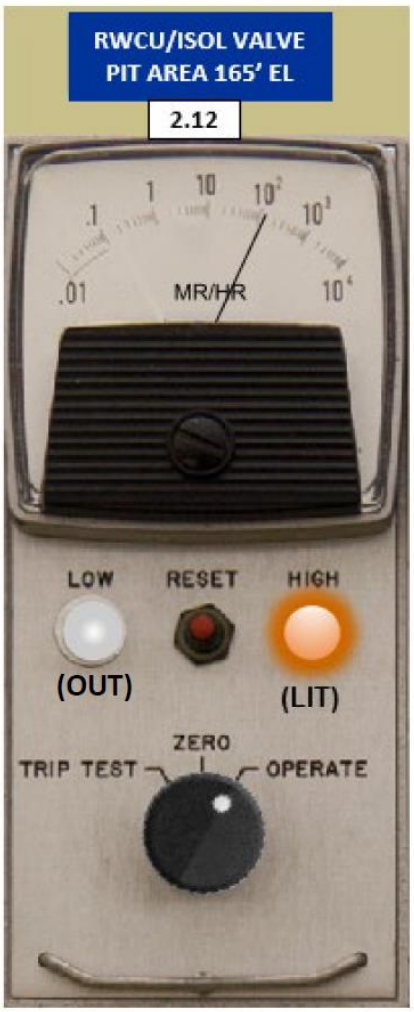
Question 68	ID: 2507681	Points: 1.00

Unit 2 is operating at 100% power.

Which of the following Area Radiation Monitors (ARM) indications displays the correct response to an abnormal release of radiation in the vicinity of the ARM, and would require entry into T-103, Secondary Containment Control?

1.

2.



3.

RBCCW ROOM
116 ELEV
1.12
.01
MR/HR
LOW
RESET
HIGH
(OUT)
(LIT)
ZERO
TRIP TEST
OPERATE

4.

TIP ROOM
1.3
.01
MR/HR
LOW
RESET
HIGH
(OUT)
(OUT)
ZERO
TRIP TEST
OPERATE

A. 1

B. 2

C. 3

D. 4

Answer	B

Answer Explanation

Choice'		Basis or Justification
Correct:	B	If the RWCU System leaked or pipe broke in the vicinity of its ARM, the ARM would show a rise in radioactivity. If it goes above the alarm point, then the HIGH light on the ARM would be on. The RWCU ARM label is blue, which means that this ARM, when exceeded, is an entry into T-103, Secondary Containment Control.
Distracters:	A	This ARM, also when exceeded, and when in OPERATE, is an entry into T-103 (blue text box). But even though this ARM does show above the high setpoint, it is in TRIP TEST. This is used to test the high trip setpoint of the ARM and would be performed during a planned evolution. This would not require entry into any TRIP procedures.
	C	This ARM does show the HIGH light lit with the indication above the alarm level. But this ARM has a white text box, and is thus not an entry into T-103.
	D	This ARM does not show above the alarm level required for T-103 entry, although it does have a blue text box.

Question Information

Topic	Area Rad Monitor Indications				
User ID	ILT-5063C-EO-03-1			**System ID**	2507681
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.11 Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

References Provided	ARM Pictures (Embedded)
K/A Justification	Question requires ability to ready area radiation monitors to determine accurate information.
SRO-Only Justification	N/A
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.41(b)(11)

Source Documentation		
Source:	New Exam item **X** Previous NRC Exam: **2021** Modified Bank Other Exam Bank **X** ILT Exam Bank	
Reference(s):	ARC 003 B-1 Rev 8	
Learning Objective:	PLOT-5063C-EO-03	
K/A System:	G2.3 - Radiation Control	Importance; RO 2.9
K/A Statement:	G2.3.5 - Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms or personnel monitoring equipment.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

B2.3.05	Safety Function	Tier 3	Group	RO Imp: 2.9	SRO Imp: 2.9
Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms or personnel monitoring equipment (CFR: 41.11 / 41.12 / 43.4 / 45.9)					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 69	ID: 2506384	Points: 1.00

Which one of the following identifies the lowest Emergency Classification level that requires activation of the Technical Support Center and Emergency Operations Facility?

A. Any Site Area Emergency or higher declaration.

B. Any Site Area Emergency that is NOT security related.

C. Any Alert or security related Unusual Event declaration.

D. Any Unusual Event or higher declaration.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per the Shift Emergency Director's Checklist, the TSC and EOF are required to be manned when an Alert or security related UE is declared.
Distracters:	A	Plausible because manning the TSC and EOF is required at a SAE declaration, but it is not the lowest declaration.
	B	Plausible because this is the lowest declaration for requiring accountability, but the TSC and EOF are manned at the Alert or security related UE level.
	C	Plausible because it is required for security related Unusual Events, but not any other Unusual Event declaration.

Question Information

Topic	TSC Manning Requirements				
User ID	ILT-G5-11-002-1			**System ID**	2506384
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.

References Provided	None
K/A Justification	Question tests knowledge of when emergency facilities are required to be staffed.
SRO-Only Justification	N/A
Additional Information	None

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

Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ON-103 Bases Rev 10	
Learning Objective:	G5 Emergency Plan- Classification, Notification, and PARs Objective 11	
K/A System:	2.4 - Emergency Procedures/Plan	Importance; RO 2.6
K/A Statement:	2.4.42 - Knowledge of Emergency Response Facilities	
	None	
Notes and Comments:	None	

K/A Reference(s)

B2.4.42	Safety Function	Tier 3	Group	RO Imp: 2.6	SRO Imp: 3.8
Knowledge of emergency response facilities (CFR: 41.10 / 45.11)					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 70	ID: 2506385	Points: 1.00

Per GP-2, Normal Plant Startup, under which one of the following conditions is the reactor core most likely to have a positive moderator temperature coefficient?

A. Low coolant temperature at beginning-of-life

B. Low coolant temperature at end-of-life

C. High coolant temperature at beginning-of-life

D. High coolant temperature at end-of-life

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per GP-2, when the core is at the end of life, the moderator to fuel ratio and effective core size goes up. This causes the moderator temperature coefficient to become less negative and at low temperature, it will become slightly positive at the end of core life.
Distracters:	A	Plausible because low temperatures will have the effect, but it applies at the end of core life; not the beginning.
	C	Plausible because temperature will have an effect on the magnitude, but it will cause the moderator coefficient to become more negative... not less.
	D	Plausible because moderator coefficient can become positive at the end of core life, but only at low temperatures; not high temperatures.

Question Information

Topic	Temperature Coefficient vs Core Life				
User ID	GF REACTOR THEORY			**System ID**	2506385
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.1 Fundamentals of reactor theory, including fission process, neutron multiplication, source effects, control rod effects, criticality indications, reactivity coefficients, and poison effects.

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

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(1)

Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	GP-2, Rev 29		
Learning Objective:	GF Reactivity Coefficients Objective 2		
K/A System:	292004 - Reactivity Coefficients	Importance;	RO 2.6
K/A Statement:	K1.02 - Describe the effect on the magnitude of the temperature coefficient of reactivity from changes in moderator temperature and core age.		
	None		
Notes and Comments:	None		

K/A Reference(s)

292004.K1.02	Safety Function 1	Tier 4	Group	RO Imp: 2.6	SRO Imp:
Describe the effect on the magnitude of the temperature coefficient of reactivity from changes in moderator temperature and core age					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 71	ID: 2506386	Points: 1.00

Unit 3 was operating at 100% power for two months. A down power was performed to 50% power.

Per GP-5, Power Operations, to maintain reactor power stable at 50% over the next hour, the operator must add _____ reactivity because core xenon-135 concentration will be _____.

A. positive; increasing.

B. negative; increasing.

C. positive; decreasing.

D. negative; decreasing.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Per GP-5, when reactor power is lowered, xenon concentration continues to rise due to the xenon production rising and the xenon loss going down due to the reduction in burnout. With xenon rising, reactor power will lower over the first hour and the operator must add positive reactivity to maintain reactor power steady.
Distracters:	B	Plausible because this would be true for a rise in power, but not a down power.
	C	Plausible because positive reactivity must be added, but xenon concentration is rising, not lowering.
	D	Plausible because reactivity must be added, but positive reactivity is added due to the rise in xenon concentration.

Question Information

Topic	Xenon Response to Power Changes				
User ID	B1362			**System ID**	2506386
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.1 Fundamentals of reactor theory, including fission process, neutron multiplication, source effects, control rod effects, criticality indications, reactivity coefficients, and poison effects.

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

Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(1)

Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	GP-5, Rev 19		
Learning Objective:	GF Fission Product Poisons Objective 5		
K/A System:	292006 - Fission Product Poisons	Importance;	RO 3.2
K/A Statement:	K1.14 - Explain the process and reasons for the reactor operator to compensate for the time dependent behavior of Xenon-135 concentration in the reactor.		
	None		
Notes and Comments:	None		

K/A Reference(s)

292006.K1.14	Safety Function 1	Tier 4	Group	RO Imp: 3.2	SRO Imp:
Explain the process and reasons for the reactor operator to compensate for the time dependent behavior of xenon-135 concentration in the reactor					

Learning Objective(s)

RO Exam

User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 72	ID: 2506387	Points: 1.00

Unit 2 is operating at 90% power while performing DEHC testing.

A failure in the pressure regulating system occurs, resulting in a bypass valve failing open.

How will reactor power respond to the failure?

Reactor power will initially:
(Assume DEHC has not responded)

A. increase due to positive reactivity addition from the void coefficient only.

B. increase due to positive reactivity addition from the void and moderator temperature coefficients.

C. decrease due to negative reactivity addition from the void coefficient only.

D. decrease due to negative reactivity addition from the void and moderator temperature coefficients.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	When bypass valves open, initially, RPV pressure will lower and the void fraction will rise. A rise in void fraction will add negative reactivity to the core.
Distracters:	A	Plausible because this would be true if pressure rose, but opening bypass valves will cause pressure to lower and will add negative reactivity.
	B	Plausible because this would be true if pressure rose, but opening bypass valves will cause pressure to lower and will add negative reactivity. Additionally, the reduction in steam to feedwater heating will cause power to rise, but that is not the initial effect.
	D	Plausible because this would be true if moderator temperature rose, but the temperature will eventually lower due to the loss of and add positive reactivity.

Question Information

Topic	Opening BPVs at Power				
User ID	B2371			**System ID**	2506387
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.1 Fundamentals of reactor theory, including fission process, neutron multiplication, source effects, control rod effects, criticality indications, reactivity coefficients, and poison effects.

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

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(1)

Source Documentation			
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	GF Reactor Operational Physics		
Learning Objective:	GF Reactor Operational Physics Objective 23		
K/A System:	292008 - Reactor Operational Physics	Importance;	RO 3.6
K/A Statement:	K1.22 - Explain the effect that opening steam bypass valves, during power operation, will have on the reactor.		
REQUIRED MATERIALS:	None		
Notes and Comments:	None		

K/A Reference(s)

292008.K1.22	Safety Function 1	Tier 4	Group	RO Imp: 3.6	SRO Imp:
Explain the effect that opening steam bypass valves, during power operation, will have on reactor power					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 73	ID: 2506388	Points: 1.00

Unit 2 is operating at 100% power with the 'A' SJAE in service.

How will steam velocity and pressure respond when it enters the convergent section of the air ejector steam nozzle?

As the diameter of the nozzle goes down, steam velocity will _____ and steam pressure will _____.

A. increase; increase

B. increase; decrease

C. decrease; increase

D. decrease; decrease

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	The steam jet air ejectors are a convergent/divergent style air ejector. When the steam enters the convergent section of the steam nozzle, it is at subsonic speed. As the diameter of hte nozzle goes down, steam velocity will go up and steam pressure will go down.
Distractors:	A	First part is correct. Plausible because this would be true if the steam was moving at sonic speeds, but since it is subsonic, pressure would be going down as velocity goes up.
	C	Plausible because this would be true if the steam was moving at sonic speeds, but since it is subsonic, pressure would be going down as velocity goes up.
	D	Plausible because this would be true if the steam was moving at sonic speeds, but since it is subsonic, pressure would be going down as velocity goes up. Second part is correct.

Question Information

Topic	Air Ejector Operation				
User ID	B1476			**System ID**	2506388
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.14 Principles of heat transfer thermodynamics and fluid mechanics.

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

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(14)

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	GF Thermodynamic Processes	
Learning Objective:	GF Thermodynamic Processes Objective 7	
K/A System:	293004 - Thermodynamic Process	Importance: RO 2.8
K/A Statement:	K1.17 - Determine the exit conditions for a throttling process based on the use of steam and/or water.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

293004.K1.17	Safety Function 3	Tier 4	Group	RO Imp: 2.8	SRO Imp:
Determine the exit conditions for a throttling process based on the use of steam or water					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 74	ID: 2506389	Points: 1.00

A reactor startup is in progress on Unit 2.

- The 2A Condensate Pump has been started.
- Operators are preparing to start the 2B Condensate Pump.

Which of the following identifies how system pressure and flow will be affected by starting the second condensate pump?

System flow will _____ and system pressure will _____.

A. double
stay approximately the same

B. double
double

C. stay approximately the same
stay approximately the same

D. stay approximately the same
doubles

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	The condensate pumps are connected in parallel. Pumps operated in parallel will result in increased system flow rate with no change in system pressure.
Distractors:	B	First part is correct. Plausible because this would be true for pumps in series, but the pumps are in parallel
	C	Plausible because this would be true for pumps in series, but the pumps are in parallel Second part is correct.

	D	Plausible because this would be true for pumps in series, but the pumps are in parallel

Question Information

Topic	Operating Centrifugal Pumps in Parallel				
User ID	B283			**System ID**	2506389
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.14 Principles of heat transfer thermodynamics and fluid mechanics.

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

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CRF55.41(b)(14)

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	GF Fluid Statics and Dynamics	
Learning Objective:	GF Fluid Statics and Dynamics Objective 41	
K/A System:	293006 - Fluid Statics and Dynamics	Importance: RO 2.7
K/A Statement:	K1.14 - Explain the results of putting centrifugal pumps in parallel or series combinations.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

293006.K1.14	Safety Function 2	Tier 4	Group	RO Imp: 2.7	SRO Imp:
Explain the results of putting centrifugal pumps in parallel or series combinations					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Question 75	ID: 2506390	Points: 1.00

Which of the following statements is correct as they relate to Unit 2 plant cooldown requirements?

A. Exceeding a 48°F/hr cooldown rate may result in cavitation of the Recirculation Pumps.

B. A maximum cooldown rate of 25°F/hr is required during hydrostatic testing.

C. A maximum differential temperature of 150°F between the RPV bottom head and coolant temperature is required for starting a Recirculation Pump.

D. Exceeding a 100°F/hr cooldown rate may result in an unisolable leak from the RPV Vessel due to brittle fracture.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Per T.S. 3.4.9 Bases, exceeding the 100°F/hr cooldown rate can result in brittle fracture of the RPV and an unisolable leak.
Distractors:	A	Plausible because this is a cooldown limit, but it applies to the RWCU pumps, not the Recirculation pumps.
	B	Plausible because there is a cooldown limit for hydrostatic testing, but the limit is 20°F/hr, not 25.
	C	Plausible because there is a differential temperature limit for starting Recirculation pumps, but it is 145°F, not 150.

Question Information

Topic	Effects of Cooldown on Reactor Vessel				
User ID	B399			**System ID**	2506390
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	RO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.14 Principles of heat transfer thermodynamics and fluid mechanics.

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

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.41(b)(14)

Source Documentation		
Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	T.S. 3.4.9 Bases	
Learning Objective:	GF Brittle Fracture and Vessel Thermal Stress Objective 11	
K/A System:	293010 - Brittle Fracture and Vessel Thermal Stress	Importance: RO 4.1
K/A Statement:	K1.06 - State the operational concerns of uncontrolled cooldown.	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	N/A	

K/A Reference(s)

293010.K1.06	Safety Function 5	Tier 4	Group	RO Imp: 4.1	SRO Imp:
State the operational concerns of uncontrolled cooldown					

Learning Objective(s)

RO Exam
User (Sys) ID N/A (1650030)

Cross Reference Links

None

Constellation

VISION Report

(Test Key) LC 23-1 SRO NRC Exam

Development Area for the ILT NRC Exam

Generated April 12, 2024

Test	LC 23-1 SRO NRC Exam
VISION ID	374569
Status	

EXAMINATION COVER SHEET

Exam Title (ID)	LC 23-1 SRO NRC Exam (374569)			
Training Program	Development Area for the ILT NRC Exam			
LMS Component ID		**Total Points**	25.00	**Pass Criteria** ≥ 80 %

Trainee Name		**Employee ID**	
Graded By / Date		**Grade**	____ / 25.00 = _____ %

Review and Approval			
Instructor		**Date**	
Technical Review		**Date**	
Training Supv		**Date**	

Examination Rules

1. References may NOT be used during this exam, unless otherwise stated.
2. Read each question carefully before answering. If you have any questions or need clarification during the exam, contact the exam proctor.
3. Conversation with other trainees during the exam is prohibited.
4. Partial credit will NOT be considered, unless otherwise stated. Show **all** work and state **all** assumptions when partial credit may be given.
5. Restroom trips are limited and only one examinee at a time may leave.
6 . For exams with time limits, you have ____ minutes to complete the exam.
7. The examinee agrees to refrain from discussing the content of the exam until the end of the exam cycle.

Examination Integrity Statement

Cheating or compromising the exam will result in disciplinary actions up to and including termination.

“I acknowledge that I am aware of the Exam Rules stated above. Further, I have not given, received, or observed any aid or information regarding this exam prior to or during its administration that could compromise this exam.”

Examinee Signature _____ Date _____

Review Acknowledgement

“I acknowledge that the correct answers to the exam questions were indicated to me following the completion of the exam. I have had the opportunity to review the exam questions with the instructor to ensure my understanding.”

Examinee Signature _____ Date _____

Question 1	ID: 2506776	Points: 1.00

A fire in the Main Control Room has resulted in entering SE-10. Current plant conditions are as follows:

- The Control Room has been evacuated.
- Control has been established at the HPCI Alternate Shutdown Panel.
- RCIC is running and injecting into the RPV.
- HPCI is in short term shutdown.
- RPV pressure on Alternate Shutdown Panel PI-060B is 800 psig.
- RPV level on Alternate Shutdown Panel LI-112 is 30 inches.

Which of the following is the required action in regards to HPCI and RCIC?

A. Trip RCIC.
Start HPCI in CST-CST.

B. Trip RCIC.
Start HPCI for injection.

C. Maintain RCIC in operation.
Start HPCI in CST-CST.

D. Maintain RCIC in operation.
Start HPCI for injection.

Answer	A

Answer Explanation

Answer Key		
Choice		Basis or Justification
Correct:	A	Note 101 of SE-10 states that Figure 1 in SE-10, attachment 9, is required to be used to determine RPV water level at the HPCI ASD panel. SE-10 directs RCIC to be tripped if RPV water level is above +40" and if HPCI is known to be operable. Plant conditions indicate that RPV water level is above +40", therefore HPCI injection is not needed. SE-10 directs using HPCI and SRVs for pressure control.
Distractors:	B	Plausible because this would be true if plant conditions plotted in the 0-40" or below 0" points on Figure 1, but since it is on the above 40" area, HPCI should not be aligned for injection.

	C	Plausible because this would be true if plant conditions plotted in the 0-40" or below 0" points on Figure 1, but since it is on the above 40" area, HPCI should not be aligned for injection.
	D	Plausible because this would be true if plant conditions plotted in the 0-40" or below 0" points on Figure 1, but since it is on the above 40" area, HPCI should not be aligned for injection.

Question Information

Topic	SE-10 Level Control				
User ID	ILT-1555-EO-03-1			**System ID**	2506776
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	**SE-10, Attachment 9 Figure 1**
K/A Justification	Question tests knowledge of note 101 in SE-10 that states that the level indicator is not density compensated, therefore does not reflect actual RPV water level and that use of SE-10, attachment 9, is required to determine whether RPV water level is between 0 and +40 inches.
SRO-Only Justification	Requires an evaluation of plant conditions to determine the appropriate actions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	X New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank	
Reference(s):	SE-10 Att. 9 Rev 4	
Learning Objective:	PLOT-1555-EO-03	
K/A System:	295016 Control Room Abandonment	Importance; SRO 4.0
K/A Statement:	G2.1.32 - Ability to explain and apply system precautions, limitations, notes, or cautions.	

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

K/A Reference(s)

B2.1.32	Safety Function	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.0
Ability to explain and apply system precautions, limitations, notes, or cautions (CFR: 41.10 / 43.2 / 45.12)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 2	ID: 2506780	Points: 1.00

Unit 3 is operating at 100% power when the following occurs:

- Alarm 317 E-5, React Bldg Cooling Water Supply Hi Temp, is in.
- RBCCW pressure is 105 psig on PI-3350 in the Control Room.
- Service Water pressure is 86 psig on PI-3286 in the Control Room.
- The 3B RBCCW pump is running with the 3B RBCCW HX in service.
- The 3A RBCCW pump and HX is in standby.
- The 3A and 3B Service Water pumps are running.
- EO reports that PI-3392B, RBCCW HX B Serv Wtr Outlet Pressure, indicates 5 psig.

Which of the following identifies the status of the RBCCW system and the required action per ON-113, Loss of RBCCW?

A. RBCCW system pressure is low.
Start the 3A RBCCW pump.

B. RBCCW system pressure is low.
Place the standby RBCCW Heat Exchanger in service.

C. Loss of cooling to the RBCCW Heat Exchangers.
Place the standby RBCCW Heat Exchanger in service.

D. Loss of cooling to the RBCCW Heat Exchangers.
Start the 3A RBCCW pump.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Indications show that a loss of cooling to the RBCCW heat exchangers has occurred. Per ON-113, placing the standby heat exchanger in service is the appropriate action.
Distractors:	A	Plausible because a low system pressure would cause temperature to rise, but system pressure is normal, therefore is not the issue. Plausible because starting a second RBCCW pump could increase cooling for a time, but that is only directed with a low system pressure.

	B	Plausible because a low system pressure would cause temperature to rise, but system pressure is normal, therefore is not the issue. Second part is correct
	D	First part is correct. Plausible because starting a second RBCCW pump could increase cooling for a time, but that is only directed with a low system pressure.

Question Information

Topic	Actions for Loss of RBCCW				
User ID	ILT-1550-EO-02			**System ID**	2506780
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question tests ability to interpret component indications to recognize a loss of RBCCW has occurred and to determine the required plant actions.
SRO-Only Justification	Question requires ability to evaluate plant conditions to determine the appropriate actions.
Additional Information	None

Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:	
Reference(s):	ON-113, Rev 21		
Learning Objective:	PLOT-1550-EO-02		
K/A System:	295018 - Partial or Complete Loss of Component Cooling Water (CCW)	Importance:	SRO 3.5

K/A Statement: AA2.03 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Partial or Complete Loss	
REQUIRED MATERIALS:	**None**
Notes and Comments:	None

K/A Reference(s)

295018.AA2.03	Safety Function	Tier 1	Group	RO Imp: 3.7	SRO Imp: 3.5
Ability to determine and/or interpret the following as they apply to Partial or Complete Loss of Component Cooling Water: (CFR: 41.10 / 43.5 / 45.13) Partial or complete loss					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 3	ID: 2506802	Points: 1.00

Unit 3 is in Mode 4 following a reactor shutdown. The 'A' RHR pump operating in SDC Mode.

- No Recirculation Pumps are running.
- An error in the level control system caused RPV water level to lower to -5".
- Shutdown Cooling has isolated.
- The 3A RHR pump has tripped.
- RPV water level is currently +10" and being restored to the normal band.

Which of the following is the FIRST required action per ON-125, Loss or Unavailability of Shutdown Cooling?

A. Bypass the isolation signal using ON-125, Attachment 2, Defeat of Shutdown Cooling Isolation Signals.

B. Place a Recirculation Pump in operation per SO 2A.1.A, Starting the First Recirculation Pump.

C. Reset the isolation signal using GP-8.B, PCIS Isolation - Groups II and III.

D. Place either the 3B or 3D RHR pumps in shutdown cooling per SO 10.1 B-3, RHR System Shutdown Cooling Mode Manual Start.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With RPV water level back above 1", the isolation signal is cleared. Per ON-125, with the isolation signal cleared, performance of GP-8.B is required first.
Distracters:	A	Plausible because this would be true if the isolation signal was invalid and could not be reset, but it was a valid signal and can be cleared, so GP-8.B is the appropriate action.
	B	Plausible because this would be true if no RHR pumps could be restored, which is the case with MO-2-10-17 and 18 closed, but ON-125 directs the isolation signal reset and SDC restored using RHR pumps first, then if that did not work, placing the Recirc pumps in service is required.

	D	Plausible because this would be true for a trip of the 3A RHR pump, but since the system isolated, the isolation must be reset before any other RHR pumps can be placed in service.

Question Information

Topic	Loss of Forced Circulation				
User ID	ILT-1550-EO-01-1			**System ID**	2506802
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question tests ability to recognize how SDC was lost, evaluate plant conditions, and determining the appropriate procedure actions to correct the issue.
SRO-Only Justification	Question requires ability to evaluate plant conditions and direct the required actions.
Additional Information	None

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 Item ☐ Other Exam Bank: () ☒ ILT Exam Bank		
Reference(s):	ON-125 Rev 16		
Learning Objective:	PLOT-1550-EO-01		
K/A System:	295021 – Loss of Shutdown Cooling	Importance:	SRO 4.6
K/A Statement:	G2.1.20 - Ability to interpret and execute procedure steps.		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

B2.1.20	Safety Function	Tier 3	Group	RO Imp: 4.6	SRO Imp: 4.6
Ability to interpret and execute procedure steps (CFR: 41.10 / 43.5 / 45.12)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 4	ID: 2504523	Points: 1.00

Unit 2 was at 100% power when a LOCA in the Drywell occurred.

Current conditions include the following:

- Drywell Pressure is 15 psig.
- Drywell Chilled Water Return Header Pressure is 26 psig.
- RBCCW Header Pressure on PI-2350 is 35 psig.
- MO-20245 and MO-20246, Chilled Water Header Transfer, are in the "Chilled Water" Position.

Which of the following should be performed per GP-8.B, PCIS Isolation - Groups II and III?
(1) Trip both Recirc Pumps
(2) Trip the Drywell Chillers
(3) Trip the Drywell Cooling Fans
(4) Close MO-2373 and MO-2374, RBCCW Isol

A. (2) and (3) only

B. (1) and (4) only

C. (3) and (4) only

D. (1) and (2) only

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per GP-8.B, corrected RBCCW pressure is determined by the equation RBCCW Pressure - 25= Corrected RBCCW Pressure. This results in a pressure of 10 psig, which is less than drywell pressure. GP-8.B then directs tripping both Recirc Pumps and closing MO-2373 and 2374.
Distracters:	A	Plausible because this would be true if RBCCW cooled the drywell chillers and they are components that are secured per GP-8.B in certain conditions, but they are cooled by Drywell Chilled Water and do not need to be secured.
	C	Plausible because this would be true if Drywell Chilled Water pressure was less than drywell pressure, but since it is higher, the drywell chillers and cooling fans are not required to be isolated.
	D	Plausible because this would be true if Drywell Chilled Water pressure was less than drywell pressure, but since it is higher, the drywell chillers and cooling fans are not required to be isolated.

Question Information

Topic	GP-8.B Actions				
User ID	ILT-2102-EO-05-1			**System ID**	2504523
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question tests ability to recognize that containment integrity is jeopardized due to drywell pressure being higher than RBCCW corrected pressure and to determine the required isolations.
SRO-Only Justification	Actions are performed out of GP-8.B, which is directed by the SRO during a high drywell pressure condition.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	X New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank	
Reference(s):	GP-8.B Rev 19	
Learning Objective:	PLOT-DBIG-2102-EO-05	
K/A System:	295024 High Drywell Pressure	Importance; SRO 4.4
K/A Statement:	EA2.11 – Ability to determine and/or interpret the following as they apply to High Drywell Pressure: Drywell integrity	
REQUIRED MATERIALS:	**NONE**	
Notes and Comments:	None	

K/A Reference(s)

295024.EA2.11	Safety Function	Tier 1	Group	RO Imp: 4.2	SRO Imp: 4.4
Ability to determine and/or interpret the following as they apply to High Drywell Pressure: (CFR: 41.10 / 43.5 / 45.13) Drywell integrity					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 5	ID: 2506805	Points: 1.00

Unit 2 was operating at full power when a small break Loss of Coolant Accident (LOCA) occurred. The following conditions currently exist:

- Torus level is 17 feet and rising
- Drywell pressure is 9.8 psig and rising
- TI-80146 “Drywell Bulk Average Temperature Indicator” has failed.
- ST-O-40C-530-2, Calculating Drywell Bulk Average Temperature, was performed.
- The calculation was determined to be invalid.

Which of the following identifies the next required action in regards of spraying the drywell?

A. Do NOT spray the Drywell since the safe side of the Drywell Spray Initiation Limit curve cannot be verified per ST-O-40C-530-2.

B. Do NOT spray the Drywell since Torus level is above the limit of T-102 “Primary Containment Control” for spraying the Drywell.

C. Spray the Drywell after verifying the safe side of the Drywell Spray Initiation Limit curve using TI-2501, Point 136 plus 5°F.

D. Spray the Drywell after verifying the safe side of the Drywell Spray Initiation Limit Curve using the hottest temperature indicated on TI-2501, Points 119-127.

Answer	A

Answer Explanation

Correct:	A	ST-O-40C-530-2 precaution 4.2.2 states that if the calculation of Drywell Bulk Average Temperature is invalid, the safe side of the DWSIL curve cannot be verified. DO NOT SPRAY THE DRYWELL.
Distractors:	B	Plausible because this is true for Torus water level being above 18', but not for 17'.
	C	Plausible because these points can be used as an approximation for entry into T-102, but not for spraying the drywell.
	D	Plausible because this method can be used for determining if an RPV Blowdown should be performed, but not for spraying the drywell.

Question Information

Topic	Manual DW Temp Calculations				
User ID	ILT-2102-EO-05-1			**System ID**	2506805
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question tests knowledge of the operational note for calculating drywell temperature and the precautions listed in the procedure.
SRO-Only Justification	Question requires ability to determine the required actions based on plant indications.
Additional Information	None

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	Previous NRC Exam Other Exam Bank
Reference(s):	ST-O-40C-530-2 Rev 0	
Learning Objective:	PLOT-DBIG-2102-EO-05	
K/A System:	295028 - High Drywell Temperature	Importance; RO / SRO 4.2
K/A Statement:	G2.4.20 - Knowledge of the operational implications of emergency and abnormal operating procedures warnings, cautions, and notes.	
REQUIRED MATERIALS:	None	
Notes and Comments:	Curve is embedded to match the K/A. It is used to determine whether the D/W can be sprayed or not.	

K/A Reference(s)

B2.4.20	Safety Function	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.3
Knowledge of the operational implications of emergency and abnormal operating procedures warnings, cautions, and notes (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

None

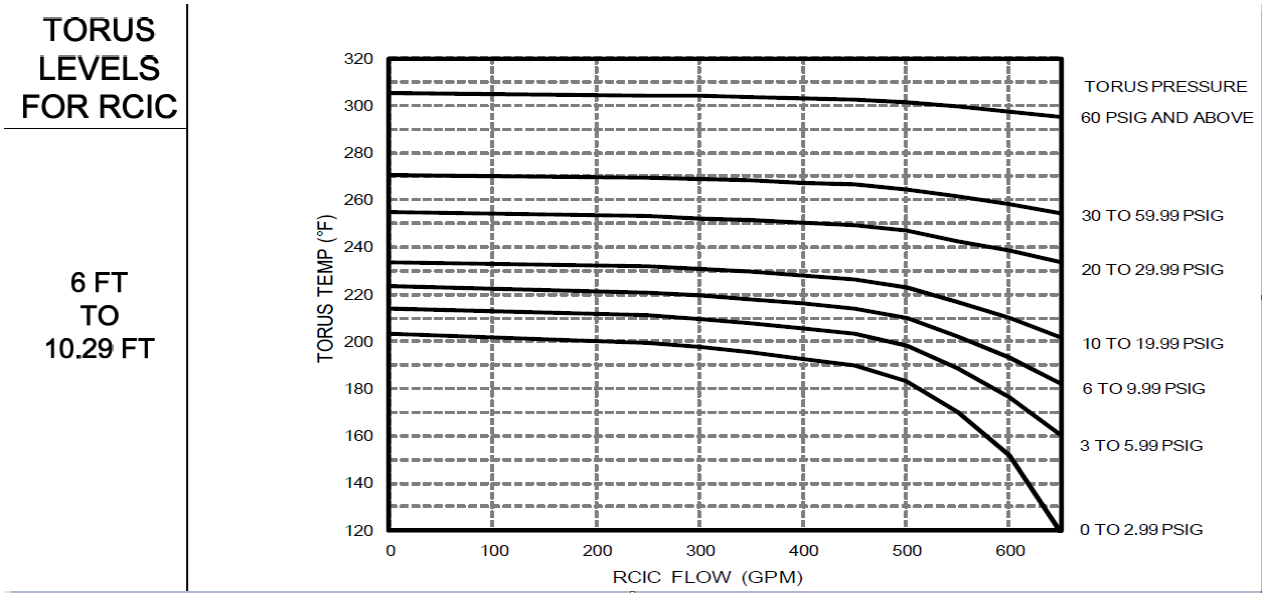
Question 6	ID: 2506806	Points: 1.00

A seismic event onsite resulted in the following conditions on Unit 2:

- All control rods are inserted
- RPV level is -75 inches and up slow
- RCIC is injecting at rated flow
- CRD is the only other source of high-pressure injection
- Torus temperature is 160 degrees F and steady
- Torus level is 9.5 feet and lowering
- Drywell pressure is 2.8 psig
- Torus pressure is 2.7 psig
- Condensate Storage Tank (CST) level is 5 feet

For the above conditions, choose the statement below that correctly describes RCIC System operation and select the appropriate procedural guidance for Torus level recovery.
RCIC ___(1)____ and Torus level is to be restored using ___(2)___.

The RCIC NPSH Curve is PROVIDED BELOW.



A. (1) operation may continue at rated flow
(2) T-231 “HPSW Injection into the Torus”

B. (1) operation may continue at rated flow
(2) T-233 “CST Makeup to the Torus via HPCI Minimum Flow Line”

C. (1) flow must be reduced to prevent exceeding the NPSH limit
(2) T-231 “HPSW Injection into the Torus”

D. (1) flow must be reduced to prevent exceeding the NPSH limit
(2) T-233 “CST Makeup to the Torus via HPCI Minimum Flow Line”

Answer	**C**

Answer Explanation

Choice		Basis or Justification
Correct:	C	Based on the given conditions, T-102 bases state with RPV water level above top of active fuel and adequate core cooling is no longer being challenged, that RCIC flow must be reduced due to violating the NPSH curve . T-231 “HPSW Injection into the Torus” is the only option to makeup to the Torus for the given conditions due to its high flow capacity. T-233 cannot be performed with a HPCI initiation signal locked in.
Distractors:	A	Based on the given conditions, RCIC flow must be reduced. Plausible if the candidate does not understand how to use the NPSH curves. T-231 is correct.
	B	Based on the given conditions, RCIC flow must be reduced. Plausible if the candidate does not understand how to use the NPSH curves. T-233 is very low flow capacity and ineffective with very low CST level and cannot be performed with a HPCI initiation signal locked in. Plausible as T-233 is a procedure that can be entered during low torus level transients.
	D	RCIC flow statement is correct. T-233 is very low flow capacity and ineffective with very low CST level. Plausible as T-233 is a procedure that can be entered during low torus level transients.

Question Information

Topic	RCIC NPSH				
User ID	ILT-2102-EO-05-1			**System ID**	2506806
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	RCIC NPSH Curve (Embedded)
K/A Justification	Question tests ability to evaluate Torus water level and its effect on RCIC operation.
SRO-Only Justification	Requires an evaluation of plant conditions to determine the appropriate plant actions.
Additional Information	None

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 Rev 26		
Learning Objective:	PLOT-PBIG-2102-9b		
K/A System:	295030 - Low Suppression Pool Water Level	Importance:	SRO 4.0
K/A Statement:	G2.4.18 - Knowledge of the specific bases for emergency and abnormal operating proceudres.		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:			

K/A Reference(s)

B2.4.18	Safety Function	Tier 3	Group	RO Imp: 3.3	SRO Imp: 4.0
Knowledge of the specific bases for emergency and abnormal operating procedures (CFR: 41.10 / 43.1 / 45.13)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 7	ID: 2505312	Points: 1.00

Unit 2 is operating at 100% power. The electric plant lineup is normal. When the following occurs:

- SE-16, Grid Emergency, has been entered due to grid voltage disturbance.
- Newlinville 220-34 Line (343SU) is below the SE-16 minimum required voltage.
- An operator in the field has determined the following Diesel Generator fuel storage tank levels:

Diesel Generator	Fuel Storage Tank Level (gallons)
E1	34,500
E2	37,000
E3	28,000
E4	32,000

Which one of the following describes the ***most limiting*** Technical Specification requirement for restoring an offsite circuit and/or Diesel Generator to operable status?

A maximum of…

A. 14 days are allowed to restore a Diesel Generator to operable status.

B. 7 days are allowed to restore an offsite circuit to operable status.

C. 12 hours are allowed to restore an offsite circuit or a Diesel Generator to operable status.

D. 2 hours are allowed to restore a Diesel Generator to operable status.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	With Newlinville Line below the SE-16 minimum voltage, the line is therefore deemed inoperable and one of the two qualified offsite circuits is inoperable. Tech Spec 3.8.1 Required Action A.3 requires restoring the offsite circuit to operable status (7 days). *E4 fuel oil

		level being <33,000 gallons but >29,500 gallons results in Tech Spec 3.8.3 Required Action A.1 requiring restoration of fuel oil level to within limits (48 hours), but not declaring this DG inoperable yet. *E3 fuel oil level being <29,500 gallons results in Tech Spec 3.8.3 Required Action F.1 requiring declaration of *E3 inoperable immediately. Then, Tech Spec 3.8.1 Required Action B.5 requires restoring DG to operable status (14 days). The combination of Newlinville line inoperability and *E3 inoperability result in Tech Spec 3.8.1 Required Action E.1(2) requiring restoration of either the offsite circuit or DG to operable status (12 hours). This 12 hour requirement is the most limiting for restoration of operable status.
Distracters:	A	A more limiting 12 hour requirement exists because both a required offsite line is inoperable and one DG is inoperable. Plausible because Tech Spec 3.8.3 Required Action F.1 does currently require declaring *E3 inoperable immediately and Tech Spec 3.8.1 Required Action B.5 requires restoring *E3 to operable status (14 days).
	B	A more limiting 12 hour requirement exists because both a required offsite line is inoperable and one DG is inoperable. Plausible because Tech Spec 3.8.1 Required Action A.3 does currently require restoring the offsite circuit to operable status (7 days).
	D	No 2 hour requirement is currently applicable. Plausible because if a *E4 fuel oil level was lower (<29,500 gallons), such that 2 DGs were inoperable, then Tech Spec 3.8.1 Required Action F.1 would require restoring one of the DGs to operable status within a maximum of 2 hours.

Question Information

Topic	TS Call for Line + DG inoperable				
User ID	ILT-5053-EO-11-1			**System ID**	2505312
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.

References Provided	**Tech Specs 3.8.1 and 3.8.3**
K/A Justification	Question tests knowledge of how offsite operability requirements change when diesel generators are inoperable.
SRO-Only Justification	Requires evaluation of tech specs that are greater than 1 hour duration.

Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(2)

Source Documentation			
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	Tech Specs 3.8.1 and 3.8.3 and bases		
Learning Objective:	PLOT-5053-EO-11		
K/A System:	700000 - Generator Voltage and Electric Grid Disturbances	Importance;	SRO 3.7
K/A Statement:	AA2.05 - Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Operational Status of Offsite Circuit		
REQUIRED MATERIALS:	**Tech Specs 3.8.1 and 3.8.3**		
Notes and Comments:	None		

K/A Reference(s)

700000.AA2.05	Safety Function	Tier 1	Group	RO Imp: 3.3	SRO Imp: 3.7
Ability to determine and/or interpret the following as they apply to Generator Voltage and Electric Grid Disturbances: (CFR: 41.5 and 43.5 / 45.5 / 45.7 / 45.8) Operational status of offsite circuit					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 8	ID: 2506842	Points: 1.00

Unit 2 is operating at 100% power when a steam leak developed in the Reactor Building Main Steam Line Tunnel.

- A GP-4 Reactor Scram was performed.
- Normal Reactor Building Ventilation has isolated and SBGT has automatically initiated.
- All area radiation monitors in the Reactor Building are all reading normal.
- RPV water level is -15" and steady.
- Drywell pressure is 0.6 psig and steady.
- Reactor Building differential pressure is +0.15" H_2O pressure.

Which of the following is required per T-103, Secondary Containment Control?

The crew shall perform...

A. GP-15, Local Evacuation ONLY.

B. GP-15, Local Evacuation AND bypass ONLY the low RPV level isolation signal per T-222, Secondary Containment Ventilation Bypass.

C. GP-15, Local Evacuation AND bypass ONLY the low RPV level and high drywell pessure isolation signals per T-222, Secondary Containment Ventilation Bypass.

D. GP-15, Local Evacuation AND bypass ALL isolation signals per T-222, Secondary Containment Ventilation Bypass.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per T-103, with reactor building d/p positive, SBGT is not maintaining reactor building d/p. Therefore, performance of T-222 is required to restore reactor building d/p to negative to stop the unmonitored ground level release.
	A	Plausible because this would be true if reactor building d/p was negative, but since it is positive, T-222 is required to be performed.
	B	Plausible because only the low RPV level isolation signal is in, but T-222 does not provide for only bypassing the low RPV water level isolation signal.

	D	Plausible because this would be true if a high radiation condition was present, but since all area radiation monitors are reading normal, then bypassing the high radiation signal is not performed.

Question Information

Topic	T-222 Requirements				
User ID	ILT-5007G-EO-06-1			**System ID**	2506842
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

References Provided	None
K/A Justification	Question tests ability to interpret control room indications of reactor building d/p and recognize that operation of SBGT is not sufficient to prevent an unmonitored ground release (since d/p is positive) and how operator action to restore normal reactor building ventilation is required in order to correct the unfavorable plant conditions.
SRO-Only Justification	Question requires evaluation of plant conditions to determine a course of action.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
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):	OT-102 Rev 16	
Learning Objective:	PLOT-5007G-EO-06	
K/A System:	295035 Secondary Containment High Differential Pressure	Importance: SRO 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:	None	

K/A Reference(s)

B2.2.44	Safety Function	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.4
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 (CFR: 41.5 / 43.5 / 45.12)					

Learning Objective(s)

1. SRO Exam
   User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 9	ID: 2506843	Points: 1.00

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

- The D SRV has a bellows rupture alarm in.
- Alarm 224 A-4, A Core Spray Line Vent Accumulator Low Level, comes in.
- Alarm 223 D-5, A Core Spray Pump Room Flood, comes in.
- EO reports that there is approximately 8" of water on the floor.

Which of the following is the required action?

A. Enter LCO 3.0.3 immediately.

B. Restore the Core Spray loop OR the SRV to an operable status within 72 hours.

C. Restore the SRV to an operable status within 14 days.

D. Restore the Core Spray loop to an operable status within 7 days.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	With the accumulator alarm in and water level in the Core Spray pump room, the loop has become voided and therefore inoperable. This requires the loop to be restored within 7 days. D SRV is not an ADS valve, so it does not fall in the requirements of TS 3.5.
Distractors:	A	Plausible because this would be true for 2 loops of Core Spray being inoperable and both the A and C Core Spray pumps are inoperable, but they are part of the same subsystem, not separate systems and therefore does not count as 2 subsystems.
	B	Plausible because this would be true if the D SRV was an ADS valve, but it is not, therefore there is no tech spec requirement for only the D SRV being inoperable.

	C	Plausible because this would be true if the D SRV was an ADS valve, but it is not, therefore there is no tech spec requirement for only the D SRV being inoperable.

Question Information

Topic	Core Spray Rupture				
User ID	ILT-5014-EO-11-1			**System ID**	2506843
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.

References Provided	TS 3.5
K/A Justification	Question tests ability to evaluate water level in the Core Spray rooms to determine operability of the system.
SRO-Only Justification	Question requires tech spec determination with a duration longer than 1 hour.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(2)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ARC 224 A-4, Rev 6 TS 3.5.1 Amendment 338	
Learning Objective:	PLOT-5014-EO-11	
K/A System:	295039 - Secondary Containment High Sump/Area Water Level	Importance: SRO 3.8
K/A Statement:	EA2.02 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Water Level in Affected Area	
REQUIRED MATERIALS:	**TS 3.5**	
Notes and Comments:	None	

K/A Reference(s)

295036.EA2.02	Safety Function	Tier 1	Group	RO Imp: 3.5	SRO Imp: 3.8
Ability to determine and/or interpret the following as they apply to Secondary Containment High Sump/Area Water Level: (CFR: 41.10 / 43.5 / 45.13) Water level in the affected area					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 10	ID: 2506965	Points: 1.00

The following accident conditions exist on Unit 2:

- T-102, Primary Containment Control, is being executed.
- Drywell pressure is 8 psig and rising slowly
- Drywell oxygen is 1.2%.
- Drywell hydrogen is 1.8%.
- Torus oxygen is 1.1%.
- Torus hydrogen is 1.2%.
- Chemistry has determined that offsite release rates during Containment venting would NOT exceed ODCM limits.

Which one of the following describes the requirements for venting the Containment under these conditions in accordance with T-102?

A. Vent the Containment through a 2” vent line AND purge with air

B. Vent the Containment through an 18” vent line AND purge with air

C. Vent the Containment through a 2” vent line AND purge with nitrogen

D. Vent the Containment through a 18” vent line AND purge with nitrogen

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	The T-102 PC/G leg requires venting through a 2” line if Containment hydrogen concentration exceeds 0.5% AND the offsite release rates are expected to remain below ODCM limits during the venting evolution. T-200 calls to purge the containment with nitrogen, not air.
Distracters:	A	First part is correct. Plausible because containment can also be purged with air, but not in this condition.

	B	Plausible because venting is required and a 18” vent path does exist, however T-102 PC/G-8 requires only venting through 2" line. Plausible because containment can also be purged with air, but not in this condition.
	D	Plausible because venting is required and a 18” vent path does exist, however T-102 PC/G-8 requires only venting through 2" line. Second part is correct.

Question Information

Topic	Venting Requirements				
User ID	ILT-2102-EO-05-1			**System ID**	2506965
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I
10CFR55 Content	CFR: 43.4 Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

References Provided	None
K/A Justification	Question tests knowledge of how venting is conducted per T-102.
SRO-Only Justification	Determination of venting requirements is an SRO function
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(4)

Source Documentation			
Source:	New Exam item Modified Bank X ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	T-102 Rev 26		
Learning Objective:	PLOT-DBIG-2102-EO-05		
K/A System:	500000 - Containment Hydrogen Concentration	Importance;	SRO 4.7
K/A Statement:	G2.4.6 - Knowledge of emergency and abnormal operating procedures major action categories.		
REQUIRED MATERIALS:	**NONE**		
Notes and Comments:	None		

K/A Reference(s)

B2.4.06	Safety Function	Tier 3	Group	RO Imp: 3.7	SRO Imp: 4.7
Knowledge of emergency and abnormal operating procedures major action categories (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.4, 55.43(4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Question 11	ID: 2506866	Points: 1.00

Unit 2 is conducting a reactor shutdown when the following events occur:

- ST-O-023-220-2, HPCI Steam Line Isolation Verification Test, is in progress.
- MO-2-23-015, HPCI Steam Line Inboard Isolation Valve, automatically closes at 65 psig.
- MO-2-23-016, HPCI Steam Line Outboard Isolation Valve, automatically closes at 55 psig.

Which of the following is the required action for this condition (if any)?

A. MO-2-23-015 has failed and must be returned to an operable status before steam dome pressure reaches 150 psig or a risk assessment is performed.

B. MO-2-23-015 has failed and must be returned to an operable status before steam dome pressure reaches 150 psig ONLY.

C. MO-2-23-016 has failed and must be returned to an operable status before steam dome pressure reaches 150 psig ONLY.

D. MO-2-23-016 has failed and must be returned to an operable status before steam dome pressure reaches 150 psig or a risk assessment is performed.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	HPCI steam isolation valves must automatically close before RPV pressure lowers below 60 psig, therefore, HPCI MO-16 has failed the surveillance. Per T.S. 3.0.4, the unit cannot enter the mode of applicability for HPCI until the valve is restored to an operable status.
Distractors:	A	Plausible because this would be true if the setpoint was at or below 60 psig, but it is above. Plausible because this is true for most systems, but TS 3.0.4.b (risk assessment for mode changes) does not apply for HPCI.

	B	Plausible because this would be true if the setpoint was at or below 60 psig, but it is above. Second part is correct.
	D	First part is correct. Plausible because this is true for most systems, but TS 3.0.4.b (risk assessment for mode changes) does not apply for HPCI.

Question Information

Topic	HPCI Steam Valve Failure to Operate				
User ID	ILT-5023-EO-11-1			**System ID**	2506866
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests ability to determine requirements for a failure of a HPCI surveillance procedure.
SRO-Only Justification	Question requires tech spec determination for mode changes with inoperable equipment.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(2)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ST-O-023-220-2 Rev 0, TS 3.5.1 Amendment 338	
Learning Objective:	PLOT-5023-EO-11	
K/A System:	206000 - High Pressure Coolant Injection System	Importance: SRO 4.1
K/A Statement:	G2.2.12 - Knowledge of surveillance procedures.	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

B2.2.12	Safety Function	Tier 3	Group	RO Imp: 3.7	SRO Imp: 4.1
Knowledge of surveillance procedures (CFR: 41.10 / 43.2 / 45.13)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.2, 55.43(2) Facility operating limitations in the technical specifications and their bases.

Question 12	ID: 2506910	Points: 1.00

The following conditions exist on Unit 2:

- A Reactor startup is in progress.
- The Mode Switch is in Startup.
- Alarm 210 E-3, WRNM Countrate Low, comes in.
- The A WRNM indicates 2 cps.

Which of the following identifies the required actions?

A. Enter ON-109, Total Loss of WRNM or APRM Systems.

B. Bypass the A WRNM and reset the half scram per RRC 60F.1-2, Reactor Protection System - Half Scram Reset.

C. Enter SO 60C.7.A-0, Abnormal WRNM Indications.

D. Enter SO 62.7.A-2, Receipt of Rod Blocks, and bypass the WRNM.

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	Per ARC 210 E-3, since a reactor startup is in progress, SO 62.7.A entry is required. SO 62.7.A will direct bypassing the WRNM.
Distractors:	A	Plausible because this is a step in the alarm response, but this applies to a loss of all WRNMs. Since only the 'A' WRNM is failed, entry into ON-109 is not warranted.
	B	Plausible because bypassing the WRNM is required and a half scram would come in for an INOP or a failed high WRNM, but a half scram is not generated for a low WRNM.
	C	Plausible because this procedure is entered for abnormal WRNM indications and is directed in the HI-HI/INOP alarm response, but it only applies to spiking indications and is not directed from ARC 210 E-3.

Question Information

Topic	WRNM Low Counts				
User ID	ILT-5060C-EO-06-1			**System ID**	2506910
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of how the plant will respond with WRNMs inoperable and determination of what procedures to use to correct the issue.
SRO-Only Justification	Question requires evaluation of plant conditions and determination of what procedure to perform to mitigate the condition.
Additional Information	Wide Range Nuclear Instruments (WRNM) are the components used at PBAPS in place of IRMs.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank
Reference(s):	ARC 210 G-3, Rev 6	
Learning Objective:	PLOT-5060C-EO-06	
K/A System:	215003 - Intermediate Range Monitor (IRM) System	Importance: SRO 3.7
K/A Statement:	A2.02 - Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions: IRM inoperable condition	
REQUIRED MATERIALS:	None	
Notes and Comments:	None	

K/A Reference(s)

215003.A2.02	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp: 3.7
Ability to (a) predict the impacts of the following on the Intermediate Range Monitor System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) IRM inoperable condition					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 13	ID: 2506911	Points: 1.00

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

- A steam flow-feed flow mismatch is observed.
- Generator loading lowered approximately 20 MWe.
- Alarm 227 B-4, Blowdown Relief Valves Hi Temp, comes in.
- Alarm 210 D-2, Safety Relief Valve Open, comes in.
- The K SRV red indicating light is lit.
- Torus water temperature is slowly rising.

What is the status of the SRVs and what actions are required?

The K SRV is _____. Direct operators to _____.

A. full open
place both loops of RHR in Torus Cooling

B. full open
place one loop of RHR in Torus Cooling

C. partially open
place one loop of RHR in Torus Cooling

D. partially open
place both loops of RHR in Torus Cooling

Answer	D

Answer Explanation

Choice		Basis or Justification
Correct:	D	With the indications provided, they show that the K SRV is partially open due to MWe only lowering by 20 MWe. Per OT-114, Torus Cooling should be maximized which would be placing both loops of RHR in Torus Cooling.
Distractors:	A	Plausible because the SRV is allowing steam to pass, but it is not full open. Second part is correct.

	B	Plausible because the SRV is allowing steam to pass, but it is not full open. Plausible because this is all that is required for other evolutions (such as starting HPCI and/or RCIC), but OT-114 direct maximizing Torus Cooling.
	C	First part is correct. Plausible because this is all that is required for other evolutions (such as starting HPCI and/or RCIC), but OT-114 direct maximizing Torus Cooling.

Question Information

Topic	Leaking SRV				
User ID	ILT-5001A-EO-06-1			**System ID**	2506911
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests ability to evaluate plant conditions for a leaking SRV and determine the appropriate procedural actions to mitigate the condition. Also, per site procedures, a simmering and a leaking SRV are the same thing and require the same actions.
SRO-Only Justification	Question requires evaluation of plant conditions to determine appropriate procedural actions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	OT-114, Rev 20	
Learning Objective:	PLOT-5014-EO-11	
K/A System:	239002 - Safety Relief Valves	Importance: SRO 3.6

K/A Statement:	A2.02 - Ability to (a) predict the impacts of the following on the SAFETY RELIEF VALVES and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Leaking SRV
REQUIRED MATERIALS:	**None**
Notes and Comments:	None

K/A Reference(s)

239002.A2.02	Safety Function	Tier 2	Group	RO Imp: 3.7	SRO Imp: 3.6
Ability to (a) predict the impacts of the following on the Safety Relief Valves and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) Leaking SRV					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 14	ID: 2506913	Points: 1.00

Unit 2 is operating at 100% power when the following annunciators alarm:

- 214 B-3, A Recirc Flow Limit
- 214 G-3, B Recirc Flow Limit
- 214 C-2, A Recirc ASD Minor Trouble
- 214 H-2, B Recirc ASD Minor Trouble
- 211 D-5, RPIS Inoperative
- 220 F-5, Inverter Trouble
- 211 B-3, OPRM Trip Enabled
- 003 D-1, Main Stack Radiation High-High
- 003 D-2, Main Stack Radiation High
- 003 D-3, Main Stack Rad Monitor Trouble/Bypass

Which of the following identifies the current event and the required action?

A. There is a high radiation release in progress. Enter T-104, Radioactivity Release and attempt to isolate the source.

B. Loss of power to 20Y050. Enter ON-112, Loss of Uninterruptible Power Supply and insert control rods using GP-9-2, Appendix 2, Single Rod Scram Move Sheet.

C. A 30% Runback has occurred. Enter OT-112, Unplanned/Unexplained Change in Core Flow, and insert control rods per GP-9-2, Appendix 1, Fast Reactor Power Reduction Table.

D. Both Recirc Pumps have tripped. Scram the reactor and enter T-101, RPV Control.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	All of annunciators alarm when a loss of 20Y050 occurs, which is identified by Inverter Trouble alarm. With a loss of the UPS, entry into ON-112 is required.

Distractors:	A	Plausible because this would be the case normally with the Main Stack High-High and High alarms, but they are in alarm due to the loss of power, not due to a high rad condition.
	C	Plausible because a runback did occur and entry into OT-112 is required, but a 45% runback occurrred, not a 30%.
	D	Plausible because the recirc ASD minor trouble alarms do come in for a tripped recirc pump, but the flow limit alarm does not and is a sign of a runback, not a pump trip.

Question Information

Topic	Loss of 20Y050				
User ID	ILT-5058-EO-06-1			**System ID**	2506913
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests ability to evaluate a set of annunciators to identify which are important and what actions are required to address the issue.
SRO-Only Justification	Question requires evaluation of plant conditions and selection of the appropriate procedure to address those conditions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ON-112-2 Rev 15	
Learning Objective:	PLOT-5058-EO-06	

K/A System:	262002 - Uninterruptible Power Supply (AC/DC)	Importance: SRO 4.3
K/A Statement:	G2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

B2.4.45	Safety Function	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.3
Ability to prioritize and interpret the significance of each annunciator or alarm (CFR: 41.10 / 43.5 / 45.3 / 45.12)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 15	ID: 2546552	Points: 1.00

Unit 2 is at 100% power.

- ST-O-57B-710-2, 2AD001 and 2CD001 Station Battery Quarterly Inspection is in progress.
- Readings are as follows:
  - Lowest Battery Cell Voltage is 2.15VDC.
  - Battery float current is 3 amps.

What is the required action per Tech Specs?

A. Restore battery cell voltage to within spec within 24 hours.

B. Restore battery cell current to within specs within 12 hours.

C. Restore battery parameters to within limits within 2 hours.

D. Declare 20D023 inoperable immediately.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per T.S. 3.8.6, battery float current must be restored to less than 2 amps within 12 hours.
Distractors:	A	Plausible because this would be true if battery voltage was less than 2.07VDC, but it is within T.S. requirements.
	C	Plausible because this would be true if the parameters were out of spec on 2 separate battery systems, but it only affects one.
	D	Plausible because this would be true if the float current wasn't restored in 12 hours.

Question Information

Topic	Abnormal Battery Tech Spec Actions				
User ID	ILT-5057-EO-11-1			**System ID**	2546552
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	Unit 2 Tech Spec 3.8.6
K/A Justification	Question tests ability to recognize that battery parameters are not sufficient for plant operation.
SRO-Only Justification	Requires declaration of a tech spec with greater than 1 hour duration.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
HIGH			10CRF55.43(b)(2)

Source Documentation			
Source:	**X** New Exam item Previous NRC Exam Modified Bank Other Exam Bank ILT Exam Bank		
Reference(s):	Tech Specs 3.8.6 Amendment 320		
Learning Objective:	PLOT-5057-EO-11		
K/A System:	263000 - DC Electrical Distribution	Importance;	SRO 3.2
K/A Statement:	A2.03 - Ability to (a) predict the impacts of the following on the DC ELECTRICAL DISTRIBUTION and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Abnormal Battery Parameters		
REQUIRED MATERIALS:	**Unit 2 Tech Spec section 3.8.6**		
Notes and Comments:	None		

K/A Reference(s)

263000.A2.03	Safety Function	Tier 2	Group	RO Imp: 3.4	SRO Imp: 3.2
Ability to (a) predict the impacts of the following on the DC Electrical Distribution and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) Abnormal battery parameters					

Learning Objective(s)

1. SRO Exam
   User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.2, 55.43(2) Facility operating limitations in the technical specifications and their bases.

Question 16	ID: 2506919	Points: 1.00

Unit 2 is operating at 5% power during a reactor startup.

- 2 Control rods are fully inserted due to problems with their associated HCUs.
- The 2 control rods are NOT in compliance with the analyzed rod position sequence.
- Reactor Engineering has evaluated the control rod positions and have approved continuing with the reactor startup.

During the reactor startup, control Rod 10-23 is being withdrawn from position 06 to position 12.

- When the URO releases the Rod Movement Switch, Control Rod 10-23 settles at position 16.

Which of the following identifies how the Rod Worth Minimizer will respond and the required actions?

The RWM _____ insert a withdraw Rod Block.
Per ON-122, Mispositioned Control Rod, _____.

A. WILL
insert the control rod to the correct position and notify Reactor Engineering

B. WILL
perform GP-4, Manual Reactor Scram

C. WILL NOT
perform GP-4, Manual Reactor Scram

D. WILL NOT
insert the control rod to the correct position and notify Reactor Engineering

Answer	A

Answer Explanation

Choice	Basis or Justification

Correct:	A	With a control rod withdrawn past the withdraw limit, the RWM will insert a withdraw rod block. Per ON-122, with less than 9 control rods out of the analyzed rod position sequence, then the control rod should be inserted to the correct position and Reactor Engineering notified.
Distractors:	B	First part is correct. Plausible because multiple control rods are not in the analyzed rod position sequence and a scram is required for 3 control rods drifting per ON-121, Drifting Control Rod. ON-122 states that a scram is required if 9 control rods are out of the analyzed rod position sequence. Since there are only 3 control rods out of position and none are drifting, a scram is not required.
	C	Plausible because this would be true if it were inserted past the insert limit as it would need 2 rods inserted past the insert limit, but only 1 rod past the withdraw limit would cause the rod block. Plausible because multiple control rods are not in the analyzed rod position sequence and a scram is required for 3 control rods drifting per ON-121, Drifting Control Rod. ON-122 states that a scram is required if 9 control rods are out of the analyzed rod position sequence. Since there are only 3 control rods out of position and none are drifting, a scram is not required.
	D	Plausible because this would be true if it were inserted past the insert limit as it would need 2 rods inserted past the insert limit, but only 1 rod past the withdraw limit would cause the rod block. Second part is correct.

Question Information

Topic	Out of Sequence Rod Movement				
User ID	ILT-5062A-EO-05-1			**System ID**	2506919
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	None

K/A Justification	Question tests ability to determine the effect an out of position control rod would have on the RWM and the required plant actions to address the issue.
SRO-Only Justification	Question requires evaluation of plant conditions and determination of the correct procedure to address the conditions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ON-122, Rev 9	
Learning Objective:	PLOT-5062A-EO-05	
K/A System:	201006 - Rod Worth Minimizer System	Importance: SRO 3.9
K/A Statement:	A2.05 - Ability to (a) predict the impacts of the following on the ROD WORTH MINIMIZER SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Out of Sequence Rod Movement	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

201006.A2.05	Safety Function	Tier 2	Group	RO Imp: 3.9	SRO Imp: 3.7
Ability to (a) predict the impacts of the following on the Rod Worth Minimizer System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: (CFR: 41.5 / 43.5 / 45.6) Out-of-sequence rod movement					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 17	ID: 2506920	Points: 1.00

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

- Alarm 218 D-5, REAC BLDG OR REFUELING FLOOR RAD MON DOWNSCALE, alarms.
- The Channel B Reactor Building Vent Exhaust radiation monitor is downscale.
- All other indications are normal.

What action(s) is (are) required by the applicable Technical Specifications?

A. Restore isolation capability within 1 hour.

B. Place channel in trip within 12 hours.

C. Place channel in trip within 24 hours.

D. Place the plant in Mode 3 within 12 hours.

Answer	C

Answer Explanation

Choice		Basis or Justification
Correct:	C	The B ventilation rad monitor failing downscale will require entry into tech specs. TS 3.3.6.1, Condition A states that the channel must be placed in TRIP within 24 hours.
Distractors:	A	Plausible because this would be correct if there was only 1 instrument in each channel, but the D channel can still provide an isolation signal to the B detection circuit so isolation capability is not lost.
	B	Plausible because this is correct for functions 2A and 2B, (the first statement in 3.3.6.1 Condition A), but these signals fall under 2D and 2E, with have a 24 hour tech spec time.
	D	Plauible because the table does reference to condition G which points to placing the plant in Mode 3 in 12 hours, but that is only if the initial 24 hour clock is not met.

Question Information

Topic	TS RB Vent Rad Monitor Downscale				
User ID	ILT-5063-EO-11-1			**System ID**	2506920
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests ability to determine operability of ventilation radiation monitors.
SRO-Only Justification	Requires tech spec determinations with greater than 1 hour requirements.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(2)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	TS 3.3.6.1 Amendment 299 and 3.3.6.2 Amendment 317	
Learning Objective:	PLOT-5063-EO-11	
K/A System:	272000 - Radiation Monitoring System	Importance: SRO 4.6
K/A Statement:	G2.2.37 - Ability to determine operability or availability of safety-related equipment.	
REQUIRED MATERIALS:	**TS 3.3.6.1 and 3.3.6.2**	
Notes and Comments:	None	

K/A Reference(s)

B2.2.37	Safety Function	Tier 3	Group	RO Imp: N/A	SRO Imp: 4.6
Ability to determine operability or availability of safety-related equipment (SRO Only) (CFR: 43.2 / 43.5 / 45.12)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.2, 55.43(2) Facility operating limitations in the technical specifications and their bases.

Question 18	ID: 2506922	Points: 1.00

Unit 2 is operating at 100% power when a fire alarm goes off in the Control Room.

- The Control Room dispatches the Fire Brigade.
- Incident Commander reports the fire is due to a lube oil rupture at the Main Turbine Lube Oil Reservoir.
- Incident Commander requests offsite assistance.

What actions are required in response to this event?

A. Perform a GP-4 Reactor Scram and immediately stop all turbine lube oil pumps and lift pumps.

B. Perform a GP-4 Reactor Scram and stop all turbine lube oil pumps and lift pumps when turbine speed reaches 0 rpm.

C. Perform a GP-3-2, Normal Plant Shutdown and immediately stop all turbine lube oil pumps and lift pumps.

D. Perform a GP-3-2, Normal Plant Shutdown and stop all turbine lube oil pumps and lift pumps when turbine speed reaches 0 rpm.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per ON-114, with a fire involving the Main Turbine Oil Reservoir, attachment 3 is performed. Attachment 3 directs the reactor to be scrammed, the main turbine tripped, and all lube oil pumps secured and placed in PTL when turbine speed reaches 0 RPM.
Distractors:	A	First part is correct. Plausible because there is a section in the attachment that directs immediately securing all lube oil pumps, but that's only if turbine speed is 0 rpm at the start of the event, which it would not be in these plant conditions.

	C	Plausible because ON-114 does direct a normal shutdown if offsite assistance is requested, but that is only if the fire is not affecting the Main Turbine. Plausible because there is a section in the attachment that directs immediately securing all lube oil pumps, but that's only if turbine speed is 0 rpm at the start of the event, which it would not be in these plant conditions.
	D	Plausible because ON-114 does direct a normal shutdown if offsite assistance is requested, but that is only if the fire is not affecting the Main Turbine. Second part is correct.

Question Information

Topic	Fire Response Requirements				
User ID	ILT-1550-EO-02-1			**System ID**	2506922
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of the requirements for ON-114 Fire off-normal procedure.
SRO-Only Justification	Question requires evaluation of plant conditions and determination of the appropriate actions to address the plant conditions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.43(b)(5)

Source Documentation			
Source:	**X** New Exam item Modified Bank ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	ON-114 Rev 24		
Learning Objective:	PLOT-1550-EO-02		
K/A System:	286000 Fire Protection System	Importance;	SRO 3.7
K/A Statement:	G2.4.25 - Knowledge of fire protection procedures.		
REQUIRED MATERIALS:	None		
Notes and Comments:	None		

K/A Reference(s)

B2.4.25	Safety Function	Tier 3	Group	RO Imp: 3.3	SRO Imp: 3.7
Knowledge of fire protection procedures (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 19	ID: 2506925	Points: 1.00

Given the following:

- Both units are at rated power.
- At 1830 three (3) Senior Reactor Operators (SROs) are on shift.
  - SRO 1, the Control Room Supervisor is STA qualified.
  - SRO 2, the Work Control Supervisor is IA qualified.
  - SRO 3, the Shift Manager is neither IA or STA qualified.
- At 0500 the Control Room Supervisor (SRO/STA) is forced to leave site for medical issues.

What is the minimum role(s), if any, that need to be filled to meet the shift staffing requirements of Technical Specification 5.2.2 “Unit Staff”?

A. Fill the SRO role with a qualified individual by 0700 ONLY.

B. Fill the STA role with a qualified individual by 0700 ONLY.

C. Fill the SRO AND STA roles with qualified individuals by 0700.

D. The shift staffing requirements are met with two (2) SROs and one (1) IA.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per Tech Spec 5.2.2.b, each on-duty shift crew composition may be less than the minimum requirements of 10CFR50.54(m)(2)(i) and Tech Spec 5.2.2.f (STA) for a period of time not to exceed 2 hours. For a 2-unit facility with both units operating, 10CFR50.54(m)(2)(i) requires a minimum of two SROs.
Distractors:	A	For a 2-unit facility with both units operating, 10CFR50.54(m)(2)(i) requires a minimum of two SROs. This is met with the Shift Manager and Work Control Supervisor both holding and SRO license. Plausible if candidate misinterprets 10CFR50.54(m)(2)(i) which would require 3 SRO's for 2 units if there was not a shared control room.

	C	For a 2-unit facility with both units operating, 10CFR50.54(m)(2)(i) requires a minimum of two SROs; only the STA role must be filled. Plausible as an SRO with STA qualifications was removed.
	D	The STA requirement of Tech Spec 5.2.2.f is NOT met by the IA. Plausible as IA is another qualification given when a SRO goes through the same training as an STA. However the IA is given to those that don't meet the min qualifications for the STA.

Question Information

Topic	SRO Shift Staffing				
User ID	ILT-1529-1D-1			**System ID**	2506925
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of SRO staffing requirements.
SRO-Only Justification	SRO staffing requirements
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(2)

Source:	☐ New Exam Item ☐ Modified Bank Item ☒ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	Tech Spec 5.2.2.b Amendment 271	
Learning Objective:	PLOT-DBIG-1529-1D	
K/A System:	G2.1 – Conduct of Operations	Importance: SRO 3.9
K/A Statement:	G2.1.5 - Ability to use procedures related to shift staffing, such as minimum crew compliment or overtime limitations.	

REQUIRED MATERIALS:	NONE
Notes and Comments:	None

K/A Reference(s)

B2.1.05	Safety Function	Tier 3	Group	RO Imp: 2.9	SRO Imp: 3.9
Ability to use procedures related to shift staffing, such as minimum crew complement or overtime limitations (reference potential) (CFR: 41.10 / 43.5 / 45.12)					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.2, 55.43(2) Facility operating limitations in the technical specifications and their bases.

Question 20	ID: 2506943	Points: 1.00

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

- An operator reports 2B Condensate pump conductivity is .6µS/cm.
- Chemistry confirms 2B Condensate pump conductivity is .6µS/cm.
- Reactor water conductivity is 7µS/cm.

What actions (if any) are required for these conditions?

A. Perform a GP-4, Manual Reactor Scram, and cooldown of the reactor at a maximum rate of 100°F/hr.

B. Perform a GP-4, Manual Reactor Scram, and perform a cooldown of the reactor at a maximum rate of 90°F/hr.

C. Commence plant shutdown per GP-3, Normal Plant Shutdown and perform a cooldown of the reactor at a maximum rate of 90°F/hr.

D. Commence plant shutdown per GP-3, Normal Plant Shutdown and perform a cooldown of the reactor at a maximum rate of 100°F/hr.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	With the given conductivity readings, a severe intrusion is in progress. With reactor water conductivity reading 7µS/cm, ON-126 directs a GP-4 reactor scram and expeditious cooldown, not to exceed the administrative limits; which are 90°F/hr.
Distractors:	A	First part is correct. Plausible because this is allowed per T-101, which would be entered in this condition, but ON-126 directs not exceeding the administrative limit of 90°F/hr.
	C	Plausible because this is directed for a severe intrustion, but only if reactor water conductivity is less than 5µS/cm. Second part is correct.

	D	Plausible because this is directed for a severe intrustion, but only if reactor water conductivity is less than 5µS/cm. Plausible because this is the maximum cooldown rate allowed, but ON-126 directs not exceeding the administrative limit of 90°F/hr.

Question Information

Topic	High Conductivity				
User ID	ILT-1550-EO-04-1			**System ID**	2506943
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of the conductivity requirements for plant operation.
SRO-Only Justification	Question requires evaluation of plant conditions and determination of required actions.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	ON-126, Rev 3	
Learning Objective:	PLOT-1550-EO-04	
K/A System:	G2.1 Conduct of Operations	Importance: SRO 3.5
K/A Statement:	G2.1.34 - Knowledge of RCS or balance of plant chemistry controls, including parameters measured and reasons for the control.	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

B2.1.34	Safety Function	Tier 3	Group	RO Imp: 2.7	SRO Imp: 3.5
Knowledge of RCS or balance of plant chemistry controls, including parameters measured and reasons for the control (CFR: 41.10 / 43.5 / 45.12)					

Learning Objective(s)

SRO Exam

User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 21	ID: 2506946	Points: 1.00

Which one of the following activities requires a Temporary Configuration Change (TCC) per CC-AA-112 “Temporary Configuration Changes”?

A. Connecting portable tools to permanently installed electrical outlets for a short duration.

B. Configuration changes used as compensatory measures to keep an interfacing SSC in service during maintenance.

C. Use of a catch containment for a system leak.

D. A temporary configuration change included with an Operations Clearance that does NOT affect the system beyond the clearance boundary.

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	Per CC-AA-112, this is NOT an excluded activity and therefore requires a TCC.
Distractors:	A	Plausible because this would be true if the portable tools were connected permanently. But since it was only during a short duration, it meets the criterial for being an excluded activity per CC-AA-112.
	C	Plausible because catch containments perform a mitigating function, but they are controlled programmatically by Maintenance and are excluded from the procedure.
	D	Plausible since temporary configuration changes are controlled per CC-AA-112. However since the temporary configuration change is included in an Operations Clearance the does not affect the system beyond the clearance boundary, it is an excluded activity and therefore does NOT require a TCC per CC-AA-112 (4.2.6)

Question Information

Topic	Temporary Change Requirements				
User ID	ILT-DBIG-1529-1I			**System ID**	2506946
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of the temporary configuration change process.
SRO-Only Justification	SRO knowledge is required to determine applicability of the Temporary Change process. RO knowledge is limited solely to implementing the required changes as determined by the SRO.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	RO
Low			10CRF55.43(b)(3)

Source Documentation			
Source:	New Exam item Modified Bank **X** ILT Exam Bank	Previous NRC Exam Other Exam Bank	
Reference(s):	CC-AA-112 Rev 32		
Learning Objective:	PLOT-DBIG-1529-1I		
K/A System:	2.2 - Equipment Control	Importance;	SRO 3.2
K/A Statement:	G2.2.5 - Knowledge of the process for making design or operating changes to the facility, such as 10CFR50.59, Changes, Tests, and Experiments, screening and evaluation processes, administrative processes for temporary modifications, disabling annunciators, or installation of temporary equipment.		
REQUIRED MATERIALS:	None		
Notes and Comments:	None		

K/A Reference(s)

B2.2.05	Safety Function	Tier 3	Group	RO Imp: 2.2	SRO Imp: 3.2
Knowledge of the process for making design or operating changes to the facility, such as 10 CFR 50.59, “Changes, Tests and Experiments,” screening and evaluation processes, administrative processes for temporary modifications, disabling annunciators, or installation of temporary equipment (CFR: 41.10 / 43.3 / 45.13)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.3, 55.43(3) Facility licensee procedures required to obtain authority for design and operating changes in the facility.

Question 22	ID: 2506951	Points: 1.00

Which of the following is a responsibility for Operations Shift Management per WC-AA-101, Online Work Control Process?

A. Providing a list of operational risk activities to the Nuclear Duty Officer (NDO).

B. Monitors the schedule process to ensure maintenance rule (a)(1) action step committed due dates are being met.

C. Maintain the configuration risk model and ensures the PRA model meets industry standards.

D. Oversees the preparation and coordination activities of the Online Maintenance Project Coordinator.

Answer	A

Answer Explanation

Choice		Basis or Justification
Correct:	A	Listed as a responsibility for Operations shift management in WC-AA-101.
Distractors:	B	Plausible because this is a listed responsibility in the procedure, but it is the responsibility of the Site Maintenance Rule Coordinator.
	C	Plausible because this is a listed responsibility in the procedure, but it is the responsibility of the Risk Manangement Engineer.
	D	Plausible because this is a listed responsibility in the procedure, but it is the responsibility of the Work Week Manager.

Question Information

Topic	Online Work Management Requirements				
User ID	ILT-1529-1D-2			**System ID**	2506951
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of the SRO responsibilities for online work management.
SRO-Only Justification	SRO responsibilities for online work management
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	WC-AA-101, Rev 32	
Learning Objective:	PLOT-DBIG-1529-1D	
K/A System:	G2.2 - Equipment Control	Importance: SRO 3.8
K/A Statement:	G2.2.17 - 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:	None	

K/A Reference(s)

B2.2.17	Safety Function	Tier 3	Group	RO Imp: 2.6	SRO Imp: 3.8
Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, and coordination with the transmission system operator (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

None

Question 23	ID: 2506954	Points: 1.00

Which of the following are required actions per ODCM 3.8.B Liquid Radwaste Effluents, to release a Waste Sample Tank with its associated discharge Radiation Monitor Inoperable?

A. Analyze 2 individual tank samples and ensure two technically qualified personnel independently verify the release rate calculations and the discharge valve lineup prior to the release.

B. Ensure release rate calculations have been verified by two technically qualified personnel prior to the discharge and obtain grab samples every 4 hours during discharge.

C. Calculate release flow rate every 4 hours during the discharge and the discharge valve lineup is independently verified.

D. Calculate release flow rate every 4 hours during the discharge and obtain grab samples every 4 hours during discharge

Answer	A

Answer Explanation

		Basis or Justification
Correct:	A	These actions are required per ODCM 3.8.B.3 action A for an inoperable gross activity Monitor on the waste activity line.
Distractors :	B	Part 1 is correct. Independent samples are required prior to the discharge, not during the discharge (action A.2)
	C	Part 1 is for an inoperable flow instrument (action B). Part 2 is correct.
	D	Part 1 is for an inoperable flow instrument (action B). Independent samples are required prior to the discharge but not every 4 hours during the discharge (action A.2).

Question Information

Topic	ODCM Requirements				
User ID	ILT-1800-EO-15-1			**System ID**	2506954
Status	Active	**Point Value**	1.00	**Time (min)**	2

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-HIGH
Operator Discipline	LO-I

References Provided	ODCM Appendix A 3.8.B.3
K/A Justification	Question tests knowledge of ODCM requirements for liquid releases.
SRO-Only Justification	ODCM evaluation is an SRO function.
Additional Information	Question is high cognitive because is requires recognition that the monitor is a gross activity monitor and not a flow monitor.

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
High			10CRF55.43(b)(2)

Source Documentation		
Source:	New Exam item Previous NRC Exam Modified Bank Other Exam Bank **X** ILT Exam Bank	
Reference(s):	ODCM Appendix A Rev 17	
Learning Objective:	PLOT-1800-EO-15	
K/A System:	2.3 - Radiation Control	Importance; SRO 3.8
K/A Statement:	2.3.6 - Ability to approve liquid or gaseous release permits.	
REQUIRED MATERIALS:	**ODCM Appendix A, RADIOACTIVE EFFLUENTS CONTROLS PROGRAM, 3.8.B.3**	
Notes and Comments:	Question is high cognitive because is requires recognition that the monitor is a gross activity monitor and not a flow monitor.	

K/A Reference(s)

B2.3.06	Safety Function	Tier 3	Group	RO Imp: 2.0	SRO Imp: 3.8
Ability to approve liquid or gaseous release permits (CFR: 41.13 / 43.4 / 45.10)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.2, 55.43(2) Facility operating limitations in the technical specifications and their bases.

Question 24	ID: 2506958	Points: 1.00

Unit 2 was operating at 100% power when the following conditions occur:

- At 0915, annunciator 008 B7 "Inner Screen or Pump Structure Heat /Smoke Det. A269, Elev. 116'0" alarms.
- At 0916, the Fire Brigade is dispatched.
- At 0919, the Incident Commander reports to the control room that there is a fire within the Inner Screen Structure.
- At 0925 the Incident Commander reports that the Fire Brigade has started to fight the fire.
- At 0937, the Incident Commander reports that the fire is out.

What is the LATEST time that offsite agencies are required to be notified by? (Assume maximum allowed time is taken for each intermittent step.)

HU3 FIRE potentially degrading the level of safety of the plant. 1 2 3 4 5 D

Emergency Action Level (EAL):

Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Escalation of the emergency classification level would be via IC CA2 or MA5

1. A FIRE in **ANY** Table H2 area is **not** extinguished in **< 15-minutes** of **ANY** of the following FIRE detection indications:
   - Report from the field (i.e., visual observation)
   - Receipt of multiple (more than 1) fire alarms or indications
   - Field verification of a single fire alarm

   OR

2. a. Receipt of a single fire alarm in **ANY** Table H2 area (i.e., no other indications of a FIRE).

   AND

   b. The existence of a FIRE is **not** verified in **< 30 minutes** of alarm receipt.

   OR

3. A FIRE within the plant PROTECTED AREA or ISFSI PROTECTED AREA not extinguished in **< 60-minutes** of the initial report, alarm or indication.

   OR

4. A FIRE within the plant PROTECTED AREA or ISFSI PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.

A. 0930.

B. 0934.

C. 0949.

D. 0952.

Answer	**C**

Answer Explanation

Choice		Basis or Justification
Correct:	C	Per EP-AA-114, notification to offsite agencies is required within 15 minutes of event declaration. Since the fire was confirmed at 0919, that would require the declaration to be made by 0934. Notifications would then be required by 0949.
Distractors:	A	Plausible because this would be when the declaration would be required with 2 fire alarms in the same area, but since it was only 1, the time clock would not start at 0915.
	B	Plausible because this is when the declaration is required, but not the notification.
	D	Plausible because this is 15 minutes after the fire is out, but the notification would be required 30 minutes after the fire was confirmed.

Question Information

Topic	Notification Requirements				
User ID	ILT-G5-7-1			**System ID**	2506958
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	EAL HU3 (Embedded)

K/A Justification	Question tests reportability requirements for a fire within the protected area.
SRO-Only Justification	Notification requirements is an SRO function.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	EP-AA-114, Rev 17	
Learning Objective:	G5 Emergency Plan- Classification, Notification, and PARs Objective 7	
K/A System:	G2.4 - Emergency Procedures/Plan	Importance: SRO 4.1
K/A Statement:	G2.4.30 - Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator	
REQUIRED MATERIALS:	**EAL HU3 (Embedded)**	
Notes and Comments:	None	

K/A Reference(s)

B2.4.30	Safety Function	Tier 3	Group	RO Imp: 2.7	SRO Imp: 4.1
Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator (CFR: 41.10 / 43.5 / 45.11)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Question 25	ID: 2506963	Points: 1.00

Which of the following identifies an Emergency Plan function that is transferred to the Emergency Operations Facility?

A. Event Classification

B. State/Local Notifications

C. NRC Notifications

D. Emergency Exposure Controls

Answer	B

Answer Explanation

Choice		Basis or Justification
Correct:	B	This action is transferred to the EOF once it is manned and activiated.
Distractors:	A	Plausible because this is a function transferred from the Control Room, but it goes to the TSC.
	C	Plausible because this is a function transferred from the Control Room, but it goes to the TSC.
	D	Plausible because this is a function transferred from the Control Room, but it goes to the TSC.

Question Information

Topic	Emergency Director Responsibilities				
User ID	ILT-G5-7-1			**System ID**	2506963
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED
Operator Type_Cognitive Lvl	SRO-LOW
Operator Discipline	LO-I

References Provided	None
K/A Justification	Question tests knowledge of which responsibilities can be transferred to other agencies.
SRO-Only Justification	Command and control transfer actions are an SRO function.
Additional Information	None

Psychometrics			
Level of Knowledge	Difficulty	Time Allowance (minutes)	SRO
Low			10CFR55.43(b)(5)

Source Documentation		
Source:	☒ New Exam Item ☐ Modified Bank Item ☐ ILT Exam Bank	☐ Previous NRC Exam: ☐ Other Exam Bank:
Reference(s):	EP-AA-112-F-01, Rev H	
Learning Objective:	G5 Emergency Plan- Classification, Notification, and PARs Objective 3	
K/A System:	G2.4 - Emergency Procedures/Plan	Importance: SRO 4.5
K/A Statement:	G2.4.40 - Knoweldge of SRO responsibilities in emergency plan implementing procedures.	
REQUIRED MATERIALS:	**None**	
Notes and Comments:	None	

K/A Reference(s)

B2.4.40	Safety Function	Tier 3	Group	RO Imp: N/A	SRO Imp: 4.5
Knowledge of SRO responsibilities in emergency plan implementing procedures (SRO Only) (CFR: 43.5 / 45.11)					

Learning Objective(s)

SRO Exam
User (Sys) ID N/A (1650031)

Cross Reference Links

Table: NRC-10CFR55-43
43.5, 55.43(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.