Exam Material

VISION Report

(Test Key) 2020 NRC Exam RO/SRO

Braidwood ILT NRC/Cert Examination (Master)

April 09, 2020

Test	2020 NRC Exam RO/SRO
VISION ID	333708
Status	

EXAMINATION COVER SHEET

Exam Title (ID)	2020 NRC Exam RO/SRO (333708)			
Training Program	Braidwood ILT NRC/Cert Examination (Master)			
LMS Component ID	N/A	**Total Points**	100.00	**Pass Criteria** = 80 %

Trainee Name		**Employee ID**	
Graded By / Date		**Grade**	____ / 100.00 = _____ %

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: 2123888	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- A reactor trip occurs.
- The crew is performing 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, step 2, VERIFY TURBINE TRIP.

Which of the following COMPLETELY describes the actions per the ACTION/EXPECTED RESPONSE column (left hand column) of 1BwEP-0, step 2 to verify the Turbine is TRIPPED?

A. Verify ALL Turbine Throttle valves are CLOSED ONLY.

B. Verify ALL Turbine Governor valves are CLOSED ONLY.

C. Verify ALL Turbine Throttle valves OR ALL Turbine Governor valves are CLOSED.

D. Verify ALL Turbine Throttle valves are CLOSED AND ALL Turbine Governor valves are CLOSED.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 1

A – Plausible: Closing ALL Throttle valves only will provide isolation of the Turbine from the steam supply system, however it does not meet procedural requirements.

B – Plausible: Closing ALL Governor valves only will provide isolation of the Turbine from the steam supply system, however it does not meet procedural requirements.

C – Plausible: Closing ALL Throttle valves OR ALL Governor valves only will provide isolation of the Turbine from the steam supply system, however it does not meet procedural requirements.

D – Correct: Per 1BwEP-0 step 2 Action/expected response, All throttle AND governor valves must be closed with both items preceded by closed bullets, otherwise RNO actions must be invoked, e.g. manually trip turbine.

Question Information

Topic	RE10007-003				
User ID	RE10007-003			**System ID**	2123888
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwEP-0 Rev 304		
Training Objective	T.EP01-01		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because it requires the operator to correctly monitor the status of the T/G controls following a reactor trip.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

EPE.007.EA1.01	Safety Function 1	Tier 1	Group 1	RO Imp: 3.7	SRO Imp: 3.4
Ability to operate and monitor the following as they apply to a reactor trip: (CFR 41.7 / 45.5 / 45.6) T/G controls					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 2	ID: 2123890	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- At 0945, an RCS LOCA occurred.
- A reactor trip AND SI actuated.
- Reactor Trip Breaker A (RTA) did NOT OPEN.
- At 1002, BOTH Unit 1 SI reset pushbuttons have been depressed.

At 1010:

- The crew is performing 1BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT, step 8, CHECK IF RH PUMPS SHOULD BE STOPPED.
- RCS Pressure is 30 PSIG above the criteria to secure RH pumps and stable.
- BOTH RH Pump control switches are taken to TRIP and returned to Normal After Trip (NAT).

NO operator actions outside the MCR have been taken.

With the above conditions...

A. the 1A RH Pump restarted, the 1B RH pump remained shut down.

B. the 1B RH Pump restarted, the 1A RH pump remained shut down.

C. BOTH RH Pumps restarted.

D. BOTH RH Pumps remained shut down.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 2

A – Correct: With RTA failed closed, SI will not reset on train A. SI does reset on Train B. Train A will respond with SI signal present, so 1A RH pump will auto restart.

B – Plausible: This would be correct if SI did not reset on train B.

C – Plausible: This would be correct if SI did not reset on both trains.

D – Plausible: This would be correct if SI reset on both trains.

Question Information

Topic	RE10011-N05				
User ID	RE10011-N05			**System ID**	2123890
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 41.8 Components, capacity, and functions of emergency systems.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-EF-XL-01, Rev. 6, Engineered Safety Features		
Training Objective	S.EF1-06		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because the examinee must know the consequences of a single RTB failing closed will have on an SI signal reset and the result this has on the RH pumps.
SRO-Only Justification	Not Applicable
Additional Information	None

K/A Reference(s)

EPE.011.EA2.02	Safety Function 3	Tier 1	Group 1	RO Imp: 3.3*	SRO Imp: 3.7*
Ability to determine or interpret the following as they apply to a Large Break LOCA: (CFR 43.5 / 45.13) Consequences to RHR of not resetting safety injection					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 3	ID: 2123892	Points: 1.00

- A loss of CC flow to an RCP has occurred on Unit 1.
- 1BwOA RCP-2, LOSS OF SEAL COOLING, was entered and the NSO is monitoring the RCP lower radial bearing temperature.

Which of the following is the MINIMUM RCP lower radial bearing temperature from the Operator Action Summary of 1BwOA RCP-2 that requires a reactor trip and entry into 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION?

A. 151°F

B. 185°F

C. 226°F

D. 236°F

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 3

A – Plausible: 150°F is temperature at which CC flow must be maintained to thermal barrier in the event of a loss of seal injection to prevent seal damage.

B – Plausible: 184°F is the lower radial bearing high temp alarm setpoint.

C – Correct, 1BwOA RCP-2 Operator Action Summary requires RCP trip when lower radial bearing temp rises >225°F.

D – Plausible: 235°F is the seal outlet temp trip setpoint.

Question Information

Topic	RE10015-N01				
User ID	RE10015-N01			System ID	2123892
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	MEMORY
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only

Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwOA RCP-2 Rev. 104		
Training Objective	T.OA28-06		
Previous Exam Use	2009 NRC		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of when to secure RCPs on high bearing temperature which would require entry into 1BwEP-0
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.4.4	Safety Function 3	Tier 3	Group	RO Imp: 4.5	SRO Imp: 4.7
Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures. (CFR: 41.10 / 43.2 / 45.6)					
GE.4.0.APE.015/017	Safety Function 4	Tier 1	Group 1	RO Imp:	SRO Imp:
Reactor Coolant Pump (RCP) Malfunctions					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 4	ID: 2123895	Points: 1.00

Unit 1 is at 100% power.

- 1A CV pump is RUNNING.
- 1CV121, Centrifugal Charging Pump Flow Control Valve, is in MANUAL control.
- Charging flow is 132 gpm.
- 1CV182, Charging Header Back Pressure Control Valve, is at 52% demand.
- ALL Seal injection flows are approximately 9 gpm per RCP.

- The 1A CV pump impeller begins to slowly degrade.

In order to MANUALLY maintain PZR level AND RCP seal injection flows STABLE AT THEIR ORIGINAL VALUES, which of the following describes the positions of 1CV121 and 1CV182 in relation to their original positions?

A. 1CV121 opened more AND 1CV182 closed more.

B. 1CV121 opened more AND 1CV182 maintained as is.

C. 1CV121 maintained as is AND 1CV182 opened more.

D. 1CV121 maintained as is AND 1CV182 closed more.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 4

A – Plausible: The system characteristic curve does not change. 1CV182 does not require readjustment. A misunderstanding of system operation may lead candidate to believe the adjustment of 1CV121 would require a corresponding adjustment of 1CV182.

B – Correct: In this condition, 1BwOA PRI-8, step 8.d RNO directs operator to “Throttle 1CV121 and 1CV182 to establish desired charging flow”. As the impeller degrades discharge pressure and flow will drop due to the reduction in differential pressure between the charging header and RCS. Opening 1CV121 will restore the flow and the pressure to the identical value and consequently not require 1CV182 to be adjusted. Considering the flowpaths downstream of 1CV121, the system characteristic curve does not change (ratio of flow resistance between the two branches, one to the seals and the other to the RCS A or B cold leg, does not change), so by throttling open 1CV121 to restore system pressure to the previous pressure, flow split will be the same between the two branches.

C – Plausible: Maintaining 1CV121 is incorrect. As pump is degrading, valve must be further open to achieve same equivalent flow. A misunderstanding of system operation may lead candidate to believe the adjustment of 1CV182 more open would provide additional flow to the normal charging header to maintain pressurizer level, however seal injection flow would drop.

D – Plausible: Maintaining 1CV121 is incorrect. As pump is degrading, valve must be further open to achieve same equivalent flow. A misunderstanding of system operation may lead candidate to believe the

adjustment of 1CV182 more closed would provide maintain stable seal injection flow, however normal charging flow and pressurizer level would drop.

Question Information

Topic	RE10022-004				
User ID	RE10022-004			**System ID**	2123895
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-CV-XL-01, Rev.10, CVCS		
Training Objective	S.CV1-17-C		
Previous Exam Use	2006 NRC		

References Provided	None
K/A Justification	Meets the K/A because candidate must understand the relationship of charging flow and pressure to RCS pressure to determine proper valve adjustments.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.022.AK1.02	Safety Function 2	Tier 1	Group 1	RO Imp: 2.7	SRO Imp: 3.1
Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Pump Makeup: CFR 41.8 / 41.10 / 45.3) Relationship of charging flow to pressure differential between charging and RCS					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 5	ID: 2123896	Points: 1.00

Unit 1 is in Mode 5.

- All systems are normally aligned.
- 1A RH pump is running in the shutdown cooling mode per BwOP RH-6.
- Pressurizer level is approx. 50% and stable.

The following occurs:
- A leak develops in the RH system.
- Pressurizer level begins to slowly drop.
- Annunciator 1-1-A2, CNMT DRAIN LEAK DETECT FLOW HIGH, alarms.

No other abnormal indications are present.

Which of the following is the location of the leak?

A. The 1A RH pump Suction Relief Valve has failed open.

B. The 1A RH pump Discharge Relief Valve has failed open.

C. Body to bonnet leak of 1SI8809A, RH TO COLD LEGS 1A + 1D ISOL VLV.

D. Body to bonnet leak of 1RH8701A, RC LOOP 1A TO RH PP 1A SUCT ISOL VLV.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 5

A – Plausible: The suction relief downstream path is hard piped to the RHUT and located outside of containment.

B – Plausible: The discharge relief downstream path is hard piped to the RHUT and located outside of containment.

C – Plausible: The 1SI8809A valve is an outside containment isolation valve and a leak from this valve would drain into the aux bldg floor drains and the aux bldg sump.

D – Correct: The alarm 1-1-A2 has multiple inputs, however they all originate in the containment bldg. The 1RH8701A valve is an inside containment isolation valve and a leak from this valve would drain into the containment floor drains and the reactor bldg cnmt sump.

Question Information

Topic	RE10025-N03				
User ID	RE10025-N03			**System ID**	2123896
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New for 2020 NRC	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RH-XL-01, Rev. 6, RHRS, BwAR 1-1-A2, Rev. 16.		
Training Objective	S.RH1-09-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A by requiring candidate knowledge of reactor bldg sump alarm and using that information to determine where a loss (leak) of RH system exists.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.025.AK2.05	Safety Function 4	Tier 1	Group 1	RO Imp: 2.6	SRO Imp: 2.6
Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: (CFR 41.7 / 45.7) Reactor building sump					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 6	ID: 2123970	Points: 1.00

Unit 2 has experienced a large steam line break inside containment.

- The crew is performing 2BwEP-0, REACTOR TRIP OR SI.
- Automatic SI has actuated and backed up manually by the RO.
- NO other manual operator actions have been taken on the MCBs.
- The current step in progress is 14.c, Group 6 Phase B Isolation monitor lights - LIT.
- The RO determines that a Phase B isolation HAS occurred (ALL Phase B monitor lights are LIT).

The REASON for the NEXT action the crew will take is, loss of...

A. seal injection flow to the RCPs.

B. charging flow to the regen heat exchangers.

C. cooling to RCP motor bearing heat exchangers.

D. seal leakoff flow to the seal water return heat exchanger.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 6

A – Plausible: Seal injection to the RCPs will drop when the CVCS system automatically re-aligns due to SI actuation. However, The flow is typically adequate to support RCP operation.

B – Plausible: Loss of charging flow to the regen heat exchangers removes the cooling source to the regen heat exchangers. Typically letdown flow is automatically isolated by the Phase A signal, however 2BwEP-0 , step 8 requires the operator to manually isolate letdown if the automatic action did not occur.

C – Correct: The next step in 2BwEP-0 directs the tripping of all RCPs. Loss of CC cooling to the motor bearings is the most immediate concern. There is no alternate mitigation strategy to compensate for it.

D – Plausible: Loss of seal leak off flow to the seal water heat exchanger cooling is mitigated by re-directing seal return flow to the PRT via the seal return line relief valve inside containment.

Question Information

Topic	RE10026-N02				
User ID	RE10026-N02			**System ID**	2123970
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New for 2020 NRC	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-EP-XL-01, Rev. 20, EP-0, EP ES-0 Reactor Trip or Safety Injection, 2BwEP-0, rev. 303		
Training Objective	T.EP01-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A by requiring the candidate to analyze the reason for tripping the RCPs during a loss of CC event.
SRO-Only Justification	N/A
Additional Information	The question is an RO level question because the action of tripping RCPs after a Phase B isolation is on the OAS page (in addition to the procedure main body step of 2BwEP-0).

K/A Reference(s)

APE.026.AK3.03	Safety Function 8	Tier 1	Group 1	RO Imp: 4.0	SRO Imp: 4.2
Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water: (CFR 41.5,41.10 / 45.6 / 45.13) Guidance actions contained in EOP for Loss of CCW					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 7	ID: 2133446	Points: 1.00

Unit 1 is in Mode 1, normally aligned.

- DC Bus 111 faults and DE-ENERGIZES.

The following sequence of events then occurs:

- A Red First Out annunciator on 1PM05J, block 11, alarms from an automatic reactor trip signal, but the reactor does NOT trip.
- The NSO actuates the RX TRIP switch at 1PM05J, but again, the reactor does NOT trip.
- The NSO then actuates the RX TRIP switch at 1PM06J, and the reactor TRIPS.

Note:

- "TSLB-4" is the NIS AND CONTAINMENT TRIP STATUS LIGHTS at 1PM05J.
- "Position indication lights" are the red and green "checkerboard" lights at 1PM05J.

With the above conditions, the position of RTA (train A reactor trip breaker) can be obtained locally...

A. and from BOTH TSLB-4 and the position indication lights.

B. and from TSLB-4 (but NOT from the position indication lights).

C. and from the position indication lights (but NOT from TSLB-4).

D. but NOT from either the position indication lights OR TSLB-4 .

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 7

A – Plausible: Misconception of system operation. This would be correct if RTA had control power.

B – Correct: Power to the position indication lights come from the reactor trip breaker control power circuit (DC bus 111). Therefore, the position indication lights will not work. However, the TSLB-4 indicating lights are powered through SSPS, with instrument bus power and will continue to work properly even with a loss of the DC bus 111.

C – Plausible: Misconception of system operation. This is opposite of the correct answer.

D – Plausible: Misconception of system operation. This would be correct if both position indications were from reactor trip breaker control power.

Question Information

Topic	RE10029-N05				
User ID	RE10029-N05			**System ID**	2133446
Project	AP-OPS-K&A-PWR			**Site**	BR
Status	Active	**Point Value**	1.00	**Time (min)**	1

Cross Reference Number	
Num Field 2	RO-MEMORY
Text Field	LO-
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.

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Electrical Schematic 20E-1-4030RD06 Rev. s		
Training Objective	3D.EP-01-A		
Previous Exam Use	2011 NRC Exam		

References Provided	None
K/A Justification	Question meets K/A, requires examinee ability to monitor reactor trip breakers during an ATWS event.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

EPE.029.EA1.12	Safety Function 1	Tier 1	Group 1	RO Imp: 4.1	SRO Imp: 4.0
Ability to operate and monitor the following as they apply to a ATWS: (CFR 41.7 / 45.5 / 45.6) M/G set power supply and reactor trip breakers					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 8	ID: 2123973	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- DC Bus 111 DE-ENERGIZES.

The following sequence of events then occurs:

- Unit 1 reactor is manually TRIPPED.
- While performing step 4 of 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, the crew diagnoses a 1A Steam Generator Tube Rupture.
- While attempting to manually close the 1A MSIV, the MSIV fails to close due to a faulty switch.
- The crew then manually actuates Main Steam Line Isolation at 1PM05J.

Which of the following correctly describes the status of the 1A MSIV?

A. CLOSED by BOTH accumulator trains.

B. OPEN due to neither accumulator train actuating.

C. CLOSED by the ACTIVE accumulator train ONLY.

D. CLOSED by the STANDBY accumulator train ONLY.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 8

A – Plausible: There are two accumulators with separate actuation power supplies. A misconception that the 1A MSIV is powered exclusively by DC bus 111 would result in this distractor.

B – Plausible: A misconception that the 1A MSIV is powered exclusively by DC bus 112 would result in this distractor.

C – Plausible: Opposite of correct answer. Would be correct if the active and standby accumulator power supplies were swapped.

D – Correct: With loss of DC 111, all MSIVs lose 1 accumulator (each MSIV has 2 accumulators), therefore they will still all close. DC 111 supplies 1A & 1D MSIV active train air solenoids and 1B & 1C MSIV standby train air solenoids. DC 112 supplies 1B & 1C MSIV active train air solenoids and 1A & 1D MSIV standby train air solenoids. Therefore, on a Loss of Bus DC 111, the 1B & 1C MSIV close on the active trains and the 1A & 1D MSIV close on the standby train.

Question Information

Topic	RE10038-N04				
User ID	RE10038-N04			**System ID**	2123973
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Modified	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-MS-XL-01, Rev. 7, Main Steam		
Training Objective	S.MS1-07-C		
Previous Exam Use	Modified from 2014 NRC exam question RS1013-N14-22		

References Provided	None
K/A Justification	Meets K/A, examinee must understand the design features of the MSIV actuation system.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

EPE.038.EA2.12	Safety Function 3	Tier 1	Group 1	RO Imp: 3.9*	SRO Imp: 4.2
Ability to determine or interpret the following as they apply to a SGTR: (CFR 43.5 / 45.13) Status of MSIV activating system					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 9	ID: 2123976	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- A steam line break occurred outside of containment resulting in an RCS cooldown.
- Following isolation of the break, SI was terminated.
- At 1200 the NSO completed 1BwOSR 3.1.1.1-1, SHUTDOWN MARGIN DAILY VERIFICATION DURING SHUTDOWN, and found the shutdown margin was NOT within COLR limits.

With the above conditions, per Tech Spec 3.1.1, SHUTDOWN MARGIN, the LATEST required time to INITIATE boration is...

A. immediately.

B. 1215.

C. 1230.

D. 1300.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 9

A – Plausible: There are several Tech specs that contain immediate actions and time limits to restore parameters (i.e. TS 3.3.1).

B – Correct: Per TS 3.1.1, cond. A, the only required action and completion time is to initiate boration within 15 minutes.

C – Plausible: There are several Tech specs that contain completion time of 30 minutes (i.e. TS 3.4.3).

D – Plausible: There are several TS with completion times of 1 hour (i.e. TS 3.1.5).

Question Information

Topic	RE10040-N03				
User ID	RE10040-N03			System ID	2123976
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Tech Spec 3.1.1		
Training Objective	S.RC1-12-B		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, examinee must be able to apply a tech spec during a faulted steam line event.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.2.40	Safety Function 3	Tier 3	Group	RO Imp: 3.4	SRO Imp: 4.7
Ability to apply Technical Specifications for a system. (CFR: 41.10 / 43.2 / 43.5 / 45.3)					
GE.4.0.APE.040	Safety Function 4	Tier 1	Group 1	RO Imp:	SRO Imp:
Steam Line Rupture					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 10	ID: 2123987	Points: 1.00

1BwFR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, prioritizes (by condition) which S/G to feed when restoring feed flow. A S/G identified as DRY is the lowest priority because it could result in...

A. RCS depressurization to less than the minimum required to support continued RCP operation.

B. excessive RCS cooldown rates and lead to a Pressurized Thermal Shock condition.

C. the failure of one or more S/G tubes due to excessive thermal stress.

D. a rapid secondary pressure reduction due to excessive cooldown.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 10

A – Plausible: RCS cooldown and depressurization would have to drop to 200 psid across the #1 RCP seal. This would be highly unlikely when properly recovering from a loss of feedwater.

B – Plausible: Excessive RCS cool down rate is a concern during the steam rupture event or over feeding event, but not when properly recovering from a loss of feedwater.

C – Correct: Per WOG background documents and if feed flow to a SG is isolated and the SG is allowed to dry out, subsequent re-initiation of feed flow to the SG could create significant thermal stress conditions on SG components and cause SG tube failure.

D – Plausible: Rapid secondary pressure reduction is a concern during the steam rupture event but not when properly recovering from a loss of feedwater.

Question Information

Topic	RE10054-N04				
User ID	RE10054-N04			System ID	2123987
Status	Active	Point Value	1.00	Time (min)	2

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only

Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-FR-XL-03, Rev, 14, FR-H.1-H.5		
Training Objective	T.FR03-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A by requiring candidate knowledge of effects of feeding a dry S/G.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.054.AK1.02	Safety Function 4	Tier 1	Group 1	RO Imp: 3.6	SRO Imp: 4.2
Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater (MFW): (CFR 41.8 / 41.10 / 45.3) Effects of feedwater introduction on dry S/G					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 11	ID: 2123990	Points: 1.00

- BOTH UNITS have experienced a severe electrical transient and have lost ALL AC power.
- BOTH UNITS are performing 1/2BwCA-0.0, LOSS OF ALL AC POWER.
- BOTH UNITS have indications of an RCS LOCA developing.
- EOs are being dispatched to shed DC power loads from the 125 VDC class 1E busses.

With the above conditions, why is it necessary to shed loads from the DC busses?

It is necessary because the design basis for the 125 VDC class 1E system is...

A. for a design basis LOCA combined with a loss of ALL AC power, BUT non-class 1E loads must be shed.

B. for a safe shutdown from full power combined with a loss of OFFSITE power.

C. for a safe shutdown from full power combined with a loss of ALL AC power.

D. for a design basis LOCA combined with a loss of OFFSITE power.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 11

A – Plausible: Loss of ALL AC is not in design basis of plant or DC system even if non-ESF loads are shed. This is a plausible set of plant conditions if candidate is does not know correct information.

B – Plausible: Loss of ALL AC is not in design basis of plant or DC system. This is a plausible set of plant conditions if candidate is does not know correct information.

C – Plausible: The design basis includes a DBA (LOCA), not only a safe shutdown from 100%. This is a plausible set of plant conditions if candidate is does not know correct information.

D – Correct: Per the UFSAR and 125 VDC ESF lesson plan, the 125 VDC class 1E battery systems are designed for a DBA (LOCA) combined with a loss of offsite power. The only specific time mentioned is the battery rating in the UFSAR of 2320 amp/hours at the 8 hour rate to an end voltage of 1.75 volts per cell. However, the actual time which a battery would last is dependent upon load. The UFSAR also mentions that the batteries are designed for a 1 hour design duty cycle in the event of a LOCA concurrent with a loss of offsite power. A loss of ALL AC is not a design basis event (thus a contingency action procedure was developed to address). The load shedding directed in an extended loss of all AC power is to maximize the battery life for monitoring MCR indications. But the batteries are not designed specifically for an extended loss of all AC power. The important concept for the operator to know is not the specific amount of time the battery was designed to last, but the event that the battery is designed to protect for.

Question Information

Topic	RE10055-N02				
User ID	RE10055-N02			**System ID**	2123990
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwCA-0.0 rev. 303, ILT LP I1-DC-XL-01, Rev. 5, 125VDC System		
Training Objective	S.DC1-02		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of reasons for length of time battery capacity is designed.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

EPE.055.EK3.01	Safety Function 6	Tier 1	Group 1	RO Imp: 2.7	SRO Imp: 3.4
Knowledge of the reasons for the following responses as the apply to the Station Blackout: (CFR 41.5 / 41.10 / 45.6 / 45.13) Length of time for which battery capacity is designed					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 12	ID: 2123991	Points: 1.00

Unit 1 is in Mode 4.

- RCS cooldown is in progress following a loss of offsite power and reactor trip.
- In response to rising CC temperature, the crew must throttle 1SX007, CC HX Outlet Vlv, while monitoring CC Outlet Temperature.

Where will each task be accomplished?

1. Throttle 1SX007...

2. Monitor CC HX Outlet Temp...

A. 1. in the MCR.
2. locally in the plant.

B. 1. in the MCR.
2. in the MCR.

C. 1. locally in the plant.
2. in the MCR.

D. 1. locally in the plant.
2. locally in the plant.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 12

A – Plausible: There are evolutions where valves are throttled from the MCR while local observation of flow and/or temperatures is required.

B – Plausible: There are evolutions where valves are throttled from the MCR while MCR observation of flow and/or temperatures is required.

C – Correct: 1SX007 is a locally controlled valve operated by a hand switch mounted in local proximity to the valve on 346' elevation in the aux bldg. The CC HX Outlet temperature is in the MCR on 1TI-674 mounted on 1PM06J panel and on the DCS Ovation CC Hx graphic screen. There is no local temperature indication for CC HX Outlet temperature.

D – Plausible: There are evolutions where valves are throttled locally while local observation of flow and/or temperatures is required.

Question Information

Topic	RE10056-N05				
User ID	RE10056-N05			**System ID**	2123991
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Electrical Schematic 20E-1-4030SX27, C&ID M-2066 Sht 3 Detail A		
Training Objective	S.CC1-12		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to operate and monitor SX to CC HX outlet valve and parameters by knowing where they are located.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.056.AA1.28	Safety Function 6	Tier 1	Group 1	RO Imp: 3.1*	SRO Imp: 3.1
Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: (CFR 41.7 / 45.5 / 45.6) SWS flow control valve for the CCW cooler to control CCW outlet temperature					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 13	ID: 2124003	Points: 1.00

Unit 1 is in Mode 3.

- 1BwGP 100-1, PLANT HEAT UP, is in progress.
- All SI accumulators are filled and pressurized within Tech Spec limits.
- RCS pressure is within the procedurally directed range for energizing the 1SI8808A/B/C/D, SI Accumulator Discharge Isolation Valves.
- 1SI8808A/B/C/D are all ENERGIZED and CLOSED.

The following occurs.
- Instrument Bus 111 faults and de-energizes.
- A concurrent instrument spike causes SI to inadvertently actuate.

As a result of the SI signal, what is the status of the 1SI8808A/B/C/D and SI Accumulator parameters?

1. 1SI8808A/B/C/D Status

2. 1A/B/C/D SI Accumulator pressure/level

A. 1. A/D CLOSED and B/C OPEN
2. ALL Unchanged

B. 1. A/D CLOSED and B/C OPEN
2. A/D Unchanged and B/C Lowered

C. 1. ALL OPEN
2. ALL Unchanged

D. 1. ALL OPEN
2. ALL Lowered

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 13

A – Correct: An SI signal causes an auto open signal to the 1SI8808s, however the loss of IB 111 would prevent the A/D (A train) SSPS output relays from sending that open signal to the A/D valves. The SI accumulator pressures and levels would not change on any accumulator because the RCS pressure directed in 1BwGP 100-1 (800# - 1000#) is above the TS required Accumulator pressures (602-647 psig).

B – Plausible: Misconception that the B/C Accumulators injected into the RCS.

C – Plausible: Misconception that all valves received an open signal.

D – Plausible: Misconception that all valves received an open signal and injected into RCS.

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Question Information

Topic	RE10057-N01				
User ID	RE10057-N01			**System ID**	2124003
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-EC-XL-01, Rev. 6, ECCS, ILT LP I1-RP-XL-01, Rev. 6, SSPS		
Training Objective	S.EC1-04		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee to evaluate the effect on pressure and level during a loss of instrument bus event affecting the SI accumulators.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.057.AA2.02	Safety Function 6	Tier 1	Group 1	RO Imp: 3.7*	SRO Imp: 3.8*
Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: (CFR: 43.5 / 45.13) Core flood tank pressure and level indicators					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 14	ID: 2124050	Points: 1.00

Unit 1 was at 25% power in a normal alignment for this power level.

- A large plant transient has just occurred.

With the above conditions, which of the following MCR indications would procedurally require a reactor trip?

A. 1PI-GS001, GS SUP HDR PRESS, at 1PM02J indicates 40 PSIG.

B. 0PI-IA007, INST AIR HDR PRESS, at 0PM01J indicates 50 PSIG.

C. 1PI-HY005A, MAIN GEN H2 PRESS, at 1PM02J indicates 60 PSIG.

D. 0PI-SA006, SERV AIR HDR PRESS, at 0PM01J indicates 70 PSIG.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 14

A – Plausible: 1BwOA SEC-4 checks GS supply pressure at step 9, but no reactor trip criteria is mentioned.

B – Correct: 1BwOA SEC-4, step 3 checks IA press at 0PI-IA007 (checking for adequate IA supply to operate FW valves) < 60 psig, if yes, next step is to trip reactor.

C – Plausible: 1BwOA TG-7 checks H2 pressure <75 psig, and lowering is turbine trip criteria, but at <30% power, reactor trip is not required.

D – Plausible: Pressure transmitter for 0PI-SA006 is on the main turb. bldg SA header. The IA supply taps off the compressor discharge upstream of the SA header. Depending on the location and size of the leak, the 0PI-SA006 may be less than 0PI-IA007.

Question Information

Topic	RS10078-N03				
User ID	RS10078-N03			System ID	2124050
Status	Active	Point Value	1.00	Time (min)	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwOA SEC-4 rev 107		
Training Objective	4C.IA-01.		
Previous Exam Use	2013 NRC		

References Provided	None
K/A Justification	Meets K/A, requires examinee ability to execute procedure step 3 in 1BwOA SEC-4.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.1.20	Safety Function 6	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)					
GE.4.0.APE.065	Safety Function 8	Tier 1	Group 1	RO Imp:	SRO Imp:
Loss of Instrument Air					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 15	ID: 2124055	Points: 1.00

Unit 1 is at 100% power, normally aligned.

- 1VI-MP006, MAIN GENERATOR 1 OUTPUT VARS, indicates 200 MVARS out.

Subsequently:

- A grid disturbance results in grid voltage DROPPING.
- TSO reports NO switchyard lines were lost and total grid reactive load did NOT change.

1. In response to this event, Unit 1 MVARS out …

2. What (if any) adjustment is required to place MVAR load to a STABLE 200 MVARS OUT?

A. 1, did NOT change with the voltage regulator in Automatic.
2. NO adjustment will be required.

B. 1. lowered.
2. The VOLT adjuster control switch will be taken to RAISE.

C. 1. rose.
2. The BASE adjuster control switch will be taken to LOWER.

D. 1. rose.
2. The VOLT adjuster control switch will be taken to LOWER.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 15

A – Plausible: Misconception that voltage regulator in auto would maintain constant MVARS output of the generator.

B – Plausible: Opposite the correct response and action.

C – Plausible: Correct response with incorrect action. The base adjuster will have no effect with the voltage regulator in automatic. Plausible because control is shifted to the Base Adjuster if/when the automatic voltage regulator is taken to "off".

D – Correct: A drop in grid voltage with no change in total reactive load causes a rise in reactive load output of the main generator, therefore MVARS out will rise. To restore reactive load to the original value, the operator must go to LOWER on the volt adjuster control switch.

Question Information

Topic	RE10077-N03				
User ID	RE10077-N03			**System ID**	2124055
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-MP-XL-02, Rev. 7, Main Generator Excitation		
Training Objective	S.MP2-05-A		
Previous Exam Use	2016 NRC		

References Provided	None
K/A Justification	Meets K/A, examinee must assess the effect of changing grid voltage on main generator reactive load and determine the appropriate voltage controller adjustment.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.077.AK2.07	Safety Function 6	Tier 1	Group 1	RO Imp: 3.6	SRO Imp: 3.7
Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: (CFR: 41.4, 41.5, 41.7, 41.10 / 45.8) Turbine / generator control					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 16	ID: 2124057	Points: 1.00

Unit 1 was at 100% power.

- ESF bus 142 de-energized due to a bus fault.
- Subsequently, a manual reactor trip and SI occurred due to a pressurizer safety valve stuck partially open.
- The MCR received a report that a large amount of water is leaking in the U-1 containment penetration area.
- The crew transitioned to 1BwCA-1.2, LOCA OUTSIDE CONTAINMENT, with ALL 1A train ECCS pumps still running.

The following indications are CURRENTLY noted on the MCB:
- RCS wide range pressure is 1700 psig and stable.
- 1A RH discharge flow is 0 gpm.
- 1A SI pump discharge flow is 200 gpm.
- 1A CV pump flow is 300 gpm.

Assuming the leak is ALL RWST water, the leak can be reduced by closing...

A. 1SI8801A, CHG PMPS TO COLD LEG INJ ISOL VLV, and stopping the 1A CV pump.

B. 1SI8835, SI PP TO COLD LEG ISOL VLV, and stopping the 1A SI pump.

C. 1SI8809A, RH TO COLD LEG 1A & 1D ISOL VLV, and stopping the 1A RH pump.

D. 1SI8809B, RH TO COLD LEG 1B & 1C ISOL VLV, and stopping the 1A RH pump.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 16

A – Plausible: This is a valve listed in 1BwCA-1.2 as a possible leak source, however CV pump flow is normal for current RCS pressure.

B – Correct: Shut off head for the ECCS pumps are as follows: RH-200 psid, SI-1500 psid, CV-2600 psid. At the current RCS pressure of 1700 psid, the only pump that should have indicated flow is the CV pump. Therefore, if the SI pump indicates 200 gpm and assuming the leak is RWST water, it is logical to conclude that the leak is somewhere on the SI pump discharge line. 1BwCA-1.2 step 2.d, isolates each of the ECCS pump discharge paths one at a time and checks for indication the leak has stopped.

C – Plausible: This is a valve listed in 1BwCA-1.2 as a possible leak source, however RH pump flow is normal for current RCS pressure.

D – Plausible: This is a valve listed in 1BwCA-1.2 as a possible leak source, however RH pump flow is normal for current RCS pressure

Question Information

Topic	RE1WE04-N01				
User ID	RE1WE04-N01			**System ID**	2124057
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwCA-1.2, Rev. 300, ILT LP I1-EC-XL-01, Rev. 6, ECCS		
Training Objective	4D.CA-03		
Previous Exam Use	2009 NRC		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of operational implications of the procedure mitigation strategy of isolating valves and monitoring the leak. (ECCS).
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

4.5.E04.EK1.2	Safety Function 3	Tier 1	Group 1	RO Imp: 3.5	SRO Imp: 4.2
Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment) (CFR: 41.8 / 41.10, 45.3) Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment).					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 17	ID: 2124061	Points: 1.00

- An RCS LOCA occurred on Unit 1.
- 1SI8811A/B, CNMT SUMP ISOL VLVs, are CLOSED and CANNOT be opened.
- 1BwCA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, was entered.
- Minimum ECCS flow to remove decay heat has been established per 1BwCA-1.1.

In accordance with 1BwCA-1.1, the NSO monitoring plant parameters will raise RCS make-up flow if...

A. pressurizer level drops to 0%.

B. RVLIS HEAD region drops to 31%.

C. hot leg wide range temperatures rise.

D. core exit thermocouples rise.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 17

A – Plausible: This is a logical distractor because Pressurizer level is used in determining SI re-initiation criteria in other emergency procedures (1BwEP-3), but not in 1BwCA-1.1

B – Plausible: This is a logical distractor because RVLIS indication is also used in determining SI re-initiation criteria, however the RVLIS criteria for raising flow is 15% in the plenum region.

C – Plausible: This is a logical distractor because Hot Leg temperatures may rise with the given conditions however, Hot leg wide range temperatures are not used because they can be an unreliable indicator of core conditions during a LOCA due to specific RCS flow conditions.

D – Correct: 1BwCA-1.1 Continuous Action Summary requires the operator to raise RCS make-up flow if either the CETCs rise or if the RVLIS plenum region drops below 15%. This is less restrictive than criteria used in other emergency procedures to raise ECCS flow because of the objective to conserve RWST water.

Question Information

Topic	RE1WE11-N01				
User ID	RE1WE11-N01			**System ID**	2124061
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwCA-1.1 rev.303		
Training Objective	3D.CA-02-B		
Previous Exam Use	2009 NRC		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of interrelations (when to raise RCS make-up) between loss of emergency coolant recirc event and instrumentation used to evaluate plant status.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

4.5.E11.EK2.1	Safety Function 4	Tier 1	Group 1	RO Imp: 3.6	SRO Imp: 3.9
Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: (CFR: 41.7 / 45.7) Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 18	ID: 2124063	Points: 1.00

- A Unit 1 loss of heat sink has occurred.
- The operating crew is establishing RCS Bleed and Feed in accordance with 1BwFR-H.1, LOSS OF SECONDARY HEAT SINK.
- BOTH PZR PORVs were manually OPENED.

Which ONE of the following describes why PZR PORVs are manually opened (instead of being allowed to automatically cycle) during performance of Bleed and Feed in 1BwFR-H.1?

A. ECCS flow at the PZR PORV setpoint is insufficient to ensure core cooling is maintained.

B. Prevent lifting PZR safety valves.

C. Enhance mixing of SI flow in the reactor core to minimize possibility of PTS.

D. Minimize cycling of PZR PORVs.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 18

A – Correct: Per WOG background document, ECCS capability of Westinghouse PWRs at the PORV open setpoint pressure is not sufficient to ensure core cooling using feed and bleed. Therefore, the PORV is manually opened prior to reaching the auto open setpoint to ensure a success path to core cooling.

B – Plausible: Misconception but a correct reason for opening PORV during other plant conditions.

C – Plausible: Misconception but a concern during SI for localized excessive cooldown.

D – Plausible: Misconception for minimizing risk of equipment damage.

Question Information

Topic	RE1WE05-002				
User ID	RE1WE05-002			System ID	2124063
Status	Active	Point Value	1.00	Time (min)	0

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

NRC Exams Only

Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	FR-H.1 WOG BD, ILT LP I1-MI-XL-08, Rev 6, Loss of Heat Sink		
Training Objective	T.MI08-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A because candidate must know reason for initiation of bleed and feed during loss of heat sink event.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

4.5.E05.EK3.3	Safety Function 4	Tier 1	Group 1	RO Imp: 4.0	SRO Imp: 4.1
Knowledge of the reasons for the following responses as they apply to the (Loss of Secondary Heat Sink) (CFR: 41.5 / 41.10, 45.6, 45.13) Manipulation of controls required to obtain desired operating results during abnormal, and emergency situations.					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 19	ID: 2124071	Points: 1.00

Unit 1 is at 90% power with control rods in MANUAL.

- A blown fuse in the Rod Control system caused Control Bank 1C, Rod F6 to DROP completely into the core.

ONE minute after the rod drop, which of the following conditions is expected?

A. The Rod Bank LO-2 Insertion Limit annunciator (1-10-A6) will be LIT.

B. Quadrant power tilt ratio will be HIGHER.

C. Critical Heat Flux will be LOWER.

D. Shutdown margin will be HIGHER.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 19

A – Plausible: Misunderstanding of system operation may lead to this conclusion however, Rod insertion limit Lo-2 alarm is driven from rod demand vs. actual rod position so alarm will not come in.

B – Correct: QPTR rises when an imbalance in core thermal power between quadrants occurs

C – Plausible: CHF will change due to the dropped rod however, CHF will RISE.

D – Plausible: A common misconception is that changing control rod position changes SDM because rod position is recorded when determining Shutdown Margin. However, SDM will not be affected since there is no change in boron or poison concentration.

Question Information

Topic	RE20003-004				
User ID	RE20003-004			System ID	2124071
Status	Active	Point Value	1.00	Time (min)	3

Open or Closed Reference	CLOSED	Cognitive Level	HIGH
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only

Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-OA-XL-34, Rev. 12, 1BwOA ROD-3, Dropped or Misaligned Rod		
Training Objective	T.OA34-09		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets the K/A, requires candidate ability to monitor ex-core instrumentation (QPTR which is derived from the ex-core NIs)
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.003.AA1.07	Safety Function 1	Tier 1	Group 2	RO Imp: 3.8	SRO Imp: 3.8
Ability to operate and / or monitor the following as they apply to the Dropped Control Rod: (CFR 41.7 / 45.5 / 45.6) In-core and ex-core instrumentation					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 20	ID: 2124073	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- 1LT-0459, PZR LEVEL, channel has just failed low.
- The crew has entered 1BwOA INST-2, OPERATION WITH A FAILED INSTRUMENT CHANNEL.

With the above conditions, 1LK-0459, MASTER PZR LEVEL CONT will _____1_____ and PZR level will be controlled by _____2_____.

A. 1. remain in AUTO
2. the auctioneered Hi of remaining level channels

B. 1. remain in AUTO
2. the average of remaining level channels

C. 1. auto swap to MANUAL
2. RAISING output demand

D. 1. auto swap to MANUAL
2. LOWERING output demand

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 20

A – Plausible: Auctioneered Hi circuits were routinely used in analog control circuits.

B – Correct: Ovation controllers normally use a validated signal which is the "median" value of 3 channel, multiple input parameters. When one channel deviates from the value of the other 2, control is automatically changed to the average of the remaining good channels. The controller remains in auto and the event typically causes little if any plant transient.

C – Plausible: If the primary and backup controllers are lost, SLIMs auto swap to Local.

D – Plausible: If the primary and backup controllers are lost, SLIMs auto swap to Local.

Question Information

Topic	RE20028-N01				
User ID	RE20028-N01			**System ID**	2124073
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-CX-XL-03, Rev.2, Ovation and I1-RY-XL-01, Rev. 8, Pressurizer		
Training Objective	S.RY1-21-F		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, requires examinee ability to determine if auto or manual would be selected following an instrument channel failure.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.028.AA2.10	Safety Function 2	Tier 1	Group 2	RO Imp: 3.3	SRO Imp: 3.4
Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: (CFR: 43.5 / 45.13) Whether the automatic mode for PZR level control is functioning improperly, necessity of shift to manual modes					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 21	ID: 2132087	Points: 1.00

Unit 1 is in MODE 3 coming out of a refueling outage.

- Reactor trip breakers are CLOSED.
- ALL shutdown and control rods are fully inserted.
- Maintenance is being performed on the N-31 Source Range drawer.
- N-31 Level Trip switch is in BYPASS.
- ALL other plant equipment is normally aligned for MODE 3.

A malfunction occurs and the following annunciators status' are:

1-10-A1 SR S/D FLUX HIGH is LIT
1-10-B1 SR HIGH VOLT FAILURE is LIT
1-10-A8 RX TRIP BRKR TRIPPED is NOT lit.

Which of the following fuses BLOWING would cause the above plant response?

A. N-31 Instrument Power fuses

B. N-31 Control Power fuses

C. N-32 Instrument Power fuses

D. N-32 Control Power fuses

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 21

A – Correct: When Instrument power fuses blow, the N-31 detector will de-energize. This will cause annunciator 1-10-A1 and 1-10-B1 bistables to trip and alarms to come in. With the Level Trip switch in bypass, Control Power will maintain 1 of 2 SSPS input bay relays energized and prevent the reactor trip breakers from opening, therefore annunciator 1-10-A8 will not alarm.

B – Plausible: Common misconception of system operation. If unit power had been above P-6 and N-31 SR level trip blocked, this would not have caused a reactor trip.

C – Plausible: Common misconception of system operation. If unit power had been above P-6 and N-32 SR level trip blocked, this would not have caused a reactor trip.

D – Plausible: Common misconception of system operation. If N-32 SR level trip had been bypassed, this would not have caused a reactor trip.

Question Information

Topic	RE20032-N03				
User ID	RE20032-N03			**System ID**	2132087
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-NI-XL-01, Rev. 5 SR NIs and Big Note NI-4, Rev. 11		
Training Objective	S.NI1-08-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, requires examinee ability to verify alarm indications meet plant conditions during a loss of SR event.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.4.46	Safety Function 2	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.2
Ability to verify that the alarms are consistent with the plant conditions. (CFR: 41.10 / 43.5 / 45.3 / 45.12)					
GE.4.0.APE.032	Safety Function 7	Tier 1	Group 2	RO Imp:	SRO Imp:
Loss of Source Range Nuclear Instrumentation					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 22	ID: 2124089	Points: 1.00

Unit 2 reactor startup is in progress in accordance with 2BwGP 100-2, PLANT STARTUP.

- IR N-35 is 1.2 E -10 amps.
- IR N-36 is 1.0 E -11 amps.
- SR N-31 is 5 E +04 cps.
- SR N-32 is 5 E +04 cps.

Based on the above indications...

A. ONLY IR channel N-35 is UNDER compensated.

B. ONLY IR channel N-36 is OVER compensated.

C. BOTH IR channels are UNDER compensated.

D. BOTH IR channels are OVER compensated.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 22

A – Plausible: Misconception of channel overlap/comparison between SR and IR.

B – Correct: With both SR channels near the top of their operating range, P-6 permissive is expected soon. Being overcompensated causes that IR channel will read low because too much compensating voltage is being applied to the detector inner chamber. Therefore, N-36 is reading low compared to the other channels.

C – Plausible: Misconception of channel overlap/comparison between SR and IR. Misconception of channel indication tolerance.

D – Plausible: Misconception of channel overlap/comparison between SR and IR. Misconception of channel indication tolerance.

Question Information

Topic	RE20033-001				
User ID	RE20033-001			**System ID**	2124089
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-NI-XL-02, Rev. 5, IR NIs and Bignote NI-3, Rev. 9.		
Training Objective	S.NI2-03-B		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A requiring candidate knowledge of operational implications of voltage changes to loss of (severely misadjusted) IR NI channel.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

APE.033.AK1.01	Safety Function 7	Tier 1	Group 2	RO Imp: 2.7	SRO Imp: 3.0
Knowledge of the operational implications of the following concepts as they apply to Loss of Intermediate Range Nuclear Instrumentation: CFR 41.8 / 41.10 / 45.3) Effects of voltage changes on performance					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 23	ID: 2124091	Points: 1.00

Both units are at 100% power.

- The following equipment is OOS:
  - 1B CW Pump
  - 0A WS Pump
  - U-0 SAC
- All other equipment is normally aligned.

The following occurs:
- Unit 1 reactor is manually tripped.
- All equipment operates as designed.

ONE MINUTE LATER, bus 143 faults and is deenergized.

With NO operator actions...

A. ALL unit 1 steam dump valves close because the condenser becomes unavailable.

B. ALL unit 1 steam dump valves close because instrument air is lost.

C. WS header pressure drops because a running pump tripped.

D. WS header pressure drops because instrument air is lost.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 23

A – Correct: A bus 143 fault will cause a loss of bus 143 and the 1A and 1C CW pumps brkrs opening on UV. With the 1B CW pp previously OOS, C-9 interlock (ALL CW pp brks open) would prevent steam dumps from arming and cause all steam dump valves to close.

B – Plausible: U-0 SAC (which is OOS) is powered from bus 143, so the loss of bus 143 will not affect the status of instrument air.

C – Plausible: 0A WS pump (which is OOS) is powered from bus 143, so the loss of bus 143 will not affect the status of WS.

D – Plausible: 0A WS pump (which is OOS) is powered from bus 143, so the loss of bus 143 will not affect the status of WS and the loss of bus 143 will not affect the status of instrument air.

Question Information

Topic	RE20051-N01				
User ID	RE20051-N01			**System ID**	2124091
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-AP-XL-01, Rev. 5 AC Electrical Power System, ILT LP I1-DU-XL-01, Rev. 8, Steam Dumps, Big note EF-1a rev. 0, Big note AC-7 rev.8		
Training Objective	S.DU1-11		
Previous Exam Use	2009 NRC exam		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of reason for steam dump unavailability (C-9 interlock).
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

APE.051.AK3.01	Safety Function 4	Tier 1	Group 2	RO Imp: 2.8*	SRO Imp: 3.1*
Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: (CFR 41.5,41.10 / 45.6 / 45.13) Loss of steam dump capability upon loss of condenser vacuum					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 24	ID: 2124095	Points: 1.00

Unit 1 was at 100% power.

- 1PT-0514 1A S/G STM PRESS, channel is in test/trip.
- All other equipment is normally aligned.

The following then occurs:
- A fire in the main control room.
- 1PT-0526, 1B S/G STM PRESS, channel fails LOW.
- The RX is tripped and ALL other post trip responses are normal.
- The crew evacuates the MCR to the Remote Shutdown Panel (RSP).
- ALL RSP Remote/Local switches are in REMOTE.

With the above conditions, at the RSP, are the 1A & 1B S/G pressure indications reading actual S/G pressures?

	1A S/G	1B S/G
A.	Yes	Yes
B.	Yes	No
C.	No	Yes
D.	No	No

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 24

A – Plausible: Misconception of correct 1A SG pressure channel feeding RSP.

B – Plausible: Misconception of correct 1A and 1B SG pressure channels feeding RSP.

C – Correct: The channels feeding the RSP are the ones ending in "4" (i.e. 1PT-514 for 1A S/G and 1PT-524 for 1B S/G). Therefore, 1A S/G will not have RSP indication due to the 1PT-514 channel being in test prior to the event. The 1B S/G will have indication at the RSP because a different channel failed and the RSP REMOTE/LOCAL switches affect control functions at the RSP, but not indications.

D – Plausible: Misconception of correct 1B SG pressure channel feeding RSP.

Question Information

Topic	RE20068-N01				
User ID	RE20068-N01			**System ID**	2124095
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RS-XL-02, Rev. 5, Remote Shutdown Panel, Big note PN-1, Rev. 6, 1BwOSR 3.3.4.1, Pages D-2,3,4		
Training Objective	S.RS1-04		
Previous Exam Use	None		

References Provided	1BwOSR 3.3.4.1, Pages D-2,3,4
K/A Justification	The question meets the K/A, requires examinee ability to determine if S/G pressure is accurate during MCR evacuation event.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

APE.068.AA2.04	Safety Function 8	Tier 1	Group 2	RO Imp: 3.7	SRO Imp: 4.0
Ability to determine and interpret the following as they apply to the Control Room Evacuation: (CFR: 43.5 / 45.13) S/G pressure					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 25	ID: 2124108	Points: 1.00

Unit 2 is at 100% power.

- A small fuel leak is suspected from recent RCS chemistry sample results.
- The crew is monitoring 2PR06J, Gross Failed Fuel Radiation Monitor, for any rising activity levels.
- During the monitoring, a change in plant conditions causes an OPERATE FAILURE on the 2PR06J.

NO operator actions are taken.

Which of the following would cause the OPERATE FAILURE?

A. RCS Rad levels rose to the 2PR06J HI RAD alarm level.

B. 2CV129A, LETDOWN DIVERT VALVE, fails to the VCT position.

C. 2CV8389A, LTDWN TO REGEN HX 2A ISOL VLV, fails CLOSED.

D. 2CV112A, LETDOWN DIVERT VALVE, fails to the HUT position.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 25

A – Plausible: Misconception of rad alarm levels and whether operate failure occurs on elevated rads. Some rad skids have interlock to self isolate on elevated rad signals and operate failure would immediately follow a high rad signal.

B – Plausible: 2CV129 diverts letdown flow around a section of the normal letdown system (the letdown demineralizers). However the 2CV129 valve is located just downstream of where 0PR06J returns flow to the normal letdown line, therefore this distractor is plausible but a misconception of whether or not 2CV129 diverts flow around 0PR06J rad skid.

C – Correct: 2CV8389A failing closed would isolate letdown thereby stopping all flow to the 2PR06J. An operate failure would alarm on loss of sample flow to 2PR06J.

D – Plausible: 2CV112A diverts letdown flow from the normal VCT to the HUT. This distractor is plausible but a misconception of whether or not 2CV112A diverts flow around 0PR06J rad skid.

Question Information

Topic	RE20078-N01				
User ID	RE20078-N01			**System ID**	2124108
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-AR-XL-01, Rev. 7, Radiation Monitors, Big note CV-1, Rev. 16, P&ID M-64, Sht 5		
Training Objective	S.AR1-18		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to monitor failed fuel rad monitor during high reactor coolant activity.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

APE.076.AA1.04	Safety Function 9	Tier 1	Group 2	RO Imp: 3.2	SRO Imp: 3.4
Ability to operate and / or monitor the following as they apply to the High Reactor Coolant Activity: (CFR 41.7 / 45.5 / 45.6) Failed fuel-monitoring equipment					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 26	ID: 2124133	Points: 1.00

- Unit 2 tripped from 100% power due to an inadvertent Main Steam Line Isolation actuation.
- Immediately after the trip, a Loss of Offsite Power occurred.
- The transient caused S/G pressures to rise past the S/G PORV opening setpoint.
- The 2B S/G PORV failed closed and did not open.
- Currently, multiple 2B S/G Safety valves are open.
- The crew is monitoring the S/G Safety valves locally to ensure none are stuck open.

Per design, the EARLIEST the S/G Safety valves should close is when S/G pressure drops to approximately...

A. the respective valve opening setpoint.

B. 60# BELOW the respective valve opening setpoint (5% blowdown).

C. 120# BELOW the respective valve opening setpoint (10% blowdown).

D. 180# BELOW the respective valve opening setpoint (15% blowdown).

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 26

A – Plausible: Misconception that safety valves open and close at same setpoint similar to PORVs.

B – Correct: SG Safety valves are designed with a 5% blowdown. Opening setpoints cascade from 1175 psig to 1235 psig. 5% of 1175 is approximately 58 psig and 5% of 1235 is approx. 62 psig.

C – Plausible: Misconception that blowdown is 10%.

D – Plausible: Misconception that blowdown is 15%.

Question Information

Topic	RE2WE13-N01				
User ID	RE2WE13-N01			**System ID**	2124133
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-MS-XL-01, Rev. 7, Main Steam System		
Training Objective	S.MS1-19		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of safety component functions during a SG overpressure event.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

4.5.E13.EK2.1	Safety Function 4	Tier 1	Group 2	RO Imp: 3.0	SRO Imp: 3.1
Knowledge of the interrelations between the (Steam Generator Overpressure) and the following: (CFR: 41.7 / 45.7) Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 27	ID: 2124140	Points: 1.00

- Unit 2 control room operators are performing a natural circulation cooldown and depressurization.
- A steam void is present in the Unit 2 Reactor Vessel.
- Both Unit 2 RVLIS trains are INOPERABLE.

Which of the following is an indication that Unit 2 Reactor Vessel steam void is growing?

A. PZR level rising

B. PZR level lowering

C. CETC temperatures rising

D. Hot leg temperatures rising

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 27

A – Correct: The growth of the steam bubble in the head will displace water from the RCS causing PZR level to rise. 1BwEP ES-0.2 checks for large PZR level variations as indication of a steam void in the reactor vessel.

B – Plausible: Opposite of correct answer. Misconception that the steam bubble would migrate upward into the pressurizer. However, the orientation of the RCS loops connected to the Reactor vessel creates a loop seal between the reactor vessel head and the pressurizer.

C – Plausible: Misconception that RCS temperatures rising would be a key indicator of head saturation conditions. The void growth is typically caused by lowering RCS pressure with a concurrent failure to cool the vessel head and internals.

D – Plausible: Misconception that RCS temperatures rising would be a key indicator of head saturation conditions. The void growth is typically caused by lowering RCS pressure with a concurrent failure to cool the vessel head and internals.

Question Information

Topic	RE2WE10-N01				
User ID	RE2WE10-N01			**System ID**	2124140
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-EP-XL-01, Rev. 19, EP-0, EP ES-0 series		
Training Objective	T.EP01-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of operational implications of conditions indicating signals during a natural circ event without RVLIS.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

4.5.E10.EK1.3	Safety Function 4	Tier 1	Group 2	RO Imp: 3.3	SRO Imp: 3.6

Knowledge of the operational implications of the following concepts as they apply to the (Natural Circulation with Steam Void in Vessel with/without RVLIS) (CFR: 41.8 / 41.10 / 45.3)

Annunciators and conditions indicating signals, and remedial actions associated with the (Natural Circulation with Steam Void in Vessel with/without RVLIS).

Learning Objective(s)

2020 NRC Exam - RO

User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 28	ID: 2124137	Points: 1.00

Unit 1 is in MODE 1, normally aligned.

- 1A CC Pump is running.
- 1B CC Pump is in standby.
- U-0 CC Pump is racked into the same bus as the 1A CC pump.

The following then occurs.
- A loss of offsite power.
- 1 minute later, the 1A D/G trips.

Which CC pump (if any) is supplying cooling to the RCPs?

A. None

B. U-0 CC Pump

C. 1A CC Pump

D. 1B CC Pump

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 28

A – Plausible: Misconception of CC pump power supplies and/or DG status.

B – Plausible: Misconception of CC pump power supplies and/or DG status.

C – Plausible: Misconception of CC pump power supplies and/or DG status.

D – Correct: The Bus power supplies are bus 141 for 1A CC pump and bus 142 for 1B CC Pump. The question stem has U-0 CC Pump racked into the same bus as 1A CC Pump (bus 141). When the unit loses offsite power, and the 1A DG trips, the only ESF bus energized will be bus 142 from the 1B DG. Therefore, the 1B CC Pump will be supplying cooling water to the RCPs.

Question Information

Topic	RS10003-N07				
User ID	RS10003-N07			**System ID**	2124137
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-CC-XL-01, Rev. 6, Component Cooling		
Training Objective	S.CC1-07		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of CC Pump power supplies as they relate to RCP cooling.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

SF4.003.K2.02	Safety Function 4	Tier 2	Group 1	RO Imp: 2.5*	SRO Imp: 2.6*
Knowledge of bus power supplies to the following: (CFR: 41.7) CCW pumps					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 29	ID: 2124146	Points: 1.00

Unit 1 is in MODE 1, normally aligned.

- 1CV182, CHG HDR BACK PRESS CONT VLV, has just failed full OPEN.

NO operator action is taken.

1. RCP Seal Injection flows will...

and

2. TOTAL Charging flow will...

A. 1. lower.
2. initially rise.

B. 1. lower.
2. initially drop.

C. 1. rise.
2. initially rise.

D. 1. rise.
2. initially drop.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 29

A – Correct: When 1CV182 fails open, back pressure on RCP seal injection flow path will drop thereby lowering seal injection flows to the RCPs. The total charging flow will initially rise due to lower head loss in the main charging line. However, as pressurizer level rises, the pressurizer level control system will respond by throttling closed 1CV121 to drop total charging flow back to the original value, matching total letdown and seal leakoff total flows.

B – Plausible: Misconception of the failure mode and system operation. Pressurizer level would initially drop if 1CV182 was located in the seal injection header.

C – Plausible: Misconception of the failure mode and system operation. Seal injection flow would rise if the seal injection header was located downstream (vs. upstream) of 1CV182.

D – Plausible: Misconception of the failure mode and system operation. Seal injection flow would rise if the seal injection header was located downstream (vs. upstream) of 1CV182.

Question Information

Topic	RS10004-N04				
User ID	RS10004-N04			**System ID**	2124146
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Bignote CV-1, Rev. 16 and ILT LP I1-CV-XL-01, rev. 10, CVCS		
Training Objective	S.CV1-16-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of effect that a malfunction in CVCS will have on RCP seal injection.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

SF1.004.K3.08	Safety Function 1	Tier 2	Group 1	RO Imp: 3.6	SRO Imp: 3.8
Knowledge of the effect that a loss or malfunction of the CVCS will have on the following: (CFR: 41.7/45/6) RCP seal injection					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 30	ID: 2124147	Points: 1.00

Unit 1 is in MODE 1, normally aligned.

- The 1A Letdown Heat Exchanger is on line.
- 1CC130A, LTDOWN HX TEMP CONTROL VLV, failed full CLOSED.
- Annunciator 1-9-E2, LTDWN TEMP HIGH, has just alarmed.

The INITIAL mitigating action to protect the letdown demineralizers for this event will be...

A. manual actions per a BwAR procedure. NO automatic actions will occur.

B. automatic letdown isolation by the letdown orifice isolation valves.

C. automatic demineralizers bypassing of letdown to the VCT.

D. automatic demineralizers bypassing of letdown to the HUT.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 30

A – Plausible: Misconception of automatic system operation. Some valve failures require manual mitigation actions per the appropriate BwAR. BwAR 1-9-E2, LTDWN TEMP HIGH, subsequent actions is to manually isolate letdown if the automatic actions do not occur.
.
B – Plausible: Misconception of automatic system operation. Other system failures will cause auto letdown isolation. Examples are phase A isolation or low pressurizer level.

C – Correct: 1CV129 will auto divert letdown flow around the letdown demins at letdown heat exchanger outlet temperature of 133˚F.

D – Plausible: Misconception of automatic system operation. VCT high level will cause letdown flow to be diverted to HUTs.

Question Information

Topic	RS10004-N05				
User ID	RS10004-N05			System ID	2124147
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	HIGH
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Bignote CV-1, Rev.16 and ILT LP I1-CV-XL-01, rev. 10, CVCS		
Training Objective	S.CV1-16-D		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of design features which protect the ion exchangers on high letdown temperature.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

SF1.004.K4.03	Safety Function 1	Tier 2	Group 1	RO Imp: 2.8	SRO Imp: 2.9
Knowledge of CVCS design feature(s) and/or interlock(s) which provide for the following: (CFR: 41.7) Protection of ion exchangers (high letdown temperature will isolate ion exchangers)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 31	ID: 2124167	Points: 1.00

- Unit 1 is in Mode 4 with RCS cooldown in progress.
- The RO is placing the 1A RH train in shutdown cooling mode per BwOP RH-6.
- The 1A RH pump is running.
- 1RH610 PP 1A MINFLOW VALVE C/S is in OPEN.
- 1A RH HX Bypass flow is adjusted to 3300 gpm in AUTO.
- 1RH606 HX 1A FLOW CONT VLV is CLOSED.

The RO then places 1RH610 C/S to AUTO and slowly opens 1RH606.

The 1RH610 valve will...

A. fully CLOSE due to RH pump flow signal.

B. remain OPEN due to RH pump running signal.

C. MODULATE to maintain a constant RH pump recirculation flow.

D. MODULATE to maintain a range of RH pump recirculation flow.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 31

A – Correct: 1RH610/611 is a motor operated valve that strokes fully open when RH pump flow is <750 gpm and fully closed, when RH pump flow is >1400 gpm.
.
B – Plausible: Misconception of a similar design feature. Several plant systems have discharge and/or recirc valves that are interlocked to open with the pump start signal, for example RCDT pumps.

C – Plausible: Misconception of a similar design feature. The RH HX bypass valve modulates to maintain constant system total flow.

D – Plausible: Misconception of a similar design feature. Condensate pump recirc valves modulate maintain a range of system flow.

Question Information

Topic	RS10005-N03				
User ID	RS10005-N03			**System ID**	2124167
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RH-XL-01, Rev. 6, RHR System		
Training Objective	S.RH1-04-I		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of design features which provide for RHR pump miniflow recirculation.
SRO-Only Justification	N/A
Additional Information	None

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K/A Reference(s)

SF4.005.K4.06	Safety Function 4	Tier 2	Group 1	RO Imp: 2.7	SRO Imp: 3.0
Knowledge of RHRS design feature(s) and/or interlock(s) which provide or the following: (CFR: 41.7) Function of RHR pump miniflow recirculation					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 32	ID: 2124185	Points: 1.00

- Unit 1 is in MODE 4, 275°F RCS cold leg temperature, 300 psig.
- RCS boron concentration is 1980 ppm.
- Plant heatup is in progress following a refueling outage.
- ALL RCPs are available.
- ONLY 1D RCP is running.
- 1A RH train is running in shutdown cooling.
- 1B RH train is aligned for cold leg injection.
- 1D S/G NR level is 25%.
- 1A, B & C S/G NR levels are all approx. 50%.

Preparations to start 1C RCP per BwOP RC-1, STARTUP OF A RCP, are in progress.

The 1A RH train is being secured from S/D cooling and aligned for injection per BwOP RH-11, SECURING THE RH SYSTEM FROM SHUTDOWN COOLING.

Prior to entering MODE 3, to ensure the 1A RH train is operable per Technical Specification 3.5.2...

A. one additional RCP MUST be in operation.

B. 1A RH train temperature MUST be lowered.

C. 1D S/G NR level MUST be raised.

D. 1A RH train boron concentration MUST be raised.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 32

A – Plausible: This is plausible because TS 3.4.6 "RCS Loops- MODE 4" requires two loops of RC or RH operable but only one in operation. The 1D RCP running satisfies the loop in operation and the standby RCS loops satisfy the second operable loops.

B – Correct: Per BwOP RH-11, the RH precautions and limitations, suction temperature must be less than 260°F before the RH suction valve from the RWST can be opened to prevent the pump from becoming inoperable due to steam binding. For recirculation capability, the temperature limit is 200°F in order to call the RH train available for TS 3.5.2.

C – Plausible: TS 3.4.6 only requires >=18% NR level for the RCS loop in operation in MODE 4. This is plausible since SG NR level is normally maintained at 60% +/- 5% at power.

D – Plausible: There is no requirement for the 1A RH train to be borated prior to aligning for injection. MODE 4 only requires one ECCS train which is satisfied by the 1B RH train. This is plausible since there is a requirement to ensure the RH train is borated to the COLR limit in the alignment for shutdown cooling procedure BwOP RH-6. However, that is not a requirement for securing from shutdown cooling.

Question Information

Topic	RS10005-N04				
User ID	RS10005-N03			**System ID**	2124185
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	BwOP RH-11, Rev. 30, precaution D.4		
Training Objective	S.RH1-09-A		
Previous Exam Use	2018 NRC		

References Provided	None
K/A Justification	Question meets KA - question requires examinee knowledge of procedural requirement for RH adequate subcooling prior to placing RH in injection alignment.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.005.K5.02	Safety Function 4	Tier 2	Group 1	RO Imp: 3.4	SRO Imp: 3.5
Knowledge of the operational implications of the following concepts as they apply the RHRS: (CFR: 41.5 / 45.7) Need for adequate subcooling					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 33	ID: 2124206	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- An inadvertent SI actuates.
- As the crew is performing the appropriate emergency procedures, the NSO is monitoring plant conditions for solid pressurizer indications.

Which of the following is a positive indication that the pressurizer has reached a solid water condition?

A. Rapid rise on 1PR-0455, Pressurizer Pressure Recorder.

B. Discharge flow drops to 0 on 1FI-918/922, SI Pump Discharge flow.

C. 1RY456, Pressurizer PORV, initially OPENS.

D. 1LR-0459, Pressurizer Level Recorder, reaches 100%.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 33

A – Correct: When the pressurizer reaches a solid condition, pressure will rise rapidly in comparison to the pressure rise as the level was rising.

B – Plausible: Discharge flow dropping is indication that RCS pressure has reached SI pump shutoff head pressure but not that solid water conditions necessarily exist.

C – Plausible: PORV opening is indication that RCS pressure has reached the PORV setpoint but not that solid water conditions necessarily exist.

D – Plausible: There is still PZR volume available above 100% indicated level.

Question Information

Topic	RS10006-N04				
User ID	RS10006-N04			System ID	2124206
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	HIGH
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwGP 100-5, Rev. 61		
Training Objective	S.RY1-18		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets KA - question requires examinee knowledge of effects on pressure on solid system.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF2.006.K5.05	Safety Function 2	Tier 2	Group 1	RO Imp: 3.4	SRO Imp: 3.8
Knowledge of the operational implications of the following concepts as they apply to ECCS:(CFR: 41.5/45.7) Effects of pressure on a solid system					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 34	ID: 2124249	Points: 1.00

Unit 1 is at 100% power, normally aligned.

- A slow and steady rise in PRT level has been noted over several hours.
- Annunciator 1-12-A7, PRT LEVEL HIGH/LOW, has just alarmed.

PRT level will be lowered by …

A. verifying 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, auto opens on high PRT level, then verifying the 1A RCDT pump auto starts.

B. verifying 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, auto opens on high PRT level, then verifying the 1B RCDT pump auto starts.

C. manually opening 1RY8031, PRT Drain Isol Valve, and 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, then verifying the 1A RCDT pump auto starts.

D. manually opening 1RY8031, PRT Drain Isol Valve, and 1RE1003, RCDT Pumps Discharge Cnmt Isol Valve, then verifying the 1B RCDT pump auto starts.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 34

A – Plausible: Since at 60% Level in the RCDT, 1A RCDT pump will auto start.

B – Plausible: Since at 80% Level in the RCDT, 1B RCDT pump will auto start.

C – Plausible: If the examinee thinks the 1A RCDT pump will start when 1RY8031 is opened.

D – Correct: When 1RE1003, RCDT Pumps Discharge Containment Isolation Valve and 1RY8031, PRT Drain Valve, are manually opened, the 1B RCDT pump will auto start.

Question Information

Topic	RS20007-N03				
User ID	RS20007-N03			**System ID**	2124249
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Big note RY-4, Rev. 9 , Electrical Schematic 20E-1-4030RE01.		
Training Objective	3D.EP-02-E		
Previous Exam Use	2016 NRC		

References Provided	None
K/A Justification	The question meets the K/A because examinee must be able to monitor changes in parameters associated with the PRT water level.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF5.007.A1.01	Safety Function 5	Tier 2	Group 1	RO Imp: 2.9	SRO Imp: 3.1
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRTS controls including: (CFR: 41.5/45.5) Maintaining quench tank water level within limits					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 35	ID: 2124253	Points: 1.00

Operators are cooling down Unit 1 to MODE 5 at EOL with the following plant conditions:

- 1A train RH in shutdown cooling for the past 2 1/2 hours.
- SX flow to the CC heat exchangers is at maximum design flow.
- Unit 1 CC heat exchanger CC outlet temperature has been maintained at 117˚F.

.
With the above conditions, the CC system ___1___ operating within the precaution guidelines of BwOP RH-6, PLACING THE RH SYSTEM IN SHUTDOWN COOLING, and CC system temperature _____2_____.

A. 1. IS
2. can be maintained at current values indefinitely

B. 1. IS
2. must be reduced in the next 1/2 hour by lowering RH flow

C. 1. is NOT
2. must be reduced immediately by lowering RH flow

D. 1. is NOT
2. must be reduced immediately by lowering CC flow to the RH HX

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 35

A – Plausible: Misconception that temperature can be maintained at <120˚F indefinitely.

B – Correct: Per BwOP RH-6, Caution prior to step 18, Do Not allow CC HX Outlet Temp to exceed the temperature limits of 60˚F - 105˚F except for the first 3 hours during RCS cooldown when <120˚F is allowed.

C – Plausible: Misconception that temperature cannot be > 105˚F for any length of time. Because SX flow is at maximum HX design flow, the only way to slow the cooldown rate and lower CC temperature is to reduce RH flow.

D – Plausible: Misconception that temperature cannot be > 105˚F for any length of time. CC flow rate to the RH HX is controlled by a throttled manual valve which is maintained at RH HX design flow rates.

Question Information

Topic	RS10008-N03				
User ID	RS10008-N03			**System ID**	2124253
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	BwOP RH-6, Rev. 59.		
Training Objective	S.CC1-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because examinee must, predict impact of operations of CC system and use procedure to correct (change) the operation of the system.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF8.008.A2.03	Safety Function 8	Tier 2	Group 1	RO Imp: 3.0	SRO Imp: 3.2
Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, con- trol, or mitigate the consequences of those malfunc- tions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.13) High/low CCW temperature					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 36	ID: 2124286	Points: 1.00

Unit 1 has been operating at 100% steady state conditions for the past three months.

- During this time, valve seat erosion has caused PZR spray BYPASS flow to rise to twice the originally adjusted flow.

With the above conditions and NO operator action, the rising bypass flow has caused 1PK-0455A, MASTER PZR PRESS CONT, output to ___1___ and PZR variable heater amps to ___2___.

A. 1. rise
2. rise

B. 1. rise
2. drop

C. 1. drop
2. rise

D. 1. drop
2. drop

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 36

A – Plausible: Common misconception of system operation. The master pressurizer pressure controller controls two independent functions (PZR heaters and sprays) that act in opposite directions.

B – Plausible: Common misconception of system operation.

C – Correct: Higher spray bypass flow will lower PZR pressure which will lower demand on the master PZR pressure controller. The master PZR pressure controller controls two independent functions (pressurizer heaters and pressurizer sprays) and three different types of control components (spray valve slave controllers, variable heater modulating controllers and backup heater contactors). Control of pressurizer spray valves is a direct acting function from the master PZR pressure controller to the PZR spray valve slave controllers (i.e. as master controller demand rises, spray valve slave controller demand rises). Whereas, control of pressurizer variable heaters is a reverse acting function from the master PZR pressure controller to the variable heater controllers (i.e. as master controller demand rises, variable heater controller demand drops and vice versa). The signal to the backup heaters is controlled by deviation from master controller setpoint (i.e. as output drops to a preset level from setpoint the backup heater contactors close).

D – Plausible: Common misconception of system operation.

Question Information

Topic	RS10010-N03				
User ID	RS10010-N03			**System ID**	2124286
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RY-XL-01, Rev. 8, Pressurizer		
Training Objective	S.RY1-09		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because examinee must have knowledge of the effect a malfunction in the pressurizer system will have on pressure control.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF3.010.K6.02	Safety Function 3	Tier 2	Group 1	RO Imp: 3.2	SRO Imp: 3.5
Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: (CFR: 41.7 / 45.7) PZR					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 37	ID: 2124287	Points: 1.00

Unit 1 plant shutdown is in progress.

The following TSLB indications are present on 1PM04J AND 1PM05J:

	PWR RNG < P7/P10	TURB PWR BELOW P13
• Protection Channel I	LIT	LIT
• Protection Channel II	DARK	LIT
• Protection Channel III	LIT	N/A
• Protection Channel IV	DARK	N/A

Which of the following correctly describes the status of the Unit 1 Bypass Permissive Panel lights?

	P-10	P-13
A.	DARK	DARK
B.	DARK	LIT
C.	LIT	DARK
D.	LIT	LIT

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 37

A – Plausible: Common misconception of system operation. The coincidence of bypass permissive signals can be interpreted above or below the particular setpoint (i.e. 2 of 4 channels above the setpoint or 3 of 4 channels below the setpoint). This leads to misconceptions of the light configurations.

B – Correct: With two P-10 lights dark, power is still above P-10, thus the P-10 BP light will be dark. P-13 is lit because both 1PT-505 and 506 are below P-13.

C – Plausible: Common misconception of system operation. The Bypass permissive lights are dark or lit in the opposite configuration of original plant design due to implementation of "dark board" main control panel concept. This leads to misconceptions of light configurations.

D – Plausible: Common misconception of system operation. The Bypass permissive lights are dark or lit in the opposite configuration of original plant design due to implementation of "dark board" main control panel concept. This leads to misconceptions of light configurations.

Question Information

Topic	RS10012-N02				
User ID	RS10012-N02			**System ID**	2124287
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RP-XL-02, Rev. 5, Reactor Protection System and Bignote EF-1a, Rev. 0		
Training Objective	S.RP2-04		
Previous Exam Use	None (from ILT EOPS)		

References Provided	None
K/A Justification	Meets the K/A requiring candidate ability to monitor multiple RPS bistable trip indicators.
SRO-Only Justification	N/A

K/A Reference(s)

SF7.012.A3.05	Safety Function 7	Tier 2	Group 1	RO Imp: 3.6	SRO Imp: 3.7
Ability to monitor automatic operation of the RPS, including: (CFR: 41.7 / 45.5) Single and multiple channel trip indicators					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 38	ID: 2124480	Points: 1.00

Unit 1 is in MODE 2, plant startup is in progress.

- 1FT-414, LOOP 1A FLOW, has previously failed LOW and the BISTABLE is in TRIP/TEST.
- All other plant equipment is normally aligned for the plant start up.
- The crew plans to raise Unit 1 power per 1BwGP 100-3, POWER ASCENSION.

As unit power is raised, which of the following conditions is the LOWEST power level that would directly cause a reactor trip?

A. At 5% power, 1 additional flow detector fails LOW in RCS LOOP A.

B. At 15% power, the 1B RCP TRIPS.

C. At 50% power, 1 additional flow detector fails LOW in RCS LOOP A.

D. At 75% power, the 1B RCP TRIPS.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 38

A – Plausible: Misconception of system operation. This would be correct if power was above P-7. Reactor will not trip because power is below P-7 (10%).

B – Plausible: Misconception of system operation. This would be correct if power was above P-8. Reactor will not trip because power is below P-8 (30%).

C – Correct: Coincidence for RCS Loop Low Flow reactor trip is 2 of 3 detectors <90% on 1 of 4 loops with reactor power > P-8, or 2 of 4 loops with reactor power > P-7 and < P-8.

D – Plausible: Misconception of system operation. This would be correct if candidate confuses P-8 setpoint as >50% vs. >30%. Not the lowest power level where reactor will trip in given choices.

Question Information

Topic	RS10012-N05				
User ID	RS10012-N05			System ID	2124480
Status	Active	Point Value	1.00	Time (min)	1

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RP-XL-02, Rev. 5, Reactor Protection System		
Training Objective	S.RP2-04		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets the K/A requiring candidate knowledge of effect of loss of detector on RPS.
SRO-Only Justification	N/A

K/A Reference(s)

SF7.012.K6.06	Safety Function 7	Tier 2	Group 1	RO Imp: 2.7*	SRO Imp: 2.8
Knowledge of the effect of a loss or malfunction of the following will have on the RPS: (CFR: 41.7 / 45/7) Sensors and detectors					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 39	ID: 2124289	Points: 1.00

Unit 1 at 35% power, normally aligned, ramping up following a refueling outage.

The following occurs:
- A feedwater problem causes S/G NR level to reach 90% in 1C S/G.
- All equipment responds as designed.

Currently, U-1 S/G NR levels are as follows:
- 1A/B/D S/Gs are all 50% and slowly lowering.
- 1C S/G is 79% and stable.

Operators are performing 1BwEP ES-0.1, REACTOR TRIP RESPONSE, ATTACHMENT C, FEEDWATER RESTORATION, step 2 to reset Feedwater Isolation.

The NSO performs the following steps:
1) Depresses both FW ISOLATION reset pushbuttons.
2) Depresses both FW ISOL AUX RELAY reset pushbuttons.

The NSO then notes that the FW ISOL AUX RELAY lights are still LIT.

In order to reset the FWI, the MINIMUM action(s) the crew must perform is/are…

A. cycle the reactor trip breakers ONLY.

B. cycle the reactor trip breakers, then depress both FW ISOL AUX RELAY reset pushbuttons again.

C. cycle the reactor trip breakers, then depress both FW ISOLATION reset pushbuttons again and then depress both FW ISOL AUX RELAY reset pushbuttons again.

D. lower 1C S/G NR level, then cycle the reactor trip breakers, then depress both FW ISOLATION reset pushbuttons again and then depress both FW ISOL AUX RELAY reset pushbuttons again.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 39

A – Plausible: must depress FWI reset buttons after clearing P-4.

B – Plausible: misses FWI main relays that must be reset prior to resetting aux relays.

C – Correct: Reactor trip breakers (P-4) provides seal in to FWI signal and must be momentarily cleared prior to resetting FWI. The reset pushbuttons must then be pushed in order of main resets then aux relay resets. P-14 setpoint on unit 1 is 88% therefore 1C SG is currently below setpoint and does not require level to be lowered to reset FWI.

D – Plausible: no need to lower SG level and question asks for minimum action.

Question Information

Topic	RS10013-C01				
User ID	RS10013-C01			**System ID**	2124289
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-CD-XL-01, Rev. 6 Cond/FW System		
Training Objective	S.EF1-07-B		
Previous Exam Use	None (from 2013 cert exam)		

References Provided	None
K/A Justification	Question meets KA - question requires examinee ability to manually reset FWI logic.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF2.013.A4.02	Safety Function 2	Tier 2	Group 1	RO Imp: 4.3	SRO Imp: 4.4
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) Reset of ESFAS channels					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 40	ID: 2124290	Points: 1.00

Unit 2 was at full power, normally aligned.

The following sequence of events then occurred:

- A loss of BOTH U-2 SX pumps occurred last shift.
- The crew SHUTDOWN and ISOLATED the 2A and 2C RCFC trains and cross tied the U-1 and U-2 SX systems.
- Per 2BwOA PRI-8, ESSENTIAL SERVICE WATER MALFUNCTION, the RO is monitoring containment temperatures by performing 2BwOSR 0.1-1,2,3, SHIFTLY DAILY OPERATING SURV.

The NSO observes the following RCFC temperature indications on 2PM06J:

- 2A INLET TEMP - 109°F
- 2A OUTLET TEMP - 82°F

- 2C INLET TEMP - 107°F
- 2C OUTLET TEMP - 78°F

- 2B INLET TEMP - 100°F
- 2B OUTLET TEMP - 75°F

- 2D INLET TEMP - 102°F
- 2D OUTLET TEMP - 75°F

With the above indications, which of the following is the containment average air temperature that must be recorded for Tech. Spec. 3.6.5 CONTAINMENT AIR TEMPERATURE surveillance requirement?

A. 88.0 °F

B. 91.0 °F

C. 101.0°F

D. 104.5 °F

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 40

A – Plausible: this is average of 2B & D inlet AND outlet temps. Outlet temps should not be used.

B – Plausible: this is average of ALL inlet AND outlet temps. Outlet temps should not be used and 2A & C inlet temp should not be used.

C – Correct: The method for determining containment average air temperature for TS 3.6.5 is to average the inlet temps of the operating RCFCs. Since 2A & C RCFCs are shut down, their inlet temps are not

used in the average calculation.

D – Plausible: this is average of ALL inlet temps. 2A & C temps should not be used.

Question Information

Topic	RE10062-N02				
User ID	RE10062-N02			**System ID**	2124290
Status	Active	**Point Value**	1.00	**Time (min)**	1

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	2BwOSR 0.1-1,2,3 Rev 94, page 8 step F.5		
Training Objective	S.VP1-06		
Previous Exam Use	2016 NRC		

References Provided	None
K/A Justification	The question meets the K/A because the candidate must know how to properly calculate containment temperature for a surveillance procedure.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

GS.3.0.SF5.022	Safety Function 5	Tier 2	Group 1	RO Imp:	SRO Imp:
Containment Cooling System (CCS)					
P2.1.23	Safety Function 5	Tier 3	Group	RO Imp: 4.3	SRO Imp: 4.4
Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 41.10 / 43.5 / 45.2 / 45.6)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 41	ID: 2124340	Points: 1.00

- Unit 1 RCS cold leg temperatures are 330 °F and stable.
- Containment temperature is 88 °F and stable.
- Containment pressure is 0 psig and stable.
- 1A and 1B high speed RCFCs are running.
- 1C and 1D RCFCs are stopped.
- SX inlet temperature is 42 °F.

With the above conditions...

A. at least 1 additional RCFC should be started to meet the minimum guidelines for running RCFCs in BwOP VP-5, RCFC STARTUP.

B. at least 1 additional RCFC should be started to raise containment pressure within Tech Spec limits.

C. no additional RCFCs should be started due to risk of containment pressure dropping below Tech Spec limits.

D. no additional RCFCs should be started because Tech Specs for containment temperature and pressure are not applicable in the current Mode.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 41

A – Plausible: BwOP VP-5 recommends at least 2 RCFCs should be running during normal operations. 3 RCFCs is not required.

B – Plausible: Because containment is a closed atmosphere that is air tight, the pressure inside containment will drop (not rise - ideal gas law).

C – Correct: When additional RCFC's are started (in addition to the two that are already running), the cooling capacity will roughly double. This will cause the temperature of containment to drop (not rise). Containment pressure has a Tech Spec lower limit of -0.1 psig. Since containment pressure is already at 0.0 psig, it will quickly drop to less than the Tech Spec limit.

D – Plausible: Plant is in Mode 4. TS 3.6.4 is applicable in Modes 1-4.

Question Information

Topic	RS10022-N03				
User ID	RS10022-N03			**System ID**	2124340
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	BwOP VP-5, Rev. 58, Tech Spec 3.6.4 and Fundamentals Lesson Plan 193006, Fluid Statics and Dynamics, Ideal Gas Law (specific volume)		
Training Objective	S.PC1-07		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because the candidate must predict changes to prevent exceeding limits associated with the CCS.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF5.022.A1.02	Safety Function 5	Tier 2	Group 1	RO Imp: 3.6	SRO Imp: 3.8
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including: (CFR: 41.5 / 45.5) Containment pressure					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 42	ID: 2124341	Points: 1.00

Unit 1 is 100% power normally aligned.

- Following maintenance on valve 1CS009A, PP 1A SUMP SUCT VLV, an NSO is performing 1BwOSR 5.5.8.CS-1A, TRAIN A CONTAINMENT SPRAY SYSTEM VALVE STROKE SURVEILLANCE.

In order to meet the interlocks to open 1CS009A, EMD must install an electrical jumper to simulate which of the following valves is in the OPEN position?

A. 1RH8701A, RC LOOP 1A TO RH PP 1A SUCT ISOL VLV

B. 1SI8812A, PP 1A SUCT FROM RWST ISOL VLV

C. 1CS001A, PP 1A RWST SUCT VLV

D. 1SI8811A, CNMT SUMP 1A ISOL VLV

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 42

A – Plausible: 1RH8701A is interlocked to be closed prior to opening 1CS009A (ensures RCS hot leg not cross tied to CS suction).

B – Plausible: 1SI8812A has no interlock with 1CS009A but is on the same suction header.

C – Plausible: 1CS009A must be open prior to opening 1CS001A (opposite of question).

D – Correct: 1SI8811A must be open prior to opening 1CS009A (ensures ECCS sump flow path to CS). Distractors are all on the same 1A CS pump suction header but have different interlock or no interlock with 1CS009A.

Question Information

Topic	RS20026-N02				
User ID	RS20026-N02			**System ID**	2124341
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwOSR 5.5.8.CS-1A, Rev.17		
Training Objective	3E.AM-023-A		
Previous Exam Use	2009 NRC exam		

References Provided	None
K/A Justification	Question meets the K/A, requires examinee knowledge of cause/effect relationship (interlock) between CS and ECCS system.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF5.026.K1.01	Safety Function 5	Tier 2	Group 1	RO Imp: 4.2	SRO Imp: 4.2
Knowledge of the physical connections and/or cause-effect relationships between the CSS and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) ECCS					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 43	ID: 2124344	Points: 1.00

Unit 1 is at 100% power.

- An overcurrent relay problem has caused breaker 1415X, Bus 141 Feed to Xfmr 131X, to trip open and bus 131X CANNOT be reenergized.

The following subsequently occurred:

- A large break RCS LOCA.
- Containment pressure is 26 psig.

The crew has just completed the Immediate Actions steps of 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION.
- NO other operator actions have been taken.

The 1A CS pump is...

A. NOT running and CANNOT be started from the MCR.

B. NOT running but CAN be started from the MCR.

C. RUNNING and pumping water into containment.

D. RUNNING but NOT pumping water into containment.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 43

A – Correct: Bus 131X is the 480 volt (parent) feed to the 1A train of CS system MOVs. With Bus 131X de-energized, the 1A CS pump will not start automatically or manually because the valve interlocks are not made up. 1CS019A must be open for an auto start and 1SI8811A must be open for a manual start. Both valves are normally closed and will not have power to open.

B – Plausible: Misconception of system operation. Would be correct if 1SI8811A had power to open.

C – Plausible: Misconception of system operation. Would be correct if 1CS019A and 1CS007A had power to open.

D – Plausible: Misconception of system operation. Would be correct if 1CS019A had power to open.

Question Information

Topic	RS20026-N05				
User ID	RS20026-N05			**System ID**	2124344
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-CS-XL-01, Rev. 6, CS System		
Training Objective	S.CS1-08-D		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A, requires examinee knowledge of bus power supply to the CSS MOVs.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF5.026.K2.02	Safety Function 5	Tier 2	Group 1	RO Imp: 2.7*	SRO Imp: 2.9
Knowledge of bus power supplies to the following: (CFR: 41.7) MOVs					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 44	ID: 2124345	Points: 1.00

Unit 1 was at 100% power, normally aligned.

Subsequently:

- 1PT-506, Turbine Impulse Pressure, has failed to 0 psig instantly.
- A reactor trip occurs.
- Reactor Trip Breaker A (RTA) is closed.
- Reactor Trip Breaker B (RTB) is open.
- 1D Loop Tave Channel remains at 585°F.

If NO operator action is taken, the steam dumps will …

A. maintain Tave at 550°F.

B. maintain Tave at 557°F.

C. maintain Tave at 560°F.

D. remain CLOSED due to no arming signal being present.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 44

A –Plausible: 550°F would be correct if the steam dumps controlled to the auctioneered highest Tave setpoint (1D Loop Tave Channel remaining at 585°F) which was the previous analog control system design.

B – Correct: Because the plant trip controller is maintaining temperature, the plant trip controller will maintain temperature at 557°F. The 1D Loop Tave Channel remaining at 585°F has no effect on steam dump operation since the steam dumps use the second highest Tave channel and the arming signal was provided by turbine impulse pressure.

C – Plausible: This would be correct if the steam dumps were on the load reject controller which would maintain temperature at 560°F. The RTB breaker switches the steam dumps to the plant trip controller.

D – Plausible: Plausible since the Reactor Trip Breaker A (RTA) remained closed after the reactor trip. The Reactor Trip Breaker A provides an arming signal to the plant trip controller along with turbine impulse pressure.

Question Information

Topic	RS1012-N14-20				
User ID	RS1012-N14-20			**System ID**	2124345
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Big note MS-4a Rev. 0, ILT LP I1-DU-XL-01, Rev. 8, Steam Dumps		
Training Objective	S.MS1-19		
Previous Exam Use	2013 NRC exam		

References Provided	None
K/A Justification	Meets K/A, examinee must have knowledge of the impact of a malfunction of the MRSS will have on the steam dump system
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.039.K3.06	Safety Function 4	Tier 2	Group 1	RO Imp: 2.8*	SRO Imp: 3.1
Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: (CFR: 41.7 / 45.6) SDS					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 45	ID: 2124346	Points: 1.00

BOTH Units are in Mode 1, normally aligned.

Which of the following conditions WOULD automatically trip a TDFW Pump on UNIT 2, but would NOT cause an automatic TDFW Pump trip on UNIT 1?

A. S/G level in ONE S/G DROPS to 20%.

B. S/G level in ONE S/G RISES to 85%.

C. S/G pressure in ONE S/G DROPS to 600 psig.

D. A P-4 and coincident Low Tave signal.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 45

A – Plausible: SG level dropping to 20% would cause a LO-2 SG level on unit 2 (setpoint is 36.3%) but not on Unit 1 (setpoint is 18%). However, a LO-2 SG level causes a reactor trip but not a TDFW pump trip.

B – Correct: SG level rising to 85% would cause a P-14 HI-2 SG level on unit 2 (setpoint is 80.8%) but not on Unit 1 (setpoint is 88%). P-14 directly causes a TDFW pump trip.

C – Plausible: SG pressure dropping to 600 psig would cause an SI signal on both units (both setpoints are 640 psig) and trip the TDFW pumps on both units.

D – Plausible: P-4 and coincident Low Tave signal causes a FWI on both units but not a TDFW pump trip on either unit.

Question Information

Topic	RS10059-N01				
User ID	RS10059-N01			System ID	2124346
Status	Active	Point Value	1.00	Time (min)	0

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

NRC Exams Only			
Question Type	New	Difficulty	

Technical Reference and Revision #	ILT LP I1-EF-XL-01, Rev. 6, Engineered Safety Features
Training Objective	S.FW1-09
Previous Exam Use	None

References Provided	None
K/A Justification	Question meets the K/A, requires examinee knowledge interlocks which provide for MFW pump trips.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.059.K4.16	Safety Function 4	Tier 2	Group 1	RO Imp: 3.1*	SRO Imp: 3.2*
Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: (CFR: 41.7) Automatic trips for MFW pumps					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 46	ID: 2124367	Points: 1.00

- An inadvertent reactor trip occurred on Unit 1 from MODE 1.
- All systems operate as designed.
- RCS temperature is being controlled by steam dumps in automatic.
- The RO is maintaining S/G levels stable by throttling AF manually.

Which of the following pre-trip plant conditions would require the highest AF flow rates to maintain S/G levels stable?

The reactor tripped from __1__ power at __2__.

A. 1. 50%
2. BOL

B. 1. 50%
2. EOL

C. 1. 100%
2. BOL

D. 1. 100%
2. EOL

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 46

A – Plausible: Misconception of shutdown reactor physics. This is a version of a GFE question with the 3 common distractors used in the GFE bank. The distractors are variables used to make the candidate analyze the correct response. The reactor contains more fissionable uranium at BOL and lower power level history, however, that is not the determining factor in amount of decay heat.

B – Plausible: Misconception of shutdown reactor physics. See explanation above.

C – Plausible: Misconception of shutdown reactor physics. See explanation above.

D – Correct: Decay heat load is highest from 100% power at EOL. The majority of the decay heat in a reactor core is produced by gamma and beta decay of fission products. A "rule of thumb" is that decay heat drops to approximately 1 percent of initial reactor power level within 4-6 hours after shutdown. Therefore, decay heat is higher when the unit trips from a higher power level. Additionally, fission product concentration is higher in the core at EOL vs. BOL causing higher decay heat load.

Question Information

Topic	RS10061-N03				
User ID	RS10061-N03			**System ID**	2124367
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Fundamentals LP 192008 Reactor Operational Physics		
Training Objective	TLO 4.3		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A, requires examinee knowledge of the magnitude of decay heat sources during reactor shutdown from different power histories.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.061.K5.02	Safety Function 4	Tier 2	Group 1	RO Imp: 3.2	SRO Imp: 3.6
Knowledge of the operational implications of the following concepts as the apply to the AFW: (CFR: 41.5 / 45.7) Decay heat sources and magnitude					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 47	ID: 2124373	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- 1B AF Pump engine lube oil pressure switch is failed LOW (0 psig).
- Unit 1 Safety Injection then occurs.

The 1B AF pump will...

A. automatically start and continue to run.

B. automatically start but will then trip after 15 seconds.

C. NOT automatically start and CANNOT be manually STARTED from the MCR.

D. NOT automatically start but CAN be manually STARTED from the MCR and will continue to run.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 47

A – Plausible: Misconception of system operation. Would be correct if the candidate did not recognized the low lube oil pressure as a trip from an auto start. Low oil pressure starting interlocks are bypassed in other plant equipment during auto starts (i.e. Condensate pumps) and may lead the candidate to choose this distractor.

B – Correct: 1B AF pump will start on SI signal but will trip after 15 sec time delay on low oil pressure.

C – Plausible: Misconception of system operation. Would be correct if the candidate does not recognize the low oil pressure trip time delay.

D – Plausible: Misconception of system operation. Would be correct if the candidate believes the manual start will bypass the low pressure interlock.

Question Information

Topic	RS10061-N04				
User ID	RS10061-N04			System ID	2124373
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	HIGH
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only			
Question Type	Modified from RS10061-004	**Difficulty**	
Technical Reference and Revision #	Electrical Schematics 20E-1-4030AF02 and AF12		
Training Objective	S.AF1-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A, requires examinee knowledge of malfunction on an AF pump will have on the component.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.061.K6.02	Safety Function 4	Tier 2	Group 1	RO Imp: 2.6	SRO Imp: 2.7
Knowledge of the effect of a loss or malfunction of the following will have on the AFW components: (CFR: 41.7 / 45.7) Pumps					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 48	ID: 2124375	Points: 1.00

- An SI has actuated due to a RCS LOCA on Unit 1.
- ALL ECCS pumps automatically started.
- Cold leg recirculation has been established.
- SI signal has been reset.
- 1BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT, is in progress at step 14, "CHECK IF SI ACCUMULATORS SHOULD BE ISOLATED".

If a loss of offsite power occurs, the crew will…

A. verify the CV, RH, and SI pumps started on the sequencer.

B. manually start the SI and then RH pumps after the sequencer starts the CV pumps.

C. place the CV pumps in PULL OUT, then manually start the RH pumps followed by the CV and SI pumps after sequencer completion.

D. place the CV and SI pumps in PULL OUT, verify the RH pumps start on the sequencer and then manually start the CV and SI pumps.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 48

A – Plausible: Misconception that the sequencer will start all of the pumps and does not remember the caution.

B – Plausible: If the examinee does not remember the caution and thinks that since SI has been reset, the RH and SI pumps have to be manually started.

C – Correct: Per the Caution in 1BwEP-1 the CV pumps should be placed in PULL OUT, then after sequencer completion, ECCS pumps should be restarted in the following order: RH pumps, CV pumps, SI pumps. This is done to ensure multiple pumps do start simultaneously and the CV and SI pumps have a suction source of water, which is provided by RH when aligned for cold leg recirculation.

D – Plausible: If the student remembers the caution, but does not realize that SI is reset and the SI and RH pumps won't auto start.

Question Information

Topic	RE1011-N14-42				
User ID	RE1011-N14-42			**System ID**	2124375
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwEP-1 Rev. 301		
Training Objective	T.EP02-01		
Previous Exam Use	2014 NRC exam		

References Provided	None
K/A Justification	Meets K/A, examinee must be able to predict effect on control when switching power supplies from SATs to DGs during LOOP, to prevent multiple pumps from starting simultaneously on the sequencer and exceeding overcurrent design of ESF bus and DG.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF6.062.A1.03	Safety Function 6	Tier 2	Group 1	RO Imp: 2.5	SRO Imp: 2.8
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ac distribution system controls including: (CFR: 41.5 / 45.5) Effect on instrumentation and controls of switching power supplies					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 49	ID: 2124407	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- A DC circuit ground causes a loss of normal control power to Bus 131X.
- Annunciator 1-21-B10, BUS 131X CONT PWR FAILURE, alarmed.

The Bus 131X previously closed load breakers _____1_____.

- Troubleshooting identifies the ground on the normal control power feed cable to Bus 131X.
- The crew is going to swap Bus 131X control power to the reserve supply per BwOP DC-6, 125VDC CONTROL POWER TRANSFER.

After performing BwOP DC-6, Bus 131X control power will be from DC Bus __2__.

A. 1. remained CLOSED
2. 111

B. 1. remained CLOSED
2. 113

C. 1. are now TRIPPED
2. 111

D. 1. are now TRIPPED
2. 113

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 49

A – Correct: Loss of DC control power will not change breaker positions on Bus 131X. Reserve control power to 480V switchgear is supplied via an alternate breaker and supply cable to the switchgear by the same DC bus as normal control power.

B – Plausible: Misconception of system operation. Would be correct if alternate control power was supplied by a different bus from same plant division.

C – Plausible: Misconception of system operation. Would be correct if loss of control power caused a breaker trip (similar to a normally energized relay or energized to open valve).

D – Plausible: Misconception of system operation. See explanations above.

Question Information

Topic	RS10063-N04				
User ID	RS10063-N04			**System ID**	2124407
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-AP-XL-01, Rev. 5, AC Electrical Power System and ILT LP I1-DC-XL-01, Rev. 5, 125VDC Power System		
Training Objective	S.DC1-09		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A, requires examinee ability to predict impact of malfunction in DC system and how procedure will mitigate the malfunction.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF6.063.A2.01	Safety Function 6	Tier 2	Group 1	RO Imp: 2.5	SRO Imp: 3.2*
Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.13) Grounds					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 50	ID: 2124412	Points: 1.00

The Unit 1 reactor is at full power.

- A grid problem has JUST lowered ESF bus 141 & 142 voltage to 3700 volts (at time = 0 seconds).

With NO operator action and ESF bus 141 & 142 voltages remaining at 3700 volts until the plant responds to this condition, what is the SEQUENCE of events that will occur?

A. The D/Gs start approximately 310 seconds LATER (at time = 310 seconds), then the ESF buses are deenergized followed by the D/Gs energizing the ESF buses.

B. The D/Gs start IMMEDIATELY (at time = 0 seconds), then the ESF buses are deenergized followed by the D/Gs energizing the ESF buses.

C. The ESF buses are deenergized IMMEDIATELY (at time = 0 seconds), then the D/Gs start and energize the ESF buses.

D. The ESF buses are deenergized approximately 310 seconds LATER (at time = 310 seconds), then the D/Gs start and energize the ESF buses.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 50

A – Plausible: This response assumes the 310 second delay is in the DG starting circuit verses the bus feed breaker trip circuit.

B – Plausible: This response does not include the 310 second delay timer and reverses the order of DG start and ESF bus de-energization.

C – Plausible: This response does not include the 310 second delay timer. Would be correct if the candidate believes the bus voltage dropped below the undervoltage setpoint (vs. degraded voltage setpoint).

D – Correct: The ESF buses are deenergized ~ 310 seconds LATER (at time = 310 seconds), then the D/Gs start and energize the ESF buses is CORRECT due to 3700V is > the 70% nominal voltage setpoint required for a loss of bus voltage, and is < the 95.8% nominal voltage to consider it degraded voltage thereby energizing the degraded bus voltage timer of 310 seconds, then tripping ACB 1412/1422 which will cause a loss of voltage on busses 141 and 142 tripping all 4KV loads and DG 1A and 1B will start and energize busses 141 and 142. Reference BwAR's 1-21-C7 and 1-22-C7.

Question Information

Topic	RS10062-N03				
User ID	RS10062-N03			**System ID**	2124412
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Electrical Schematic 20E-1-4030AP30, BwAR 1-21-C7, Rev. 16, and 1-22-C7, Rev. 14.		
Training Objective	S.AP1-10-A		
Previous Exam Use	2013 NRC		

References Provided	None
K/A Justification	Meets K/A, requires examinee ability to monitor the response of the ED/Gs during an auto start condition.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF6.064.A3.06	Safety Function 6	Tier 2	Group 1	RO Imp: 3.3	SRO Imp: 3.4
Ability to monitor automatic operation of the ED/G system, including: (CFR: 41.7 / 45.5) Start and stop					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 51	ID: 2124427	Points: 1.00

Unit 1 at 100% power.

The RO selects Grid 1 on the RMS and notes the following:

- 1PR08J, SG BLDN, radiation monitor, indicates White.
- 1PR27J, SJAE GS EXH, radiation monitor, indicates Magenta.

Grid 1 indicates that the 1PR08J has a/an _____1_____ alarm and 1PR27J has a/an _____2_____ alarm.

A. 1. Equipment Failure
2. Alert/Interlock

B. 1. Equipment Failure
2. Communications Failure

C. 1. Poll Status
2. Alert/Interlock

D. 1. Poll Status
2. Communications Failure

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 51

A – Plausible: Misconception of system operation. Both distractors are Rad monitor icon colors for different conditions than those listed in question stem.

B – Plausible: Misconception of system operation. #1 distractor is a Rad monitor icon colors for a different condition than listed in question stem.

C – Plausible: Misconception of system operation. #2 distractor is a Rad monitor icon colors for a different condition than listed in question stem.

D – Correct: White: Monitor Poll Status, and Magenta: Communications Failure. The color meanings are as follows:
White: Monitor Poll Status
Magenta: Communications Failure
Dark Blue: Operate Failure
Red: High Alarm
Yellow: Alert/Interlock
Light Blue: Equipment Failure
Grey: Control Function
Green: Normal Operations

Question Information

Topic	RS10073-N03				
User ID	RS10073-N03			**System ID**	2124427
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 41.11 Purpose and operation of radiation monitoring systems, including alarms and survey equipment.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT Lesson Plan I1-AR-XL-01 Rev. 7, Radiation Monitors		
Training Objective	S.AR1-11		
Previous Exam Use	2013 NRC		

References Provided	None
K/A Justification	Meets K/A, examinee must identify the correct meaning of the cursor colors as displayed by the RMS radiation monitor control panel.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF7.073.A4.02	Safety Function 7	Tier 2	Group 1	RO Imp: 3.7	SRO Imp: 3.7
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) Radiation monitoring system control panel					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 52	ID: 2124445	Points: 1.00

Both Units are at 100% power.

- 1B and 2A SX Pumps are RUNNING.
- 1A and 2B SX Pumps are in STANDBY.
- 2C Circ Water Pump forebay is drained for silt removal.
- 0SX115F, UPST ISOL TO SX PUMPS TRAIN B SUCTION HDR FROM 2C BAY, is danger tagged CLOSED.
- All other SX system equipment is in a normal alignment.

Debris in the 2A Circ Water Pump forebay partially blocks flow at the inlet to the SX suction piping.

ONLY the 2A Circ Water Pump forebay is affected.

To prevent cavitation on a SX Pump, the MCR crew will...

A. NOT swap either Unit's running SX Pump.

B. SWAP the running SX Pump on UNIT 1 ONLY.

C. SWAP the running SX Pump on UNIT 2 ONLY.

D. SWAP the running SX Pumps on BOTH UNITS.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 52

A – Plausible: This is incorrect because the unit 2 header supplies the B train suction for both units. This is plausible since the only affected units circulating water system is on unit 2 and without knowledge of the connections between the circulating water system and SX, this could incorrectly be seen as to only affect unit 1 SX A train.

B – Correct: The SX suction header is designed such that the 3 U-1 forebays each combine to a common suction header to the 1A and 2A SX pumps. Likewise the U-2 forebays combine for the "B" train suction header. The system is designed such that it can operate full capacity with any 1 of the 3 forebays out of service and the respective 0SX115 valve closed. If debris were to block a second forebay on the unit 2 side, it would affect the train B SX pumps on both units requiring a swap from the 1B SX Pump to the 1A SX Pump.

C – Plausible: This is incorrect because the unit 2 header supplies the B train suction for both units. This is plausible since the only affected units circulating water system is on unit 2 and without knowledge of the connections between the circulating water system and SX, this could incorrectly be seen as to only affect unit 2 SX pumps.

D – Plausible: This is incorrect because the unit 2 header supplies the B train suction for both units. This is plausible since the affected circulating water forebay is 2A. The examinee could incorrectly assume

that a 2A forebay affects the 2A SX pump and the 0SX115F affects the 1B SX pump.

Question Information

Topic	RS10076-N03				
User ID	RS10076-N03			**System ID**	2124445
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Modified from RS20076-N01	**Difficulty**	
Technical Reference and Revision #	Big Note SX-1 rev.19 Bwd ILT lesson plan I1-SX-XL-01 Rev. 8, SX System		
Training Objective	4C.SX-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	This question requires the examinee to understand the connection between the circulating water pump forebays and the difference in the suction to the SX pump headers for each unit.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

GS.3.0.SF4.SEC.076	Safety Function 4	Tier 2	Group 1	RO Imp:	SRO Imp:
Service Water System (SWS)					
P2.2.4	Safety Function 4	Tier 3	Group	RO Imp: 3.6	SRO Imp: 3.6
(multi-unit license) Ability to explain the variations in control board/control room layouts, systems, instrumentation, and procedural actions between units at a facility. (CFR: 41.6 / 41.7 / 41.10 / 45.1 / 45.13)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 53	ID: 2124446	Points: 1.00

A tornado damaged the Braidwood Switchyard causing a loss of offsite power to both Units.

- The 2B D/G is the ONLY emergency diesel that started and automatically loaded.
- 1BwCA-0.0, LOSS OF ALL AC POWER, is in progress.
- Bus 142 is crosstied to Bus 242.

Currently, the crew is performing Attachment C, ALTERNATE SX COOLING, step 1, PREPARE RCFC TRAINS SX ALIGNMENT FOR SX SYSTEM UNIT CROSSTIE.

The crew will prepare to crosstie SX by CLOSING BOTH...

A. 1SX016A AND 2SX016A LOCALLY.

B. 1SX016A AND 2SX016A MANUALLY from the MCR.

C. 1SX016B AND 2SX016B LOCALLY.

D. 1SX016B AND 2SX016B MANUALLY from the MCR.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 53

A – Correct: Per 1BwCA-0.0 Attachment C, step 1, operators are dispatched to close locally 1 and 2SX016A the deenergized train valves. These valves are powered from their respective ESF bus which is deenergized per the stem, requiring local operation.

B – Plausible: This incorrect because both valves will not have power available to manually close them from the control room. This is plausible since bus 242 has power available, and both valves are on one train and there are valves, like 1CV8111, which are powered from the opposite train to provide fail safe isolation.

C – Plausible: This is incorrect because both valves have power available to them. This is plausible since bus 242 has power available, and both valves are on one train and there are valves, like 1CV8111, which are powered from the opposite train to provide fail safe isolation.

D – Plausible: This is incorrect because both bus 142 and 242 are powered and the RCFCs powered from bus 242 will be restored. This will require 2SX016B to remain open for the subsequent steps. This is plausible because both valves have power and are available to be controlled manually from the control room.

Question Information

Topic	RS20076-N03				
User ID	RS20076-N03			**System ID**	2124446
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwCA-0.0, Rev. 303, Attachment C		
Training Objective	T.CA1-07		
Previous Exam Use	2018 NRC exam		

References Provided	None
K/A Justification	The question requires the examinee to know the power supplies to the service water valves associated with ESF MOVs.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.076.K2.08	Safety Function 4	Tier 2	Group 1	RO Imp: 3.1*	SRO Imp: 3.3*
Knowledge of bus power supplies to the following: (CFR: 41.7) ESF-actuated MOVs					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 54	ID: 2124451	Points: 1.00

Unit 1 is at 100% power.

- 0C WS pump is OOS.
- The 4th Station Air Compressor (2A SAC) is OOS.

Subsequently, the following sequence of events occurs.

- A bus fault occurs on bus 143.
- The remaining running WS pump trips on overcurrent, causing a COMPLETE loss of WS.
- A significant Instrument Air (IA) leak causes a Unit 1 reactor trip.
- The IA leak has been isolated and the crew is preparing to restore IA to the plant.

Which of the following SACs, if any, can be locally started using fire protection for cooling per BwOP SA-1, STARTUP AND OPERATION OF STATION AIR COMPRESSORS?

A. U-0 SAC

B. U-1 SAC

C. U-2 SAC

D. None

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 54

A – Plausible: The U-0 SAC is powered from bus 143, therefore has no power to be started. Would be correct if candidate does not recognize loss of power to U-0 SAC.

B – Correct: With no WS available (0A WS no power, powered from bus 143, 0B WS pump tripped, 0C WS pump OOS) fire protection can only be aligned to the U-1 SAC and the U-0 SAC. Since the U-0 SAC is powered from bus 143, it cannot be started. That leaves only the U-1 SAC to be started with fire protection for cooling.

C – Plausible: U-2 SAC is not able to be cooled by FP. Would be correct if U-2 SAC was able to be cooled by fire protection.

D – Plausible: This is plausible if the examinee does not realize that FP can be used to cool the U-1 SAC and because the U-2 SAC is unable to be cooled by fire protection.

Question Information

Topic	RS10078-N04				
User ID	RS10078-N04			**System ID**	2124451
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-SA-XL-01, Rev. 7, SA/IA		
Training Objective	S.SA1-05		
Previous Exam Use	2014 NRC		

References Provided	None
K/A Justification	Meets K/A, examinee must understand the cause-effect relationship between an instrument air initiated event and a loss of cooling water on the air compressor.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF8.078.K1.04	Safety Function 8	Tier 2	Group 1	RO Imp: 2.6	SRO Imp: 2.9
Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Cooling water to compressor					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 55	ID: 2124455	Points: 1.00

Unit 1 is in Mode 1, normally aligned.

- During a containment entry, BOTH U-1 equipment hatch air lock doors have just become damaged and BOTH doors CANNOT be closed. (Both doors are approx. 3" ajar)
- Repairs to the equipment hatch doors will take a MINIMUM of 3 hours.
- The operating crew has entered LCO 3.6.2, CONTAINMENT AIR LOCKS.

The following MCR indications are noted on 0PM02J:

- 0PDI-VA035, AUX BLDG OUTSIDE DP, indicates -0.3" H2O.
- 0PDI-VP231, U-1 CNMT DELTA P, indicates 0.0 PSIG.

Additionally, the failure of the containment equipment hatch doors will result in…

A. an unmonitored release from containment, but no additional LCO entries.

B. entry into LCO 3.6.1, CONTAINMENT.

C. entry into LCO 3.6.3, CONTAINMENT ISOLATION VALVES.

D. entry into LCO 3.6.4, CONTAINMENT PRESSURE.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 55

A – Plausible: FHB and Aux Building ventilation are monitored release paths. Would be correct if the emergency hatch was open (vs. equipment hatch).

B – Correct: With 2 equipment hatch doors inoperable, entry into 3.6.2, cond. C requires an evaluation of overall containment leakage per LCO 3.6.1. With both hatch doors approx. 3" open, it is reasonable to assume that containment will not pass the LCO 3.6.1 requirement of leakage being <1.0 La (La = 0.20% per day at 42.8 psig).

C – Plausible: TS 3.6.3 applies to containment isolation valves, but not doors. Containment isolation is the concern in question stem. Containment isolation valves are also a common cause of loss of containment integrity.

D – Plausible: TS 3.6.4 requires containment pressure to be between -0.1 and +1.0 psig. The cnmt DP indicator goes to zero because it is measuring cnmt DP relative to the aux bldg (open doors between cnmt and FHB. The aux bldg DP of -0.3"/H2O is negligible when converted to psig. Converts to -0.01 psig which is well within tech spec limit for containment relative to outside pressure. Valid distractor if candidate believes a slightly negative containment pressure requires TS 3.6.4 entry.

Question Information

Topic	RS10053-N04				
User ID	RS10053-N04			**System ID**	2124455
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Tech Spec 3.6.1, 3.6.2, & 3.6.4		
Training Objective	S.PC1-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question requires examinee determine loss of containment integrity and knowledge of the effect of loss of containment integrity during normal operations.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF5.103.K3.02	Safety Function 5	Tier 2	Group 1	RO Imp: 3.8	SRO Imp: 4.2
Knowledge of the effect that a loss or malfunction of the containment system will have on the following: (CFR: 41.7 / 45.6) Loss of containment integrity under normal operations					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 56	ID: 2124466	Points: 1.00

Unit 1 was at 50% power, normally aligned.

Subsequently,

- ALL control rods dropped into the core as displayed by DRPI.
- ALL reactor trip red first out annunciators are NOT lit.

The condition that caused this event is a loss of buses…

A. 131X2 and 132X2.

B. 133U and 134U.

C. 133Y and 134Y.

D. 133Z2 and 134Z2.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 56

A – Plausible: Loss of 131X2 and 132X2 would NOT result in rods at bottom DRPI indication and would NOT result in loss of power to CRDMs. Valid distractor because they are the 480 VAC MCC ESF buses that supply Unit 1 equipment. MG sets are vital (but not safety related) equipment.

B – Plausible: Misconception of correct power supplies to MG sets. These buses are non-ESF Lake Screen House buses, however they are 480 VAC non-ESF plant buses.

C – Correct: The CRD MG sets are powered from buses 133Y and 134Y in the turbine bldg. Loss of these buses will cause all CRDMs to lose power without an immediate reactor trip signal, and without removing DRPI power.

D – Plausible: Misconception of correct power supplies to MG sets. These buses have the same unit and sequential numbers. Only the letter designator (Z) and MCC designator (2) are different. Z is also a turbine bldg designator for buses.

Question Information

Topic	RS20001-C03				
User ID	RS20001-C03			**System ID**	2124466
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-RD-XL-01, Rev. 6, Rod Control		
Training Objective	S.RD1-11-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A by requiring knowledge of M/G sets power supplies.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF1.001.K2.05	Safety Function 1	Tier 2	Group 2	RO Imp: 3.1*	SRO Imp: 3.5
Knowledge of bus power supplies to the following: (CFR: 41.7) M/G sets					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 57	ID: 2124467	Points: 1.00

- RVLIS is indicating 15% in the PLENUM region on 1LI-RC020.

ACTUAL Reactor Vessel level MAY be ...

A. ABOVE 15% in the plenum AND is ABOVE the top of the active fuel region.

B. ABOVE 15% in the plenum AND is BELOW the top of active fuel region.

C. BELOW 15% in the plenum AND is ABOVE the top of the active fuel region.

D. BELOW 15% in the plenum AND is BELOW the top of the active fuel region.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 57

A – Plausible: Misconception of system design and operation. Because RVLIS indication is non-conservative it is easily mistaken for a conservative level (>15%).

B – Plausible: Misconception of system design and operation. The candidate may mistakenly believe the Reactor Vessel Plenum region contains the active fuel.

C – Correct: RVLIS indicated level in percent is non-conservative. Therefore, when indication is 15%, the actual level is somewhere between the 15% sensor and the next lower sensor (0%). RVLIS monitors 2 regions of the reactor vessel (head region and plenum region) that are both above the active fuel region.

D – Plausible: Misconception of system design and operation. The candidate may mistakenly believe the Reactor Vessel Plenum region contains the active fuel.

Question Information

Topic	RS20002-N05				
User ID	RS20002-N05			System ID	2124467
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only

Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-IT-XL-01, Rev. 4, ICC and Big Note CORE-3, Rev. 0		
Training Objective	S.IT1-04		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question requires examinee knowledge of design features of RVLIS.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF2.002.K4.02	Safety Function 2	Tier 2	Group 2	RO Imp: 3.5*	SRO Imp: 3.8*
Knowledge of RCS design feature(s) and/or interlock(s) which provide for the following: (CFR: 41.7) Monitoring reactor vessel level					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 58	ID: 2124470	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- An inadvertent loss of letdown caused PZR level to RISE above programmed level.
- The crew has restored normal letdown at 120 gpm.
- Charging is in MANUAL with the following indications:
  - Reactor Power is 100%.
  - PZR level is 63% and STABLE.

In order to restore PZR level to programmed level, charging flow will be LOWERED by _____ gpm for a total of _____ minutes.

A. 7 gpm
3 minutes

B. 7 gpm
9 minutes

C. 25 gpm
15 minutes

D. 25 gpm
20 minutes

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 58

A – Plausible: SI accumulators are approx. 7 gal per percent in the indicating range. Distractor would lower level in an SI accumulator 3%.

B – Plausible: The VCT is approx. 20 gal per percent in the indicating range. Distractor would lower level in the VCT by 3%.

C – Correct: PZR level is approx. 125 gal per percent (per 1BwOA PRI-1). At 100% power, program level is 60%. 3% high equates to 375 gal high. 25 gpm x 15 min = 375 gal.

D – Plausible: 25 gpm for 20 min = 500 gal. 500 gal is the volume of PZR above the 100% cold cal level indication.

Question Information

Topic	RS20011-N05				
User ID	RS20011-N05			**System ID**	2124470
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwOA PRI-1, Rev. 108 and ILT LP I1-CV-XL-01, Rev. 10, CVCS		
Training Objective	S.CV1-05-F		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question requires examinee knowledge of operational implications of interrelation between charging flow and volume of water in PZR.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF2.011.K5.05	Safety Function 2	Tier 2	Group 2	RO Imp: 2.8	SRO Imp: 3.1
Knowledge of the operational implications of the following concepts as they apply to the PZR LCS: (CFR: 41.5 / 45.7) Interrelation of indicated charging flow rate with volume of water required to bring PZR level back to programmed level hot/cold					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 59	ID: 2124288	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- Subsequently, Power Range N-41 failed HIGH.
- The crew then placed the RPS bistables for N-41 in bypass.

Later, the SM directs the bistables be removed from bypass AND placed in trip to comply with Tech Spec action completion time.

When N-41 bistables are removed from bypass AND placed in trip, how will the Power Range NI RPS actuation coincidence logic change on the UNAFFECTED channels?

	(N-41 in bypass)	(N-41 tripped)
A.	2 of 3	1 of 3
B.	1 of 3	2 of 3
C.	2 of 3	3 of 3
D.	3 of 3	2 of 3

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 59

A – Correct: When an NI channel fails, the channel is typically placed in bypass until such time as the channel is repaired and placed back in service, or the Tech Spec time clock requires it to be placed in trip. Normal RPS actuation logic for the PRNIs is 2/4. When NI bistables are in bypass, the coincidence changes to 2/3 operable channels (because the bypassed channel SSPS input relays are energized regardless of bistable status). When the bistables are subsequently tripped, SSPS input relays are opened (de-energized regardless of bistable status). Therefore, the coincidence changes to 1/3 operable channels.

B – Plausible: Misconception of system operation. This distractor has the bypassed and tripped coincidences reversed.

C – Plausible: Misconception of system operation. This distractor changes the tripped coincidence in the opposite direction from the correct answer. Candidate can easily confuse the change in coincidence to this.

D – Plausible: Misconception of system operation. See distractor C explanation above. If the candidate chose 3/3 for bypassed status, it would be logical to believe the change to tripped status coincidence would be 2/3.

Question Information

Topic	RS20015-N03				
User ID	RS20015-N03			**System ID**	2124288
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Bignote NI-2, Rev. 10, SSPS-1, Rev. 9 and ILT LP I1-NI-XL-03, Rev. 8, Power Range NIs		
Training Objective	S-NI3-05-A through G		
Previous Exam Use	2016 NRC		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of effect that a loss of NI detectors has on RPS.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF7.015.K6.04	Safety Function 7	Tier 2	Group 2	RO Imp: 3.1	SRO Imp: 3.2
Knowledge of the effect of a loss or malfunction on the following will have on the NIS: (CFR: 41.7 / 45.7) Bistables and logic circuits					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 60	ID: 2124607	Points: 1.00

Unit 1 is at 100% power, normally aligned.

- Containment pressure has been rising steadily at + 0.05 psig per hour, due to a suspected Instrument Air leak inside containment.
- Current containment pressure is 0.45 psig.
- Current time is 0700 hrs.
- A Containment Release package is prepared to lower containment pressure.

The SM has directed the RO to start the Containment Release PRIOR to annunciator 0-33-D6, CNMT INTERNAL PRESS HIGH LOW, alarming, to ensure margin from entering the Containment Pressure Tech Spec.

The LATEST time the containment release can be started WITHOUT receiving alarm 0-33-D6 is...

A. 1300 hrs.

B. 1500 hrs.

C. 1700 hrs.

D. 1900 hrs.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 60

A – Correct: Annunciator 0-33-D6 alarms at 0.8 psig (0.2 psig below TS 3.6.4 upper limit of containment pressure of +1.0 psig). With current containment pressure at +0.45 psig and rising at 0.05 psig per hour, alarm 0-33-D6 is expected in 7 hours. 1300 hrs (6 hours later) leaves a 1 hour margin from the alarm.

B – Plausible: 1500 (8 hours later) would be correct if the alarm setpoint was 0.9 psig (0.1 psig below the TS limit). Plausible because the low pressure alarm setpoint of 0.0 psig, is 0.1 psig from the low pressure TS limit of -0.1 psig.

C – Plausible: 1700 (10 hours later) would be correct if the alarm setpoint was 1.0 psig (the TS limit).

D – Plausible: 1900 (12 hours later) would be correct if the alarm setpoint was 1.1 psig (0.1 psig above the TS limit). Plausible because the low pressure alarm setpoint of 0.0 psig, is 0.1 psig from the low pressure TS limit of -0.1 psig and the student may transpose the alarm setpoint and TS limits in their calculation.

Question Information

Topic	RS20029-N01				
User ID	RS20029-N01			**System ID**	2124607
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwAR 0-33-D6, Rev. 9, Tech Spec 3.6.4		
Training Objective	S.PC1-07		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to monitor changes in containment pressure to prevent exceeding design limits (TS limit).
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF8.029.A1.03	Safety Function 8	Tier 2	Group 2	RO Imp: 3.0*	SRO Imp: 3.3*
Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the Containment Purge System controls including: (CFR: 41.5 / 45.5) Containment pressure, temperature, and humidity					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 61	ID: 2124610	Points: 1.00

- The spent fuel pool level was as indicated below.
- Fuel moves within the pool were in progress.
- A fuel assembly was inadvertently dropped into its rack location causing a leak in the assembly cladding.

Subsequently:

- The running FC cooling pump develops a large leak between the pump and discharge check valve.
- Spent Fuel Pool level is dropping and radiation levels at the pool surface are rising.

With NO operator action, the approximate INDICATED water level that the Spent Fuel Pool will stabilize at is __1__ and will be __2__ the Tech Spec 3.7.14 SPENT FUEL POOL WATER LEVEL limit.

A. 1. 4' - 5'
   2. ABOVE

B. 1. 4' - 5'
   2. BELOW

C. 1. 17' - 18'
   2. ABOVE

D. 1. 17' - 18'
   2. BELOW

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 61

A – Plausible: This is the depth of the cooling water return lines if a break in the FC system downstream of the cooling pump discharge check valves siphon the pool. Above the TS limit is plausible because some systems are designed to maintain operability during a malfunction (example the CC surge tank contains a design feature, baffle, which maintains the opposite unit's system operable during a leak.

B – Plausible: This is the depth of the cooling water return lines if a break in the FC system downstream of the cooling pump discharge check valves siphon the pool.

C – Plausible: See explanation for distractor A above.

D – Correct: The suction piping of the FC cooling pumps is approx. 7' below the normal level (24' 6") of the SFP. 24' 6" - 7' = 17' 6". TS 3.7.14 requires ≥ 23' water level above the top of irradiated fuel assemblies seated in the storage racks during movement of irradiated assemblies. This equates to 22' 9" indicated level.

Question Information

Topic	RS20033-N03				
User ID	RS20033-N03			**System ID**	2124610
Status	Active	**Point Value**	1.00	**Time (min)**	1

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 43.7 Fuel handling facilities and procedures.		

NRC Exams Only			
Question Type	Modified from 2016 NRC exam question RS20033-N02	**Difficulty**	
Technical Reference and Revision #	Big note FC-1 rev 13, P&ID M-63 sht 1A and Tech Spec 3.7.14		
Training Objective	S.FC1-05		
Previous Exam Use	None		

References Provided	0LI-FC001B SFP LEVEL indicator
K/A Justification	Meets K/A by requiring candidate ability to monitor spent fuel pool operation during a leaking fuel element event.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF8.033.A3.02	Safety Function 8	Tier 2	Group 2	RO Imp: 2.9	SRO Imp: 3.1
Ability to monitor automatic operation of the Spent Fuel Pool Cooling System including: (CFR: 41.7 / 45.5) Spent fuel leak or rupture					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 62	ID: 2124616	Points: 1.00

Unit 1 is at 100% power.

- Steam pressure is 1005 psig.
- Steam Dump Mode Select switch is in the STEAM PRESSURE mode.
- 1PK-507, Steam Header Pressure Controller, setpoint is set at 1039 psig.

The following then occurs:
- The U1 NSO initiates a load reduction to 50% power.

The U1 Steam Dumps will...

A. NOT open prior to reaching 50% power.

B. begin to OPEN at approximately 61% power.

C. begin to OPEN at approximately 69% power.

D. begin to OPEN at approximately 74% power.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 62

A – Plausible: Because steam pressure rises as power drops, a common error would be to interpolate from the wrong end of the steam band resulting in an answer of 39% (<50%).

B – Correct: 0% power corresponds to a Tave of 557° and steam pressure of 1092 psig.
100% power corresponds to a Tave of 587° and steam pressure of 1005 psig.
Using interpolation:
1039 psig corresponds to Tave of 575.3° and 61% power.

C – Plausible: Using steam values of 1115 psig (SG PORV opening setpoint) and 1005 psig, the same calculation results in an answer of 69%.

D – Plausible: Using U-2 steam values of 1092 psig and 885 psig, the same calculation results in an answer of 74%.

Question Information

Topic	RS20041-N05				
User ID	RS20041-N05			**System ID**	2124616
Status	Active	**Point Value**	1.00	**Time (min)**	1

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	Big note MS-4a, Rev. 0, ILT lesson plan I1-DU-XL-01, Rev. 8, Steam Dumps		
Training Objective	S-DU1-03-A		
Previous Exam Use	2016 NRC exam		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to monitor changing steam pressure and predict impact of on steam dumps controls in steam pressure mode.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.041.A4.04	Safety Function 4	Tier 2	Group 2	RO Imp: 2.7*	SRO Imp: 2.7
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) Pressure mode					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 63	ID: 2124526	Points: 1.00

Unit 1 is at 50% power, normally aligned.

- The 1A EH Pump is running.
- An EH fluid leak has been reported from the field.
- Field operators are responding to the leak.
- Annunciator 1-18-C15, EH FLUID RSRVR LVL HIGH/LOW, is in alarm.
- EH fluid reservoir level continues to slowly DROP.

Subsequently, Annunciator 1-18-D15, EH FLUID RSRVR LVL LO-2, has just alarmed.

With the above conditions, the 1A EH Pump is _____1_____ and IF the EH reservoir level trend continues, the RO will trip the _____2_____.

A. 1. RUNNING
2. REACTOR

B. 1. RUNNING
2. TURBINE

C. 1. TRIPPED
2. REACTOR

D. 1. TRIPPED
2. TURBINE

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 63

A – Correct: With annunciator 1-18-D15, EH FLUID RSRVR LVL LO-2, in alarm, the running EH pump does not trip. If EH reservoir fluid level cannot be maintained, BwAR 1-18-D15 subsequent actions direct a reactor trip if power is > P-8 (30%) or a turbine trip if power is < P-8.

B – Plausible: This would be correct if power was below P-8.

C – Plausible: Multiple plant system designs have pump trip interlocks based upon low level in the suction tank. A common misconception is the EH system also has the associated pump trip on low tank level. The interlock for EH reservoir low level locks out the auto start of the stand by pump, but does not trip the running pump.

D – Plausible: See explanations for distractors B and C above.

Question Information

Topic	RS20045-N03				
User ID	RS20045-N03			**System ID**	2124526
Status	Active	**Point Value**	1.00	**Time (min)**	1

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwAR 1-18-D15, Rev. 8		
Training Objective	S.EH1-51		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee to predict malfunction of DEHC impact on MT/G system (EH pump) and use procedure to mitigate consequences.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF4.045.A2.17	Safety Function 4	Tier 2	Group 2	RO Imp: 2.7*	SRO Imp: 2.9*
Ability to (a) predict the impacts of the following malfunctions or operation on the MT/G system; and (b) based on those predictions, use procedures to correct, control,or mitigate the consequences of those malfunctions or operations: (CFR: 41.5/43.5/45.3/45.5) Malfunction of electrohydraulic control					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 64	ID: 2124621	Points: 1.00

A liquid release is in progress via the normal release path.

In addition to a Hi rad alarm from the Release Tank Rad Monitors, what condition will cause the automatic isolation of the release?

A. HI station blowdown header RADS

B. HI release header FLOW

C. LOW release header FLOW

D. LOW station blowdown header FLOW

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 64

A – Plausible: Blowdown Header rad levels are monitored by 0PR10J also, but no interlock exists from that rad skid.

B – Plausible: Release header rads are monitored with 0PR01J/90J rad monitors with an interlock to isolate the release on high rads (as stated in question stem). High flow is a valid distractor as it would increase the amount of radioactivity being released per unit of time, however it will not isolate the release.

C – Plausible: Release header rads are monitored with 0PR01J/90J rad monitors with an interlock to isolate the release on high rads (as stated in question stem). Low flow is a valid distractor as it could be an indication of system leak/malfunction, or it can easily be confused with the low station blowdown flow interlock, however it will not isolate the release.

D – Correct: Low station blowdown header flow (<7000 gpm) is an interlock which will close the release header isolation valves 0WX353/896.

Question Information

Topic	RS20068-N03				
User ID	RS20068-N03			System ID	2124621
Status	Active	Point Value	1.00	Time (min)	1

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-WX-XL-01, Rev, 5, LRW		
Training Objective	S.WX1-11		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of the LRW system function
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

GS.3.0.SF9.068	Safety Function 9	Tier 2	Group 2	RO Imp:	SRO Imp:
Liquid Radwaste System (LRS)					
P2.1.27	Safety Function 9	Tier 3	Group	RO Imp: 3.9	SRO Imp: 4.0
Knowledge of system purpose and/or function. (CFR: 41.7)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 65	ID: 2124630	Points: 1.00

Unit 1 is at 100% power, normally aligned.

- Annunciator 1-2-A2, SX PUMP DSCH HDR PRESS LOW, alarms.
- 5 minutes later, an EO investigating the cause of the alarm reports the 1SX150A, SX STRAINER BACKWASH VLV, is stuck OPEN.

The additional SX Strainer backwash water is flowing into the...

A. CW discharge header and back to the cooling lake.

B. Station Blowdown header and to the Kankakee River.

C. SX Pump Room Sump, requiring additional Radwaste System processing.

D. Aux Building Equipment Drain Sump, requiring additional Radwaste System processing.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 65

A – Correct: SX strainer backwash is directed to the U-2 CW return header and back to the cooling lake.

B – Plausible: Plausible: Misconception of system operation. CW blowdown directs a portion of CW to the river (in addition to liquid rad releases), but not the SX strainer backwash.

C – Plausible: Misconception of system operation. The SX pump room drains are directed to the room sump, but not the SX strainer backwash.

D – Misconception of system operation. The SX strainers are in the aux building and multiple aux building equipment drain into the WE sump, but not the SX strainer backwash.

Question Information

Topic	RS20075-N03				
User ID	RS20075-N03			System ID	2124630
Status	Active	Point Value	1.00	Time (min)	1

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-SX-XL-01, Rev. 8, SX System		
Training Objective	S.SX1-02		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of physical connections between Circ Water and Essential Service Water.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

SF8.075.K1.08	Safety Function 8	Tier 2	Group 2	RO Imp: 3.2*	SRO Imp: 3.2*
Knowledge of the physical connections and/or cause- effect relationships between the circulating water system and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) Emergency/essential SWS					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 66	ID: 2124654	Points: 1.00

Per OP-AA-103-102, WATCHSTANDING PRACTICES, the unit NSO shall perform MCB walkdowns _____1_____ and must RECORD _____2_____.

A. 1. hourly
2. critical parameters

B. 1. hourly
2. system abnormalities

C. 1. every 4 hours
2. critical parameters

D. 1. every 4 hours
2. system abnormalities

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 66

A – Correct: OP-AA-103-102, section 4.4.1 directs hourly walkdowns by the NSO and recording of critical parameters

B – Plausible: Section 4.4.6 requires the NSO to be aware of system abnormalities, but does not require them to be recorded.

C – Plausible: Section 4.4.6 requires US walkdowns every 4 hours.

D – Plausible: Combination of both distractors.

Question Information

Topic	RG10001-N01				
User ID	RG10001-N01			System ID	2124654
Status	Active	Point Value	1.00	Time (min)	1

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

NRC Exams Only			
Question Type	New	Difficulty	

Technical Reference and Revision #	OP-AA-103-102, Rev. 18, Watchstanding Practices
Training Objective	T.AM30-05
Previous Exam Use	None

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of conduct of operations.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.1.1	Safety Function 8	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.2
Knowledge of conduct of operations requirements. (CFR: 41.10 / 45.13)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 67	ID: 2124662	Points: 1.00

- An NSO is preparing clearance orders to isolate sections of mechanical piping from various systems.

Per OP-AA-109-101, PERSONNEL AND EQUIPMENT TAGOUT PROCESS, which of the following systems would require DOUBLE VALVE ISOLATION to **NOT** be considered an exceptional tagout?

(Assume a vent and drain path for the isolated zone is available in each system.)

System 1: A water system at 150˚F and 250 psig.

System 2: A saturated steam system at 50 psig.

System 3: An outdoor nitrogen system at 700 psig.

System 4: An outdoor hydrogen system at 150 psig.

A. Systems 1 & 2

B. Systems 2 & 3

C. Systems 1 & 4

D. Systems 3 & 4

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 67

A – Plausible: Both water/steam systems but the water system is below the criteria for double isolation.

B – Correct: OP-AA-109-101, section 7.3.1 requires double isolation for systems >200˚F or pressures >500 psig. Saturated steam at 50 psig is above 200 ˚F and the Nitrogen system is above 500 psig.

C – Plausible: Both systems have pressure above 200 psig (misconception that is the limit for pressure, vs. temperature) but the systems are below the criteria for double isolation.

D – Plausible: Both gas systems, but the hydrogen system is below the criteria for double isolation.

Question Information

Topic	RG10026-N01				
User ID	RG10026-N01			**System ID**	2124662
Status	Active	**Point Value**	1.00	**Time (min)**	1

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	OP-AA-109-101, Rev. 14, PERSONNEL AND EQUIPMENT TAGOUT PROCESS, section 7.3.1		
Training Objective	T.AM33-04		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of safety procedures for high temperature/pressure systems.
SRO-Only Justification	N/A
Additional Information	Although OP-AA-109-101 is not in the category of industrial safety, the personnel protection sections of this procedure are industrial safety principles. Also, this is license level knowledge, while typical industrial safety procedures are not license level knowledge.

K/A Reference(s)

P2.1.26	Safety Function 8	Tier 3	Group	RO Imp: 3.4	SRO Imp: 3.6
Knowledge of industrial safety procedures (such as rotating equipment, electrical, high temperature, high pressure, caustic, chlorine, oxygen and hydrogen). (CFR: 41.10 / 45.12)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 68	ID: 2124664	Points: 1.00

What SEQUENCE are the following Clearance Order Tags NORMALLY hung to remove a pump from service?

1. Pump suction valve closed
2. Pump discharge valve closed
3. Pump C/S on MCB in PULL OUT
4. Pump motor breaker open/racked out

A. 1, 2, 3, 4

B. 2, 1, 4, 3

C. 3, 4, 2, 1

D. 4, 3, 2, 1

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 68

A – Plausible: Misconception of tag out process. Distractor incorrectly lists mechanical components prior to electrical components. Mechanical components are also reversed in order.

B – Plausible: Misconception of tag out process. Distractor incorrectly lists mechanical components prior to electrical components. Electrical components are also reversed in order.

C – Correct: Breaker C/Ss are placed in PTL first to prevent breaker operation while it is racked. Breaker operation is next to prevent inadvertent pump operation while it is being isolated. The discharge valve is closed first to prevent inadvertent over pressurization of the pump suction side in the event of discharge check valve leakage (with the suction valve open, pressure can be relieved to the suction source for most pumps). The suction valve is then closed last.

D – Plausible: Misconception of tag out process. Electrical components are reversed in order.

Question Information

Topic	RG20013-N01				
User ID	RG20013-N01			System ID	2124664
Status	Active	Point Value	1.00	Time (min)	3

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

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	OP-AA-109-101, Rev. 14, PERSONNEL AND EQUIPMENT TAGOUT PROCESS, section 7.2.7		
Training Objective	T.AM33-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of clearance and tagging procedures.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.2.13	Safety Function 8	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.3
Knowledge of tagging and clearance procedures. (CFR: 41.10 / 45.13)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 69	ID: 2124685	Points: 1.00

Unit 1 is in MODE 1.

- An overpressure event caused LCO 2.1.2, RCS Pressure SAFETY LIMIT to be exceeded at 10:00.

In accordance with Tech Specs, what is the LATEST time that Unit 1 must be in HOT STANDBY with RCS Pressure within limits?

A. 10:05

B. 10:15

C. 10:30

D. 11:00

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 69

A – Plausible: 5 minutes is action time requirement if the safety limits are violated in mode 3, 4, or 5.

B – Plausible: 15 minutes is a <1 hr. action time used in several other Tech Specs.

C – Plausible: 30 minutes is a <1 hr. action time used in several other Tech Specs.

D – Correct: Per LCO 2.2 SL Violations, restore compliance and be in MODE 3 within 1 hour.

Question Information

Topic	RG20022-001				
User ID	RG20022-001			System ID	2124685
Status	Active	Point Value	1.00	Time (min)	3

Open or Closed Reference	CLOSED	Cognitive Level	LOW
Operator Discipline	LO-I	Operator Type	RO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	Bank	Difficulty	
Technical Reference and Revision #	Tech Spec section 2.0		

Training Objective	S.TS1-03-C
Previous Exam Use	2006 NRC exam

References Provided	None
K/A Justification	Meets K/A requiring candidate knowledge of safety limits.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.2.22	Safety Function 8	Tier 3	Group	RO Imp: 4.0	SRO Imp: 4.7
Knowledge of limiting conditions for operations and safety limits. (CFR: 41.5 / 43.2 / 45.2)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 70	ID: 2133106	Points: 1.00

Unit 1 is at 100% power, normally aligned.

- The RO is performing channel checks for the Shiftly and Daily Operating Surveillance.
- Currently, the RO is evaluating a multiple channel parameter with a meter scale of 0-200 psig.

Which of the following is the MINIMUM channel deviation (lowest to highest) that would require the suspect channel to be immediately declared INOPERABLE?

A. 7 psig

B. 13 psig

C. 19 psig

D. 25 psig

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 70

A – Plausible: 7 psig is slightly more than 3% deviation and not considered inoperable. However, a misconception that 6 psig is the limit vs. 6% of scale may lead the candidate to choose this distractor.

B – Correct: Per 1BwOSR 0.1-1,2,3, section E.7.b.3), Deviations between OPERABLE channels greater than or equal to 6% of scale requires the channel that is suspect to be declared inoperable. 6% of a 0-200 psig scale is 12 psig. 13 psig is the minimum answer that exceeds the 6% deviation.

C – Plausible: 19 psig is slightly more than 9%, and a natural progression of the answers. But not the minimum inoperable deviation. 9% would be correct for a 0-150% scale such as delta T channels.

D – Plausible: 25 psig is slightly more than 12%, and a natural progression of the answers. But not the minimum inoperable deviation.

Question Information

Topic	RG20037-N02				
User ID	RG20037-N02			System ID	2133106
Project	AP-OPS-K&A-PWR			Site	BR
Status	Active	Point Value	1.00	Time (min)	1

Cross Reference Number	CLOSED
Num Field 2	RO-HI
Text Field	LO-I

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwOSR 0.1-1,2,3 rev.94, Shiftly and Daily Operating Surveillance, section E.7		
Training Objective	4C.AM-01		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to determine operability of safety related equipment based upon an acceptable channel check.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.2.37	Safety Function 8	Tier 3	Group	RO Imp: 3.6	SRO Imp: 4.6
Ability to determine operability and/or availability of safety related equipment. (CFR: 41.7 / 43.5 / 45.12)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 71	ID: 2124688	Points: 1.00

- A General Emergency has been declared at Braidwood Station.
- A High Radiation Area needs to be accessed to PROTECT VALUABLE PROPERTY.
- An Emergency Responder has volunteered to perform the job.
- The volunteer has a current year to date exposure of 3 REM TEDE.

Which one of the following is the MAXIMUM dose the emergency responder is allowed to receive for this activity?

A. 7 REM TEDE

B. 10 REM TEDE

C. 22 REM TEDE

D. 25 REM TEDE

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 71

A – Plausible: This is the dose allowed for protecting valuable property minus his current dose.

B – Correct: This is the dose allowed for protecting valuable property per RP-AA-203 section 4.5.3. Exposure limit is "per activity" and current dose is not subtracted from the limit

C – Plausible: This is the dose for saving a life minus his current dose

D – Plausible: This is the allowed dose for lifesaving activity.

Question Information

Topic	RG30004-N01				
User ID	RG30004-N01			**System ID**	2124688
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 41.12 Radiological safety principles and procedures.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	

Technical Reference and Revision #	RP-AA-203, Rev. 5
Training Objective	3E.AM-133
Previous Exam Use	2009 NRC

References Provided	None
K/A Justification	Meets K/A requiring candidate knowledge of radiation exposure limits under normal or emergency conditions.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.3.4	Safety Function 8	Tier 3	Group	RO Imp: 3.2	SRO Imp: 3.7
Knowledge of radiation exposure limits under normal or emergency conditions. (CFR: 41.12 / 43.4 / 45.10)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 72	ID: 2124689	Points: 1.00

- You are assigned a task in a tank room in the Aux Building.
- The room was recently surveyed, and the following radiological conditions are listed on the RWP survey map:
  - General area radiation is 110 mR/Hr.
  - Airborne radiation is 0.25 DAC.
  - Contamination levels of 250 dpm/100 cm^2 beta/gamma and 25 dpm/100 cm^2 alpha.

When you arrive at the room, there are 2 posted signs as follows:

- Caution - Radiation Area
- Caution - Contaminated Area

What actions (if any) are required/allowed and why?

A. Do NOT proceed, notify RP Department because the room also requires an additional posting of Caution - Airborne Radioactivity Area.

B. Do NOT proceed, notify RP Department because the Contaminated Area posting is INCORRECT.

C. Do NOT proceed, notify RP Department because the Radiation Area posting is INCORRECT.

D. Proceed with assigned task because ALL postings are CORRECT and complete.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 72

A – Plausible: Misconception of correct posting requirements.

B – Plausible: Misconception of correct posting requirements.

C – Correct: Per NISP-RP-004, the tank room meets requirements for posting as high rad area (>80 mR/Hr) and contaminated area (>20 dpm/100 cm2 alpha), but not for Airborne Radioactivity (<0.3 DAC).

D – Plausible: Misconception of correct posting requirements.

Question Information

Topic	RG30007-N01				
User ID	RG30007-N01			**System ID**	2124689
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	RO
10CFR55 Content	CFR: 41.12 Radiological safety principles and procedures.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	NISP-RP-004, Rev. 1 and RP-AA-403, Rev. 11		
Training Objective	T.AM44-01		
Previous Exam Use	2011 NRC exam		

References Provided	None
K/A Justification	Question meets KA - question requires examinee knowledge of radiological safety principles pertaining to licensed operator duties. Per RP-AA-403, Administration of the Radiation Work Permit Program, a radiation worker who signs on to a RWP certifies that they will "Obey all *posted* and verbal RP instructions. Common RWP instructions prohibit worker entry into plant areas that have elevated dose rates, contamination levels and air borne rad levels. Recognizing the correct radiological postings is required to comply with RWP requirements.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.3.7	Safety Function 8	Tier 3	Group	RO Imp: 3.5	SRO Imp: 3.6
Ability to comply with radiation work permit requirements during normal or abnormal conditions. (CFR: 41.12 / 45.10)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 73	ID: 2124947	Points: 1.00

During performance of the following Emergency Procedures, which procedure(s) allow(s) BwFRs to NOT be implemented during the ENTIRE performance of the procedure?

1. 1BwCA-0.0, LOSS OF ALL AC POWER
2. 1BwCA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED
3. 1BwEP ES-1.3, TRANSFER TO COLD LEG RECIRCULATION
4. 1BwCA-1.3, SUMP BLOCKAGE CONTROL ROOM GUIDELINE

A. 1 & 2

B. 1 & 4

C. 2 & 4

D. 3 ONLY

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 73

A – Plausible: Misconception of procedure notes. #1 and #2 are both CA-0.0 series procedures and may cause a common grouping error by the candidate.

B – Correct: All of the listed procedures contain the Note: "Braidwood Status Trees should be monitored for information only. BwFRs should NOT be implemented." However, 1BwCA-0.1 and 1BwEP ES-1.3 have qualifiers added to the note that BwFRs should not be implemented prior to a specific step. In 1BwCA-0.1, the qualifier is "prior to step 9 (restoring ECCS pumps to standby). In 1BwEP ES-1.3, the qualifier is "prior to step 6 (aligning ECCS pumps to the recirc sump).

C – Plausible: Misconception of procedure notes. This distractor is partially correct, however #2 contains the note qualifier. See correct answer explanation above.

D – Plausible: Misconception of procedure notes. #3 is the only EP series procedure and may cause a common grouping error by the candidate.

Question Information

Topic	RG40020-N01				
User ID	RG40020-N01			**System ID**	2124947
Status	Active	**Point Value**	1.00	**Time (min)**	0

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwCA-0.0, Rev. 303, 1BwCA-0.1, Rev. 302, 1BwCA-1.3, Rev. 303, 1BwEP ES-1.3, Rev. 300		
Training Objective	T.CA1-06, T.CA2A-05		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets KA - question requires examinee knowledge of operational implications of EOP notes.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.4.20	Safety Function 8	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.3
Knowledge of the operational implications of EOP warnings, cautions, and notes. (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 74	ID: 2124948	Points: 1.00

Per BwAP 320-1, SHIFT STAFFING, which (if any) of the following EP Functions can be assigned concurrently to the same individual?

- Safe Shutdown
- Fire Brigade
- Shift Communicator

A. Fire Brigade and Shift Communicator

B. Fire Brigade and Safe Shutdown

C. Safe Shutdown and Shift Communicator

D. None

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 74

A – Plausible: Misconception of procedure note.

B – Plausible: Misconception of procedure note.

C – Plausible: Misconception of procedure note.

D – Correct: A note in BwAP 320-1 states " None of the following EP Functions can be assigned concurrently to the same individual. Specifically, a separate qualified individual is required on-shift for the following EP Functions:
- Emergency Director
- STA
- Safe Shutdown
- Fire Brigade
- Shift Communicator

Question Information

Topic	RG40026-N01				
User ID	RG40026-N01			System ID	2124948
Status	Active	Point Value	1.00	Time (min)	0

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

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwAP 320-1, Rev. 27		
Training Objective	T.AM05-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets KA - question requires examinee knowledge of facility protection requirements of fire brigade duties.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.4.26	Safety Function 8	Tier 3	Group	RO Imp: 3.1	SRO Imp: 3.6
Knowledge of facility protection requirements, including fire brigade and portable fire fighting equipment usage. (CFR: 41.10 / 43.5 / 45.12)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 75	ID: 2129333	Points: 1.00

In the field, a DEDICATED OPERATOR ACTION is a simple action that...

A. will maintain equipment AVAILABLE for PRA considerations.

B. will maintain equipment OPERABLE to reduce LCO time entries.

C. is a designated TIME CRITICAL ACTION during emergency procedures.

D. is a FLEX TIME SENSITIVE action during beyond design basis events.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 75

A – Correct: Per BwOP PRA-1, a Dedicated Operator Action is defined as: A single action or a few simple actions, performed by a dedicated operator, for the purpose of maintaining SSC availability for PRA concerns during emergency plant conditions.

B – Plausible: Misconception of purpose of designated operator. While reducing LCO entry times is a goal of the station operations, if a SSC is made inoperable by a field action, the LCO is entered.

C – Plausible: Misconception of purpose of designated operator. Time critical operator actions are listed in OP-BR-102-106, Attachment 1, but they are always applicable and aux operators are not designated for them.

D – Plausible: Misconception of purpose of designated operator. FLEX Time sensitive operator actions are listed in OP-BR-102-106, Attachment 2, but they are always applicable and aux operators are not designated for them.

Question Information

Topic	RG40035-N01				
User ID	RG40035-N01			System ID	2129333
Status	Active	Point Value	1.00	Time (min)	0

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

NRC Exams Only			
Question Type	New	Difficulty	

Technical Reference and Revision #	BwOP PRA-1 rev. 6
Training Objective	T.MC07-03
Previous Exam Use	None

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of local operator actions during an emergency and the operational effect of maintaining equipment available for PRA considerations.
SRO-Only Justification	N/A
Additional Information	None

K/A Reference(s)

P2.4.35	Safety Function 8	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.0
Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects. (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

2020 NRC Exam - RO
User (Sys) ID N/A (1537071)

Cross Reference Links

None

Question 76	ID: 2124966	Points: 1.00

- Unit 1 experienced a reactor trip and SI from full power due to a Pressurizer vapor space LOCA.
- The crew is currently performing 1BwEP ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION, step 13, CHECK IF CENT CHG PUMP(s) SHOULD BE REALIGNED TO NORMAL CHARGING.
- The SRO is determining the required subcooling from the table in step 13.

Which of the following are the parameters used to determine the required amount of subcooling in the RCS subcooling table?

A. Number of SI pumps running and Containment (normal or adverse).

B. Containment (normal or adverse) and RWST level.

C. Number of SI pumps running and Pressurizer level.

D. Pressurizer level and RWST level.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 76

A – Correct: Per table in 1BwEP ES-1.2, the criteria for determining required amount of subcooling are SI pumps running (any or none) and Containment (normal or adverse).

B – Plausible: RWST level is used in a similar table in 1BwCA-1.1.

C – Plausible: Pressurizer level criteria is used later in step 13 to determine whether or not to reduce ECCS flow, but not to determine required subcooling.

D – Plausible: Pressurizer level criteria is used later in step 13 to determine whether or not to reduce ECCS flow, but not to determine required subcooling. RWST level is used in a similar table in 1BwCA-1.1.

Question Information

Topic	SE10008-N02				
User ID	SE10008-N02			System ID	2124966
Status	Active	Point Value	1.00	Time (min)	3

Open or Closed Reference	CLOSED	Cognitive Level	MEMORY
Operator Discipline	LO-I	Operator Type	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwEP ES-1.2, Rev. 302		
Training Objective	T.EP02-10		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because it requires knowledge of the criteria for throttling (reducing by realigning CV pumps to normal charging) high pressure injection during a small break vapor space LOCA event.
SRO-Only Justification	The question is SRO ONLY because it requires specific detailed knowledge of the emergency procedure steps beyond the overall mitigation strategy.
Additional Information	None

K/A Reference(s)

APE.008.AA2.23	Safety Function 3	Tier 1	Group 1	RO Imp: 3.6	SRO Imp: 4.3
Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: (CFR: 43.5 / 45.13) Criteria for throttling high-pressure injection after a small LOCA					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 77	ID: 2124969	Points: 1.00

Given the following sequence of events:

- An RCS LOCA occurred on loop 1A.
- 1BwEP ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION, was in progress at step 1, when status tree monitoring identified a red path for Integrity due to 1A cold leg temperature and excessive cool down rate.
- The crew performed the actions of 1BwFR-P.1, RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK, and 1A loop temperature has stabilized.

Which of the following describes the procedure guidance that will be used for the LOCA?

Once 1A loop temperatures are stable, per 1BwFR-P.1, further RCS cooldown...

A. CANNOT commence until after a 1 hour soak. Subsequent cooldown must be <50°F in any 1 hour period.

B. CAN commence immediately. The maximum allowable cooldown must be <50°F in any 1 hour period.

C. CANNOT commence until after a 1 hour soak. Subsequent cooldown must be <100°F in any 1 hour period.

D. CAN commence immediately ONLY in the unaffected loops. The 1A loop temperature must remain stable for 1 hour.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 77

A – Correct: 1BwFR-P.1 requires a 1 hour soak after RCS temperature has stabilized and then restricts subsequent cooldown to 50°F/hr. The cooldown rate has exceeded the 100°F/hr rate because that was the criteria for a red path in integrity as given in the question stem.

B – Plausible: This would be correct if the candidate is not aware of the procedure restriction. However, RCS must soak for 1 hour prior to cooldown commencing.

C – Plausible: Cooldown limit is 50°F/hr cooldown rate after PTS limits violated. 200°F/hr cooldown is the normal pressurizer cooldown limit.

D – Plausible: 1BwFR-P.1 does not allow cooldown of unaffected loops. Mitigation strategy of other events such as SGTR perform loop specific actions, but it would not be appropriate for a PTS cooldown.

Question Information

Topic	SE10009-N02				
User ID	SE10009-N02			**System ID**	2124969
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwFR-P.1, Rev. 302		
Training Objective	3D.FR-05-B		
Previous Exam Use	2009 NRC exam		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of EOP mitigation strategies.
SRO-Only Justification	The question is SRO ONLY because it requires specific detailed knowledge of the emergency procedure steps beyond the overall mitigation strategy.
Additional Information	None

K/A Reference(s)

P2.4.6	Safety Function 3	Tier 3	Group	RO Imp: 3.7	SRO Imp: 4.7
Knowledge of EOP mitigation strategies. (CFR: 41.10 / 43.5 / 45.13)					
GE.4.0.EPE.009	Safety Function 3	Tier 1	Group 1	RO Imp:	SRO Imp:
Small Break LOCA					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 78	ID: 2124970	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- A malfunction of the pressurizer pressure control system caused 1RY455A, PZR PORV, to fail OPEN in auto.
- 15 seconds after failing open, the RO places the 1RY455A C/S to CLOSE and the PORV closes.
- PZR pressure dropped to 2050 psig while the PORV was open, and now is STABLE.

While 1RY455A was OPEN and PZR pressure was dropping, actual charging flow ____1____.

- After evaluating the PZR pressure trend, the SRO determines excessive leak by from 1RY455A and directs the RO to CLOSE 1RY8000A, PORV ISOL VLV.
- When 1RY8000A is closed, PZR pressure slowly RISES back to NOP and PORV temperature is slowly dropping.

CURRENTLY, 1RY455A is INOPERABLE due to _____2_____.

A. 1. dropped
2. 1RY8000A being CLOSED

B. 1. dropped
2. 1RY455A seat leakage

C. 1. rose
2. 1RY8000A being CLOSED

D. 1. rose
2. 1RY455A seat leakage

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 78

A – Plausible: In a pressurized (non-saturated system), the lower system pressure would reduce back pressure and level would initially rise, then drop as the level control system responded to program level being high. See explanation in correct answer for part 2 answer.

B – Plausible: In a pressurized (non-saturated system), the lower system pressure would reduce back pressure and level would initially rise, then drop as the level control system responded to program level being high.

C – Plausible: See explanation in correct answer for part 2 answer.

D – Correct: Initially when a PZR PORV fails open during steady state conditions, the drop in PZR pressure causes an actual PZR level drop (below program level) by liquid flashing to steam inside the pressurizer (saturated system). This causes 1CV121 to open and charging flow to rise. Tech Spec bases 3.4.11 states: *Although typically open to allow PORV operation, the block valves may be OPERABLE*

when closed to isolate the flow path of an inoperable PORV that is capable of being manually cycled (e.g. as in the case of excessive PORV leakage). Similarly, isolation of an OPERABLE PORV does not render that PORV or block valve inoperable provided the relief function remains available with manual action. An OPERABLE PORV is required to be capable of manually opening and closing, and not experiencing excessive seat leakage. Therefore, the PORV is inoperable due to the seat leakage.

Question Information

Topic	SE10027-N01				
User ID	SE10027-N01			**System ID**	2124970
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Tech Spec 3.4.11 bases		
Training Objective	S.RY1-26-D		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee ability to determine charging flow during a PZR pressure control malfunction.
SRO-Only Justification	The question is SRO ONLY because it requires specific knowledge of Tech Spec 3.4.11 bases.
Additional Information	None

K/A Reference(s)

APE.027.AA2.07	Safety Function 3	Tier 1	Group 1	RO Imp: 3.1	SRO Imp: 3.1
Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: (CFR: 43.5 / 45.13) Makeup flow indication					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 79	ID: 2125011	Points: 1.00

- Unit 1 experienced a fault inside containment on the 1A S/G from 100% power.
- The reactor was manually tripped and appropriate ESF actuations initiated.
- ALL RCPs were tripped.
- The crew has completed 1BwEP-2, FAULTED STEAM GENERATOR ISOLATION.
- The 1A CENT CHG pump was stopped at step 4 of 1BwEP ES-1.1, SI TERMINATION.
- The crew is performing step 5, CHECK RCS PRESSURE.

The following indications are noted:

- Annunciator 1-9-E1, CHG PUMP ISOLATION VALVE CLOSED, has CLEARED.
- Subsequently, Bypass Permissive P-11 CLEARED.
- 1B, 1C & 1D S/G pressures are all 740 PSIG and STABLE.

In response to the latest indications, the NEXT procedure action the SRO will take is…

A. transition to 1BwEP ES-1.2, POST LOCA COOLDOWN AND DEPRESSURIZATION.

B. transition back to 1BwEP-2, FAULTED STEAM GENERATOR ISOLATION.

C. continue in 1BwEP ES-1.1, SI TERMINATION.

D. transition to 1BwEP ES-0.2, NATURAL CIRCULATION COOLDOWN.

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 79

A – Plausible: Transition to 1BwEP ES-1.2 is plausible and contained in the RNO column of 1BwEP ES-1.1, step 5, if the examinee misdiagnoses the RCS pressure trend.

B – Plausible: Transition to 1BwEP-2 is plausible and contained in the Operator Action Summary of 1BwEP ES-1.1 if another steam generator has an uncontrolled pressure drop. Given the intact steam generator pressures are well below normal post trip pressures, the examinee may assume one or more faulted steam generators. However, the examinee needs to understand that intact steam generators saturation pressure will drop considerably during the cooldown caused by the faulted generator.

C – Correct: Remain in 1BwEP ES-1.1, SI TERMINATION. Step 5 of 1BwEP ES-1.1 checks for RCS pressure trend and if it is trending up, the procedure directs continuing with SI termination.

D – Plausible: Transition to 1BwEP ES-0.2 is plausible because all RCPs are tripped in the question stem and will be the eventual procedure destination. However, 1BwEP ES-0.2 does not contain steps to terminate SI and therefore a procedure transition to 1BwEP ES-0.2 at this time would be incorrect.

Question Information

Topic	SE10040-C01				
User ID	SE10040-C01			**System ID**	2125011
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwEP ES-1.1, Rev. 303		
Training Objective	T.EP02-01.		
Previous Exam Use	2013 NRC exam		

References Provided	None
K/A Justification	Meets K/A, examinee must assess the order and meaning of annunciator 1-9-E1 and P-11 clearing and determine whether this is consistent with the expected progression of the steam fault event, or not.
SRO-Only Justification	SRO ONLY because it requires assessment of plant conditions and decision at procedural transition step.
Additional Information	None

K/A Reference(s)

P2.4.45	Safety Function 3	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)					
GE.4.0.APE.040	Safety Function 4	Tier 1	Group 1	RO Imp:	SRO Imp:
Steam Line Rupture					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 80	ID: 2125027	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- Annunciator 1-21-E7, 125V DC BATT CHGR FD BRKR TRIP, alarms.
- NO other annunciators are currently in alarm.

1. In response to the latest indications, the SRO will...

2. As a result of cross tying the Unit 1 DC bus to Unit 2, an additional annunciator will alarm on...

A. 1. enter 1BwOA ELEC-1, LOSS OF DC BUS, trip the reactor and cross tie DC Bus 111 to DC Bus 211 when directed in 1BwOA ELEC-1.

2. Unit 1 ONLY.

B. 1. enter 1BwOA ELEC-1, LOSS OF DC BUS, trip the reactor and cross tie DC Bus 111 to DC Bus 211 when directed in 1BwOA ELEC-1.

2. BOTH Units.

C. 1. cross tie DC Bus 111 to DC Bus 211 per BwOP DC-7-111, DC ESF BUS 111 CROSS TIE/RESTORATION, as soon as possible.

2. Unit 1 ONLY.

D. 1. cross tie DC Bus 111 to DC Bus 211 per BwOP DC-7-111, DC ESF BUS 111 CROSS TIE/RESTORATION, as soon as possible.

2. BOTH Units.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 80

A – Plausible: Misconception of the DC system operation. Plausible distractor if the candidate diagnosed the DC bus as de-energized and if candidate expected alarm on only the affected unit.

B – Plausible: Misconception of the DC system operation. Plausible distractor if the candidate diagnosed the DC bus as de-energized.

C – Plausible: Misconception of the DC system operation. Plausible distractor if the candidate expected alarm on only the affected unit.

D – Correct: Alarm 1-21-D7 by itself indicates a tripped feed breaker to the DC bus 111 charger. De-energizing the charger will cause the battery to provide voltage to the DC bus. Therefore, there is no need to trip the reactor immediately as the DC bus did not lose power (only the normal power supply lost function). When the DC busses are cross tied between units, a cross tie breaker must be closed on both

units (and the corresponding alarm) before the cross tie is complete.

Question Information

Topic	SE10058-N02				
User ID	SE10058-N02			**System ID**	2125027
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwAR 1-21-E7, Rev, 5E3, BwOP DC-7-111, Rev. 16, BwAR 1/2-21-D7, Rev. 5E3		
Training Objective	S.DC1-09		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, examinee must have ability to interpret an alarm and what it means as a loss of a DC bus support component. Also, knowledge of the indications upon cross-tying (substitute power) is complete is required.
SRO-Only Justification	SRO ONLY because it requires assessment of plant conditions and selection of procedure to mitigate and recover from the event.
Additional Information	None

K/A Reference(s)

APE.058.AA2.01	Safety Function 6	Tier 1	Group 1	RO Imp: 3.7	SRO Imp: 4.1
Ability to determine and interpret the following as they apply to the Loss of DC Power: (CFR: 43.5 / 45.13) That a loss of dc power has occurred; verification that substitute power sources have come on line					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 81	ID: 2125030	Points: 1.00

Unit 1 reactor was at full power.

- 1A SX pump is OOS.
- A reactor trip occurred and 1BwEP-0, REACTOR TRIP OR SI, was entered.
- A Loss of All AC Power occurred two minutes later and BOTH D/Gs did NOT automatically start.
- 1A D/G was manually started at step 5 of 1BwCA-0.0, LOSS OF ALL AC POWER.
- 1A D/G output breaker automatically closed and re-energized bus 141.
- 1B D/G could NOT be started.
- The RO reports 1SX169A, DG 1A SX ISOL VLV, is CLOSED and will NOT open.

The SRO will…

A. immediately transition to 1BwEP-0, then crosstie Unit 2 SX to Unit 1 SX by concurrently performing 1BwOA PRI-8, ESSENTIAL SERVICE WATER MALFUNCTION.

B. remain in 1BwCA-0.0, perform steps to cross tie bus 142 to bus 242, and dispatch an operator to emergency stop the D/Gs.

C. remain in 1BwCA-0.0, and immediately enter and perform 1BwOA PRI-8, ESSENTIAL SERVICE WATER MALFUNCTION, to crosstie SX between the units.

D. immediately transition to 1BwEP-0, then crosstie bus 142 from bus 242 by concurrently performing 1BwOA ELEC-3, LOSS OF 4KV ESF BUS.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 81

A – Plausible: Although an ESF bus is re-energized, this is improper transition from 1BwCA-0.0 and would leave the 1A DG running without cooling for an extended period of time.

B – Correct: Prior to transitioning out of 1BwCA-0.0 in step 5, the procedure checks to ensure DG support systems are energized. In this case the 1A DG did not have SX pp support, so transitioning out of CA-0.0 is incorrect transition. CA-0.0 continues to cross tie ESF buses with opposite unit according to which train has DG support equipment available. In this case, bus 142 has SX pump available so it will be cross tied to unit 2 in CA-0.0. The 1A DG is running without cooling so it is immediately stopped. Further action in 1BwCA 0.0 will cross tie the ESF busses with U-2 and get the 1B SX pump running to support DG cooling on U-1.

C – Plausible: This would leave the 1A DG running without cooling for an extended period of time.

D – Plausible: Although an ESF bus is re-energized, this is improper transition from 1BwCA-0.0 and would leave the 1A DG running without cooling for an extended period of time.

Question Information

Topic	SS20076-C02				
User ID	SS20076-C02			**System ID**	2125030
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwCA-0.0 Rev. 303		
Training Objective	7D.CA-001-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets the KA by requiring candidate knowledge of the function of major components during a loss of service water event.
SRO-Only Justification	SRO ONLY because it requires assessment of plant conditions and selection of procedure (transition or flow path) to mitigate and recover from the event.
Additional Information	None

K/A Reference(s)

P2.1.28	Safety Function 6	Tier 3	Group	RO Imp: 4.1	SRO Imp: 4.1
Knowledge of the purpose and function of major system components and controls. (CFR: 41.7)					
GE.4.0.APE.062	Safety Function 4	Tier 1	Group 1	RO Imp:	SRO Imp:
Loss of Nuclear Service Water					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 82	ID: 2125032	Points: 1.00

- A Unit 1 reactor trip and SI has occurred from 100% power.
- Just prior to the reactor trip, bus 141 faulted.
- The crew is currently performing 1BwEP-0, REACTOR TRIP OR SI, step 8, VERIFY CNMT ISOLATION PHASE A.
- Group 3 CNMT Isol monitor lights are lit EXCEPT the following 4 lights are DARK:

  - WO006A (1A + 1C CHILL WTR INLET CNMT ISOL VLV)
  - WO020A (1A + 1C CHILL WTR OUTLET CNMT ISOL VLV)
  - WO056B (1B + 1D CHILL WTR OUTLET CNMT ISOL VLV)
  - CV8100 (SEAL WTR RTN CNMT ISOL VLV)

- The SRO then directs the RO to perform and/or dispatch EOs to perform the step 8 RNO actions.

When the step 8 RNO actions are COMPLETE, how many Group 3 CNMT ISOL monitor lights will still be DARK?

A. 0

B. 1

C. 3

D. 4

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 82

A – Plausible: Misconception that all valves will be locally closed. If the candidate believes that all open valves will be locally closed and does not account for valve inside containment.

B – Correct: With bus 141 de-energized, the 4 valves listed will not have power to close on a Phase A signal. The step 8 RNO actions for Phase A Isol valves not closed is: 1) Manually actuate Phase A (no effect without power) 2) Manually close valves (from MCR) (no effect without power) 3) Locally close the valves located outside containment.
3 of the 4 valves are located outside containment (exception is 1WO056B), Therefore, when the RNO actions are complete, 1 valve will still be open (i.e. monitor light dark).

C – Plausible: Misconception that only the CV valve (from contaminated system) will be locally closed. A logical misconception that only contaminated systems will be addressed locally may cause the candidate to choose this distractor.

D – Plausible: Misconception that no valves will be locally closed. There are multiple RNO column actions in the emergency procedures that only require MCR actions for valves that do not respond to automatic signals. Applying that logic to this scenario would cause candidate to choose this distractor.

Question Information

Topic	SE20069-N01				
User ID	SE20069-N01			**System ID**	2125032
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
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.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	1BwEP-0, Rev. 304		
Training Objective	T.EP01-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets the KA by requiring candidate knowledge of how emergency procedure restores containment integrity.
SRO-Only Justification	SRO ONLY because question requires detailed emergency procedure knowledge (step 8 RNO action to locally close valves that are outside containment) beyond the overall mitigation strategy.
Additional Information	None

K/A Reference(s)

APE.069.AA2.02	Safety Function 5	Tier 1	Group 2	RO Imp: 3.9	SRO Imp: 4.4
Ability to determine and interpret the following as they apply to the Loss of Containment Integrity: (CFR: 43.5 / 45.13) Verification of automatic and manual means of restoring integrity					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 83	ID: 2125067	Points: 1.00

- An inadequate core cooling event is in progress on Unit 1.
- The crew is performing 1BwFR-C.1, RESPONSE TO INADEQUATE CORE COOLING.
- At step 3, CHECK RCP SUPPORT CONDITIONS, support conditions were NOT established due to no seal injection flow and high RCP leakoff temperatures.
- Continued attempts to re-establish RCP support conditions have been UNSUCCESSFUL so far.
- Currently, the crew is at step 16, CHECK IF RCPs SHOULD BE STARTED.
- ALL RCPs are shutdown and the RCS loops are available.
- CETCs are 1235°F and slowly rising.

The SRO will direct the crew to...

A. immediately start an RCP regardless of the support conditions.

B. remain at step 16 until support conditions are established, then start an RCP.

C. start an RCP per 1BwOA ESP-1, RCP START DURING ABNORMAL CONDITIONS, because RCP support conditions are LESS restrictive in 1BwOA ESP-1.

D. start an RCP per 1BwOA ESP-1, RCP START DURING ABNORMAL CONDITIONS, because RCP support conditions are MORE restrictive in 1BwOA ESP-1.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 83

A – Correct: Note prior to step 16 reads "Normal conditions are desired but NOT required for starting RCPs". Operational implication is to start an RCP regardless of support conditions. RCP is started immediately to provide temporary cooling to avoid core damage while some form of RCS injection flow is established.

B – Plausible: Emergency procedures often require specific plant conditions to be met prior to continuing on in the procedure. However, as explained in the correct answer explanation, in the given situation a RCP is immediately started regardless of support conditions.

C – Plausible: As explained in the correct answer explanation, 1BwOA ESP-1 is not used in this specific situation as it would delay an RCP start when the action is urgent. Plausible because when an RCP is started in an EOP, it is typically done IAW 1BwOA ESP-1.

D – Plausible: As explained in the correct answer explanation, 1BwOA ESP-1 is not used in this specific situation as it would delay an RCP start when the action is urgent. Plausible because when an RCP is started in an EOP, it is typically done IAW 1BwOA ESP-1.

Question Information

Topic	SE20074-N02				
User ID	SE20074-N02			**System ID**	2125067
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwFR-C.1, Rev. 301, 1BwOA ESP-1, Rev. 103		
Training Objective	7D.FR-002-A		
Previous Exam Use	2009 NRC exam		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of how abnormal operating procedures are used in conjunction with EOPs. The entry condition of 1BwOA ESP-1 is "when directed in the EOPs". Typically, when an RCP is started in an EOP, it is done IAW 1BwOA ESP-1, however 1BwFR-C.1 is an exception due to the urgency of restoring core cooling. Although the AOP is not used in this situation, knowledge of when, and when not to use an AOP to perform an action in similar situations meets the K/A.
SRO-Only Justification	The question is SRO level because it requires more detailed procedure knowledge than the overall mitigation strategy. Also, in the accident conditions described, the SRO would be directing the crew operations with a procedure step critical to reactor safety, when the action would in all likeliness "sacrifice" the RCP.
Additional Information	None

K/A Reference(s)

P2.4.8	Safety Function 5	Tier 3	Group	RO Imp: 3.8	SRO Imp: 4.5
Knowledge of how abnormal operating procedures are used in conjunction with EOPs. (CFR: 41.10 / 43.5 / 45.13)					
GE.4.0.EPE.074	Safety Function 4	Tier 1	Group 2	RO Imp:	SRO Imp:
Inadequate Core Cooling					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 84	ID: 2125068	Points: 1.00

- A reactor trip and Safety Injection have occurred on Unit 1.
- The crew was performing actions of 1BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT.
- Due to conflicting indications, the crew entered 1BwEP ES-0.0, REDIAGNOSIS.
- While performing 1BwEP ES-0.0, the crew determines that there is a rising trend on secondary plant radiation monitors AND one S/G level is rising faster than the other three with Auxiliary Feedwater flow being equal to all S/Gs.

Which one of the following describes how the SRO will transition from 1BwEP ES-0.0, REDIAGNOSIS to the correct procedure?

A. Return to 1BwEP-0 diagnostic steps to verify indications, then transition to 1BwEP-3.

B. Go directly to 1BwEP-3 or 1BwCA-3 series procedure.

C. Return to 1BwEP-1 step in effect and use the Operator Action Summary page for transition to 1BwEP-3.

D. Use Heat Sink status tree for transition to 1BwFR-H.3, RESPONSE TO STEAM GENERATOR HIGH LEVEL.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 84

A – Plausible: Several emergency procedures transition back to 1BwEP-0 when previously undiagnosed conditions require safety injection to mitigate the condition. However, there is no transition back to 1BwEP-0 from 1BwEP ES-0.0.

B – Correct: 1BwEP ES-0.0, step 4 directs transition to 1BwEP-3 or 1BwCA-3 series procedures.

C – Plausible: Transition back to 1BwEP-1 from 1BwEP ES-0.0 is required if NO indication of a SG tube rupture is noted.

D – Plausible: 1BwFR-H.3 is a yellow path for high SG level but yellow paths do not require immediate operator action. In this case, the rising SG level will be mitigated by actions of 1BwEP-3.

Question Information

Topic	SE1WE01-N01				
User ID	SE1WE01-N01			**System ID**	2125068
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwEP ES-0.0 Rev. 300		
Training Objective	7D.EP-001-B		
Previous Exam Use	2009 NRC exam		

References Provided	None
K/A Justification	The question is SRO level because it requires assessment of plant conditions and selection of the proper procedure flowpath.
SRO-Only Justification	The question meets the K/A, requires examinee ability to adhere to appropriate procedure transition during performance of Rediagnosis. Although operating within the guidelines of the WOG based emergency response guidelines, (EOPs) may direct actions that violate tech specs, the optimal end state of the EOPs is minimizing rad releases and equipment damage with stable plant conditions, which is consistent with operation within the facility license.
Additional Information	None

K/A Reference(s)

4.5.E01.EA2.2	Safety Function 3	Tier 1	Group 2	RO Imp: 3.3	SRO Imp: 3.9
Ability to determine and interpret the following as they apply to the (Reactor Trip or Safety Injection Rediagnosis) (CFR: 43.5 / 45.13) Adherence to appropriate procedures and operation within the limitations in the facilitys license and amendments.					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 85	ID: 2125086	Points: 1.00

- A LOCA has occurred on Unit 2 with the following SPDS parameters displayed at the times indicated:

TIME	CNMT Pressure	CNMT Radiation
1000	3.4 psig	5.5 E4 R/hr
1005	4.8 psig	1.1 E5 R/hr
1010	8.2 psig	6.2 E5 R/hr
1020	2.0 psig	4.5 E4 R/hr

- The crew has transitioned from 2BwEP-0, REACTOR TRIP OR SI, and is currently performing 2BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT.

Which of the following are the MINIMUM Unit 2 S/G levels that are directed in the EOPs, at the given times?

	1000	1005	1010	1020
A.	10%	31%	31%	10%
B.	10%	31%	31%	31%
C.	14%	34%	34%	14%
D.	14%	34%	34%	34%

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 85

A – Plausible: 10% and 31% are the Unit 1 minimum values. 10% is a Unit 1 minimum value for normal containment and misconception that minimum values return to normal containment values when rad levels drop below threshold.

B – Plausible: 10% and 31% are the Unit 1 minimum values.

C – Plausible: 14% is a Unit 2 minimum value for normal containment and misconception that minimum values return to normal containment values when rad levels drop below threshold.

D – Correct: Unit 2 minimum SG levels to be maintained in 2BwEP-0 and 2BwEP-1 are 14% (normal containment conditions) and 34% (adverse containment conditions). Adverse CNMT conditions are defined as pressure above 5 psig or rad levels > 1E5 R/hr. The pressure component portion will not permanently impact the instrumentation and normal value may resume when pressure drops below 5 psig. The radiation component may cause permanent damage to the instrumentation and requires an engineering evaluation before normal values can be resumed regardless of how low rad levels drop after reaching the adverse limit. At 1005, CNMT reached rad levels for adverse CNMT therefore CNMT cannot be declared normal until an engineering analysis is performed.

Question Information

Topic	SE2WE16-N01				
User ID	SE2WE16-N01			**System ID**	2125086
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Modified from RG40017-C01	**Difficulty**	
Technical Reference and Revision #	2BwEP-0, Rev. 303, 2BwEP-1, Rev. 301		
Training Objective	T.EP02-02.d		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because it requires candidate ability to recognize trends of high containment rad levels with the given SPDS parameters (appropriate reference material).
SRO-Only Justification	The question is SRO level because the candidate must be aware that containment being adverse can change back to normal containment based upon pressure dropping below 5 psig. However, once containment rads reaches 1E5, an engineering evaluation is required to declare normal containment. This info is not available in the procedure notes or CAS.
Additional Information	None

K/A Reference(s)

P2.4.47	Safety Function 3	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.2
Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. (CFR: 41.10 / 43.5 / 45.12)					
GE.4.5.E16	Safety Function 9	Tier 1	Group 2	RO Imp:	SRO Imp:
High Containment Radiation					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 86	ID: 2125087	Points: 1.00

- A Unit 1 Reactor Trip occurred with a loss of offsite and onsite power.
- 1BwCA-0.0, LOSS ALL AC POWER, is in progress.
- Safeguards loads have been placed in PULL OUT.
- All Reactor Coolant Pump #1 seals have FAILED.
- RCS pressure is 850 psig and LOWERING.
- Average Core Exit Thermocouple temperature is 530°F and LOWERING.
- Pressurizer level is 8% and LOWERING.
- Containment pressure is 0.3 psig and stable.

Current conditions:
- Power has been restored to Bus 141.
- 1A SX Pump has been started.
- The crew is at step 38 of 1BwCA-0.0, Attachment B, SELECT PROPER RECOVERY PROCEDURE.

The SRO will transition to...

A. 1BwCA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, and an RCP WILL be restarted during performance of 1BwCA-0.1.

B. 1BwCA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, and an RCP will NOT be restarted during performance of 1BwCA-0.1.

C. 1BwCA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, and an RCP WILL be restarted during performance of 1BwCA-0.2.

D. 1BwCA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, and an RCP will NOT be restarted during performance of 1BwCA-0.2.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 86

A – Plausible: Transition to 1BwCA-0.1 is incorrect due to the need for SI/unacceptable subcooling. Candidate may choose this distractor if inadequate subcooling is not recognized.

B – Plausible: Transition to 1BwCA-0.1 is incorrect due to the need for SI/unacceptable subcooling. Candidate may choose this distractor if inadequate subcooling is not recognized.

C – Plausible: Several emergency procedures include steps to restart an RCP as a mitigation strategy. However, in 1BwCA-0.2 an RCP will not be restarted.

D – Correct: Saturation pressure for 528°F is 855 psig, so subcooling is NOT acceptable (the CETC given is even greater than 528°F and pressure is not high enough for subcooling at 528°F). This requires entry into 1BwCA-0.2 to start an SI pump and restore subcooling, but RCPs will not be restarted.

Question Information

Topic	SS10003-N01				
User ID	SS10003-N01			**System ID**	2125087
Status	Active	**Point Value**	1.00	**Time (min)**	4

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Modified from SS10003-001	**Difficulty**	
Technical Reference and Revision #	1BwCA-0.0, Rev. 303		
Training Objective	T.CA1-05		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A requiring candidate ability to predict impact on RCPs and select of procedure to mitigate consequences.
SRO-Only Justification	SRO only because question requires candidate to assess plant conditions and select procedure to mitigate conditions.
Additional Information	None

K/A Reference(s)

SF4.003.A2.01	Safety Function 4	Tier 2	Group 1	RO Imp: 3.5	SRO Imp: 3.9
Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR: 41.5 / 43.5/ 45.3 / 45/13) Problems with RCP seals, especially rates of seal leak-off					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 87	ID: 2130037	Points: 1.00

Unit 1 is at 100% power, normally aligned with the following exception.
- 1B CV pump is danger tagged OOS.

The following event occurs:
- The SX header supply to 1A train ECCS pumps ruptures and valve 1SX013A, SX SUP TO TRAIN A HXs, is locally closed, isolating SX to ALL the 1A train ECCS pumps AND cubicle coolers.
- The crew is performing 1BwOA PRI-8, ESSENTIAL SERVICE WATER MALFUNCTION.
- An EO is dispatched to align fire protection (FP) to the 1A CV pump oil coolers, but has NOT yet completed the task.
- At 1131, the EO reports 1A CV Pp Gear drive oil temp is 108°F and RISING at 5°F/min.

The 1A CV pump bearing temperatures on the Plant Process Computer are as shown:
(Assume the rates of temperature rise remain constant unless cooling is restored.)

(1) If FP is NOT aligned to the 1A CV pump oil coolers, 1A CV pump temperatures will initially reach a trip limit at...

(2) If FP IS aligned to the 1A CV pump oil coolers prior to reaching a pump trip limit AND the plant remains in that configuration, per Tech Specs the 1A CV pump will be considered...

A. (1) 1135.
(2) OPERABLE with no loss of safety function.

B. (1) 1135.
(2) INOPERABLE and a loss of safety function exists.

C. (1) 1145.
(2) OPERABLE with no loss of safety function.

D. (1) 1145.
(2) INOPERABLE and a loss of safety function exists.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 87

A – Plausible: 1A CV pump would be considered inoperable due to loss of safety function. Operable is plausible because the pump has cooling restored (but not from a safety related support system).

B – Correct: For part (1), when calculating time to trip criteria for pump temps formula is (trip temp - current temp)/rate of rise.
For highest bearing temp (outbd): (205°F - 172.4°F) / 10.12°F/min = 3.22 min.
For gear drive oil temp: (175°F - 107.5°F) / 5°F/min = 13.5 min.
Shortest time is 1131:28 + 3.22 min. = approx 1135
For part (2), per the safety function determination program, SX is a support system of ECCS (CV pump). A supported SSC (CV pump) is inoperable when the support system (SX) is not capable of performing its intended function. Although FP would supply cooling to the CV pumps during normal operations, it is a non-safety related system that can not be relied upon during a DBA, therefore the 1A CV pump is considered inoperable.

C – Plausible: Wrong time in part (1). 1145 is the approx time the gear drive oil temp will reach 175°F, and the inboard bearing temp will reach 205°F. Also wrong operability determination in part (2). Operable is plausible because the pump has cooling restored (but not from a safety related support system).

D – Plausible: Wrong time in part (1).

Question Information

Topic	SE10062-N02				
User ID	SE10062-N02			**System ID**	2130037
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.2 Facility operating limitations in the technical specifications and their bases.		

NRC Exams Only			
Question Type	Modified from SE10062-N01 which was used on 2009 NRC exam	**Difficulty**	
Technical Reference and Revision #	1BwOA PRI-8, Rev. 107, Table A, TRM appendix "O" SFDP		
Training Objective	7E.TS-010-D		
Previous Exam Use	None		

References Provided	1BwOA PRI-8, Table A and 1A CV Pump PPC bearing temperatures trend page.

K/A Justification	The question meets the K/A, requires examinee ability to evaluate component status using plant computer. CV pump bearing temperatures are monitored in the MCR on the plant computer.
SRO-Only Justification	The question is SRO level because it requires the examinee to make an operability determination of the CV pump which is an SRO function.
Additional Information	None

K/A Reference(s)

GS.3.0.SF3.006	Safety Function 3	Tier 2	Group 1	RO Imp:	SRO Imp:
Emergency Core Cooling System (ECCS)					
P2.1.19	Safety Function 3	Tier 3	Group	RO Imp: 3.9	SRO Imp: 3.8
Ability to use plant computers to evaluate system or component status. (CFR: 41.10 / 45.12)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 88	ID: 2125093	Points: 1.00

Unit 1 was at 100% power, normally aligned EXCEPT:

- The 1B Letdown Heat Exchanger is OOS for tube inspection.

The following then occurs:

- The control power fuse for 1CV8401A, LTDWN TO LTDWN HX 1A ISOL VLV, blows due to a short circuit.

NEITHER the 1B Letdown HX, NOR the 1CV8401A fuse can be repaired in a timely manner.

With the above conditions, 1TK-0130, LTDWN HX OUT TEMP CONTROLLER, OUT demand will ___1___ and the SRO will restore stable pressurizer level by ___2___.

A. 1. not change
2. establishing EXCESS letdown with BwOP CV-15, EXCESS LETDOWN OPERATIONS

B. 1. not change
2. re-establishing normal letdown with BwOP CV-27, CV VALVE BYPASS OPERATIONS

C. 1. lower
2. establishing EXCESS letdown with BwOP CV-15, EXCESS LETDOWN OPERATIONS

D. 1. lower
2. re-establishing normal letdown with BwOP CV-27, CV VALVE BYPASS OPERATIONS

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 88

A – Plausible: Would be correct if 1CV8401A failed open. Misconception of system operation and failure mode.

B – Plausible: BwOP CV-27 contains steps for manually bypassing several valves in the CVCS system, however 1CV8401A is not included in the procedure.

C – Correct: When 1CV8401A control power fuse blows, the valve will fail closed, thus isolating letdown. This will cause the temperature controller 1TK-0130 output demand to lower due to no letdown flow. With the 1B letdown heat exchanger unavailable, the only way to maintain stable pressurizer level is to re-establish letdown through the 1A letdown heat exchanger (distractor option) or minimize charging and align excess letdown per BwOP CV-15.

D – Plausible: BwOP CV-27 contains steps for manually bypassing several valves in the CVCS system, however, 1CV8401A is not included in the procedure.

Question Information

Topic	SS10008-N01				
User ID	SS10008-N01			**System ID**	2125093
Status	Active	**Point Value**	1.00	**Time (min)**	4

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwOP CV-15, Rev. 17, BwOP CV-27, Rev. 5		
Training Objective	S.CV1-16-C		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A requiring candidate ability to predict impact on CCWS and selection of procedure to mitigate consequences.
SRO-Only Justification	SRO only because question requires candidate to assess plant conditions and select procedure to mitigate conditions.
Additional Information	None

K/A Reference(s)

SF8.008.A2.08	Safety Function 8	Tier 2	Group 1	RO Imp: 2.5	SRO Imp: 2.7*
Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, con- trol, or mitigate the consequences of those malfunc- tions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.13) Effects of shutting (automatically or otherwise) the isolation valves of the letdown cooler					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 89	ID: 2125123	Points: 1.00

Both units are at 100% power, normally aligned.

- An engineering evaluation resulted in ALL 4 station emergency diesel generators (D/Gs) being declared INOPERABLE simultaneously due to a defective part.
- Replacement parts were available and quickly installed.
- In order to declare the D/Gs operable, a 1 hour surveillance loaded run is required for each D/G.
- Both units are preparing to ramp down as a contingency for Tech Spec action compliance.
- The OCC has instructed the SM to schedule the surveillance runs for the most expeditious completion that does NOT violate station procedures and/or commitments.

The SM will direct the crew to run...

A. ONE STATION D/G at a time (i.e. all 4 D/Gs in series).

B. ONE UNIT D/G at a time (i.e. 1A and 2A D/Gs simultaneously, then 1B and 2B D/Gs simultaneously).

C. TWO UNIT D/Gs at a time on ONE unit (i.e. 1A and 1B D/Gs simultaneously, then 2A and 2B D/Gs simultaneously).

D. ALL 4 STATION D/Gs simultaneously.

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 89

A – Plausible: Misconception of station commitment. This method would follow the Station Commitment, but would not be the most expeditious.

B – Correct: Station Commitment 020-251-85-006 referenced in BwOP DG-11, states: *Only one Diesel Generator per Unit is to be paralleled to the offsite source for a load test at any one time. This prevents potential grid faults from damaging more than one DG.*

C – Plausible: Misconception of station commitment. This method would run two DGs at a time (as correct answer does), but does not follow the Station Commitment.

D – Plausible: Misconception of station commitment. This would be the most expeditious method to complete the DG surveillances, but does not follow the Station Commitment.

Question Information

Topic	SS10064-N02				
User ID	SS10064-N02			**System ID**	2125123
Status	Active	**Point Value**	1.00	**Time (min)**	4

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	Station Commitment 020-251-85-006, BwOP DG-11, Rev. 51		
Training Objective	S.DG1-04		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A requiring candidate ability to predict impact of running DGs in surveillance mode (parallel with grid) and using procedures and station commitment to control the evolutions.
SRO-Only Justification	SRO only because scheduling emergent work is an SRO function.
Additional Information	None

K/A Reference(s)

SF6.064.A2.03	Safety Function 6	Tier 2	Group 1	RO Imp: 3.1	SRO Imp: 3.1
Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.13) Parallel operation of ED/Gs					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 90	ID: 2125125	Points: 1.00

- Intermittent RMS alarms are coming in and clearing on the 0PR05J, TB FIRE OIL SUMP rad monitor.
- The SRO wants to check the instrument rad levels against the alarm setpoints.

The SRO will find the alarm setpoint _____1_____.

- After troubleshooting 0PR05J, it is determined the rad monitor is INOPERABLE.

As a result of the 0PR05J inoperability, the rad monitor interlock functions will be bypassed per direction in _____2_____.

A. 1. in the BwAR procedure
2. 0BwOS RETS 2.1-1a, LIQUID EFFLUENT MONITORING

B. 1. in the BwAR procedure
2. TRM APPENDIX D, RADIOACTIVE EFFLUENTS CONTROL PROGRAM

C. 1. on the RMS Trend screen
2. 0BwOS RETS 2.1-1a, LIQUID EFFLUENT MONITORING

D. 1. on the RMS Trend screen
2. TRM APPENDIX D, RADIOACTIVE EFFLUENTS CONTROL PROGRAM

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 90

A – Plausible: Rad monitor alarm setpoints are found in the RM-80 database file or on the RMS Trend screen (not in the annunciator response procedure). This is a valid distractor because most alarm setpoints are listed in the associated BwAR.

B – Plausible: Rad monitor alarm setpoints are found in the RM-80 database file or on the RMS Trend screen (not in the annunciator response procedure). This is a valid distractor because most alarm setpoints are listed in the associated BwAR. TRM APPENDIX D, provides controls for radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable, but not the steps for bypassing 0PR05J. This is a valid distractor because it contains other information for Rad Monitor controls.

C – Correct: Rad monitor alarm setpoints are found in the RM-80 database file or on the RMS Trend screen (not in the annunciator response procedure). A subsequent operator action in the annunciator response procedure is to CONSULT 0BwOS RETS 2.1-1a. The steps for bypassing the 0PR05J, which consists of taking a control switch on the 0PL41JA, Radwaste Control Room Panel, from "normal" to "bypass" is in 0BwOS RETS 2.1-1a.

D – Plausible: TRM APPENDIX D, provides controls for radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable, but not the steps for bypassing 0PR05J. This is a valid distractor because it contains other information for Rad

Monitor controls.

Question Information

Topic	SS10073-N01				
User ID	SS10073-N01			**System ID**	2125125
Status	Active	**Point Value**	1.00	**Time (min)**	4

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	BwAR 1-0PR05J, Rev. 104, 0BwOS RETS 2.1-1a, Rev. 12		
Training Objective	S.AR1-11		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A requiring candidate ability to verify system alarm setpoint (know where to find them) and operate controls in the alarm response manual (identify which procedure contain steps to operate the controls).
SRO-Only Justification	SRO only because question requires assessment of plant conditions and selection of procedure to mitigate.
Additional Information	None

K/A Reference(s)

GS.3.0.SF7.073	Safety Function 7	Tier 2	Group 1	RO Imp:	SRO Imp:
Process Radiation Monitoring (PRM) System					
P2.4.50	Safety Function 7	Tier 3	Group	RO Imp: 4.2	SRO Imp: 4.0
Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. (CFR: 41.10 / 43.5 / 45.3)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 91	ID: 2125142	Points: 1.00

Unit 1 was at 100% power, normally aligned.

- Unit 1 reactor was tripped due to an inadvertent FW isolation.
- 1A and 1B AF pumps could NOT be started.
- 1BwFR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, was entered.
- Bleed and feed has been initiated due to ALL S/G WR levels at 5%.
- SI has been reset.
- CETC temperatures are rising.
- Conditions for starting the Startup Feedwater Pump have been established.

The Unit Supervisor will direct the crew to INITIALLY feed…

A. ONLY TWO S/Gs at sufficient rate to cause rising S/G level.

B. ALL S/Gs at max rate.

C. ONLY ONE S/G between 60-80 GPM for 10 minutes.

D. ONLY ONE S/G at max rate.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 91

A – Plausible: Because this is the method to feed prior to bleed and feed.

B – Plausible: Because this is the quickest way to lower CETC temperature and this is what would be done if no SG was dry.

C – Plausible: Because this is the method to feed when CETC are stable or dropping and this is an OAS in many EP procedures.

D – Correct: Because CETC temperatures are rising, one SG must be chosen and fed at a maximum rate until CETC temperatures lower.

Question Information

Topic	SS10059-C14-01				
User ID	SS10059-C14-01			**System ID**	2125142
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwFR-H.1, Rev. 302		
Training Objective	T.FR03-04-A		
Previous Exam Use	None		

References Provided	None
K/A Justification	The question meets the K/A because examinee must make operational judgements based upon instrument interpretation of in-core temperature monitoring (CETC).
SRO-Only Justification	SRO level because examinee must have detailed knowledge of the procedure beyond the overall mitigative strategy.
Additional Information	None

K/A Reference(s)

GS.3.0.SF7.017	Safety Function 7	Tier 2	Group 2	RO Imp:	SRO Imp:
In-Core Temperature Monitor System (ITM)					
P2.1.7	Safety Function 7	Tier 3	Group	RO Imp: 4.4	SRO Imp: 4.7
Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (CFR: 41.5 / 43.5 / 45.12 / 45.13)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 92	ID: 2125143	Points: 1.00

- A SGTR has occurred in the 1A S/G.
- The crew is depressurizing the RCS per 1BwEP ES-3.3, POST-SGTR COOLDOWN USING STEAM DUMP, step 14, DEPRESSURIZE RCS TO MINIMIZE RCS-TO-SECONDARY LEAKAGE.
- The 1C Main Steamline rad monitors have recently gone into the alert/alarm condition.
- 1C S/G NR level is 43% and slowly rising.
- 1B and 1D S/G NR levels are at 35% and stable
- CETCs are 400 ºF.
- RCS pressure is 600 psig.
- PZR level is 54% and slowly dropping.

The SRO will...

A. transition to 1BwCA-3.1, SGTR WITH LOSS OF REACTOR COOLANT SUBCOOLED RECOVERY DESIRED.

B. continue in 1BwEP ES-3.3 and isolate AF flow to the 1C S/G.

C. continue in 1BwEP ES-3.3 and concurrently enter 1BwOA SEC-8, S/G TUBE LEAK.

D. transition to 1BwEP-3, STEAM GENERATOR TUBE RUPTURE, after stabilizing the plant.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 92

A – Plausible: Because this is in the OAS summary to transfer to if subcooling is lost.

B – Plausible: This would be correct if steamline rad monitors were not alarming.

C – Plausible: This is a valid distractor if the candidate does not recognize the multiple ruptured SG conditions and fails to implement the steps in 1BwEP ES-3.3 OAS for multiple ruptured SG conditions.

D – Correct: Per the OAS 1BwEP ES-3.3, Stabilize the plant and return to 1BwEP-3 step 1, if: Any intact SG level rises in an uncontrolled manner or any intact SG has abnormal secondary radiation.

Question Information

Topic	SS20035-N02				
User ID	SS20035-N02			**System ID**	2125143
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	1BwEP ES-3.3, Rev. 303		
Training Objective	T.EP04-08		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, examinee must be able to predict impact (determine that a SGTR is in progress on the 1C SG is implied by choosing the correct procedure transition) and use procedures to mitigate.
SRO-Only Justification	Question is SRO only because in requires assessment of plant conditions and selection of a procedure with which to proceed.
Additional Information	None

K/A Reference(s)

SF4.035.A2.01	Safety Function 4	Tier 2	Group 2	RO Imp: 4.5	SRO Imp: 4.6

Ability to (a) predict the impacts of the following malfunctions or operations on the GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR: 41.5 / 43.5 / 45.3 / 45.5)
Faulted or ruptured S/Gs

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 93	ID: 2131053	Points: 1.00

- An EO is performing the LOCKED FIRE DOOR SURVEILLANCE.
- A door on the data sheet in the Lower Cable Spreading Room (LCSR), was found open and damaged, such that it will not close.

In response to this condition, which of the following are the REQUIRED administrative actions by the SRO?

1. Enter the door on the Abnormal Component Position Sheet (ACPS).
2. Enter the door on the Equipment Status Tag log (EST).
3. Initiate a General Operating Condition Action Requirement (GOCAR).
4. Initiate a Plant Barrier Impairment permit (PBI).

A. ACPS and EST

B. ACPS and GOCAR

C. EST and PBI

D. GOCAR and PBI

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 93

A – Plausible: The ACPS is a process to document approval, positioning and restoration of abnormally positioned components. Misconception of this similar admin process may cause candidate to choose this distractor. ESTs identify temporary status of equipment position to ensure configuration control but does not apply to doors. Misconception of this similar admin process may cause candidate to choose this distractor.

B – Plausible: This answer is only partially correct, see explanation for responses A and D.

C – Plausible: This answer is only partially correct, see explanation for responses A and D.

D – Correct: The LCSR is a plant area protected by an automatic CO_2 system. Per 0BwOS FP.7.2.M-3, a GOCAR is required for compensatory action on doors that are in areas protected by CO_2 or Halon systems. Additionally, a PBI is required to track a normally locked closed fire door.

Question Information

Topic	SS20086-N02				
User ID	SS20086-N02			**System ID**	2131053
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	LOW
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	0BwOS FP.7.2.M-3 Rev. 1		
Training Objective	S.FP1-07		
Previous Exam Use	None		

References Provided	None
K/A Justification	Meets K/A, examinee must have knowledge of Fire Protection surveillance procedures.
SRO-Only Justification	Question is SRO only because it is the SRO function to perform the administrative actions associated with fire doors found open.
Additional Information	None

K/A Reference(s)

GS.3.0.SF8.086	Safety Function 8	Tier 2	Group 2	RO Imp:	SRO Imp:
Fire Protection System (FPS)					
P2.2.12	Safety Function 8	Tier 3	Group	RO Imp: 3.7	SRO Imp: 4.1
Knowledge of surveillance procedures. (CFR: 41.10 / 45.13)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 94	ID: 2125159	Points: 1.00

- The Unit 1 Unit Supervisor determines that the number of personnel in the control room is creating a distraction.

Per OP-AA-103-101, CONTROL ROOM ACCESS CONTROL, which of the following personnel will the US direct to leave the control room?

A. A Nuclear Oversight auditor who is performing Control Room observations.

B. The Station Manager who is performing "day-in-the-plant" observations.

C. The Illinois Dept. of Nuclear Safety inspector and the admin NSO who are reviewing an IDNS report.

D. The Field Supervisor and an Equipment Operator who are performing a pre-job brief of an oil separator surveillance.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 94

A – Plausible: NOS personnel are specifically listed as having unlimited access to the MCR in OP-AA-103-101. This is a plausible distractor because NOS personnel are not in operations and observations are not directly vital to plant operations.

B – Plausible: The Station Manager is specifically listed as having unlimited access to the MCR in OP-AA-103-101. This is a plausible distractor because day-in-plant observations are part of the management model, but not directly vital to plant operations.

C – Plausible: IDNS personnel are "regulatory personnel" who are specifically listed as having unlimited access to the MCR in OP-AA-103-101. This is a plausible distractor because reviewing a report is not directly vital to plant operations.

D – Correct: While on-shift operations personnel are normal provided unlimited access to the control room, the access is limited to personnel conducting control room business (unless assigned to a position in the MCR). In this case the FS and EO should brief the surveillance elsewhere since an oil separator surveillance has no interface with the MCR.

Question Information

Topic	SG10009-N01				
User ID	SG10009-N01			**System ID**	2125159
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	OP-AA-103-101, Rev, 1		
Training Objective	8E.AM-217		
Previous Exam Use	2009 NRC Exam		

References Provided	None
K/A Justification	The question meets the K/A, requires examinee knowledge of facility requirements for controlling access to MCR.
SRO-Only Justification	The question is SRO level because OP-AA-103-101 section 3.1 states "Access to the Control Room is the ultimate responsibility of, and shall be controlled by the Unit Supervisor."
Additional Information	None

K/A Reference(s)

P2.1.13	Safety Function 8	Tier 3	Group	RO Imp: 2.5	SRO Imp: 3.2
Knowledge of facility requirements for controlling vital/controlled access. (CFR: 41.10 / 43.5 / 45.9 / 45.10)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 95	ID: 2125171	Points: 1.00

During fuel moves within the reactor vessel, each of the following are Licensed SRO fuel handling supervision responsibilities, EXCEPT...

A. approve changes to the move sheet.

B. control of access to the refuel floor areas.

C. perform visual core alignment inspection.

D. maintain direct communications with the Control Room.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 95

A – Correct: Per OU-AP-200 section 2.5 this is the responsibility of the Reactor Engineer.

B – Plausible: Item 15 under Reactor Services Supervisor designates responsibility for access control to the refueling areas (and item 3.2.5 assigns the SRO the same responsibilities as the Reactor Services Supervisor when supervising fuel related activity). This is a valid distractor because it can be performed by the Reactor Services Supervisor when an SRO is not on the refuel floor.

C – Plausible: OU-AP-200 section 3.2.4 and NF-AA-330-1001 section 3.5 designate SRO responsibility for visual core alignment inspection. This is a valid distractor because it is a task that must be performed from the refuel floor.

D – Plausible: OU-AP-200 section 3.2.3 designates the SRO responsibility for maintaining direct communication with the MCR. This is a valid distractor because it is a task that must be performed from the refuel floor.

Question Information

Topic	SG32142-N01				
User ID	SG32142-N01			System ID	2125171
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	MEMORY
Operator Discipline	LO-I	Operator Type	SRO
10CFR55 Content	CFR: 41.13 Procedures and equipment available for handling and disposal of radioactive materials and effluents.		

NRC Exams Only

Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	OU-AP-200, Rev. 23		
Training Objective	T.AM12-16		
Previous Exam Use	2013 NRC exam		

References Provided	None
K/A Justification	Meets K/A, requires examinee knowledge of SRO fuel handling responsibilities from the QNE responsibilities per OU-AP-200 (fuel handling administrative procedure).
SRO-Only Justification	SRO only because it is specific knowledge of the SRO duties.
Additional Information	None

K/A Reference(s)

P2.1.42	Safety Function 8	Tier 3	Group	RO Imp: 2.5	SRO Imp: 3.4
Knowledge of new and spent fuel movement procedures. (CFR: 41.10 / 43.7 / 45.13)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 96	ID: 2125177	Points: 1.00

During on-line risk maintenance activities, who can authorize work on or near protected equipment?

A. Unit Supervisor

B. Shift Manager (or designee) ONLY

C. Shift Operations Superintendent ONLY

D. Shift Manager (or designee) or Shift Operations Superintendent

Answer	B

Answer Explanation

2020 Braidwood NRC Exam Question: # 96

A – Plausible: US ensures the protected equipment is tracked and posted.

B – Correct: Per OP-AA-108-117 the SM has the responsibility to authorize work on or near protected equipment.

C – Plausible: SOS is the senior license holder in the plant, but may not be cognizant of the specific protected equipment.

D – Plausible: SOS is the senior license holder in the plant, but may not be cognizant of the specific protected equipment.

Question Information

Topic	SG20017-N01				
User ID	SG20017-N01			System ID	2125177
Status	Active	Point Value	1.00	Time (min)	0

Open or Closed Reference	CLOSED	Cognitive Level	MEMORY
Operator Discipline	LO-I	Operator Type	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	Difficulty	
Technical Reference and Revision #	OP-AA-108-117, Rev. 5		
Training Objective	T.MC07-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets K/A requiring knowledge of process for managing maintenance activities such as risk evolutions that require protected equipment.
SRO-Only Justification	SRO only because it is specific knowledge of the SM duties.
Additional Information	None

K/A Reference(s)

P2.2.17	Safety Function 8	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)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 97	ID: 2125183	Points: 1.00

A work order requires a worker tagout (WTO) that will take credit for administrative control of a plant condition to control the hazards for the planned work.

The WTO will be designated as a/an _____1_____ Tagout.
In addition to the RO turnover sheet, the Tagout must also be tracked on the _____2_____ turnover sheet.

A. 1. Administrative
2. Unit Supervisor

B. 1. Administrative
2. Shift Manager

C. 1. Condition Dependent
2. Unit Supervisor

D. 1. Condition Dependent
2. Shift Manager

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 97

A – Plausible: An administrative tagout is a tagout that provides administrative control, however no work is allowed under it.

B – Plausible: An administrative tagout is a tagout that provides administrative control, however no work is allowed under it. OP-AA-109-101 specifically requires the US turnover to track condition dependent tagouts, not the SM turnover.

C – Correct: Per OP-AA-109-101, section 3.11, a Condition Dependent Tagout is a tagout that will take credit for administrative control of a plant condition to control the hazards for the planned work. Also, section 7.10.2.4 requires that Condition Dependent tagouts must be tracked on the US turnover sheet.

D – Plausible: OP-AA-109-101 specifically requires the US turnover to track condition dependent tagouts, not the SM turnover.

Question Information

Topic	SG20019-N02				
User ID	SG20019-N02			**System ID**	2125183
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	New	**Difficulty**	
Technical Reference and Revision #	OP-AA-109-101, Rev. 14		
Training Objective	T.AM33-02, T.AM33-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets K/A requiring knowledge of maintenance work order requirements (tracking of condition dependent tagouts for work order task personnel protection).
SRO-Only Justification	SRO only because it is specific knowledge of the SRO duties within the WTO process.
Additional Information	None

K/A Reference(s)

P2.2.19	Safety Function 8	Tier 3	Group	RO Imp: 2.3	SRO Imp: 3.4
Knowledge of maintenance work order requirements. (CFR: 41.10 / 43.5 / 45.13)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 98	ID: 2125246	Points: 1.00

- Fuel moves involving both new AND spent fuel are in progress.
- The 0AR039J, FUEL HANDLING BLDG CRANE, area rad monitor has failed HIGH.

The Fuel Handling SRO will suspend...

A. NEW fuel transfer from shipping containers to the spent fuel pool.

B. NEW fuel transfer from the spent fuel pool to the fuel transfer cart.

C. SPENT fuel moves within the spent fuel pool.

D. SPENT fuel transfer from the fuel transfer cart to the spent fuel pool.

Answer	A

Answer Explanation

2020 Braidwood NRC Exam Question: # 98

A – Correct: 0AR039J failing high will prevent upward motion of the fuel handling building crane hoist. This crane is only used for new fuel transfer from shipping containers to the pool or transferring spent fuel already in casks. All the distractors can be performed by the spent fuel pool bridge crane which is not affected by the failure.

B – Plausible: Valid distractor because the activity also involves movement of new fuel within the fuel pool.

C – Plausible: Valid distractor because a common misconception is the rad monitor interlock affects the fuel pool bridge crane and spent fuel is highly radioactive.

D – Plausible: Valid distractor because a common misconception is the rad monitor interlock affects the fuel pool bridge crane and spent fuel is highly radioactive. Also this activity involves movement of additional spent fuel into the fuel pool.

Question Information

Topic	SS20034-N02				
User ID	SS20034-N02			System ID	2125246
Status	Active	Point Value	1.00	Time (min)	3

Open or Closed Reference	CLOSED	Cognitive Level	MEMORY
Operator Discipline	LO-I	Operator Type	SRO
10CFR55 Content	CFR: 43.7 Fuel handling facilities and procedures.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-FH-XL-01, Rev. 6		
Training Objective	S.FH1-06-A, S.FH1-09		
Previous Exam Use	2011 NRC exam		

References Provided	None
K/A Justification	Question meets K/A, requires examinee knowledge of how a malfunction of a rad monitoring system will affect the fuel handling equipment.
SRO-Only Justification	The Question is SRO only because it requires knowledge of the Fuel Handling equipment and process.
Additional Information	None

K/A Reference(s)

P2.3.15	Safety Function 8	Tier 3	Group	RO Imp: 2.9	SRO Imp: 3.1
Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. (CFR: 41.12 / 43.4 / 45.9)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 99	ID: 2125247	Points: 1.00

- Unit 1 experienced a LOCA.
- 1BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT, is in progress.
- WR RCS pressure is 150 PSIG.
- ALL S/G pressures are 600 PSIG and LOWERING slowly.
- Current Status Tree results indicate the following:

  - Subcriticality Green
  - Core Cooling Yellow
  - Heat Sink Red
  - Integrity Orange
  - Containment Red
  - Inventory Yellow

The critical safety function concern that will be addressed by the NEXT PROCEDURAL ACTIONS that the crew will PERFORM at the Main Control Panels is…

A. small or rapid changes in pressure or temperature will result in placing the reactor vessel in a condition that may result in flaw growth.

B. potential overheating of the RCS at a high pressure leading to core uncovery.

C. potential core uncovery due to saturated conditions in the RCS.

D. excessive leakage through containment penetrations.

Answer	D

Answer Explanation

2020 Braidwood NRC Exam Question: # 99

A – Plausible: Misconception of critical safety function priorities. Distractor is priority of integrity safety function.

B – Plausible: Misconception of critical safety function priorities. Distractor is priority of subcriticality.

C – Plausible: Misconception of critical safety function priorities. Distractor is priority of core cooling.

D – Correct: Because Heat Sink is a red path, the examinee must understand that a heat sink is not required with RCS pressure less than all SG pressures. This condition requires the crew to exit 1BwFR-H.1 without taking any MCB actions. 1BwFR-Z.1 is the next red path and is required to be entered and performed. Integrity is orange and 1BwFR P.1 might be implemented after 1BwFR Z.1 if the RH flow is not above 1000 gpm, however this is not necessary information to answer the question. The combination of colors and status tree order govern the logic for determining procedural order.
In this condition 1BwFR-Z.1 would be performed next. The containment red path is pressure above 50 psig which is a concern for gross failure in the event of a hydrogen explosion, but also a concern for excess leakage through the penetrations as pressure is above that assumed for the design basis leakage calculations of 50 psig.

Question Information

Topic	SG40422-C01				
User ID	SG40422-C01			**System ID**	2125247
Status	Active	**Point Value**	1.00	**Time (min)**	0

Open or Closed Reference	CLOSED	**Cognitive Level**	HIGH
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 43.5 Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	ILT LP I1-FR-XL-05, Rev. 11, Function Restoration Procedures BwFR-Z.1, Z.2, Z.3 and 1BwFR-H.1 Rev. 302		
Training Objective	T.FR05-03		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the KA requiring candidate knowledge of the bases for safety functions.
SRO-Only Justification	Question is SRO only because the student must assess plant conditions to establish the procedural priority and the associated safety function that takes priority. This is also SRO only because it requires the candidate to evaluate two different red paths and determine that the higher priority red path is not required (heat sink is not required with RCS pressure below SG pressures. Therefore, no steps in 1BwFR-H.1 will be performed).
Additional Information	None

K/A Reference(s)

P2.4.22	Safety Function 8	Tier 3	Group	RO Imp: 3.6	SRO Imp: 4.4
Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations. (CFR: 41.7 / 41.10 / 43.5 / 45.12)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None

Question 100	ID: 2125248	Points: 1.00

- Braidwood Station has declared an Emergency Classification due to an Emergency Action Level (EAL) being exceeded.
- Degrading plant conditions may require Emergency Classification escalation.
- The Emergency Operations Facility (EOF) is staffed and ready to assume command and control.

In accordance with EP-AA-112, EMERGENCY RESPONSE ORGANIZATION/EMERGENCY RESPONSE FACILITY ACTIVATION AND OPERATION, which of the following responsibilities can be transferred to the EOF?

1. Event Classification
2. Protective Action Recommendations
3. Notification of Offsite Agencies
4. Emergency Exposure Controls

A. ONLY 1 AND 3

B. ONLY 1 AND 4

C. ONLY 2 AND 3

D. ONLY 2 AND 4

Answer	C

Answer Explanation

2020 Braidwood NRC Exam Question: # 100

A – Plausible: All four possible responses are specific duties of the emergency director. Event classification may be transferred from the Shift Emergency Director to the Station Emergency Director, but not to the EOF.

B – Plausible: All four possible responses are specific duties of the emergency director. Event classification and emergency exposure controls may be transferred from the Shift Emergency Director to the Station Emergency Director, but not to the EOF.

C – Correct: EP-AA-112, step 3.1, PARs and Notifications are transferred to EOF, Classification and Emergency Exposure Control remain at station.

D – All four possible responses are specific duties of the emergency director. Emergency exposure controls may be transferred from the Shift Emergency Director to the Station Emergency Director, but not to the EOF.

Question Information

Topic	SG40040-001				
User ID	SG40040-001			**System ID**	2125248
Status	Active	**Point Value**	1.00	**Time (min)**	3

Open or Closed Reference	CLOSED	**Cognitive Level**	MEMORY
Operator Discipline	LO-I	**Operator Type**	SRO
10CFR55 Content	CFR: 41.10 Administrative, normal, abnormal, and emergency operating procedures for the facility.		

NRC Exams Only			
Question Type	Bank	**Difficulty**	
Technical Reference and Revision #	EP-AA-112, Rev. 22		
Training Objective	T.ZP1-14		
Previous Exam Use	None		

References Provided	None
K/A Justification	Question meets the K/A requiring candidate knowledge of SRO responsibilities in emergency plan implementation.
SRO-Only Justification	Question is SRO only because the Shift Emergency Director is the SM in the MCR which can only be performed by a licensed SRO.
Additional Information	None

K/A Reference(s)

P2.4.40	Safety Function 8	Tier 3	Group	RO Imp: 2.7	SRO Imp: 4.5
Knowledge of SRO responsibilities in emergency plan implementation. (CFR: 41.10 / 43.5 / 45.11)					

Learning Objective(s)

2020 NRC Exam - SRO
User (Sys) ID N/A (1537728)

Cross Reference Links

None