

1. WHICH ONE of the following describes the reason for a reactor scram that occurs as a result of a Main Turbine trip?
  - A. Limits positive reactivity due to a reduced void concentration when turbine stop valves close.
  - B. Minimizes level transient that occurs when feed pumps swap to high pressure steam.
  - C. Limits positive reactivity due to increased feedwater sub-cooling when extraction steam is lost.
  - D. Minimizes level transient that occurs when voids collapse due to turbine control valves closing.

Answer Key		
Question ID# 001 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Void concentration will rapidly decrease on closing of the turbine steam admission valves resulting in a large positive reactivity addition.
Incorrect	B	While the reactor feed pumps do swap from cross-around (LP) steam to main steam (HP) and this does contribute to the post-scam level transient that will occur, it is not part of the basis for the scram.
Incorrect	C	While this will occur, the Reactor power rise will be slight and gradual. This is not the reason for the Scram.
Incorrect	D	While this level transient will occur, it is not part of the basis for the scram

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	2	Y	(b) (5)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	LGS UFSAR, Chapter 15.2, LGS Tech Specs, LSSS	
Learning Objective:	LLOT1575.03	
Knowledge/Ability K/A	295005 AK3.01	Importance: RO / SRO 3.8 / 3.8
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to MAIN TURBINE GENERATOR TRIP: Reactor scram		

Required Materials:

Notes and Comments:

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

2. Unit 2 plant conditions are as follows:

- Reactor power is 100%
- Plant Monitoring System (PMS) is inoperable

Five minutes later control rod 30-31 inadvertently scrams.

WHICH ONE of the following can be used to confirm that control rod 30-31 is fully inserted?

- A. "XX" (two X's) on the Four Rod Display.
- B. Green "IN" light is lit on the Full Core Display.
- C. "- -" (two dashed lines) on the Four Rod Display.
- D. Blue "SCRAM" light is lit on the Full Core Display.

Answer Key		
Question ID# 002 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	The full in and full out lights on the Full Core Display continue to function with PMS and RDCS inoperable.
Incorrect	A	Two X's on the Four Rod Display indicate that control rod indication is unknown, due to more than one reed switch being made up.
Incorrect	C	A "- -" indication on the Four Rod Display indicates an odd numbered reed switch is made up.
Incorrect	D	The blue "SCRAM" light on the Full Core Display indicates that the scram valves are open, and does not indicate control rod position.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
LOW	2.0	3	N	(b) (10)	(b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 108 Reactor, E-4	
Learning Objective:	LLOT0080.02	
Knowledge/Ability K/A	295006 AA2.02	Importance: RO / SRO 4.3 / 4.4
(Description of K&A, from catalog)		
Ability to determine and/or interpret the following as they apply to SCRAM: Control Rod Position		

Required Materials:

Notes and Comments:

Prepared By:  
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3. LGS site conditions are as follows:

- Both units are at 100% power
- Both units' Auxiliary transformers are supplying their respective Unit Auxiliary busses
- The 10 Station Auxiliary Bus is de-energized for maintenance
- All other station electrical busses are energized

Subsequently, the 20 Station Auxiliary Bus supply breaker (205) trips open.

WHICH ONE of the following identifies the status of the 22 Auxiliary Bus and the D22 Safeguard Bus twenty (20) seconds later?

	<u>22 Auxiliary Bus</u>	<u>D22 Safeguard Bus</u>
A.	De-energized	De-energized
B.	Energized	De-energized
C.	De-energized	Energized
D.	Energized	Energized

Answer Key		
Question ID# 003 RO/SRO		
Choice		Basis or Justification
Correct:	D	The 22 Aux Bus will continue to be supplied by the Unit 2 Main Generator D22 Diesel Generators will start and supply the D22 Safeguard Bus in approximately 10 seconds.
Incorrect	A	Both busses will be energized as described above.
Incorrect	B	While this choice is correct for the 22 Aux Bus, it is incorrect for D22 Safeguard Bus, which will be energized by the D22 D/G within 10 seconds
Incorrect	C	While this choice is correct for the D22 Safeguard Bus, it is incorrect for the 22 Aux Bus, which will remain energized from the Unit 2 Main Generator.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.5	3	Y	(b) (10)	(b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E10/20, Steps 2.1 and 2.3.1	
Learning Objective:	LLOT0640.08	
Knowledge/Ability K/A	295003 AA2.04	Importance: RO / SRO 3.5 / 3.7
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF AC POWER: System Lineups		

Required Materials :

Notes and Comments

Prepared By:

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4. Unit 1 plant conditions are as follows:

- Reactor Power is 100%
- Division 4 DC (125 VDC Bus "D") is de-energized

The following events then occur:

- Drywell Pressure rises to 2.0 psig
- Both HPCI Exhaust Diaphragms rupture on pump start
- HPCI room temperature rises and stabilizes at 198°F
- No operator action is taken

WHICH ONE of the following describes the status of HPCI steam line containment isolation valves after the events above?

	<u>INBOARD ISOL (1F002)</u>	<u>OUTBOARD ISOL (1F003)</u>
A.	Closed	Open
B.	Closed	Closed
C.	Open	Closed
D.	Open	Open

Answer Key		
Question ID# 004 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	A HPCI isolation signal is present due to high turbine exhaust rupture diaphragm pressure. The 1F003 valve isolates, however, the 1F002 valve does not isolate due to NO control power to the isolation logic.
Incorrect	A	The 1F002 valve does not isolate due to NO control power to the isolation logic
Incorrect	B	The 1F002 valve does not isolate due to NO control power to the isolation logic
Incorrect	D	The 1F003 valve isolates

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.0	3	Y	(b) (7)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8.1, Rev.11, Pg. 31; GE Elemental Dwgs. M-1-E41-1030-F-004, Shts. 1 & 2 M-1-E41-1030-F-005, Shts 1 & 2	
Learning Objective:	LLOT0340.14	
Knowledge/Ability K/A	295004 AA1.02	Importance: RO / SRO 3.8 / 4.1
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: Systems necessary to assure safe plant shutdown.		

Required Materials:

Notes and Comments:

Prepared By:  
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5. Unit 1 plant conditions are as follows:

- Drywell Temperature is 140°F
- Drywell Pressure is 1.0 psig and rising slowly
- OT-101, HIGH DRYWELL PRESSURE, is being executed

WHICH ONE of the following is a reason why Drywell cooling is maximized?

- A. Ensure continued operation of the Reactor Recirculation Pump motors.
- B. Slow the rate of pressure rise to allow time to bypass the potential Drywell Chilled Water system isolation.
- C. Protect the integrity of the ADS valve solenoids.
- D. Slow the rate of pressure rise to allow Drywell venting.

Answer Key		
Question ID# 005 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Per OT-101 bases, the Drywell may be vented if pressure is less than 1.68 psig. Therefore, slowing the rate of Drywell pressure rise allows time to vent.
Incorrect	A	The reason for Maximizing Drywell cooling is to slow the rise or prevent reaching 1.68 psig in the Drywell. It is not to protect the Recirc pumps.
Incorrect	B	The Drywell chill water isolation may be bypassed after entry into and meeting the Drywell temperature requirements of T-102
Incorrect	C	The design Drywell temperature of 340°F is to protect the ADS solenoids. This is beyond the bases for OT-101.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
LOW	2.5	2	N	(b) (5)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OT-101, Bases Step 2.1	
Learning Objective:	LLOT1540.05	
Knowledge/Ability K/A	295010 AK3.02	Importance: RO / SRO 3.4 / 3.4
(Description of K&A, from catalog) Knowledge for the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Increased Drywell Cooling		

Required Materials:

Notes and Comments:

Prepared By:  
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6. Unit 2 plant conditions are as follows:

- The "2B" Recirc. Pump has tripped
- Reactor power is 68%
- All feedwater heaters are in service
- Four OPRM channels are operable
- The unit is in the Restricted Region of the Power to Flow map

Subsequently, the "2A" Recirc Pump inadvertently trips.

WHICH ONE of the following describes the required action and the basis for this action?

- A. SCRAM to prevent the occurrence of thermal hydraulic instabilities.
- B. Restart a Recirc Pump to prevent RPV thermal stratification.
- C. SCRAM to avoid the reactivity effects of starting a Recirc Pump in natural circulation.
- D. Insert control rods to exit the Restricted Region of the Power to Flow map.

Answer Key		
Question ID# 006 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Although allowed by Tech. Specs., Exelon has decided to continue to direct that a manual scram be inserted with the plant in natural circulation.
Incorrect:	A	A scram is required, however, not to avoid THI. See basis for answer C.
Incorrect	B	By procedure, Limerick does not allow restarting a Recirc. Pump in natural circulation with the Reactor critical.
Incorrect	D	This is not an allowed action in natural circulation.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
LOW	2.0	2	N	(b) (8) to (10)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	OT-112 Bases, step 2.1	
Learning Objective:	LLOT1540.05	
Knowledge/Ability K/A	295001 AK1.01	Importance: RO / SRO 3.5 / 3.6
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Natural circulation		

Required Materials:

Notes and Comments:

Prepared By:  
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7. Unit 1 plant conditions are as follows:

- Reactor power is 35%
- GEN STATOR COOLANT TROUBLE (125 B4) Annunciator is alarming

An EO verifies the Stator Cooling Water return temperature is 82°C and rising.

WHICH ONE of the following describes the automatic response of EHC due to the conditions above?

- A. LOAD SET will reduce to 21.4%  
Bypass valves will remain closed
- B. LOAD SET will reduce to 21.4%  
Bypass valves will open
- C. LOAD LIMIT will reduce to 21.4%  
Bypass valves will open
- D. LOAD LIMIT will reduce to 21.4%  
Bypass valves remain closed

Answer Key		
Question ID# 007 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	A STATOR WATER COOLING RUNBACK has occurred which lowers load set to 21.4 %, this closes control valves which raises Reactor pressure opening bypass valves
Incorrect:	A	This is incorrect as bypass valves will open
Incorrect	C	This is incorrect as load limit does not runback
Incorrect	D	This is incorrect as load limit does not runback, also bypass valves will open

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-114, Step 2.10	
Learning Objective:	LLOT0590.03	
Knowledge/Ability K/A	295007 AA1.05	Importance: RO / SRO 3.7 / 3.8
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE: Reactor/Turbine Pressure Regulating System		

Required Materials:

Notes and Comments:

Prepared By:  
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## ATTACHMENT: SE-1 Provided

8. The Main Control Room has become uninhabitable and SE-1, Remote Shutdown, is in progress at the Remote Shutdown Panel with the following conditions:

- All SE-1 immediate operator actions are complete
- All Remote Shutdown Panel transfer switches are in "EMERGENCY"
- Reactor Level is +10"
- Reactor Pressure is 490 psig

WHICH ONE of the following identifies the EARLIEST point from now where Shutdown Cooling can be placed in service?

- A. 1.0 Hours
- B. 1.5 Hours
- C. 2.0 Hours
- D. 2.5 Hours

Answer Key		
Question ID# 008 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Using Attachment 2 and 3 to SE-1 and at the maximum cooldown rate, it would take at least 1.5 hours to go from 470 degrees F (490 psig) to 320 degrees F (75 psig)
Incorrect	A	This would mean exceeding the maximum cooldown rate
Incorrect	C	This does not identify the minimum amount of time before SDC can be placed in service.
Incorrect	D	This does not identify the minimum amount of time before SDC can be placed in service.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.5	5	Y	(b) (10)	(b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SE1, Attachments 2 & 3	
Learning Objective:	LLOT0735.04	
Knowledge/Ability K/A	295016 2.1.25	Importance: RO / SRO 2.8 / 3.1
(Description of K&A, from catalog) Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data		

Required Materials:

**SE-1**

Notes and Comments:

Prepared By:  
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 Limerick Regulatory Exam Author

9. Both units are at 100% power:

- A loss of the 220 KV switchyard occurs followed immediately by a lockout of the 4A Auto Transformer
- The D12 and D14 Diesel Generators fail to start
- All other Diesel Generators start as designed

WHICH ONE of the following systems can be used to provide alternate cooling to the TECW heat exchangers and the procedural direction for using this system?

	<u>Alternate Cooling Water for TECW Heat Exchangers</u>	<u>Procedural Direction</u>
A.	ESW	E-10/20, Loss Of Offsite Power
B.	ESW	E-1, Station Blackout
C.	RECW	E-10/20, Loss Of Offsite Power
D.	RECW	E-1, Station Blackout

Answer Key		
Question ID# 009 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	ESW can be used to backup normal Service Water for TECW and RECW by performing manual local valve manipulations per E-10/20.
Incorrect	B	The correct procedure is E-10/20. Since six of the Diesel Generators start, this is not a Station Blackout.
Incorrect	C	RECW is not hard piped to backup TECW.
Incorrect	D	RECW is not hard piped to backup TECW. The correct procedure is E-10/20. Since six of the Diesel Generators start, this is not a Station Blackout.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	Y	(7)	N/A

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank	
Reference(s):	E-10/20, Attachment 5	
Learning Objective:	LLOT0430.07	
Knowledge/Ability K/A	295018 AA1.01	Importance: RO / SRO 3.6 / 3.5
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Backup systems		

Required Materials:

Notes and Comments:

Prepared By:  
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10. Unit 1 Reactor Power is 100% with Instrument Air and Service Air in a normal lineup, when the following annunciator alarms:
- 1A INSTRUMENT AIR HEADER LO PRESS (118 B2)

The following indications are observed:

- "1A" Instrument Air Header Pressure is 85 psig and dropping slowly.
- "1B" Instrument Air Header Pressure is 108 psig and steady
- Service Air Header Pressure is 102 psig and rising slowly
- Backup Service Air Receiver is 100 psig and steady

10 minutes later the following indications are observed:

- "1A" Instrument Air Header Pressure is 69 psig and dropping slowly
- "1B" Instrument Air Header Pressure is 100 psig and dropping slowly
- Service Air Header Pressure is 99 psig and dropping slowly
- Backup Service Air Receiver is 102 psig and dropping slowly

WHICH ONE of the following identifies the source of air for the Instrument Air LOADS and Service Air LOADS?

Source of Instrument Air

Source of Service Air

- |                                   |                                |
|-----------------------------------|--------------------------------|
| A. "1B" Instrument Air compressor | Service Air Compressor         |
| B. "1B" Instrument Air Compressor | Backup Service Air Compressor  |
| C. Service Air Compressor         | Service Air Compressor.        |
| D. Service Air Compressor         | Backup Service Air Compressor. |

Answer Key		
Question ID# 010 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	"1B" Compressor will begin supplying the "1A" loads on higher pressure due to check valves at the individual load. Service Air Compressor remains in service for service air loads.
Incorrect:	B	The Backup Service Air Compressor, which is normally lined up to Unit 1, will only supply Unit 1 Service Air, if service air header pressure drops below 92 psig..
Incorrect	C	Service Air Compressor would only supply IA if both the 1A & 1B IA header pressures were low.
Incorrect	D	See B and C above

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	6	Y	Y (b) (5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	M-15	
Learning Objective:	LLOT0730.02, 04, 07, 10	
Knowledge/Ability K/A	295019 AK3.01	Importance: RO / SRO 3.3 / 3.4
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Partial or Complete Loss of Instrument Air: Backup air system supply.		

Required Materials:

Notes and Comments:

Prepared By:  
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11. Unit 2 has just entered Opcon 4 in preparation for a refueling outage.

A failure of HV-51-2F008 results in a loss of Shutdown Cooling and necessitates establishing Alternate Shutdown Cooling using SRV's and Suppression Pool Cooling.

Conditions have been established as follows:

- Suppression Pool Cooling is in service with "2A" RHR.
- Suppression Pool pressure is 0 psig
- SRV handswitches for the "2K" and "2M" SRV's are in the OPEN position
- Injection to the RPV has been established with the "2D" RHR pump via HV-51-2F017D
- RPV Level is 150" on Shutdown Range
- RPV pressure is 40 psig

WHICH ONE of the following describes the action required in order to establish Alternate Decay Heat removal?

- A. Reduce RPV injection until RPV Level is  $\leq 100$ ".
- B. Increase RPV injection until RPV Level is  $\geq 200$ ".
- C. Reduce RPV injection until RPV pressure is  $\leq 25$  psig.
- D. Increase RPV injection until RPV pressure is  $\geq 50$  psig.

Answer Key		
Question ID# 011 Both RO/SRO		
Choice		Basis or Justification
Correct	D	50# D/P is required across the SRV's in order to open and establish alternate heat removal.
Incorrect	A	While 100" is an important milestone in OT-100 Reactor High Level, when trying to prevent filling MS lines, filling the MSLS is required for this procedure.
Incorrect	B	Level is high enough to fill the MSL's and no additional Level is required.
Incorrect	C	In order to establish Alternate heat removal the SRV's must open which requires 50# D/P. Correct conditions require raising pressure, not lowering.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	5	Y	Y (b) (7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-121, Step 2.1.7, Attachment 6 S41.7.B, Step 4.2	
Learning Objective:	LLOT-5010.01	
Knowledge/Ability K/A	295021 AA1.04	Importance: RO / SRO 3.7 / 3.7
(Description of K&A, from catalog) Ability to operate and or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: Alternate Heat Removal Methods		

Required Materials  
:

Notes and Comments

Prepared By:  
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12. Unit 1 plant conditions are as follows:

- Reactor level is 20"
- Reactor Pressure is 350 psig
- Drywell Pressure is 25 psig
- "1B" RHR Pump is operating at 8200 gpm with the following valve indications:

HV-51-1F016B, OUTBOARD SPRAY, green light lit

HV-51-1F017B, LPCI INJECTION, red, green and white lights lit

HV-51-1F021B, INBOARD SPRAY, red light lit

HV-51-1F024B, FULL FLOW TEST, red, green and white lights lit

The CRS has directed the PRO to place "1B" RHR in Drywell Spray.

WHICH ONE of the following actions must be performed to initiate Drywell Spray?

- A. Arm and depress "1B" RHR manual LOCA initiation pushbutton and open HV-51-1F016B.
- B. Close HV-51-1F021B, then open HV-51-1F016B, then reopen HV-51-1F021B.
- C. Close HV-51-1F017B and open HV-51-1F016B.
- D. Close HV-51-1F024B and open HV-51-1F016B.

Answer Key		
Question ID# 012 Both RO/SRO		
Choice		Basis or Justification
Correct	C	17B valve must be closed in order to open 16B – all other conditions for opening 16B are already .
Incorrect	A	LOCA Signal already present. PB not required. Also 17B must be closed.
Incorrect	B	This valve manipulation only required if LOCA signal not present. 17B must also be closed..
Incorrect	D	24B dose not need to be closed

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	4	Y	Y (b) (7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-225, Step 4.5	
Learning Objective:	LLOT0370.09	
Knowledge/Ability K/A	295024 EA1.04	Importance: RO / SRO 4.1 / 3.9
(Description of K&A, from catalog) Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: RHR/LPCI		

Required Materials:

Notes and Comments

Prepared By:  
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13. An ATWS is in progress on Unit 1.

RPV Level was intentionally lowered per T-117.

The following conditions currently exist:

- Reactor power is 6%
- RPV level is -195" and slowly rising
- MSIV's are closed
- 1 ADS SRV is open
- RPV pressure is 1000 psig
- Suppression Pool temperature is 145°F and slowly rising
- 2 Loops of Suppression Pool Cooling are in service
- Suppression Pool pressure is 6 psig & slowly rising
- Suppression Pool level is 24.5' and stable

WHICH ONE of the following describes the required action and the reason for taking the action?

- A. Reduce RPV pressure to less than 900 psig, in order to maintain on the safe side of SP/L-1 SRV Tail Pipe Level Limit.
- B. Perform Emergency Blowdown per T-112, due to unable to restore and maintain RPV Level above -186".
- C. Reduce RPV pressure to less than 900 psig, in order to maintain on the safe side of SP/T-1 Heat Capacity Temperature Limit.
- D. Perform Emergency Blowdown per T-112, due to the safe side of SP/T-1, Heat Capacity Temperature Limit, cannot be maintained.

Answer Key		
Question ID# 013 Both RO/SRO		
Choice	Basis or Justification	
Correct	C	SP temp is 20°F from HCTL and rising slowly despite having 2 loops of SP Cooling in service. T-102 SP/T-8 directs that if SP temp cannot be maintained on the safe side of HCTL, then maintain RPV pressure on the safe side of HCTL.
Incorrect	A	SP level is high but 3.5 feet away from SP/L-1 limit and level is stable – Reducing pressure for the purposes of maintaining this curve is not warranted.
Incorrect	B	While RPV Level is <-186, it is only 9" OOB and rising slowly. The criteria for T-117LQ is level can be restored. With SRV's being used for pressure control, it is not unusual to go <-186 for short periods of time. T-112 is not warranted under these conditions.
Incorrect	D	SP temp is still 20°F away from HCTL and rising slowly. T-112 is not warranted at this point

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	Y	Y (b) (10)	Y (b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-102 sh.1	
Learning Objective:	LLOT1560.04	
Knowledge/Ability K/A	295026 EA2.03	Importance: RO / SRO 3.9 / 4.0
(Description of K&A, from catalog) Ability to determine and/or interpret the following as it applies to Suppression Pool water temperature: Reactor Pressure		

Required Materials:

**T-102 Sht. 1**

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

14. A LOCA is in progress on Unit 2.

Drywell Temperature is 148°F.

The CRS directs the PRO to maximize drywell cooling.

Per T-102 Bases, WHICH ONE of the following describes the minimum number of components that must be in service in order to maximize drywell cooling for the above conditions?

<u>Drywell Fans</u>	<u>DWCW Pumps</u>
A. One Fan per Cooler	One
B. One Fan per Cooler	Two
C. Two Fans per Cooler	One
D. Two Fans per Cooler	Two

Answer Key		
Question ID# 014 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Meets the criteria specified in T-102 Bases, for step DW/T-5
Incorrect:	A	Does not meet the criteria specified in T-102 Bases, step DW/T-5. Only has one DWCW pp cunning vs. two
Incorrect	C	Does not meet the criteria w/respect to the number of required DWCW pps. In addition specifics 2 DW Fans per cooler. Fans are in parallel and are 100% capacity.
Incorrect	D	Does not represent the minimum number. 2 DW fans in-service – DW fans are 100% capacity and in parallel.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	Y	(b) (7)	N

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	T-102 Bases, DW/T-5
Learning Objective:	LOT-1560.06
Knowledge/Ability K/A	295028                      Importance: RO / SRO EK2.04                      3.6 / 3.6
(Description of K&A, from catalog) Knowledge of the interrelations between High Drywell Temperature and the following: Drywell Ventilation	

Required Materials:

## T-102

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

15. Unit 2 was manually scrammed due to a leak in the Suppression Pool.

- Suppression Pool level is 20' and lowering
- RCIC is being used for RPV level control
- HPCI is being used for RPV pressure control

Suppression Pool level drops to 17.9'.

WHICH ONE of the following describes the required action and the reason for it?

- A. RCIC must be secured due to insufficient net positive suction head.
- B. HPCI must be secured due to insufficient net positive suction head.
- C. RCIC must be secured in order to prevent direct pressurization of the Suppression Pool.
- D. HPCI must be secured in order to prevent direct pressurization of the Suppression Pool.

Answer Key		
Question ID# 015 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	HPCI Exhaust line is uncovered at 18'. Operation of HPCI, with its relatively high exhaust pressure could result in direct pressurization of the Suppression Pool sufficient to exceed PCPC.
Incorrect	A	NPSH limit for RCIC would be at 12.3' (13.5' for T-102 sh 1)
Incorrect	B	NPSH limit for HPCI would be at 15.42 ft, where it is already secured at 18' for the reason above
Incorrect	C	RCIC Turbine exhaust pressure is insufficient to cause pressurization of the Suppression Pool in excess of PCPL.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	Y	Y (b) (5)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-102, sh. 1	
Learning Objective:	LLOT1560.05	
Knowledge/Ability K/A	295030 EK3.02	Importance: RO / SRO 3.5 / 3.7
(Description of K&A, from catalog) Knowledge of the reasons for the following responses as they apply to Low SP Water Level: HPCI Operation		

Required Materials:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

16. A loss of all high pressure injection has occurred on Unit 1 with conditions as follows:

- All rods in
- RPV Water Level is -170 and dropping
- No low pressure ECCS pumps can be started
- RPV pressure has been recorded at 900 psig and is being maintained with SRV's

The crew is attempting to restore the "1B" CRD pump and line up per T-240.

WHICH ONE of the following describes steam cooling conditions under which adequate core cooling is assured?

	<u>RPV Level</u>	<u>RPV Pressure</u>	<u>Injection</u>
A.	-175"	795 psig	None
B.	-185"	800 psig	"1B" CRD pump
C.	-195"	910 psig	None
D.	-205"	890 psig	"1B" CRD pump

Answer Key		
Question ID# 016 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Core Cooling is assured in steam cooling as long as level is between -161 and -201, with no injection and pressure less than the value recorded in T-111 LR-14. Even though pressure is <100# below recorded value, this supply calls for a new pressure load.
Incorrect	B	Calculations for MZ1RWL assures that there is no sub cooling at the core inlet. Since any injection would invalidate this assumption, adequate Core Cooling can't be assured if RPV level is <-161 and water is being injected.
Incorrect	C	Once stabilized, if RPV pressure rises above the value recorded in CR-14, MZ1RWL calculations are no longer valid and the core may not be adequately cooled.
Incorrect	D	The candidate would select this answer if he didn't recognize that the safe area of this curve is below the curve. This is a common error because this varies between curves. It is also incorrect because water is being injected.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	5	Y	(b) (8-10)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-111 BASES, LR-12 through LR-17	
Learning Objective:	LOT-1560.03	
Knowledge/Ability K/A	K/A 295031 EK1.01	Importance: RO / SRO 4.6 / 4.7
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL: adequate core cooling.		

Required Materials:

Notes and Comments

Prepared By:  
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17. Unit 1 conditions are as follows:

- Core reload has just commenced during a refueling outage.
- SRM count rate is 30 cps

While lowering a fuel assembly not adjacent to an SRM, count rate increases to 65 cps and stabilizes.

WHICH ONE of the following describes the required action, if any?

- A. Immediately evacuate the refuel floor.
- B. Suspend component movement.
- C. Continue lowering fuel assembly.
- D. Raise the fuel assembly from the core so that it clears the upper grid.

Answer Key		
Question ID# 017 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	FH-105 requires suspension of component movement when one doubling is reached
Incorrect	A	This would only be appropriate in the event of criticality.
Incorrect	C	FH-105 requires suspension of component movement when one doubling is reached
Incorrect	D	This action is not required if it is the 1 <sup>st</sup> through 4 <sup>th</sup> fuel assembly adjacent to the detector at the start of a core reload.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.0	3	Y	(b) (8-10)	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	FH-105, STEP 3.7	
Learning Objective:	LLOT0760.12	
Knowledge/Ability K/A	295023 2.2.28	Importance: RO / SRO 3.5 / 3.3
(Description of K&A, from catalog) Knowledge of new and spent fuel movement procedures.		

Required Materials:

Notes and Comments

Prepared By:  
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18. An ATWS is in progress on Unit 1.

Reactor Power is 100%.

A Group 1 NSSSS isolation occurs and SRV's open to lower RPV pressure.

The PRO is controlling RPV pressure 990 – 1096 psig with SRV's.

The highest recorded RPV steam dome pressure was 1340 psig.

WHICH ONE of the following describes actions that satisfy the MOST LIMITING Tech Spec requirements?

- A. Notify the NRC and be in at least STARTUP within 6 hours.
- B. Place RPS in the tripped condition within 6 hours and be in HOT SHUTDOWN within 12 hours.
- C. Notify the NRC within 1 hour and be in HOT SHUTDOWN within 2 hours.
- D. Be in HOT SHUTDOWN within 12 hours and COLD SHUTDOWN within the next 24 hours.



19. Unit 1 plant conditions are as follows:

- Reactor Power is 8%
- Reactor mode switch is in STARTUP
- ~~"2D"~~ IRM is failed upscale *Revised 11/3/06*  
"1D"

An electrical fault results in the loss of 1AY160.

WHICH ONE of the following identifies the impact on IRMs and status of RPS?

- A. IRM Channels A, C, E, and G lose power, Full Reactor Scram.
- B. ONLY IRM Channels A, and C, lose power, Full Reactor Scram.
- C. IRM Channels A, C, E, and G lose power, Reactor 1/2 Scram ONLY.
- D. ONLY IRM Channels A, and C, lose power, Reactor 1/2 Scram ONLY.

Answer Key		
Question ID# 019 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	IRM Channels A, C, E, and G loss power on a loss of 1AY160, Full Reactor Scram occurs due to mode switch in startup and RPS A side ½ scram loss of 1AY160 and RPS B side ½ scram (D IRM upscale)
Incorrect:	B	ONLY IRM Channels A, and C, loss power is incorrect as E & G channels also lose power, Full Reactor Scram is correct
Incorrect:	C	IRM Channels A, C, E, and G loss power is correct, Reactor 1/2 Scram is incorrect as full reactor scram will occur
Incorrect:	D	ONLY IRM Channels A, and C is incorrect as E & G channels also lose power, Reactor 1/2 Scram is incorrect as full reactor scram will occur

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	N	(b) 7	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-1AY160, Step 1.2 and 1.22, AND GP-2, Caution before step 3.4.7	
Learning Objective:	LLOT0250.07	
Knowledge/Ability K/A	215003 K2.01	Importance: RO / SRO 2.5 / 2.7
(Description of K&A, from catalog) Knowledge of electrical power supplies to the IRM channels/detectors		

Required Materials:

Notes and Comments

Prepared By:  
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20. Unit 1 Plant conditions are as follows:

- Reactor Startup is in progress
- "1A" and "1D" IRM's are on range 1
- All other IRM's are on range 2

"1A" SRM is being withdrawn when the count rate drops to 90 CPS.

WHICH ONE of the following identifies the impact on the Reactor Manual Control System (RMCS)?

- A. No rod blocks are enforced.
- B. Only a rod withdraw block is enforced.
- C. Only a rod insert block is enforced.
- D. Both rod insert and withdrawal rod blocks are enforced.

Answer Key		
Question ID# 020 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Only a rod withdraw blocks is enforced, is correct as all IRMs are not above range 2 and SRM CPS are less than 100 with detector not full in
Incorrect	A	No rod blocks are enforced, is not correct. It would be correct if all IRMs were above range 2
Incorrect	C	Only a rod insert block is enforced. This is not correct as SRM CPS less than 100 with detector not full in does not enforce an insert block
Incorrect	D	Rod insert and withdrawal rod blocks are enforced SRM CPS are less than 100 with detector not full in

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	4	N	(b) (5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-2 Appendix 1, step 3.3.7 and NOTE	
Learning Objective:	LLOT0240.06:	
Knowledge/Ability K/A	215004 K5.03	Importance: RO / SRO 2.8 / 2.8
(Description of K&A, from catalog) Knowledge of the operational implication of the following concept as they apply to SRM System - changing detector position		

Required Materials:

Notes and Comments

Prepared By:  
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21. Unit 2 is at 100% power.

#2 APRM output fails to 2%.

WHICH ONE of the following completes the statement below?

"The "2B" Rod Block Monitor channel \_\_\_\_\_."

- A. initiates a rod block
- B. automatically goes to Bypass mode
- C. automatically swaps to reference #3 APRM
- D. automatically swaps to reference #4 APRM

Answer Key		
Question ID# 021 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	The RBM sees less than 30% power from its reference APRM and Auto Bypasses
Incorrect	A	Rod Block results an Upscale, Downscale, or Inop condition. Failure of the reference APRM will NOT cause a RBM Inop or Downscale.
Incorrect	C	The reference APRM would only swap if the primary APRM channel were INOP or Bypassed. This failure does not constitute these conditions. The alternate reference APRM for #2 is #4.
Incorrect	D	#4 APRM is the correct alternate, however, the reference APRM would only swap if the primary APRM channel were INOP or Bypassed.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	4	N	(b) (2)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC 108, A-5	
Learning Objective:	LLOT0280.09a	
Knowledge/Ability K/A	215005 K1.03	Importance: RO / SRO 3.4 / 3.5
(Description of K&A, from catalog) Knowledge of the physical connections and/or cause-effect relationship between APRM/LPRM and the following: RBM		

Required Materials:

Notes and Comments

Prepared By:  
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22. The CRS has ordered a GP-4 shutdown as a result of the "1E" SRV being stuck open.

Following the performance of GP-4 actions plant conditions are as follows:

- Reactor power is 28%
- CRS has entered T-117
- "1E" SRV is still open
- Suppression Pool temperature is 112°F and going up
- T-270 is complete, injection has been terminated

Reactor level is -100" when reactor power is noted to be below 4%.

WHICH ONE of the following describes the correct RPV water level band and the basis for this band?

- A. -60" to -100" in order to lower power by reducing core inlet subcooling.
- B. -60" to -100" in order to lower power by reducing natural circulation driving load and core flow.
- C. -100" to -186" in order to lower power by reducing core inlet subcooling.
- D. -100" to -186" in order to lower power by reducing natural circulation driving head and core flow.

Answer Key		
Question ID# 022 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Conditions are set for level lowering to below TAF. The bases for this level lowering is reduction of natural circulation driving head
Incorrect	A	This is the appropriate level band and reasons for the first level lowering. This is N/A once SP temp is 110° and SRV is open
Incorrect	B	This level condition is not appropriate, the reason is associated with the -161 to -186 level band
Incorrect	C	This level band is correct, the reason is associated with the higher level band

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	5	Y	(b) (5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-117, T-117 Bases, LQ-6 through LQ-11 and LQ-16.	
Learning Objective:	LLOT1560.05	
Knowledge/Ability K/A	295037 EK.2.09	Importance: RO / SRO 4.0 / 4.2
(Description of K&A, from catalog) Knowledge of the interrelations between SCRAM Condition Present and Reactor Power above APRM down SCL or unknown & the following...Reactor Water Level		

Required Materials:

Notes and Comments

Prepared By:

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23. Unit 2 is operating at 100% when a Turbine Trip occurs. Two minutes later the following conditions are noted:

- Reactor Power is 0%
- Rod 26-11 is at position "48"
- Rod 50-31 is at position "48"
- Rod 22-51 is at position "48"
- All other control rods are at "00"
- SLC is not running

Subsequently, the RO begins to insert rods.

WHICH ONE of the following describes control rod positions that meet the criteria for NO ATWS?

- A. Rods 26-11, 50-31, and 22-51 are at position "04".
- B. Rod 26-11 and 50-31 are at position "02" and 22-51 is at position "04".
- C. Rods 26-11 and 50-31 are at position "00" and 22-51 is at position "48".
- D. Rod 26-11 is at position "00" and rods 50-31 and 22-51 are at position "48".

Answer Key		
Question ID# 023 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Meets the Tech Spec definition of shutdown margin with the single strongest rod fully withdrawn and all other rods fully inserted
Incorrect	A	Does not meet the Tech Spec SDM criteria
Incorrect	B	Criteria stipulate that if one rod is fully withdrawn or less, all other rods must be fully inserted. Having one out and all others to or beyond "02" does not met the definition
Incorrect	D	Does not meet the Tech Spec SDM criteria

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	Y	(b) (10)	(b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-101, note 14, Tech Specs definition of Shutdown Margin	
Learning Objective:	LLOT1560.03	
Knowledge/Ability K/A	295037 EA 2.05	Importance: RO / SRO 4.2 / 4.3
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to SCRAM condition present and Reactor power above APRM downscale or unknown: Control Rod Position		

Required Materials:

Notes and Comments

Prepared By:  
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24. A radiological accident has caused the following annunciators to alarm:

- NORTH STACK HI-HI RADIATION (003 E1)
- NORTH STACK HI RADIATION (003 E2)

WHICH ONE of the following areas is the location of the radiation release, and what is the required action to mitigate the release?

- A. Standby Gas Treatment Exhaust  
Enter and execute T-104 Radiological Release.
- B. Standby Gas Treatment Exhaust  
Perform ST-6-104-880-0, Gaseous Effluent Dose Rate Determination.
- C. Reactor Enclosure Equipment Compartment Exhaust  
Evacuate all unnecessary personnel per SE-24, Plant Evacuations.
- D. Reactor Enclosure Equipment Compartment Exhaust  
Enter and execute T-103, Secondary Containment Control.

Answer Key		
Question ID# 024 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	Possible source, ST must be performed and LGS Emergency Plan annex, Table 3-1 must be consulted
Incorrect	A	Possible source but alarm alone is not sufficient reason to enter and execute T-104
Incorrect	C	Not a possible source based on the given conditions, although the action is plausible given this source
Incorrect	D	Not a possible source based on the given conditions, although the action is plausible given this source

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	N	(b) (7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC-MCR-003-E1, ST-6-104-880-0, T-104	
Learning Objective:	LLOT0720.03	
Knowledge/Ability K/A	295038 EK2.03	Importance: RO / SRO 3.6 / 3.8
(Description of K&A, from catalog) Knowledge of the interrelationship between HIGH OFFSITE RELEASE RATE and: Plant ventilation systems		

Required Materials:

Notes and Comments

Prepared By:  
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25. Given the following plant conditions:

- The Main Control Room has been abandoned due to a fire
- Immediate actions of SE-1 have been completed
- The Remote Shutdown Panel has been manned
- All Remote Shutdown Panel transfer switches have been placed in EMERGENCY
- Reactor pressure is 980 psig and rising slowly

WHICH ONE of the following identifies the systems available for RPV level control?

- A. RCIC controlled manually, ONLY.
- B. HPCI controlled manually, ONLY.
- C. RCIC controlled manually with HPCI cycling in AUTO.
- D. HPCI controlled manually with RCIC cycling in AUTO.

Answer Key					
Question ID# 025 Both RO/SRO					
Choice		Basis or Justification			
Correct:	C	RCIC is the primary means of level control from the Remote Shutdown Panel, but must be started up and shutdown manually. HPCI will cycle in AUTO as long as it has not been disabled.			
Incorrect	A	RCIC manual control is available, but HPCI will cycle in AUTO as long as it has not been disabled.			
Incorrect	B	HPCI manual control is not available from the RSP. It can either be allowed to cycle in AUTO, or completely disabled from the RSP.			
Incorrect	D	HPCI will cycle in AUTO as long as it has not been disabled. RCIC must be started up and shutdown manually.			
Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	Y	(b) (5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	SE-1 step 4.3	
Learning Objective:	LLOT0735.02, .03	
Knowledge/Ability K/A	295016 AK2.01	Importance: RO / SRO 4.4 / 4.5
(Description of K&A, from catalog) Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and...Remote Shutdown Panel		

Required Materials:

Notes and Comments

Prepared By:  
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26. Unit 2 Plant conditions are as follows:

- Main Condenser vacuum is 20" and dropping
- Reactor is scrammed
- Main Turbine is tripped
- Turbine speed is 100 RPM and slowly coasting down
- Sealing Steam header pressure is 0 psig

The CRS orders the PRO to break Main Condenser vacuum.

Per OT-116 Bases, WHICH ONE of the following describes the reason for this action?

- A. Rapidly reduce turbine speed to prevent damage due to windage.
- B. Reduce differential pressure across turbine seals to prevent turbine exhaust hood over-pressurization.
- C. Rapidly reduce turbine speed to prevent damage due to uneven rotor heating.
- D. Reduce differential pressure across turbine seals to prevent drawing cold air across the hot rotor.

Answer Key					
Question ID# 026 Both RO/SRO					
Choice		Basis or Justification			
Correct:	D	With no sealing steam pressure, main condenser vacuum will draw cold air across the seals and the hot turbine rotor			
Incorrect	A	Preventing windage damage is the reason why vacuum should not be broken greater than 1200 RPM			
Incorrect	B	Preventing Turbine exhaust hood over-pressurization is the reason for tripping the Main Turbine at 21.5" VAC			
Incorrect	C	Uneven rotor heating is a problem if sealing steam is applied to a stationary turbine rotor			
Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	4	Y	(b) (7)	N

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	OT-116 BASES, step 3.3
Learning Objective:	LLOT1540.05
Knowledge/Ability K/A	295002                      Importance: RO / SRO AK2.11                      2.6 / 2.7
(Description of K&A, from catalog) Knowledge of the interrelationship between LOSS of MAIN Condenser VAC and ... Seal steam:	

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

27. A reactor startup is in progress on Unit 2.

Reactor Power is 3%.

- A Reactor Scram is attempted
- Ten control rods remain at position "04" to "48"

WHICH ONE of the following describes the required operator action?

- A. Enter T-100, bypass RWM and insert control rods with S73.0.D.
- B. Enter T-100, insert control rods with T-213.
- C. Enter T-101, bypass RWM and insert control rods with S73.0.D.
- D. Enter T-101, insert control rods with T-213.

Answer Key		
Question ID# 027 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	As Reactor power is below 4% entry into T-100 is appropriate, Bypass RWM and Insert Control Rods with S73.0.D is directed
Incorrect	B	T-213 is not directed in T-100
Incorrect	C	As Reactor power is below 4% entry into T-100 (vice T-101) is appropriate
Incorrect	D	As Reactor power is below 4% entry into T-100 (vice T-101) is appropriate and T-213 is not directed in T-100

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	N		N

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	T-100 Bases step RC/Q-3
Learning Objective:	LLOT1540.02
Knowledge/Ability K/A	295015                      Importance: RO / SRO AA2.01                      4.1 / 4.3
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM...Reactor Power	

Required Materials:

Notes and Comments

Prepared By:  
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28. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- Drywell cooling is maximized

An inadvertent Group VIII A isolation occurs.

WHICH ONE of the following describes the status of Drywell Chilled Water service to the Drywell and Recirc Pump cooling water one minute later?

	<u>Drywell Chilled Water</u>	<u>Recirc Pump Cooling Water</u>
A.	In Service	In Service
B.	In Service	Isolated
C.	Isolated	In Service
D.	Isolated	Isolated

Answer Key		
Question ID# 028 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	An inadvertent VIIIA isolation would result in both DWCW and Recirc Pump cooling water isolating
Incorrect	A	Both will isolate
Incorrect	B	DWCW will also isolate
Incorrect	C	Recirc Pump cooling water will also isolate

Psychometrics					
	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	2	N	(b) (8, 9, 10)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8.1 for Group VIIIA	
Learning Objective:	LLOT0180.05	
Knowledge/Ability K/A	295020 AK1.05	Importance: RO / SRO 3.3 / 3.6
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to INADVERTENT CONTAINMENT ISOLATION – Loss of Drywell/Containment Cooling		

Required Materials:

Notes and Comments

Prepared By:  
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29. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- Hydrogen Water Chemistry is not in service

The following annunciators are received:

- MAIN STEAM LINE DIV 1 RAD MONITOR HI/DOWNSCALE (109 F1)
- MAIN STEAM LINE DIV 2 RAD MONITOR HI/DOWNSCALE (109 F2)

Subsequently the following annunciator is received:

- MAIN STEAM LINE HIGH HIGH RADIATION (107 I1)

WHICH ONE of the following describes the procedure(s), which must be entered for valid alarms, and the required operator action(s)?

- A. Enter ON-102 ONLY; reduce reactor power in accordance with GP-5, Appendix 2.
- B. Enter T-103 ONLY; perform a GP-3 Normal Plant Shutdown.
- C. Enter ON-102 and T-103; perform a rapid plant shutdown and close the MSIV's.
- D. Enter ON-102 and T-103; perform a rapid plant shutdown and Emergency Blowdown per T-112.

Answer Key		
Question ID# 029 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Main steam line high rad requires entry into ON-102 and T-103. The high-high rad alarm indicates three times NFPB. Per T-103 this requires a rapid plant shutdown and closure of the MSIV's
Incorrect	A	While reducing power is an immediate action per ON-102, question conditions also require entry into T-103 and the actions described in "C" above
Incorrect	B	ON-102 entry is also required and a GP-3 shutdown would be appropriate per T-103 if 2 or more areas exceeded MSO rad level, but is not adequate for the stated conditions
Incorrect	D	An emergency blow-down would be appropriate per T-103 if two or more areas exceeded MSO and a primary system was discharging into the Reactor Enclosure, but is not required for MSL High-High Rad only

Psychometrics					
	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	5	Y	Y (b)(10)	Y (b)(2)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC-MCR-109-F1, ARC-MCR-109-F2, ARC-MCR-107-11, ON-102 Step 1.2, T-103	
Learning Objective:	LLOT1560.02, LLOT1550.01	
Knowledge/Ability K/A	295033 G2.4.4	Importance: RO / SRO 4.0 / 4.3
(Description of K&A, from catalog) High Secondary Containment Radiation Levels: Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.		

Required Materials:

Notes and Comments

Prepared By:

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30. Plant conditions are as follows:

- A LOCA is in progress
- Drywell Hydrogen is 3%
- Drywell Oxygen is 8%
- Suppression Pool Hydrogen is 7%
- Suppression Pool Oxygen is 4%

WHICH ONE of the following identifies the flowpath for combustible gas monitoring and control?

- A. DW/G-3 and SP/G-1
- B. DW/G-2 and SP/G-2
- C. DW/G-3 and SP/G-3
- D. DW/G-2 and SP/G-1

Answer Key		
Question ID# 030 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Applying the containment H <sub>2</sub> and O <sub>2</sub> levels to the tables, PC/G-1 and PC/G-2 in T-102, sh. 2, results in the use of flowpaths DW/G-3 and SP/G-1
Incorrect	B	Neither of these flowpaths are correct per PC/G-1 and PC/G-2, T-102, sh. 2
Incorrect	C	The drywell flowpath is correct; the suppression pool flowpath is not, per PC/G-1 and PC/G-2, T-102, sh. 2.
Incorrect	D	The suppression pool flowpath is correct; the drywell flowpath is not, per PC/G-1 and PC/G-2, T-102, sh. 2.

Psychometrics					
	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank - Modified LOR <input type="checkbox"/> ILT Exam Bank                                      Exam bank item	
Reference(s):	T-102, sheet 2 and T-102 Bases Step PC/G-5	
Learning Objective:	LLOT1560.06	
Knowledge/Ability K/A	500000 EA 2.03	Importance: RO / SRO 3.3 / 3.8
(Description of K&A, from catalog)		
Ability to determine and/or interpret the following as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: Combustible limits for drywell		

Required Materials:

**T-102 sht. 2**

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

31. A steam leak in the Unit 2 RCIC room resulted in a scram and Emergency Blowdown per T-112.

Conditions are as follows:

- Reactor pressure is 90 psig and dropping
- Reactor level is -30" and dropping
- Drywell pressure is 1.2 psig and steady

The PRO has been directed to maintain RPV level with low pressure ECCS.

WHICH ONE of the following actions will result in injecting to the RPV with low pressure ECCS? (No other operator actions are taken)

- A. Arm and depress the Core Spray Div. 1 Manual Initiation Pushbutton.
- B. Start the "2A" Core Spray Pump and take the HV-52-2F005A, Inboard Injection Valve, to OPEN.
- C. Arm and depress the Core Spray Div. 3 Manual Initiation Pushbutton.
- D. Start the "2C" RHR Pump, HV-51-2F017C LPCI, Injection Valve, will OPEN automatically.

Answer Key		
Question ID# 031 Both RO/SRO		
Choice		Basis or Justification
Correct:	A	Div 1 Manual Initiation Pushbutton will provide a Div 1 LOCA Signal, Start the "1A" pump and open the injection valves as long as the Reactor low pressure permissive is met.
Incorrect	B	The HV-52-2F005 will not open unless there is a LOCA signal present
Incorrect	C	Div 3 Manual Initiation Pushbutton will start the "1C" Core Spray Pump, but it will not make up the open logic for the injection valves. Only the Div 1(2) Pushbuttons will do that
Incorrect	D	The HV-51-2F017C will not open automatically unless there is a LOCA signal present.

Psychometrics					
	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S52.7A, note above step 4,4	
Learning Objective:	LLOT0350.10	
Knowledge/Ability K/A	209001 PWG 2.1.30	Importance: RO / SRO 3.9 / 3.4
(Description of K&A, from catalog) Ability to locate and operate components associated with Low Pressure Core Spray System		

Required Materials:

Notes and Comments

Prepared By:  
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32. Unit 2 plant conditions are as follows:

- Reactor power is 100%
- Division 3 Safeguard 125V ~~+250V~~ DC is inoperable due to maintenance on the battery charger *Reference 11/3/06*

An inadvertent Group 1 isolation causes a reactor scram.

- Unit 2 RCIC starts on low reactor level
- A steam leak develops in the RCIC room. RCIC room temperature reaches 210°F

WHICH ONE of the following operator actions places the RCIC system in the configuration required by current plant conditions?

- A. Trip the RCIC Turbine.
- B. Depress the RCIC Manual Isolation Pushbutton.
- C. Take the handswitch for the HV-49-2F007, RCIC Steam Line Inboard Isolation to CLOSE.
- D. Take the handswitch for the HV-49-2F008, RCIC Steam Line Outboard Isolation to CLOSE.

Answer Key		
Question ID# 032 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	With a loss of Div 3 DC, the 2F007 will fail to isolate on High RCIC room temperature (205°F) and must be closed
Incorrect	A	The RCIC Turbine will trip on a Div 1 NS4 isolation signal on High RCIC Room temperature
Incorrect	B	Manual isolation will not close 2F007 valve due to loss of Div 3 DC
Incorrect	D	The 2F008 will close on a Div 1 NS4 Isolation signal on High RCIC Room temperature

Psychometrics					
	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	Y	Y (b)(5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-2FC, GE DWG M-1-E51-1040-E-028, Sht.1	
Learning Objective:	LLOT0380.05, LLOT0380.12	
Knowledge/Ability K/A	217000 A2.05	Importance: RO / SRO 3.3 / 3.3
(Description of K&A, from catalog) : Ability to (a) predict the impact of the following the RCIC system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: DC power loss		

Required Materials:

Notes and Comments

Prepared By:  
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33. Unit 1 plant conditions are as follows:

- Reactor water level is 35"
- "1B" RHR is in Suppression Pool cooling

Div 2 Safeguard DC Bus is subsequently deenergized.

WHICH ONE of the following describes the effect, if any, on "1B" RHR Loop if Reactor Water level lowers to  $-140$ "?

- A. "1B" RHR loop will realign to the LPCI mode.
- B. "1B" RHR pump will load shed and remain shutdown.
- C. "1B" RHR loop will remain in Suppression Pool cooling.
- D. "1B" RHR pump will continue to run; minimum flow valve will open.



34. Unit 1 plant conditions are as follows:

- OPCON 4
- "1A" RHR is in shutdown cooling

Reactor water level drops from +70" to -10".

WHICH ONE of the following identifies current RHR pump and valve status?

	<u>"1A" RHR Pump</u>	<u>HV-51-1F006A Shutdown Cooling Suction Valve</u>	<u>HV-51-1F009 Shutdown Cooling Isolation valve</u>
A.	Running	Open	Open
B.	Running	Open	Closed
C.	Tripped	Closed	Open
D.	Tripped	Open	Closed

Answer Key		
Question ID# 034 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	When level decreases to below +12.5" Shutdown Cooling will isolate F009, which in turn trips the ARHR pump, F006 remains open as there is no auto closure
Incorrect	A	Incorrect as F009 will close with level below +125" and pump will trip
Incorrect	B	Incorrect as pump will trip when level drops below 12.5" due to F009 closure
Incorrect	C	Incorrect as F006A will not automatically close and F009 <u>will</u> close when level drops below +125"

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S51.8.B, step 3.2	
Learning Objective:	LLOT0370.14c	
Knowledge/Ability K/A	205000 K6.04	Importance: RO / SRO 3.6 / 3.6
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of the following will have on the Shutdown Cooling System (RHR shutdown Cooling Mode): Reactor water level		

Required Materials:

Notes and Comments

Prepared By:  
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35. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- The RO selects Single-Element control on the Feedwater Master Level Controller (LIC-M1-1R600)

WHICH ONE of the following describes the response, if any, of the Master Level Controller to a Reactor SCRAM?

- A. Controller will swap to three-element when SCRAM Profile is activated.
- B. Controller will swap to three-element when SCRAM Profile is reset.
- C. Controller will swap to three-element when Reactor power is below 20%.
- D. Controller will remain in single-element.

Answer Key		
Question ID# 035 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	SCRAM profile will swap controller to three element even if operator selected single element.
Incorrect	B	This is incorrect as FW will swap to single element when SCRAM profile is reset
Incorrect	C	This is incorrect as FW will swap to single element at ~20%
Incorrect	D	This is incorrect a controller will not remain in single element if single is selected (IF FW flow failure had caused swap to single element this would be correct).

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S.06.1.D Unit 1, Attachment 1	
Learning Objective:	LLOT0550.08	
Knowledge/Ability K/A	259002 K5.01	Importance: RO / SRO 3.1 / 3.1
(Description of K&A, from catalog) Knowledge of the operational implications of the following concepts as they apply to reactor water level control system: controller operation		

REQUIRED MATERIALS:

Notes and Comments:

This question relates to the LGS plant specific FW controllers.

Prepared By:  
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36. Unit 1 plant conditions are as follows:

- HPCI is in service for RPV pressure control (CST to CST)
- FIC-055-1R600 "HPCI FLOW CONTROL VALVE AUTO/MAN switch" is in AUTO
- HV-55-1F008 "HPCI, Test Loop Shutoff" is throttled to maintain pump discharge pressure 150 psig over Reactor pressure.
- The RO throttles HV-55-1F008 in the closed direction for one second

WHICH ONE of the following describes HPCI turbine speed and flowrate one minute later?

	<u>HPCI Turbine Speed</u>	<u>Flowrate</u>
A.	No change	Higher
B.	Higher	No change
C.	Lower	No change
D.	No change	Lower

Answer Key		
Question ID# 036 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	With Flow Controller in AUTO, system flow is maintained constant. IF F008 is throttled closed HPCI speed will need to increase to maintain the same flow
Incorrect	A	Flow Controller is in Auto, maintaining system flow constant
Incorrect	C	To maintain constant flow w/F008 throttled closed, speed goes up.
Incorrect	D	Flow Controller is in Auto, maintaining system flow constant.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	2.5	3	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S55.1.D, note Step 4.4.3	
Learning Objective:	LLOT0340.12	
Knowledge/Ability K/A	206000 HPCI A1.09	Importance: RO / SRO 3.4 / 3.5
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameter associated with operating HPCI controls including: Turbine speed.		

Required Materials:

Notes and Comments

Prepared By:  
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37. Unit 1 plant conditions are as follows:

- ADS Auto Inhibit switches are in "NORM"
- RPV water level is -10" and lowering
- RPV pressure is 400 psig and steady
- Drywell pressure is 1.8 psig
- Core Spray pumps "1B" and "1D" are running
- Core Spray pumps "1A" and "1C" are tripped and cannot be started
- ALL RHR pumps are tripped and cannot be started

Subsequently, RPV water level drops to -133".

WHICH ONE of the following identifies the response of DIV 1 and DIV 3 ADS subsystems? (Assume no operator actions)

<u>DIV 1 ADS</u>	<u>DIV 3 ADS</u>
A. Initiates after 105 second TD	Will not initiate
B. Initiates after 525 second TD	Will not initiate
C. Will not initiate	Initiates after 105 second TD
D. Will not initiate	Initiates after 525 second TD

Answer Key		
Question ID# 037 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	DIV 1 ADS will not initiate as no Div 1 Core Spray or RHR pumps are running DIV 3 will initiate as B & D core spray pumps are running 105 sec is correct as -129 and HI DW pressure are met.
Incorrect:	A	DIV 1 will not initiate without correct pumps running DIV 3 will initiate as described above
Incorrect	B	DIV 1 ADS will not initiate without correct pumps running DIV 3 will initiate as described above
Incorrect	D	DIV 1 will not initiate is correct but, DIV 3 initiating after 525 seconds is incorrect as -129 and 1.68# conditions bypass 420 sec timer.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	Y	Y (b)(7)	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	B21-1060 (ADS) Sh. 3	
Learning Objective:	LLOT0350.04c	
Knowledge/Ability K/A	209001 K3.02	Importance: RO / SRO 3.8 / 3.9
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of core spray will have on the following: ADS Logic		

REQUIRED MATERIALS:

Notes and Comments:

Existing Question, Stem and Distractors Modified

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38. Unit 1 plant conditions are as follows:

- An ATWS has occurred
- No operator actions are taken
- Reactor level is -40" and slowly lowering
- Reactor power is 30% and slowly lowering

Three minutes later Reactor power is 27% and slowly lowering.

WHICH ONE of the following identifies lights and alarms for the given conditions?

- A. Squib valve continuity lights NOT lit; CORE SPRAY LINE INTERNAL BREAK alarm annunciated.
- B. Squib valve continuity lights NOT lit, STANDBY LIQUID TANK LO-LO LEVEL alarm annunciated.
- C. Squib valve continuity lights lit, RWCU SYSTEM ISOLATED alarm annunciated.
- D. Squib valve continuity lights lit, DIV I/II RRCS CHANNEL ACTIVATED alarm annunciated.

Answer Key		
Question ID# 038 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	Squib valve continuity Light not lit is correct as 3 minutes after -40" is reached with power above 4% SLC will have initiated. Additionally injection will result in "core spray line internal break" alarm
Incorrect	B	Is incorrect as SLC tank low-low level would not be alarming at this point.
Incorrect	C	Squib valve continuity lights lit is wrong as SLC will have initiated
Incorrect	D	Squib valve continuity lights lit is wrong as SLC will have initiated

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam 2001 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S48.1.B, section 4.0, ANN 113, B5	
Learning Objective:	LLOT0310.06	
Knowledge/Ability K/A	211000 A1.10	Importance: RO / SRO 3.7 / 3.7
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating SBLC system controls including : lights and alarms:		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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39. Unit 2 plant conditions are as follows:

- Turbine shell warming is in progress
- Turbine first stage pressure rises to 200 psig
- PIS-001-652A and D are lit on panels 10609 and 10C611 in the Aux Equipment Room respectively

WHICH ONE of the following identifies the plant response?

- A. Full Reactor SCRAM on Turbine Stop Valve closure.
- B. Full Reactor SCRAM on Turbine Control Valve closure.
- C. Half SCRAM ONLY on Turbine Stop Valve closure.
- D. Half SCRAM ONLY on Turbine Control Valve closure.

Answer Key		
Question ID# 039 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	A full Reactor SCRAM will occur on 3 out of 4 stop valve closed with Reactor power greater than 30%. Reactor power greater than 30% is indicated by pressure lights lit in AER
Incorrect	B	Turbine control valve closure scram is wrong as turbine control valves are open to support shell warming
Incorrect	C	This answer is wrong as a complete SCRAM will occur
Incorrect	D	This answer is wrong as a complete SCRAM will occur

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.5	3	Y	Y (b)(7)	N

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	GP-2 Appendix 3, step 3.2.8 caution ANN 107, A2
Learning Objective:	LLOT0300.04
Knowledge/Ability K/A	212000 RPS K4.12 Importance: RO / SRO 3.9 / 4.1
(Description of K&A, from catalog) Knowledge of RPS design feature and/or interlocks which provide for bypassing of selected SCRAM signals (manually and automatically):	

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

40. Unit 1 plant conditions are as follows:

- Reactor power 100%
- Reactor level 35"
- LT-42-IN004A "Feedwater Narrow Range Level Transmitter" fails downscale

Subsequently, LT-42-IN004C "Feedwater Narrow Range Level Transmitter" fails upscale.

WHICH ONE of the following describes the impact, if any, on feedwater level control and Reactor level?

- A. Feedwater Master Level Controller will swap to single element, Reactor level will go up.
- B. Feedwater Master Level Controller will swap to single element, Reactor level will remain at 35".
- C. Feedwater Master Level Controller will remain in three element, Reactor level will remain at 35".
- D. Individual Reactor Feed Pump speed controllers will swap to manual, Reactor level will go up.



41. Unit 1 plant conditions are as follows:

- An ATWS is in progress
- Reactor power is 50% and steady
- Reactor water level is 35" and steady
- Reactor pressure is 1045 psig and steady

RRCS DIV "1B" AND DIV "2A" Manual Initiation Pushbuttons are armed and depressed.

WHICH ONE of the following identifies RRCS response?

- A. ARI will initiate immediately.
- B. Recirc Pumps will trip in 9 seconds.
- C. SLC will initiate if APRM's are not downscale in 118 seconds.
- D. DIV I / II RRCS annunciators will illuminate, ARI solenoids remain deenergized.

Answer Key		
Question ID# 041 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	RRCS manual initiation requires depressing both pushbuttons in the SAME Division, the noted action (one pushbutton in separate divisions) will not initiate RRCS
Incorrect	A	ARI will not initiate as RRCS is not initiated, and conditions for automatic initiation are not met
Incorrect	B	Recirc pump trip does not initiate from manual RRCS initiation, and conditions for automatic initiation are not met
Incorrect	C	SLC will not initiate as RRCS is not initiated, and conditions for automatic initiation are not met

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-18 Attachment 4, ANN 004 F-5	
Learning Objective:	LLOT0315.05	
Knowledge/Ability K/A	212000 A4.16	Importance: RO / SRO 4.4 / 4.4
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: Manually activate anticipated transient without scram circuitry/RRCS		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

42. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- Normal Reactor Enclosure ventilation is in service
- Both Standby Gas Treatment System fans are in AUTO

Reactor water level master trip units, LIS-42-1N681A and LIS-42-1N681B, fail downscale.

WHICH ONE of the following identifies the status of Standby Gas Treatment System (SGTS) five minutes later?

- A. "0A" SGTS Fan and "0B" SGTS Fan running.
- B. Only "0A" SGTS Fan running.
- C. Only "0B" SGTS Fan running.
- D. Both SGTS Fans off.

Answer Key		
Question ID# 042 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	"A" Reactor enclosure isolation and "A" SGTS start will occur on LIS-42-IN681A and B downscale failure
Incorrect:	A	Incorrect as B Fan will not start
Incorrect	C	Incorrect as B Fan will not start
Incorrect:	D	Incorrect as A Fan will start

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	4	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ANN 004 E-1	
Learning Objective:	LLOT0200.10B	
Knowledge/Ability K/A	261000 K6.08	Importance: RO / SRO 3.1 / 3.1
(Description of K&A, from catalog) Knowledge of the effect that a Loss or Malfunction of the following will have on the SGTS system: Reactor vessel level		

Required Materials:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

43. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- Reactor level is 35"

A Condensate min flow controller malfunction results in the following:

- Reactor Feed Pump (RFP) suction pressure drops to 230 psi for 6 seconds and then goes up to 250 psig

WHICH ONE of the following identifies the subsequent Feedwater system status?

- A. "1A" RFP is tripped, "1B" and "1C" RFP's are running.
- B. "1C" RFP is tripped, "1A" and "1B" RFP's are running.
- C. "1A" and "1B" RFP's are tripped, "1C" RFP is running.
- D. All RFPs are tripped.

Answer Key		
Question ID# 043 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	'1C" RFP will trip on Low suction after 5 seconds pressure due to suction pressure less than 233 psi for 5
Incorrect	A	"1A" RFP will not trip as "C" RFP trips first followed by "1B" at 10 seconds and "1A" at 15 seconds
Incorrect	C	"1B" and "1A" tripped is wrong as "1C" RFP will trip first
Incorrect	D	All RFPs tripped is wrong as suction pressure stabilized prior to trip of all 3 RFPs

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	3	Y	Y (b)(3)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ANN 104 Cond E-2 ANN's 102 Feed A1, B1, C1	
Learning Objective:	LLOT0520.08	
Knowledge/Ability K/A	256000 K1.02	Importance: RO / SRO 3.3 / 3.3
(Description of K&A, from catalog) Knowledge of the Physical connections and/or cause – effect relationship between condensate system and the following: Reactor Feedwater System		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

44. Unit 1 has been scrammed due to a LOCA.

RCIC auto-initiated following the SCRAM. Conditions are as follows:

- RPV water level has recovered to +35" and is steady
- Drywell pressure is 2.5 psig and steady
- The CRS has directed that RCIC be secured

WHICH ONE of the following will shutdown the RCIC turbine and leave RCIC ready for auto injection?

- A. Reset the RCIC initiation signal seal-in.  
Depress the RCIC turbine manual isolation pushbutton.  
Close the RCIC trip throttle valve (HV-50-112).
- B. Depress the RCIC turbine manual isolation pushbutton.  
Close the RCIC steam supply valve (HV-50-1F045).  
Reset the RCIC trip throttle valve (HV-50-112).
- C. Reset the RCIC initiation signal seal-in.  
Depress the RCIC turbine trip pushbutton.  
Close the RCIC steam supply valve (HV-50-1F045).  
Reset the RCIC trip throttle valve (HV-50-112).
- D. Depress the RCIC turbine trip pushbutton.  
Place the RCIC pump discharge flow controller in MANUAL.  
Set the RCIC pump discharge flow controller to 0%.  
Close the RCIC trip throttle valve (HV-50-112).

Answer Key		
Question ID# 044 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	Since the initiation signal is no longer present the operator can reset it, Trip the turbine and close the steam supply. Resetting the Trip throttle valve leaves RCIC ready for auto injection
Incorrect	A	Once the initiation signal is reset, the manual isolation will not work
Incorrect	B	These steps will shutdown RCIC, but the isolation must be reset in order to be ready for auto injection
Incorrect	D	These steps will shutdown RCIC if the initiation signal were still present. RCIC will not be ready to auto inject

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	2.5	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S49.2A section 4.1, S49.1C section 4.3	
Learning Objective:	LOT0380.08	
Knowledge/Ability K/A	217000 A4.04	Importance: RO / SRO 3.6 / 3.6
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room --Manually initiated controls		

Required Materials:

Notes and Comments

Prepared By:  
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45. WHICH ONE of the following identifies SRV indications during an ADS automatic blowdown?

	<u>Amber</u> <u>"Has Lifted Light"</u>	<u>White</u> <u>"Solenoid Energized Light"</u>
A.	Lit	Not Lit
B.	Lit	Lit
C.	Not Lit	Lit
D.	Not Lit	Not Lit

Answer Key		
Question ID# 045 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	During an automatic blowdown both amber "has lifted" (Acoustic monitor) and white solenoid (ADS Div 1 & 3) lights will light.
Incorrect	A	This is incorrect as white solenoid energized light will be lit on ADS auto initiation
Incorrect	C	This is incorrect as Amber "has lifted" light will be lit
Incorrect	D	This is incorrect as both lights will be lifted if there was no increased Drywell pressure this would be true

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.0	2	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OT-114, ARC 110 B-2	
Learning Objective:	LLOT0330.07a	
Knowledge/Ability K/A	218000 A3.01	Importance: RO / SRO 4.2/ 4.3
(Description of K&A, from catalog) Ability to monitor automatic operations of the ADS including: ADS valve operation:		

Required Materials:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

46. Unit 1 is operating at 100%.

An instrument failure results in an inadvertent RPV low-low level signal (-38").

WHICH ONE of the following describes the response of the Bypass Leakage Barrier Blocks and Vents?

- A. Instrument Gas Block Valves are closed and the vents are open.
- B. Recirc Pump Seal Purge Block Valves are closed and the vents are open.
- C. Main Steam Line Drain Block Valves are closed and the vents are open.
- D. N<sub>2</sub> Supply Block Valves are closed and the vents are open.

Answer Key		
Question ID# 046 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	N <sub>2</sub> Supply valve closes and vent valve opens on a Lo-Lo Reactor level signal (VIII B)
Incorrect:	A	This is incorrect as instrument gas block valves isolate at Lo-Lo-Lo Level
Incorrect	B	This is incorrect as recirc vent valves do not automatically open on an isolation
Incorrect	C	This is incorrect as main steam line vent valves do not automatically open

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	3	Y	Y (b)(5)	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8.1, Reactor Level 2-Low, Low section	
Learning Objective:	LLOT0180.08d	
Knowledge/Ability K/A	223002 A2.05	Importance: RO / SRO 3.3/ 3.6
(Description of K&A, from catalog) Ability to predict the impact of Nuclear Boiler Instrumentation failure on the primary containment isolations system/nuclear steam supply shutoff and base on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations.		

Required Materials:

Notes and Comments:

Modified LOR Bank Question

Prepared By:

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Limerick Regulatory Exam Author

47. D11 Diesel Generator is operating in parallel with the 101 Safeguard Bus with the following indications:

- 60 Hz
- 2000 KW
- 1600 KVAR

WHICH ONE of the following actions will restore the diesel generator within operating limits?

- A. Place Speed Governor in RAISE to adjust real load to 2100 KW.
- B. Place Speed Governor in LOWER to adjust real load to 1900 KW.
- C. Place Voltage Regulator in RAISE to adjust reactive load to 1700 KVAR.
- D. Place Voltage Regulator in LOWER to adjust reactive load to 1500 KVAR.

Answer Key		
Question ID# 047 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Reducing VARS to less than 1500 restores KVAR's to less than 75% KW, which corresponds to a Power Factor of 0.8
Incorrect:	A	Raising KW would also restore the ratio of KVAR to KW, but KW would have to be raised to 2133 KW.
Incorrect:	B	Lowering KW would make the D/G further from its operating limit.
Incorrect:	C	Raising KVAR would also make the D/G further from its operating limit.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	2.5	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S92.1.0, caution above step 4.5.5	
Learning Objective:	LLOT0670.02	
Knowledge/Ability K/A	264000 A4.01	Importance: RO / SRO 3.3 / 3.4
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control room: Adjustment of exciter voltage		

Required Materials:

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

48. Unit 1 plant conditions are as follows:

- "1A" CRD pump is in service
- Reactor power is 100%
- Reactor level is 35"

A failure of a level instrument line results in the following annunciators:

- EXCESS FLOW CHECK VALVE OPERATED C218 (112 E5)
- DIV 3 REACTOR LO-LO-LO Level (113 E3)

WHICH ONE of the following identifies the effect, if any, on the CRD system and the action required to restore CRD, if any?

- A. "1A" CRD pump trips.  
Can be restarted from the MCR.
- B. "1A" CRD pump remains running.  
No action required.
- C. "1A" CRD pump trips and cannot be restored.  
"1B" CRD pump must be placed in-service from the MCR.
- D. "1A" CRD pump trips.  
Can only be restarted from 4 KV switchgear.

Answer Key		
Question ID# 048 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	A CRD will trip due to Div III LOCA signal and LOCA load shed it can be restarted from the MCR
Incorrect	B	This is incorrect as a CRD pump will trip due to Div III LOCA load shed
Incorrect	C	This is incorrect as a CRD can be restarted
Incorrect	D	This is incorrect as CRD can be restarted from the MCR

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	2.5	3	Y	Y (b)(5)	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	SE-10, step 4.6	
Learning Objective:	LLOT0660.05b	
Knowledge/Ability K/A	262001 A2.02	Importance: RO / SRO 3.6 / 3.9
(Description of K&A, from catalog) Ability to predict the impact of a LOCA on A C electrical distribution; and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations		

Required Materials:

Notes and Comments:

This question was extensively modified from Question 373224 (ILT LERT EXAM 2005)

Prepared By:

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Limerick Regulatory Exam Author

49. Unit 1 Plant conditions are as follows:

- Reactor is scrammed
- Reactor pressure is 600 psig
- Division I DC is lost
- Reactor water level is +115"

Which one of the following can be used to lower Reactor pressure?

- A. "1B" SRV from the MCR.
- B. "1C" SRV from the RSP.
- C. "1J" SRV from the AER.
- D. "1S" SRV from the AER.

Answer Key		
Question ID# 049 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	S SRV is an ADS SRV and has power in the AER. While it is not one of the preferred SRV's (B,J,C) for use in OT-110, as the preferred SRVs are not available a non-preferred SRV is directed.
Incorrect	A	While B SRV is one of the preferred SRV's for use with high level it cannot be operated from the MCR due to the Loss of Div I DC
Incorrect	B	While C SRV is one of the preferred SRV's for use with high level it cannot be operated from the MCR due to the Loss of Div I DC
Incorrect	C	While J SRV is one of the preferred SRV's for use with high level, control is not available in the AER

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam 0801#221 <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OT-110 Step 3.1.4	
Learning Objective:	LLOT0120.12a	
Knowledge/Ability K/A	239002 K4.05	Importance: RO / SRO 3.6 / 3.7
(Description of K&A, from catalog) Knowledge of SRV design features and/or interlocks which provide for allowing SRV operation from more than one location		

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

50. Unit 1 plant conditions are as follows:

- Reactor power is 100%
- "1A" RECW pump is blocked for bearing replacement
- "1B" RECW pump trips and cannot be restarted

WHICH ONE of the following identifies the effect on the Reactor Recirc Pumps and required operator action?

- A. Seal cavity temperature rises.  
Reduce pump speed to maintain cavity temperature below 200°F.
- B. Seal cavity temperature rises.  
Trip the RECIRC pumps within 10 minutes.
- C. Pump motor temperature rises.  
Trip the RECIRC pumps if motor winding temperature exceeds 200°F.
- D. Pump motor temperature rises.  
Trip the RECIRC pumps within 10 minutes.

Answer Key		
Question ID# 050 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Loss of RECW will result in an increase in seal cavity temperature ON-113 directs tripping a RECIRC pump within 10 minutes of a loss of RECW
Incorrect:	A	On high seal cavity temperature ON-113 directs reducing speed to maintain temperature this occurs at a cavity temperature of 175°F not 200°F
Incorrect:	C	Pump motor temperature is unaffected by a LOSS of RECW (DWCW supplies motor cooler)
Incorrect:	D	Pump motor temperature is unaffected by a LOSS of RECW (DWCW supplies motor cooler)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	2.5	3	Y	Y (b)(5)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-113 step 2.1, S43.0.D	
Learning Objective:	LLOT0030.07b:	
Knowledge/Ability K/A	202001 A2.17	Importance: RO / SRO 3.1 / 3.2
(Description of K&A, from catalog) Ability to predict the impact of a loss of seal cooling water on the RECIRC system; and based on those predictions use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations.		

Required Materials:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
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51. Unit 2 plant conditions are as follows:

- "2A" RECW pump is running with its handswitch in AUTO after START
- "2B" RECW pump is off with its handswitch in AUTO after STOP

A complete Loss Of Offsite Power (LOOP) occurs.

All 4 KV systems operate as designed with all buses re-energizing SIMULTANEOUSLY.

WHICH ONE of the following describes the response of the RECW pumps?

- A. "2A" RECW pump auto re-starts.  
"2B" RECW pump auto starts in standby.
- B. "2A" RECW pump auto re-starts.  
"2B" RECW pump does NOT auto start in standby.
- C. "2A" RECW pump does NOT auto re-start.  
"2B" RECW pump auto starts in standby.
- D. "2A" RECW pump does NOT auto re-start.  
"2B" RECW pump does NOT auto start in standby.

Answer Key		
Question ID# 051 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	When their respective safeguard MCC's re-energized both RECW pumps auto start on low heat exchange outlet pressure
Incorrect	B	2A portion of this distractor is correct, 2B portion is incorrect, for the reason stated above
Incorrect	C	2A portion of this distractor is incorrect, 2B portion is correct for the reason stated above
Incorrect	D	Both the 2A and 2B portions of this distractor are incorrect as stated above.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-565	
Learning Objective:	LLOT0460.07	
Knowledge/Ability K/A	400000 K4.01	Importance: RO / SRO 3.4 / 3.9
(Description of K&A, from catalog) Knowledge of the CCWS design features and/or interlocks that provide for the following automatic start of standby pump		

Required Materials:

Notes and Comments

Prepared By:  
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52. Unit 1 plant conditions are as follows:

- Reactor startup is in progress
- Reactor power is 20%

Control rod withdrawal is in progress.

WHICH ONE of the following will result in a rod withdraw block?

- A. RBM upscale
- B. RBM downscale
- C. Control rod withdrawn past its withdraw limit
- D. RDCS Activities Control Disagree condition

Answer Key		
Question ID# 052 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Activities control disagree results in a Rod withdrawn and insert block due to a malfunction of RMCS
Incorrect	A	RBM upscale will not result in a rod block as Reactor power is less than 30%
Incorrect	B	RBM downscale will not result in a block as Reactor power is less than 30%
Incorrect	C	CR withdraw will not result in a Rod block as Reactor power is above RWM LPSP (18%)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S73.0.B, step 4.2 & note above step, ANN 108 D-4	
Learning Objective:	LLOT0080.06 =	
Knowledge/Ability K/A	201002 K3.02	Importance: RO / SRO 2.9 / 3.2
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of RMCS will have on RBM		

Required Materials:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
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53. Unit 1 plant conditions are as follows:

- Reactor "STARTUP" is in progress
- Reactor power is 12%
- Insert limit for current RWM rod group is "00"
- Withdraw limit for the current RWM rod group is "12"
- Control rod 10-39 is selected

Control rod 10-39, the first rod of the current group, is withdrawn to position "14" with no further operator action taken.

WHICH ONE of the following identifies the ability to move control rod 10-39?

- A. Control rod can be withdrawn and inserted without additional actions.
- B. Control rod can only be inserted without additional action.
- C. Control rod insertion capability requires rod to be bypassed in the RWM.
- D. Control rod insertion or withdraw capability requires a substitute position to be entered into RWM.

Answer Key		
Question ID# 053 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	RWM allow correction (insert) as it is a single notch error
Incorrect	A	Rod cannot be withdrawn as RWM will enforce a withdraw block
Incorrect	C	Rod does not need to be bypassed to allow insertion
Incorrect	D	This is not correct as substitute rod position is only used if there is no position indication

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	ON-123 step 2.12	
Learning Objective:	LLOT0093f	
Knowledge/Ability K/A	201006 K4.06	Importance: RO / SRO 3.2 / 3.4
(Description of K&A, from catalog) Knowledge of RWM design features and/or interlocks which provide for correction of out of sequence rod position		

Required Materials:

Notes and Comments

Prepared By:  
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54. Unit 1 plant conditions are as follows:

- Reactor was scrammed due to a condensate line rupture.
- Reactor level is -35" and lowering
- D124 safeguard load center transformer breaker tripped on over current

The RO is directed to start Standby Liquid Control to augment Reactor level.

- "1A" and "1C" SLC injection pumps are started and verified to be injecting

WHICH ONE of the following describes the RWCU system response?

- A. HV-44-1F004 "RWCU Outboard Suction Valve" closes.
- B. HV-44-1F001 "RWCU Inboard Suction Valve" closes.
- C. HV-44-1F004 "RWCU Outboard Suction Valve" and HV-44-1F001 "RWCU Inboard Suction Valve" close.
- D. HV-44-1F040 "RWCU Inlet Suction Valve" closes.

Answer Key		
Question ID# 054 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	"A" or "C" SLC pump start close F001 valve as "B" was not started (D124 is power supply for the "B" pump) F004 did not close
Incorrect	A	F004 does not close as "B" SLC pump did not start
Incorrect	C	While F001 did close answer is incorrect as F004 did not close due to "B" SLC pump not started
Incorrect	D	F040 does not receive and isolation signal on SLC start

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank - LORT <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-8.1, Signal Y	
Learning Objective:	LLOT0110.05	
Knowledge/Ability K/A	204000 A3.03	Importance: RO / SRO 3.6 / 3.6
(Description of K&A, from catalog) Ability to monitor automatic operation of RWCU including: response to system isolations:		

Required Materials:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

55. Unit 1 plant conditions are as follows:

- Reactor Power is 100%
- 1AY160 trips due to a ground fault

30 minutes later a Reactor SCRAM and turbine trip occur.

- Reactor pressure is 900 psig and steady
- Turbine speed is 300 RPM and dropping

WHICH ONE of the following identifies the ability to lower Reactor pressure using the bypass valves?

- A. Bypass valves cannot be used to control Reactor pressure.
- B. Bypass valves can be opened by raising the Bypass Jack.
- C. Bypass valves can be opened by lowering Pressure Set.
- D. Bypass valves can be opened by raising Maximum Combined Flow.

Answer Key		
Question ID# 055 Both RO/SRO		
Choice		Basis or Justification
Correct:	A	Due to Loss of 1AY160 and PMG (Turbine speed 300 RPM) bypass will not operate
Incorrect	B	Bypass jack will not operate due to loss of 1AY160
Incorrect	C	Pressure set will not operate due to the loss of 1AY160
Incorrect	D	Raising max combine flow (115%) will not open bypass valves (CV's are closed)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-1AY160 Attachment #1	
Learning Objective:	LLOT0560.010k	
Knowledge/Ability K/A	262002 K3.15	Importance: RO / SRO 2.6 / 2.7
(Description of K&A, from catalog) Knowledge of the effect that a loss or malfunction of UPS will have on Main Turbine Operation		

Required Materials:

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

56. A loss of instrument air is in progress on Unit 1.

"1A" and "1B" Instrument Air Headers are at 20 psig and lowering.

WHICH ONE of the following describes the response of Main Steam system valves?

- A. Only Outboard MSIVs close.  
All SRVs can be opened.
- B. Only Inboard MSIVs close.  
Only ADS and RSP SRVs can be opened.
- C. Inboard and Outboard MSIVs close.  
All SRVs can be opened.
- D. Inboard and Outboard MSIVs close.  
Only ADS and RSP SRVs can be opened.

Answer Key		
Question ID# 056 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Outboard MSIVs close on loss of instrument air inboard MSIVs close on loss of PCIG (PCIG is lost due to loss of Instrument Air Only ADS and RSP SRVs have accumulator and can be opened with Loss of PCIG
Incorrect	A	This is incorrect as inboard MSIVs also close. Also non ADS SRVs cannot be opened from handswitches due to loss of PCIG
Incorrect	B	This is incorrect as outboard MSIVs also close
Incorrect	C	This is incorrect as non-ADS SRVs cannot be opened from handswitches due to loss of PCIG

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	4.0	3	Y	Y (b)(9)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-119 Attachment 1	
Learning Objective:	LLOT0730.08	
Knowledge/Ability K/A	300000 K1.03	Importance: RO / SRO 2.8 / 2.9
(Description of K&A, from catalog) Knowledge of the connections and/or cause effect relationships between instrument air and containment air		

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

57. Unit 1 plant conditions are as follows:

- An ATWS is in progress
- Reactor power is 40% and steady
- Reactor level is -60" and steady

A turbine trip occurs; and Reactor power remains at 40%.

WHICH ONE of the following identifies conditions that will result in a RRCS feedwater runback, and when the runback will occur?

- A. Reactor pressure 1160 psig.  
Runback occurs in 118 seconds.
- B. Reactor pressure 1160 psig.  
Runback occurs in 25 seconds.
- C. Reactor pressure 1096 psig.  
Runback occurs in 30 seconds.
- D. Reactor pressure 1096 psig.  
Runback occurs in 9 seconds.

Answer Key		
Question ID# 057 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	RRCS Feedwater runback occurs IF Reactor power is greater than 4% and Reactor pressure is greater than 1149. Additionally runback occurs with a 25 second time delay
Incorrect	A	118 seconds is incorrect (118 seconds is the RRCS SBLC initiation time delay)
Incorrect	C	Reactor pressure 1096 is incorrect (1096 is the Reactor Scram setpoint) additionally 30 seconds is the Feedwater runback length once initiated
Incorrect	D	Reactor pressure 1096 is incorrect additionally 9 seconds is incorrect (9 seconds is the RRCS Recirc pump RPT Breaker time delay)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.0	3	Y	N/A	N/A

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GE Elementary Drawing G31-1020 ARC 004, B-4	
Learning Objective:	LLOT0315.04	
Knowledge/Ability K/A	216000 2.4.50	Importance: RO / SRO 3.3 / 3.3
(Description of K&A, from catalog) Ability to verify system alarm setpoints and operate controls identified in the alarm response manual Nuclear Boiler Instrumentation		

Required Materials:

Notes and Comments:

Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

58. WHICH ONE of the following lists contains ONLY Non-Safeguard DC System loads?
- A. Turbine Enclosure Area Rad Monitors  
Refuel Floor HVAC Isolation logic  
Primary RPS/UPS Inverter Power  
Recirc MG Set Emergency Lube Oil Pumps
  - B. 13.2 KV Breaker Control Power  
Main Control Room Annunciator  
Emergency Lighting Panels  
Primary RPS/UPS inverter Power
  - C. Primary APRM Inverter Power  
Reactor Enclosure HVAC Isolation logic  
4KV Breaker Control Power  
RFP Emergency Lube Oil Pumps
  - D. Recirc MG Set Emergency Lube Oil Pumps  
Primary APRM Inverter Power  
Emergency Lighting Panels  
Main Control Room Annunciator

Answer Key		
Question ID# 058 Both RO/SRO		
Choice		Basis or Justification
Correct:	D	All 4 loads are Now Safeguard DC
Incorrect:	A	Refuel Floor HVAC Isolation logic and Primary RPS/UPS Inverter Power are Safeguard DC loads
Incorrect:	B	Primary RPS/UPS inverter Power is a Safeguard DC load
Incorrect:	C	Reactor Enclosure HVAC Isolation logic and 4KV Breaker Control Power are Safeguard DC loads

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	(b) (7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-33, Sh 1-3 E-619, Sh 1-3	
Learning Objective:	LLOT0690.04	
Knowledge/Ability K/A	263000 K2.01	Importance: RO / SRO 3.1 / 3.4
(Description of K&A, from catalog) Knowledge of electrical power supplies to the following: Major DC loads		

Required Materials:

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

59. WHICH ONE of the following describes the reason Drywell Vacuum Relief Valves open?
- A. Prevent drawing excess negative pressure in the Drywell.
  - B. Prevent drawing excess negative pressure in the Suppression Pool.
  - C. Equalize pressure between the SRV Downcomer and the Suppression Pool.
  - D. Ensure the Suppression Pool pressure remains higher than Drywell pressure.

Answer Key		
Question ID# 059 Both RO/SRO		
Choice		Basis or Justification
Correct:	A	Vacuum Breakers Relief's will open on Drywell Pressure lower than Suppression Pool Pressure
Incorrect	B	Vacuum Breaker Operate on to ensure Drywell is not drawn negative
Incorrect	C	While some equalization will occur when Vacuum Breaker opens it is not the reason they open
Incorrect	D	The exact opposite is true, as Vacuum Breakers relieve the higher Suppression Pool pressure to the Drywell.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	Y	Y (b)(5)	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> ILT Exam Bank	
	<input checked="" type="checkbox"/> Previous NRC Exam 0999#119 <input type="checkbox"/> Other Exam Bank	
Reference(s):	ANN 114 G-1	
Learning Objective:	LLOT0130.02f	
Knowledge/Ability K/A	223001 K5.01	Importance: RO / SRO 3.1 / 3.3
(Description of K&A, from catalog) Knowledge of the Operational implications of Vacuum Breaker/relief operations as applies to Primary Containment system and auxiliaries		

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

60. Unit 1 is at 100% power when the following alarm is received:

- 1DB-1 250V DC MCC UNDERVOLTAGE (122 G-2)

WHICH ONE of the following identifies the system that is no longer operable, and the required action?

- A. ADS, station an Equipment Operator in the AER for SRV operation.
- B. RPS, stop all "B" side RPS testing.
- C. HPCI, declare HPCI INOPERABLE per Technical Specification.
- D. RCIC, perform T-249 for RCIC.

Answer Key		
Question ID# 060 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	HPCI is INOP due to loss of power to initiation logic and MOV's on a loss of Div 2 DC, HPCI should be declared INOP as a result of the loss of initiation logic
Incorrect:	A	ADS is supplied by Div 1 and Div 3 DC
Incorrect:	B	While "B" RPS will swap to its AC power source, it is still operable
Incorrect:	D	RCIC is supplied by Div 1 and Div 3 DC

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	3	Y	Y (b) (10)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC-MCR-122 G2, ARC MCR-117 A1	
Learning Objective:	LLOT0690.02	
Knowledge/Ability K/A	263000 2.4.31	Importance: RO / SRO 3.3 / 3.4
(Description of K&A, from catalog) DC Electrical Distribution: Knowledge of annunciators alarms and indications/and use of the response instructions		

Required Materials:

Notes and Comments

Prepared By:

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61. WHICH ONE of the following identifies values for both frequency and voltage that will satisfy the requirement for a diesel generator breaker to automatically close in on its associated bus?

	<u>Frequency</u>	<u>Voltage</u>
A.	56.2 Hz	4.1 KV
B.	57.4 Hz	4.0 KV
C.	58.6 Hz	3.9 KV
D.	59.8 Hz	3.8 KV

Answer Key		
Question ID# 061 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	Frequency and Voltage are required to be 95% of rated in order to energize the Diesel Ready to Load relay and close the output Breaker. These values would be 57 Hz and 3.952 KV
Incorrect	A	Voltage meets the requirement, Frequency does not
Incorrect	C	Frequency meets the requirement, voltage does NOT
Incorrect	D	Frequency meets the requirement, voltage does not

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.5	4	Y	Y (b) (7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-164	
Learning Objective:	LLOT0670.02. LLOT0660.04	
Knowledge/Ability K/A	264000 A3.03	Importance: RO / SRO 3.4 / 3.4
(Description of K&A, from catalog) Ability to monitor automatic operations of the Emergency Generators including: Indicating lights, meters and recorders		

Required Materials:

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

62. Unit 1 conditions are as follows:

- Reactor is shutdown
- Drywell pressure is 12 psig and steady
- Reactor pressure is 430 psig and steady

"1A" RHR is placed in Suppression Pool Spray.

- Reactor pressure drops to 280 psig
- DIV 1 LPCI INJECTION VALVE DELTA P PERMISSIVE (113A F4) annunciator is in alarm

WHICH ONE of the following identifies the response of "1A" RHR?

- A. Suppression Pool Spray automatically isolates and can be immediately re-established.
- B. Suppression Pool Spray automatically isolates and cannot be re-established until "1A" LPCI Injection Valve is closed.
- C. Suppression Pool Spray remains in service and must be manually secured to prevent pump runout.
- D. Suppression Pool Spray remains in service and "1A" LPCI injection valve remains closed.

Answer Key		
Question ID# 062 Both RO/SRO		
Choice	Basis or Justification	
Correct:	C	LPCI Injection valve opens (Delta P ANN) as Suppression Pool Spray was placed in service after LPCI initiation signal was present (LOCA signal) it will not automatically isolate and must be manually secured to prevent pump runout with LPCI Injection valve open
Incorrect	A	This is incorrect as spray does not isolate (LOCA) signal received previously) additionally, it cannot be re-established until LPCI injection valve is closed
Incorrect	B	This is incorrect as spray does not isolate (LOCA signal received previously)
Incorrect	D	This is incorrect as LPCI injection valve will open (Delta P ANN)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	4.0	3	Y	Y (b)(7)	

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank
Reference(s):	ARC-MCR-113 F4, T-225 step 4.2.2
Learning Objective:	LLOT0370.09b
Knowledge/Ability K/A	230000 A4.02 Importance: RO / SRO 3.8/ 3.6
(Description of K&A, from catalog) Ability to manually operate and/or monitor in the control Room. Spray valves	

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

## ATTACHMENT: ON-126 Provided

63. Unit 1 generator load has been raised in support of a PJM Grid Emergency.

Unit 1 Main Generator conditions are as follows:

- 1175 MWe
- 230 MVAR's (lagging)

Subsequently, 1 GEN HYDROGEN AND SEAL OIL SYS TROUBLE ALARM annunciates at 125 GEN.

An EO is dispatched and reports that generator hydrogen pressure is 60 psig and steady.

WHICH ONE of the following describes the required action(s)?

- A. Raise hydrogen pressure to 65 psig.
- B. Reduce generator output below 1125 MWe.
- C. Reduce reactive load to 200 MVAR's lagging.
- D. Perform a GP-4 Shutdown, trip the Main Turbine.

Answer Key		
Question ID# 063 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	Reduction in real load to less than 1125 MWe will restore the MW /MWe output to a value consistent with the 60 psig H <sub>2</sub> heating curve.
Incorrect:	A	H <sub>2</sub> Pressure would have to be restored to 75 psig in order to restore the MW/MWe output to within the armature heating curve.
Incorrect:	C	Reducing MVAR will not reduce the MW/MWe output to within the armature heating curve.
Incorrect:	D	A GP-4 Shutdown and trip of the Main Turbine would only be required if Hydrogen Pressure could not be maintained above 55 psig.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	4	N	Y (b)(5)	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Other Exam Bank	
Reference(s):	ON-126, Attachment 1	
Learning Objective:	LLOT0600.10	
Knowledge/Ability K/A	245000 A1.01	Importance: RO / SRO 2.7 / 2.7
(Description of K&A, from catalog) Ability to predict and/or monitor changes in parameters associated with operating the MAIN TURBINE GENERATOR and AUXILIARY SYSTEMS controls including; Generator Megawatts		

Required Materials:

**ON-126**

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

64. Unit 1 plant conditions are as follows:

- Reactor power is 100%

A failure of 1BY185 occurs.

WHICH ONE of the following identifies the status of APRM and RPS?

	<u>APRM'S</u>	<u>RPS</u>
A.	Indicating 0% Power	Full Scram
B.	Indicating 100% Power	Half Scram <u>ONLY</u>
C.	Failed Downscale	Full Scram
D.	Failed Downscale	Half Scram <u>ONLY</u>

Answer Key		
Question ID# 064 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	APRM's power supply is auctioneered, therefore, APRM's are still indicating on a loss of 1BY185. Loss of 1BY185 also results in a ½ SCRAM due to loss of power to 2 PRNMS voter units.
Incorrect	A	While APRM's would be indicating, this is incorrect because a full scram would not occur.
Incorrect	C	This is incorrect because it requires a loss of both 1AY185 and 1BY185 for the APRM's to fail downscale. In addition, a full scram would not occur.
Incorrect	D	While a half scram would occur, this is incorrect because it requires a loss of both 1AY185 and 1BY185 for the APRM's to fail downscale.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.5	3	N	Y (b)(7)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ANN 123 F-5, ANN 108 D-4, ANN 108 A-1	
Learning Objective:	LLOT0275.13c	
Knowledge/Ability K/A	215002 K2.03	Importance: RO / SRO 2.8 / 2.9
(Description of K&A, from catalog) Knowledge of electrical power supplies to the APRM channels		

Required Materials:

Notes and Comments

Prepared By:

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65. Plant conditions are as follows:

- Control Room Ventilation system is operating in the normal mode

A control room intake high radiation isolation signal is received on the "D" channel ONLY.

WHICH ONE of the following describes the subsequent Control Room Ventilation system status?

	<u>CREFAS FAN RUNNING</u>	<u>OUTSIDE AIR ENTERING MCR</u>
A.	"0A"	Yes
B.	"0A"	No
C.	"0B"	Yes
D.	"0B"	No



66. Unit 1 plant conditions are as follows:

- Div II DC is deenergized
- A digital feedwater malfunction is causing RPV level control problems
- A GP-4 shutdown is performed

Following the scram, RPV level drops and is automatically restored by RCIC.

WHICH ONE of the following describes the status of the "1A" and "1B" Reactor Recirc Pumps?

	<u>"1A" Recirc Pump</u>	<u>"1B" Recirc Pump</u>
A.	Running	Running
B.	Running	Tripped
C.	Tripped	Running
D.	Tripped	Tripped

Answer Key		
Question ID# 066 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	RPT breaker logic will normally trip both RPT's on -38. RCIC auto start indicates this parameter is reached. The loss of Div II DC will prevent one RPT breaker per pump from tripping, but the other one will trip and therefore, both pumps will be deenergized.
Incorrect:	A	Neither pump will be running due to RPT breakers for both pumps tripping
Incorrect:	B	The "1B" will be tripped, however the "1A" will also be tripped.
Incorrect:	C	The "1A" will be tripped, however the "1B" will also be tripped.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	3.5	4	Y	N	Y(b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank (LOR) <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-1FB, ARC MCR 111 C-5, ARC MCR 112 D-3, GP-18, step 1.0	
Learning Objective:	LLOT0315.06	
Knowledge/Ability K/A	2.4.21	Importance: RO / SRO 3.7/ 4.3
(Description of K&A, from catalog) Knowledge of the parameters and logic used to assess the status of safety functions		

Required Materials:

Notes and Comments:

Prepared By:  
 Rick Rhode (610) 718-4085  
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67. Unit 1 plant conditions are as follows:

- Drywell pressure 0.5 psig and rising
- Reactor pressure 1045 psig and steady
- HPCI room temperature 175<sup>0</sup>F and rising
- SDV level in AER is 10% and rising

WHICH ONE of the following alarms is consistent with the noted conditions?

- A. DIV 1 DRYWELL HI PRESS (113 E4)
- B. REACTOR HI PRESSURE TRIP (107 G1)
- C. B REAC ENCL HVAC PCL 1BC208 TROUBLE (004 A3)
- D. SCRAM DISCHARGE VOLUME HI LEVEL TRIP (107 C1)

Answer Key		
Question ID# 067 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	1BC208 panel trouble and HPCI room temp are consistent
Incorrect:	A	Drywell pressure value is below Alarm setpoint
Incorrect:	B	Reactor pressure valve is below the ALARM setpoint
Incorrect:	D	SDV level is below the ALARM setpoint

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.5	3	N	N	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank Modified	
Reference(s):	ANN's 004 A3	
Learning Objective:	LLOT1560.02	
Knowledge/Ability K/A	2.4.46	Importance: RO / SRO 3.5 / 3.6
(Description of K&A, from catalog) Ability to verify that the ALARMS are consistent with plant conditions.		

Required Materials:

Notes and Comments

Prepared By:

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68. Both units are at 100% when the following alarms:

- LIQUID RADWASTE DISCHARGE HI RADIATION (003 A5)

The Radwaste Operator contacts the MCR and reports the following in alarm in the Radwaste Control Room:

LIQUID RADWASTE DISCHARGE RAD MONITOR HIHI/INOP (0A304, C-1)

WHICH ONE of the following flowpaths will automatically isolate based on these conditions?

- A. Equipment Drain Sample Tank Discharge to CST
- B. Waste Sludge Tank Discharge to External Processing
- C. Reactor Enclosure Floor Drain Sump Discharge to Liquid Radwaste
- D. Floor Drain Sample Tank Discharge to Cooling Tower Blowdown Line

Answer Key		
Question ID# 068 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Liquid Radwaste discharge to Cooling Tower Blowdown Line isolates on Hi Hi Rad.
Incorrect	A	Equipment Drain Sample Tank to CST isolates on EDST Level <u>only</u> (Pump off, discharge valve closes)
Incorrect	B	Waste Sludge Tank to external processing isolates on Low Waste Sludge Tank level <u>only</u> (Pump off, discharge valve closes)
Incorrect	C	The only control functions associated with RE Floor Drain Sump pumps are Low-Low Level and Primary Containment Isolation Hi Rad Lockout (Post LOCA Rad Monitor Hi-Hi) will deenergize the pumps.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	N	N	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ARC-MCR-003 RAD-A-5, ARC-BOP-0AC304-C-1	
Learning Objective:	LLOT-0705.04	
Knowledge/Ability K/A	2.3.11	Importance: RO / SRO 2.7 / 3.2
(Description of K&A, from catalog) Ability to control radiation releases		

Required Materials:

Notes and Comments

Prepared By:  
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69. An Equipment Operator (EO) is required to enter an area in the Main Condenser with a general area radiation level of 3 Rem/hr in order to perform a surveillance test.

The EO's radiation history is as follows:

- 1760 mRem cumulative exposure for the current year (TEDE)
- 19 Rem lifetime exposure to this date (TEDE)
- NRC form 4 completed and on file
- No dose extensions have been obtained

The surveillance test will take 45 minutes to complete.

WHICH ONE of the following radiation exposure limits, if any, would be exceeded if the EO performs the surveillance test?

- A. No limits are exceeded.
- B. Administrative Dose Control Level ONLY.
- C. Administrative Dose control Level AND NRC Exposure Limit ONLY.
- D. Administrative Dose Control Level, NRC Exposure Limit, AND Emergency Exposure Limit.

Answer Key		
Question ID# 069 RO/SRO		
Choice	Basis or Justification	
Correct:	B	3 Rem = 3000 mRem $3000 \text{ mRem} \times .75 = 2250 \text{ mRem}$ $2250 \text{ mRem} + 1760 \text{ mRem} = 4010 \text{ mRem}$ 4010 mRem exceeds 2000 mRem TEDE Admin Dose Control Level
Incorrect	A	Admin Dose Control Level is exceeded
Incorrect	C	4010 mRem <NRC Limit of 5000 mRem
Incorrect	D	4010 mRem <NRC Limit of 5000 mRem 4010 mRem <Emergency Exposure Limit of 10,000 mRem for protecting station property

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	Y	N	Y (b)(4)

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> ILT Exam Bank <input type="checkbox"/> Previous NRC Exam 2002 <input type="checkbox"/> Other Exam Bank	
Reference(s):	RP-AA-203 sects 4.1.1, 4.2, 4.5	
Learning Objective:	LLOT1760.04,.05	
Knowledge/Ability K/A	2.3.4	Importance: RO / SRO 2.5 / 3.1
(Description of K&A, from catalog) Knowledge of radiation exposure limits and contamination control/including permissible levels in excess of those authorized..		

Required Materials:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

ATTACHMENT: GP-2, Appendix 1 Provided

70. A reactor startup is in progress on Unit 2.

All Group 1 and Group 2 control rods are fully withdrawn.

SRM count rate data since the startup began is as follows:

- Channel "1A" has gone from 240 cps to 975 cps
- Channel "1B" has gone from 225 cps to 915 cps
- Channel "1C" has gone from 220 cps to 890 cps
- Channel "1D" has gone from 235 cps to 940 cps

WHICH ONE of the following identifies control rod notch positions where control rod withdraw shall be restricted to single notch movement?

- A. Between "00" and "08"
- B. Between "12" and "18"
- C. Between "18" and "30"
- D. Between "30" and "48"

Answer Key		
Question ID# 070 Both RO/SRO		
Choice	Basis or Justification	
Correct:	A	After 75% rod density (Group 1-2 fully withdrawn), control rod withdraw between notch positions 00 to 12 shall be restricted to single notch movements until criticality is achieved. 00 to 08 falls within this band.
Incorrect	B	Single notch is require between 04 to 30 applies once the SRM count rate reaches four doublings. SRM count rate is only doubled at this point, so the 00 to 12 requirement still applies. 12 to 18 falls outside that band.
Incorrect	C	Due to the reasons stated above, the 00 to 12 requirement still applies. 18 to 30 falls outside that band.
Incorrect	D	Due to the reasons stated above, the 00 to 12 requirement still applies. 30 to 48 falls outside that band.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	N	N	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input checked="" type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-2, Appendix 1, Caution after step 3.2.7	
Learning Objective:	LLOT1530.02	
Knowledge/Ability K/A	2.2.1	Importance: RO / SRO 3.7 / 3.6
(Description of K&A, from catalog) Ability to perform pre-startup procedures for the facility/including operating those controls associated with plant equipment that could affect reactivity		

Required Materials:

**GP-2, Appendix 1**

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

71. Unit 1 PRO is performing ST-6-051-231-1, "1A" RHR Pump, Valve, and Flow Test.

At step 4.3.6, the PRO discovers that HV-51-1F021A is incorrectly identified as HV-51-1F022A.

WHICH ONE of the following identifies the status of the Surveillance Test and the action required to correct the error?

- A. Stop the test. Identify the component number error in an action item to revise the procedure per AD-LG-101-1004, "Procedure Performance Improvement System (PPIS)," prior to resuming the ST.
- B. Stop the test. Initiate a Temporary Change to correct the component number error per AD-LG-101-1002, "Temporary Changes to Approved Documents and Partial Procedure Use," prior to resuming the ST.
- C. Continue the test. When it is complete, identify the component number error in an action item to revise the procedure per AD-LG-101-1004, "Procedure Performance Improvement System (PPIS)."
- D. Continue the test. When it is complete, initiate a Temporary Change to correct the component number error per AD-LG-101-1002, "Temporary Changes to Approved Documents and Partial Procedure Use."

Answer Key		
Question ID# 071 Both RO/SRO		
Choice		Basis or Justification
Correct:	B	The test must stop. An equipment number error requires a Temporary Change I.A.W. AD-LG-101-1002, before the test can continue.
Incorrect:	A	The status of the test is correct, but the procedure process cited is not correct.
Incorrect:	C	The procedure process cited is correct, however the test cannot continue.
Incorrect:	D	Both the status of the test and the procedure process cited are incorrect.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	N	Y (b)(10)	Y (b)(3)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	AD-LG-101-1002	
Learning Objective:	LLOT1570.01	
Knowledge/Ability K/A	2.2.11	Importance: RO / SRO 2.5 / 3.4
(Description of K&A, from catalog) Knowledge of the process for controlling temporary changes.		

Required Materials:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

72. "1A" Reactor Feed Pump impeller needs to be repaired at power.

- Only one manual valve is available for isolation of the pump suction
- Pump suction pressure is 450 psig
- Pump suction temperature is 360°F

WHICH ONE of the following clearance requirements will allow this work to be performed per OP-MA-109-101?

- A. A clearance Technical Evaluation shall be performed.
- B. The work shall be performed under an Exceptional Clearance.
- C. A component walkdown shall be performed prior to application.
- D. The single isolation valve shall be restrained and locked in the closed position.

Answer Key		
Question ID# 072 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	When 2-valve protection is required but not available then the clearance shall be designated as "Exceptional".
Incorrect:	A	A technical review is required only when there are questions about a systems response to the proposed isolation technique (such as logic system response)
Incorrect:	C	A walkdown is suggested in circumstances where clearance information or documentation is missing or in question
Incorrect:	D	A Blocking device (such as a lock, restraint, or gag) is only required for a component that can fail to a position other than the tagged position.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	N	Y (b)(10)	N

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> Other Exam Bank (CAT) <input type="checkbox"/> ILT Exam Bank		
Reference(s):	OP-MA-109-101, attachment 4		
Learning Objective:	OP-MA-109-101 DB16 objective #2		
Knowledge/Ability K/A	2.2.13 <table style="float: right; border: none;"> <tr> <td>Importance: RO / SRO</td> </tr> <tr> <td>3.6 / 3.8</td> </tr> </table>	Importance: RO / SRO	3.6 / 3.8
Importance: RO / SRO			
3.6 / 3.8			
(Description of K&A, from catalog) Knowledge of Clearance and Tagging procedures			

Required Materials:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
Limerick Regulatory Exam Author

73. Given the following values from the most recent P-1:

- MFLCPR 0.954
- MFLPD 1.015
- MAPRAT 0.991
- FLLLP 0.967

WHICH ONE of the following identifies the thermal limit(s) that require action, if any?

- A. MFLPD ONLY.
- B. MFLPD and MAPRAT ONLY.
- C. MFLPD, MAPRAT, and FLLLP.
- D. All values are acceptable; no action is required.

Answer Key		
Question ID# 073 Both RO/SRO		
Choice	Basis or Justification	
Correct:	B	MFLPD (>1.0) and MAPRAT (>0.99) require entry into GP-14
Incorrect:	A	MFLPD does require action (see above) but this choice omits MAPRAT, which also requires action
Incorrect:	C	FLLLP does not require action
Incorrect:	D	MFLPD and MAPRAT require action

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
HIGH	2.5	3	N	N	N

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified NRC Bank Item <input checked="" type="checkbox"/> Other Exam Bank (LOR-modified) <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-5, Sect 3.1.1	
Learning Objective:	LLOT0741.04	
Knowledge/Ability K/A	2.1.19	Importance: RO / SRO 3.0 / 3.0
(Description of K&A, from catalog) Ability to use plant computer to obtain and evaluate parametric information on system or component status.		

Required Materials:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

74. Unit 1 is in OPCON 2 with reactor startup in progress.

All IRM's are on Range 6 and reading as follows:

- "A" – 37/125ths
- "B" – 23/125ths
- "C" – 31/125ths
- "D" – 38/125ths
- "E" – 28/125ths
- "F" – 39/125ths
- "G" – 33/125ths
- "H" – 26/125ths

WHICH ONE of the following identifies the Rod Block and RPS status if all IRM Range Switches are positioned to Range 5?

- A. Control Rod Withdraw Block ONLY
- B. Control Rod Withdraw Block AND "A" side ½ Scram ONLY
- C. Control Rod Withdraw Block AND "B" side ½ Scram ONLY
- D. Control Rod Withdraw Block AND full Scram

Answer Key		
Question ID# 074 Both RO/SRO		
Choice		Basis or Justification
Correct:	C	Ranging from 6 to 5 will multiply all readings by 3.16, which will result in exceeding 120/125ths on channel "F". This channel inputs to "B" RPS resulting in a ½ scram. Any channel over 85/125ths results in a Rod Withdraw Block.
Incorrect:	A	There will be a ½ scram on "B" RPS, in addition to the Rod Withdraw Block.
Incorrect:	B	There will be a ½ scram on "B", not "A", RPS
Incorrect:	D	There will be a ½ scram on only "B" RPS

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3	3	Y	Y (b)(10)	Y (b)(3)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Tech Specs 2.2.1 and 3.3.6	
Learning Objective:	LLOT0250.08, 09	
Knowledge/Ability K/A	2.1.28	Importance: RO / SRO 4.0 / 3.5
(Description of K&A, from catalog) Knowledge of the purpose of major system components and controls.		

Required Materials:

Notes and Comments

Prepared By:  
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Limerick Regulatory Exam Author

75. Given the following conditions:

- Both units are operating at full power
- The entire shift attended the morning Shift Turnover Meeting given by the Control Room Supervisor (CRS) and Shift Manager (SM)

At 1100, the 3<sup>rd</sup> RO relieves the Unit 2 RO for lunch.

The Unit 2 RO will be eating lunch in the Main Control Room (MCR) Lunchroom.

WHICH ONE of the following identifies the required MINIMUM TURNOVER ACTIVITY and MAXIMUM DURATION of the RO's mid-shift turnover for the given conditions?

- A. Read the MCR logs through the last previous day on shift.  
The relief duration shall be a MAXIMUM of 30 minutes.
- B. Read the MCR logs through the last previous day on shift.  
The relief duration shall be a MAXIMUM of 60 minutes.
- C. Review the Shift Turnover Checklist and review updated plant status.  
The relief duration shall be a MAXIMUM of 30 minutes.
- D. Review the Shift Turnover Checklist and review updated plant status.  
The relief duration shall be a MAXIMUM of 60 minutes

Answer Key		
Question ID# 075 Both RO/SRO		
Choice	Basis or Justification	
Correct:	D	Mid-shift turnover of less than 1 hour consists of a review of the Shift Turnover checklist and update of plant status, provided the original watch stander remains in the Main Control Room area
Incorrect:	A	Reading the MCR logs through the last previous day on shift applies to a full shift turnover, short turnover duration is 60 minutes, not 30.
Incorrect:	B	Duration is correct, turnover criteria described applies to full turnover, not short duration
Incorrect:	<del>D</del> C	Turnover criteria is correct, short turnover duration is 60 minutes, not 30 <i>Attitude 11/3/06</i>

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	3	N	Y (b)(10)	N

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OP-AA-112-101, Sect 4.1.7	
Learning Objective:	LLOT1574.24	
Knowledge/Ability K/A	2.1.3	Importance: RO / SRO 3.0 / 3.4
(Description of K&A, from catalog) Knowledge of Shift Turnover practices		

Required Materials:

Notes and Comments

Prepared By:  
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76. Unit 1 Plant conditions are as follows:

- Reactor power is 100%
- Reactor level is 35" and steady

Narrow Range RPV Level Transmitters LT-042-1N004A, B, and C suffer hardware failures with outputs at 0 mA, resulting in the following:

- FEEDWATER FAILURE (107 D4) annunciator is in alarm

WHICH ONE of the following identifies the effect on individual Reactor Feed Pump M/A stations: FIC-M1-1R601A(B,C) "A(B,C) RFPT Speed Controllers", and the procedure entered to address initial plant response?

<u>Effect on</u> <u>FIC-M1-1R601A(B,C)</u>	<u>Procedure</u> <u>Entered</u>
A. Swaps to Manual	OT-100
B. Swaps to Manual	OT-110
C. Remains in Auto	OT-100
D. Remains in Auto	OT-110

Answer Key		
Question ID# 076 SRO Only		
Choice	Basis or Justification	
Correct:	B	With 3 level transmitters failed downscale, individual RFP M/A stations will automatically swap to manual. Additionally due to the failure of the level signal, the recirc pumps will run back. This combination of RFPs in manual coincident with a Recirc pump run back, result in level going up requiring in entry into OT-110 REACTOR HIGH LEVEL
Incorrect:	A	This is incorrect as OT-100 REACTOR LOW LEVEL, is for low reactor level, Reactor level will go up
Incorrect	C	This is incorrect as individual RFP M/A stations will swap to manual, and OT-100 REACTOR LOW LEVEL, is for low reactor level, Reactor level will go up
Incorrect	D	This is incorrect as individual RFP M/A stations will swap to manual.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	Y	Y (b)(5)	Y (b)(5)

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	S06.1.H U/1, Alarm Identity 1XX-FW302.1TFFE S06.1.D U/1 Appendix 1
Learning Objective:	LLOT0550.10d
Knowledge/Ability K/A	259002 A2.03 Importance: RO / SRO 3.6 / 3.7
(Description of K&A, from catalog) Ability to predict the impact of the following on Reactor water level control and based on those predictions use procedures to correct, control or mitigate the consequence of those abnormal conditions or operations: Loss of Reactor Water Level Input.	

Required Materials:

Notes and Comments:

Prepared By:

Rick Rhode (610) 718-4085

Limerick Regulatory Exam Author

77. Unit 1 plant conditions are as follows:

- Reactor power is 10%
- Reactor level is -200" and lowering
- All MSIVs are closed
- Suppression Pool temperature is 120°F and rising
- A blowdown is in progress with 3 SRV's open
- Reactor pressure is 650 psig and lowering

The Floor Supervisor reports T-251 is complete for Unit 1.

WHICH ONE of the following identifies the required operator action?

- A. Immediately inject with HPCI.  
Restore level to -60" to -100".
- B. Immediately inject with HPCI.  
Restore level to -161" to -186".
- C. Inject with HPCI when Reactor pressure is below 400 psig.  
Restore level to -60" to -100".
- D. Inject with HPCI when Reactor pressure is below 400 psig.  
Restore level to -161" to -186".

Answer Key		
Question ID# 077 SRO Only		
Choice	Basis or Justification	
Correct:	D	As Blowdown is already in progress, injection cannot occur until MIN ALT FLOODING PRESSUE is met. With only 3 SRVs open that occurs at 400 psig. Level band is -161" to -186" as Supp pool temp is greater than 110 degrees
Incorrect:	A	Injecting immediately is incorrect as Blowdown has already started. -60" to -100" is incorrect as Supp pool temp is greater than 110 degrees
Incorrect	B	Injecting immediately is incorrect as Blowdown has already started.
Incorrect	C	-60" to -100" is incorrect as Supp pool temp is greater than 110 degrees

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	4	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-117 BASES, Step LQ-21	
Learning Objective:	LLOT1560.05	
Knowledge/Ability K/A	295037 2.1.20	Importance: RO / SRO 4.3 / 4.2
(Description of K&A, from catalog) SCRAM condition present and Reactor power above APRM downscale or unknown: Ability to execute procedural steps		

Required Materials:

**T-117**

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

## ATTACHMENT: SAMP-1, Sheet 1 Provided

78. Unit 1 plant conditions are as follows:

- SAMP-1 and SAMP-2 have been entered
- The Reactor was shutdown 20 minutes ago
- Reactor Level is -320" and dropping
- Reactor pressure is 800 psig and steady
- RCIC is injecting at 600 GPM
- ALL other high pressure injection systems are unavailable
- Suppression pool level is 22'
- Suppression pool pressure is 20 psig

WHICH ONE of the following SAMP-1 sheets must be executed?

- A. Sheet 4
- B. Sheet 5
- C. Sheet 6
- D. Sheet 7

Answer Key		
Question ID# 078 SRO Only		
Choice	Basis or Justification	
Correct:	D	Sheet 7, To determine correct answer the candidate must determine that level cannot be restored to -311" (insufficient injection source are available for the current reactor pressure, AND attempts to blowdown as directed prior to reaching current reactor level must have been unsuccessful precluding use of low pressure systems), injection is unsafe as plotted on the MDRIR curve (20 minutes, Rx press 800 psig, injection rate 600 gpm), AND that conditions are unsafe as plotted on PSP curve (pool level 22', and pressure 20 psig).
Incorrect:	A	Sheet 4 is incorrect as level cannot be restored above -311. The candidate must determine that insufficient injection source are available for the current Reactor pressure, AND attempts to blowdown as directed prior to reaching current reactor level must have been unsuccessful precluding use of low pressure systems.
Incorrect	B	Sheet 5 is incorrect as RPV injection is unsafe on MDRIR as plotted (20 minutes, Rx press 800 psig, injection rate 600 gpm)
Incorrect	C	Sheet 6 is incorrect as conditions are unsafe as plotted on PSP curve (pool level 22', and pressure 20 psig)

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	4	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> Other Exam Bank (LOR) <input type="checkbox"/> ILT Exam Bank	
Reference(s):	SAMP 1, Sheet 1	
Learning Objective:	LLOT1562.6	
Knowledge/Ability K/A	295031 2.4.6	Importance: RO / SRO 3.1 / 4.0
(Description of K&A, from catalog) Reactor Low Water Level Knowledge system based EOP mitigation strategies		

Required Materials:

**SAMP1 Sht 1**

Notes and Comments

Prepared By:

Rick Rhode (610) 718-4085

Limerick Regulatory Exam Author

## ATTACHMENT: OT-112, Partial Provided

79. Unit 1 Reactor Power is 100%.

The following transient occurs with the indicated plant conditions:

- 1B Recirc Pump trips
- 1A Recirc Pump speed is 65%
- ALL four OPRM Operator Display Assemblies indicate Reactor power is 58%
- XR-042-1R613 indicates core plate differential pressure is 1.3 psid
- XR-042-1R613 indicates core flow is  $42 \times 10^6$  lbm/hr

WHICH ONE of the following is the required operator action?

- A. Immediately Scram the Reactor.
- B. Restart "1B" Recirc Pump, and raise core flow with "1B" Recirc Pump.
- C. Reduce Recirc Pump speed to less than 60% and manually scram the reactor.
- D. Insert control rods until the Restricted Region of the Power/Flow Map is exited.

Answer Key		
Question ID# 079 SRO Only		
Choice	Basis or Justification	
Correct:	D	Because the speed of the operating Recirc Pump is >60%, the Core Flow and Reactor power indications provided should be used to determine operating point. With the given information, the plant is in the Restricted Region, and the correct action is an <b>immediate exit by the insertion of control rods or the raising of Recirculation flow.</b>
Incorrect:	A	<b>Immediately scram the reactor</b> is not correct because the operating point is not in the Exclusion Region, therefore, a reactor scram is not required.
Incorrect	B	Restart 1B Recirc Pump and raise core flow with 1B recirc pump is wrong as restarting a pump to raise flow is not allowed in OT-112
Incorrect	C	Reduce Recirc pump speed to less than 60% and manually scram the reactor is not correct as reducing speed drive the reactor further into the restricted region.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	5	N	Y (b)(10)	Y (b)(5)

Source Documentation					
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank				
Reference(s):	OT-112, Step 3.7				
Learning Objective:	LLOT0040.07g				
Knowledge/Ability K/A	295001 AA2.01 <table style="float: right; border: none;"> <tr> <td>Importance:</td> <td>RO / SRO</td> </tr> <tr> <td></td> <td>3.5 / 3.8</td> </tr> </table>	Importance:	RO / SRO		3.5 / 3.8
Importance:	RO / SRO				
	3.5 / 3.8				
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to a partial or complete loss of forced core flow circulation: Power/Flow map					

Required Materials:

### OT-112, Power to Flow Maps Attachment 1 & 2 only

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

80. The Main Control Room has been abandoned due to a fire.

Equipment Operators are going to enter a locked high radiation area in order to manually operate Primary Containment Isolation Valves.

The highest dose rate in the area is 1250 mRem/hr.

Per RP-LG-460-1010 and RP-LG-460-1016, WHICH ONE of the following describes the type of Locked High Radiation Area and the highest level authorization required for issuing the key?

	<u>Type of LHRA</u>	<u>Highest Authorization Required</u>
A.	Level 1	Radiation Protection Manager
B.	Level 1	Plant Manager
C.	Level 2	Radiation Protection Manager
D.	Level 2	Plant Manager

Answer Key		
Question ID# 080 SRO Only		
Choice	Basis or Justification	
Correct:	A	The area is a Level 1 LHRA ( $\geq 1000$ hr/hr and $< 15$ R/hr) per RP-LG-460-1010. This requires authorization from the RP Manager for issuing the key per RP-LG-460-1016.
Incorrect:	B	The level is correct, but the Plant Manager's authorization is not required.
Incorrect	C	Level 2 LHRA would be an area with dose rate $\geq 15$ R/hr. The RP Manager may not be the sole authorization for this entry.
Incorrect	D	Level 2 LHRA would be an area with dose rate $\geq 15$ R/hr. The Plant Manager may authorization for this entry.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	4.0	4	N	N	(b) (4)

Source Documentation			
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank		
Reference(s):	RP-LG-460-1010, RP-LG-460-1016.		
Learning Objective:	LLOT1760.01		
Knowledge/Ability K/A	295016 2.3.1 <table style="float: right; border: none;"> <tr> <td>Importance: RO / SRO</td> </tr> <tr> <td>2.6 / 3.0</td> </tr> </table>	Importance: RO / SRO	2.6 / 3.0
Importance: RO / SRO			
2.6 / 3.0			
(Description of K&A, from catalog) Knowledge of 10CFR20 and related facility radiation control requirements.			

Required Materials:

Notes and Comments:

Prepared By:  
 Rick Rhode (610) 718-4085  
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81. Unit 2 is in OPCON 3 preparing for a refueling outage with the following conditions:

- RPV Level is 85"
- "2B" loop of SDC is in service
- Reactor coolant temperature is 300°F
- RPV pressure is 54 psig
- "2A" RHR Heat Exchanger is being drained for maintenance
- A Group 1 Isolation signal is in for I&C testing
- Cooling Tower draining is in progress

An electrical fault causes a loss of ~~D12~~ **DZZ** *fillcode 11/3/06*

Subsequently, Reactor coolant temperature is 325°F and RPV pressure is 85 psig.

WHICH ONE of the following describes the action required and the procedure used to perform the required action?

- A. Use dedicated LPCI Pumps for Shutdown Cooling per S51.8.H.
- B. Line up for RHR Alternate Decay Heat Removal per S51.8.L.
- C. Reduce RPV pressure using Main Steam Line Drains per ON-121.
- D. Reduce RPV pressure using ADS SRV's per ON-121.

Answer Key		
Question ID# 081 SRO Only		
Choice	Basis or Justification	
Correct:	D	RPV pressure is sufficient to cause a SDC isolation. Pressure must be reduced before SDC can be restored. The cooling tower draining makes the Main Condenser unavailable per ON-121 bases and therefore, pressure must be reduced with SRV's.
Incorrect:	A	Dedicated LPCI Pumps will not work because SDC is isolated.
Incorrect	B	RHR Alternate SDC lineup will not work because current plant conditions will not support it.
Incorrect	C	Although this choice correctly identifies that RPV pressure must be reduced, MSL drains will not work because the condenser is not available.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	4.0	4	Y	Y (b)(10)	Y (b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	ON-121, Attachment 5	
Learning Objective:	LLOT0370.13	
Knowledge/Ability K/A	295021 AA2.06	Importance: RO / SRO 3.2 / 3.3
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to a loss of shutdown cooling: Reactor Pressure		

Required Materials:

Notes and Comments:

Prepared By:

Rick Rhode (610) 718-4085

Limerick Regulatory Exam Author

ATTACHMENT: TURBINE BACKPRESSURE OPERATION LIMIT GRAPH Provided

82. Unit 1 conditions are as follows:

- Reactor Power is 75%
- BESSI System is not in operation

The following annunciators are received:

- TURBINE HIGH BACK PRESSURE (106 D2)
- 1A CONDENSOR LO VACUUM (104 E-5)

The following parameters are observed:

- LP Turbine Inlet Pressure is 100 psig
- "1A" LP Turbine Back Pressure is 7.2 in Hg Abs
- "1B" LP Turbine Back Pressure is 6.6 in Hg Abs
- "1C" LP Turbine Back Pressure is 6.0 in Hg Abs
- Main Condenser vacuum has dropped from 26 in Hg Vac to 23 in Hg Vac

Main Condenser vacuum is 23 in Hg Vac and steady.

WHICH ONE of the following identifies the required operator action and the procedure used to perform the required action?

- A. Trip the Main Turbine per GP-5.
- B. Trip the Main Turbine per OT-116.
- C. Reduce reactor power per GP-5.
- D. Reduce reactor power per OT-116.

Answer Key		
Question ID# 082 SRO Only		
Choice	Basis or Justification	
Correct:	C	Student must plot values on Turbine Backpressure Operation Limit Graph to determine that turbine is operating in the limited region and power must be reduced IAW GP-5 to restore backpressure to the unlimited region
Incorrect:	A	If turbine backpressure could not be restored, then a GP-4 Shutdown is directed. Tripping the turbine at this time is not directed.
Incorrect	B	Tripping the turbine is directed by OT-116 if Main Condenser vacuum reaches 21.5 in Hg Vac
Incorrect	D	Reducing reactor power is directed by OT-116 until condenser vacuum stops dropping. Since vacuum is steady, a power reduction is not directed by OT-116

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b) (10)	Y (b) (5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-5 Attachment 7	
Learning Objective:	LLOT0500.06a	
Knowledge/Ability K/A	295002 AA2.01	Importance: RO / SRO 2.9 / 3.1
(Description of K&A, from catalog) Ability to determine and/or interpret condenser vacuum/absolute pressure as it applies to a loss of main condenser vacuum		

Required Materials:

**TURBINE BACKPRESSURE OPERATION LIMIT GRAPH**

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

83. Unit 1 conditions are as follows:

- Reactor power is 100%
- HPCI is running in Full Flow Test for required surveillance

WHICH ONE of the following identifies the Technical Specification limit for Suppression Pool temperature and the bases for the limit?

- A. 105°F  
Provides sufficient temperature margin to allow SBLC injection to shutdown the reactor during an ATWS without exceeding HCTL.
- B. 105°F  
Maintain bulk water temperature such that there is adequate NPSH for ECCS pumps following a blowdown.
- C. 95°F  
Provides sufficient temperature margin to allow SBLC injection to shutdown the reactor during an ATWS without exceeding HCTL.
- D. 95°F  
Maintain bulk water temperature such that there is adequate NPSH for ECCS pumps following a blowdown.

Answer Key		
Question ID# 083 SRO Only		
Choice		Basis or Justification
Correct:	B	Tech Spec 3.6.2.1 limits suppression pool max temperature to 105°F with testing that adds heat to the suppression pool. The basis for the limit is to maintain water temperature and suppression chamber conditions such that there is adequate NPSH for ECCS pumps following a blowdown.
Incorrect:	A	The temperature limit is correct, however the basis is incorrect. This is the Trip Procedure basis suppression pool limit (110 degrees F) once T-102 or T-117 is entered.
Incorrect	C	This is the temperature limit for NO testing in progress that adds heat to the suppression pool and the Trip Bases temperature limit described above.
Incorrect	D	The Tech Spec basis is correct, however, the temperature limit is for NO testing in progress that adds heat to the suppression pool.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.0	3	N	N	Y (b)(2)

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	Tech Spec basis 3.6.2.1
Learning Objective:	LLOT0130.04f
Knowledge/Ability K/A	295013 2.2.25 <span style="float: right;">Importance: RO / SRO 4.0 / 4.0</span>
(Description of K&A, from catalog) Knowledge of bases in Tech Specs for limiting conditions for operation and safety limits: High Suppression Pool Temperature	

Required Materials:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

84. A grid disturbance has caused a loss of power to the 10 Station Aux Transformer and the 20 Regulating Transformer.

Conditions are as follows:

- Unit 2 Reactor has scrambled
- D23 and D24 Diesel Generators have started and are supplying their respective busses
- D21 and D22 Diesel Generators did NOT start

On Unit 2, WHICH ONE of the following identifies an instrument that can be used to determine reactor pressure and the procedure entered due to the given conditions?

<u>Instrument</u>	<u>Procedure</u>
A. Wide Range PAMS	E-1
B. Wide Range PAMS	E-10/20
C. HPCI Steam Line Pressure	E-1
D. HPCI Steam Line Pressure	E-10/20

Answer Key		
Question ID# 084 SRO Only		
Choice		Basis or Justification
Correct:	D	Unit 2 is in a Loss of Offsite Power (E-10/20). Due to the loss of D21 and D22, PAMS is not available. HPCI Steam Line Pressure is available on both units.
Incorrect:	A	The procedure reference is not correct. PAMS is not available.
Incorrect	B	The procedure reference is correct. PAMS is not available.
Incorrect	C	The procedure reference is not correct. The instrument is correct.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-1, E-10/20	
Learning Objective:	LLOT0275.13	
Knowledge/Ability K/A	295003 AA2.02	Importance: RO / SRO 4.2 / 4.3
(Description of K&A, from catalog) Ability to determine or interpret the following as they apply to a Partial or Complete Loss of AC Power. .Reactor power/pressure/and level		

Required Materials:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

85. Unit 1 plant conditions are as follows:

- Reactor Power is 100%
- A steam leak occurs in HPCI room
- DIV 2 STEAM LEAK DET SYS HI TEMP/TROUBLE (107, G5) annunciator is alarming

Based on the given conditions, WHICH ONE of the following identifies RPV water level instrumentation that can be used and the T-200 procedures that are entered?

	<u>RPV Water Level Instrument</u>	<u>Procedures Entered</u>
A.	Wide Range Recorder XR42-1R623A on 10C601	T-290, T-291 <u>ONLY</u>
B.	Wide Range Recorder XR42-1R623A on 10C601	T-290, T-291, T-250
C.	Upset Range Recorder LR-42-1R608 on 10C603	T-290, T-291 <u>ONLY</u>
d.	Upset Range Recorder LR-42-1R608 on 10C603	T-290, T-291, T-250

Answer Key		
Question ID# 085 SRO Only		
Choice	Basis or Justification	
Correct:	B	A DIV II steam leak detection alarm requires entry into T-103, which directs us of PAMs FZ and EQ PMS instruments only for reading Reactor Level. XR42-1R623A on 10C601 is a PAM and can be used, T-290, T-291, and T-250 should be performed. In the case of T-250 The candidate must realize that the Div II alarms indicates that a temperature is above MNO which meets the conditions of stop sign SCC/T-4, requiring T-250 be performed per step SCC/T-5
Incorrect:	A	XR42-1R623A on 10C601 is correct, but, as noted above T-250 should be performed per step SCC/T-5
Incorrect	C	LR-42-1R608 on 10C601 is a not a PAM and cannot be used
Incorrect	D	LR-42-1R608 on 10C601 is a not a PAM and cannot be used

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-291 Attachment 2	
Learning Objective:	LLOT1561.03	
Knowledge/Ability K/A	295032 EA2.02	Importance: RO / SRO 3.3 / 3.5
(Description of K&A, from catalog) Ability to determine and/or interpret equipment operability as it applies to high secondary containment area temperature		

Required Materials:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

86. A LOCA is in progress on Unit 1 with the following conditions:

- Drywell pressure is 24 psig and rising slowly
- Drywell temperature is 320°F and rising slowly
- RPV pressure is 350 psig and dropping slowly
- Suppression Pool pressure is 19 psig and rising slowly
- Suppression Pool temperature is 96°F and rising slowly
- Suppression Pool level is 22' and rising slowly

WHICH ONE of the following describes the required operator action and the basis for the required action?

<u>ACTION</u>	<u>BASIS</u>
A. Spray the Drywell per T-225	Reduce containment pressure while preventing excessive negative pressure in the Drywell
B. Perform an Emergency Blowdown per T-112	Transfer RPV energy to the Suppression Pool due to steam in the pool airspace preventing containment function
C. Spray the Drywell per T-225	Reduce containment temperature in order to prevent exceeding the Drywell temperature limit
D. Perform an Emergency Blowdown per T-112	Transfer RPV energy to the Suppression Pool before conditions threaten the integrity of the SRV tailpipes

Answer Key		
Question ID# 086 SRO Only		
Choice		Basis or Justification
Correct:	B	Suppression Pool Water level and pressure are in the UNSAFE region of the PSP Curve. T-102 directs a T-112 blowdown based on steam in the suppression pool airspace preventing pressure suppression function if conditions further degrade.
Incorrect:	A	This is a legitimate reason for spraying the drywell if conditions supported this action. Current conditions are unsafe to spray.
Incorrect	C	This is a legitimate reason for spraying the drywell if conditions supported this action. Current conditions are unsafe to spray.
Incorrect	D	While the action is correct, the basis is not. At the given RPV pressure, Suppression Pool level would have to be 38.7 ft, in order to threaten the integrity of the SRV tailpipes.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	T-102, T-102 Bases	
Learning Objective:	LLOT1560.06	
Knowledge/Ability K/A	295024 EA2.04	Importance: RO / SRO 3.9 / 3.9
(Description of K&A, from catalog) Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE...Suppression Chamber Pressure		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
 Limerick Regulatory Exam Author

87. Unit 1 Plant conditions are as follows:

- Reactor Power is 100%
- I&C reports that "1C" Main Steam Line (MSL) High Flow Transmitters PDT-41-1N088B and PDT-41-IN088C have failed their Surveillance Test
- All other MSL Flow Transmitters are OPERABLE

WHICH ONE of the following describes the status of the MSIV isolation logic and the required action?

- A. Div 1 MSIV isolation logic is INOPERABLE.  
Place ONE Channel in the tripped condition within 24 hours.
- B. "1C" MSL MSIV isolation logic is INOPERABLE.  
Place ONE Channel tripped condition within 12 hours.
- C. Div 1 and 2 MSIV isolation logic are INOPERABLE.  
Place ONE Channel in the tripped condition within 6 hours.
- D. Div 1 and 2 MSIV isolation logic are INOPERABLE.  
Place ONE Channel in the tripped condition within 1 hour.

Answer Key		
Question ID# 087 SRO Only		
Choice	Basis or Justification	
Correct:	D	88C is Div 1. 88B is Div 2. therefore there is only one Div 1 and Div 2 instrument operable for the "1C" MSL. Less than required number for 2 trip systems place one in the tripped condition within 1 hour.
Incorrect:	A	If only one trip system is affected for instrumentation not common to RPS, and placing it in the tripped condition would not cause an isolation; you have 24 hours until having to place it in the tripped condition. If only one trip system were affected, this would be a correct answer.
Incorrect	B	A common misconception is that a streamline is a trip system. If only one trip system is affected for instrumentation common to RPS, and placing it in the tripped condition would not cause an isolation, you have 12 hours until having to place it in the tripped condition
Incorrect	C	The number of affected systems per line is correct however the time to place in the tripped condition is wrong. 6 hours is for one trip system where placing it in the tripped condition will cause an isolation.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	5	N	Y (b)(5)	Y (b)(2)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Unit 1 Tech Specs, LCO 3.3.2	
Learning Objective:	LLOT0180.10C	
Knowledge/Ability K/A	223002 A2.08	Importance: RO / SRO 2.7 / 3.1
(Description of K&A, from catalog) Ability to predict the impact of the following on NSSSS and based on those predictions, use procedures to correct, control, mitigate the consequences of those abnormal conditions or operations... Surveillance testing.		

## REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
 Rick Rhode (610) 718-4085  
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88. Unit 2 is in OPCON 5. Plant status is as follows:

- Fuel Shuffle Part 2 is 80% complete in Quadrant IV
- The 201 Safeguards Transformer has been de-energized
- The 101 Safeguards Transformer is supplying all 4KV busses
- D21 and D23 Diesel Generators are INOPERABLE for planned maintenance
- Surveillance testing has just been completed on D24 Diesel Generator
- Control rod stroke timing is in progress in Quadrant II
- The "C" traversing in-core probe is being inserted into the RPV for a TIP Drive PMT
- Seal repair is in progress on a CRDM hydraulic line in the undervessel area

The inside EO reports that the D24 Diesel Generator Fuel Oil Storage Tank indicates 32,500 gallons.

WHICH ONE of the following describes the action required by Tech Specs?

- A. Stop control rod stroke timing.
- B. Suspend all undervessel work.
- C. Suspend operation of the overhead crane over the RPV.
- D. Stop the traversing in-core probe PMT and withdraw probe from core.

Answer Key		
Question ID# 088 SRO Only		
Choice	Basis or Justification	
Correct:	A	Tech Spec 3.8.1.2 requires suspension of Core Alterations with the AC electrical power sources inoperable in OPGON 5. Control rod movement with fuel in the vessel must be stopped.
Incorrect:	B	Work on a CRDM hydraulic line does not qualify as an Operation with Potential for Draining the Vessel.
Incorrect	C	Operation of the Overhead Crane must be suspended over the Spent Fuel Pool but not over the Reactor Cavity.
Incorrect	D	Inserting a TIP is not considered a Core Alteration.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	4.0	4	Y	N	Y (b)(2)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Tech Spec 3.8.1.2, GP-6.2	
Learning Objective:	LLOT0670.13	
Knowledge/Ability K/A	264000 2.2.22	Importance: RO / SRO 4.0 / 4.0
(Description of K&A, from catalog) Knowledge of limiting conditions for operational and safety limits.		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

89. Unit 2 conditions are as follows:

- An inadvertent Group 1 isolation resulted in MSIV closure and Scram
- RCIC is being used for pressure and level control
- RCIC is currently in injection mode and maintaining RPV level at 35" in Auto
- RPV pressure is 900 psig and lowering slowly
- ST-6-107-640-2, Rx Vessel Temperature And Pressure Monitoring, is in progress

Subsequently, the RCIC Flow Controller fails in AUTO.

The RCIC Flow Controller is switched to MANUAL and adjusted so that level is +35" and steady.

WHICH ONE of the following describes the operator action required to maintain RPV level over the next 30 minutes and the procedure used to perform the required action?

<u>Operator Action</u>	<u>Procedure</u>
A. Throttle closed HV-49-2F013, RCIC Pump Discharge to Feedwater	S49.7.A, Transfer of RCIC From Pressure Control Mode to Injection Mode and Back
B. Raise output of the RCIC flow Controller	OP-LG-108-101-1001, Simple Quick Acts/Transient Acts
C. Throttle open HV-49-2F013, RCIC Pump Discharge to Feedwater	S49.7.A, Transfer of RCIC From Pressure Control Mode to Injection Mode and Back
D. Lower output of the RCIC flow Controller	OP-LG-108-101-1001, Simple Quick Acts/Transient Acts

Answer Key		
Question ID# 089 SRO Only		
Choice	Basis or Justification	
Correct:	D	With the RCIC flow controller in MANUAL, it is maintaining constant speed. With the turbine at constant speed, as, RPV pressure goes down, injection will rise and RPV level will rise. The controller output must be lowered to reduce turbine speed. This is a simple quick act per OP-LG-108-101-1001.
Incorrect:	A	This valve would be closed to transfer to pressure control mode. Given the conditions, pressure is going down with just the steam used to drive RCIC, therefore, level will go up. Transfer to pressure control would not be appropriate. The procedure would be appropriate if this were the correct action.
Incorrect	B	Raising RCIC controller output would only exacerbate the level trend that will result from the given conditions. The procedure would be appropriate if this were the correct action.
Incorrect	C	This valve would be opened to transfer from level control to pressure to pressure control mode. The procedure would be appropriate if this were the correct action.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	Y	Y (b)(5)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	S49.7.A	
Learning Objective:	LLOT0380.08	
Knowledge/Ability K/A	217000 A2.10	Importance: RO / SRO 3.1 / 3.1
(Description of K&A, from catalog)		
Ability to predict the impact of the following on the RCIC system and, based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Turbine Control System		

REQUIRED MATERIALS:

Notes and Comments

Prepared By:  
Rick Rhode (610) 718-4085  
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90. Unit 1 Plant conditions are as follows:

- Reactor Power is 100%
- An electrical fault on a turbine control valve solenoid results in the closure of the #2 Turbine Control Valve

WHICH ONE of the following identifies the initial EHC response and the required procedural actions?

<u>Initial EHC Response</u>	<u>Procedural Action</u>
A. BPV(s) remain closed, reactor pressure rises to Scram setpoint without operator action	Reduce reactor power to less than 90% per OT-102
B. BPV(s) remain closed, reactor pressure rises to Scram setpoint without operator action	Reduce reactor power until pressure is less than 1053 psig per OT-104
C. BPV(s) open, reactor pressure rises and stabilizes without operator action	Reduce reactor power to less than 90% per OT-102
D. BPV(s) open, reactor pressure rises and stabilizes without operator action	Reduce reactor power until pressure is less than 1053 psig per OT-104

Answer Key		
Question ID# 090 SRO Only		
Choice	Basis or Justification	
Correct:	C	Reactor pressure will increase slightly requiring entry into OT-102. OT-102 requires power to be lowered to below 90% on a control valve closure.
Incorrect:	A	This is incorrect as Reactor pressure will not reach the scram setpoint. Electrical failure of the solenoid for the control valve does not affect bypass valve response. The procedural action is correct.
Incorrect	B	This is incorrect as Reactor pressure will not reach the scram setpoint. Electrical failure of the solenoid for the control valve does not affect bypass valve response. While power may rise slightly, if OT-104 were entered, it does NOT reference pressure.
Incorrect	D	The pressure response is correct, however the procedural action is not. While power may rise slightly, if OT-104 were entered, it does NOT reference pressure.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	N	Y (b)(5)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	OT-102, step 3.5 T.S. 3.2.3.b	
Learning Objective:	LLOT0590.02a	
Knowledge/Ability K/A	241000 A2.04	Importance: RO / SRO 3.7 / 3.8
(Description of K&A, from catalog) Ability to predict the impact of the following on the Reactor/Turbine Pressure Regulating System; and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Failed open/closed control valve		

Required Materials:

Notes and Comments

Prepared By:

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91. Unit 1 plant conditions are as follows:

- 95% power
- "1C" RHR pump has been INOP for 19 days

HPCI Full Flow Test is being performed. Maximum flow flow achieved is 5150 gpm.

WHICH ONE of the following describes the required Tech Spec actions?

- A. Be in STARTUP in 6 hours, HOT SHUTDOWN in the following 6 hours and COLD SHUTDOWN in the subsequent 24 hours.
- B. Restore the "1C" RHR Pump to operable within the next 11 days or be in HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN in the next 24 hours.
- C. Restore the "1C" RHR pump or the HPCI system to operable within 8 hours or be in HOT SHUTDOWN in the next 12 hours and in COLD SHUTDOWN in the next ~~12~~<sup>24</sup> hours. *affix 11/3/06*
- D. Restore the HPCI system to operable within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to  $\leq 200$  psig within the following 24 hours.

Answer Key		
Question ID# 091 SRO Only		
Choice	Basis or Justification	
Correct:	C	Tech Spec 3.5.1 – with HPCI system INOP and one ECCS Subsystem INOP – Restore one of them to OPERABLE within the next 8 hours
Incorrect:	A	This is a Tech Spec 3.0.3 action applicable only when LCO's cannot be met
Incorrect	B	This would be the correct action if HPCI were operable.
Incorrect	D	This would be correct if "1C" RHR were operable with HPCI INOP

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	4	Y	N	Y (b)(2)(5)

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified Bank Item <input checked="" type="checkbox"/> Other Exam Bank (LOR modified) <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T. S. 3.5.1.b and 3.5.1.c.2	
Learning Objective:	LLOT0340.16	
Knowledge/Ability K/A	206000 2.1.12	Importance: RO / SRO 2.9 / 4.0
(Description of K&A, from catalog) Ability to apply technical specifications for a system		

Required Materials:

Notes and Comments

Prepared By:  
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 Limerick Regulatory Exam Author

## ATTACHMENT: EAL Matrix Provided

92. Units 2 plant conditions are as follows:

- A steam leak is in progress in the Outboard MSIV Room
- Outboard MSIV room temperature is 180°F and steady
- No other areas are exceeding Maximum Safe Operating temperatures
- Security reports the blowout panel from the steam chase to the North Stack has actuated
- The reactor is manually scrammed
- All efforts to isolate the leak have failed
- Field Team Monitoring reports that the dose rate has been 200 mRem/hr TEDE at the Site Boundary for the last hour,

WHICH ONE of the following identifies the TRIP procedure(s) that require(s) entry and if an Emergency Blowdown is required per T-112?

	<u>TRIP Procedure Entry Required</u>	<u>T-112 Emergency Blowdown Required</u>
A.	T-103 <u>ONLY</u>	Yes
B.	T-103 <u>ONLY</u>	No
C.	T-103 <u>AND</u> T-104	Yes
D.	T-103 <u>AND</u> T-104	No

Answer Key		
Question ID# 092 SRO Only		
Choice	Basis or Justification	
Correct:	D	Site boundary release is at Site Area Emergency level, therefore entry into T-104 is required per EAL Matrix. Release is not at or approaching General Emergency level and 2 areas are not exceeding MSO, therefore T-112 is not required.
Incorrect:	A	T-104 entry is required and T-112 is not for the reasons given above.
Incorrect	B	T-104 entry is required for the reason given above.
Incorrect	C	T-112 is not required for the reason given above

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	3	N	Y (b) 10	Y (b)(5)

Source Documentation		
Source:	<input type="checkbox"/> New Exam Item <input checked="" type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	Emergency Action Level Matrix (Table 3-1), T-103, T-104	
Learning Objective:	LLOT1560.02, 06	
Knowledge/Ability K/A	2.4.1	Importance: RO / SRO 2.3 / 4.1
(Description of K&A, from catalog) Knowledge of the EOP entry conditions and immediate action steps.		

Required Materials:

## EAL Matrix

Notes and Comments

Prepared By:

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Limerick Regulatory Exam Author

## ATTACHMENT: T-228, Partial Provided

93. Unit 1 plant conditions are as follows:

- A LOCA occurred 24 hours ago
- T-101 and T-102 have been implemented
- T-102 has directed inerting/purging the Drywell
- Suppression Pool level is 24 Feet
- Drywell pressure is 2 psig

The following containment parameters exists:

- DW H<sub>2</sub> is 5% and increasing
- DW O<sub>2</sub> is 4% and increasing
- SP H<sub>2</sub> is 3% and increasing
- SP O<sub>2</sub> is 2% and increasing

WHICH ONE of the following identifies the preferred method of Drywell inerting/purging, if any?

- A. Drywell purge with air.
- B. Drywell inerting with nitrogen (Low Flow Mode).
- C. Drywell inerting with nitrogen (High Flow Mode).
- D. Drywell purging is not required until Drywell O<sub>2</sub> exceeds 5%.

Answer Key		
Question ID# 093 SRO Only		
Choice	Basis or Justification	
Correct:	B	Per T-228, Drywell inerting with Low Flow and High Flow are allowed given the conditions. Low Flow is the preferred flowpath per the note in section 4.3 and Table 1. per T-228
Incorrect:	A	Not allowed due to high drywell pressure (>.75 psig)
Incorrect	C	Allowed but not preferred per the note in section 4.3 and Table 1 of T-228
Incorrect	D	Does not apply to the given conditions

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	Y	N	Y (b) (4)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	T-228 section 4.3, 4.5 and 4.6	
Learning Objective:	LLOT1561.03	
Knowledge/Ability K/A	2.3.9	Importance: RO / SRO 2.5 / 3.4
(Description of K&A, from catalog) Knowledge of the process for performing a containment purge		

Required Materials:

**T-228 Assessment Table, and section first pages**

Notes and Comments

Prepared By:  
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94. Unit 1 plant conditions are as follows:

- 35% power
- Control rod scram time testing is in progress per ST-6-107-790-1
- All Unit 1 control rods are OPERABLE
- Control rod 30-31 is withdrawn from position "12" to position "48" to support scram time testing

The following sequence of events occur:

13:00:00 – Control rod HCU toggle switches 'A' and "B" for Rod 30-31 are taken to "TEST" and then immediately back to "NORMAL"

13:00:08 – Control rod 30-31 is at Position ~~"00"~~ "05" *Rollade 11/3/06*

WHICH ONE of the following describes the required action?

- A. Restore Control Rod 30-31 to position "12".
- B. Disarm HCU 30-31 Directional Control Valves.
- C. Demonstrate insertion capability and restore Control Rod 30-31 to position "12".
- D. Demonstrate insertion capability and restore Control Rod 30-31 to position "48".

Answer Key		
Question ID# 094 SRO Only		
Choice	Basis or Justification	
<del>Correct:</del> <i>WR</i> <b>INCORRECT</b>	C	T.S 3.1.3.2 determines that 30-31 is INOP due to Scram time exceeding 7 seconds. T.S. 3.1.3.1 Action b.1.b <del>directs that insertion capability must be demonstrated and the *note allows the rod to be restored to its previous position.</del> <i>WR Not applicable because rod is fully inserted.</i>
Incorrect:	A	30-31 is not OPERABLE, therefore it cannot just be restored to position 12.
<del>Incorrect:</del> <i>WR</i> <b>CORRECT</b>	B	The rod is INOP, <del>but this action would only be required if it were not moveable or trippable.</del> <i>WR TS Action 3.1.3.1.b.2</i>
Incorrect	D	While 30-31 must have insertion capability demonstrated, its original position is 12, not 48.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	3.0	3	N	Y (b)(10)	Y (b)(2)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	TS 3.1.3.2 AND 3.1.3.1	
Learning Objective:	LLOT0060.12	
Knowledge/Ability K/A	201002 2.1.32	Importance: RO / SRO 3.4 / 3.8
(Description of K&A, from catalog) Ability to explain and apply system limits and precautions.		

Required Materials:

Notes and Comments

Prepared By:  
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95. The CRS directed a manual scram on Unit 2 from 100% power due to a stuck open SRV.

The scram was unsuccessful and RRCS was manually initiated.

Immediately after RRCS initiation, reactor power dropped to 1.2% on all APRM's.

Currently, Unit 2 plant conditions are as follows:

- All APRM's indicate 1.2%
- All IRM's are on Range 6 and stable
- All SRM count rates are 55,000 cps and stable
- ALL blue SCRAM lights are lit on the Full Core Display
- Suppression Pool temperature is 108°F and rising

WHICH ONE of the following describes the correct mitigation strategy for control rod insertion and SLC?

<u>Control Rods</u>	<u>SLC</u>
A. Perform T-217 and T-218	Do <u>NOT</u> inject SLC
B. Perform T-217 and T-218	Manually inject SLC
C. Perform T-213, T-215, T-216, and T-219	Do <u>NOT</u> inject SLC
D. Perform T-213, T-215, T-216, and T-219	Manually inject SLC



96. WHICH ONE of the following identifies Work Execution Center/Work Control Center Supervisor (WCS) staffing requirements per OP-AA-101-111 and OP-LG-101-111?
- A. WCS may be credited as Shift Technical Advisor and Incident Assessor simultaneously.
  - B. WCS may be credited as Incident Assessor and NRC Communicator simultaneously.
  - C. If the WCS is credited as Shift Technical Advisor then Incident Assessor function is NOT required.
  - D. If the WCS is credited as Incident Assessor then Shift Technical Advisor function is NOT required.

Answer Key		
Question ID# 096 SRO Only		
Choice	Basis or Justification	
Correct:	C	If WCS is STA then IA function is not required (OP-AA-101-111, 4.5.2)
Incorrect:	A	WCS cannot be both STA and IA (OP-LG-101-111, Attachment 3)
Incorrect	B	WCS cannot be both IA and NRC Communicator (OP-LG-101-111, Attachment 3)
Incorrect	D	If WCS is the IA, they support the STA function, the STA is still required

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.0	3	N	N	Y (b)(2)

Source Documentation	
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank
Reference(s):	OP-AA-101-111, page 5, step 4.5 OP-LG-101-111, page 11 #3
Learning Objective:	LLOT1574.01a
Knowledge/Ability K/A	2.1.4                      Importance: RO / SRO 2.3 / 3.4
(Description of K&A, from catalog) Knowledge of Shift Staffing requirements	

Required Materials:

Notes and Comments

Prepared By:  
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97. The "A" Chlorine detector fails upscale.

Subsequently, a loss of Div 3 DC power occurs.

WHICH ONE of the following describes the status of the "A" CREFAS Fan and the procedure entered?

	<u>"A" CREFAS Fan</u>	<u>Procedure</u>
A.	Running	S78.0.B Verification of MCR HVAC Isolation Signal
B.	Not Running	S78.0.B Verification of MCR HVAC Isolation Signal
C.	Running	S78.8.A Manual Initiation of MCR HVAC Isolation
D.	Not Running	S78.8.A Manual Initiation of MCR HVAC Isolation

Answer Key		
Question ID# 097 SRO Only		
Choice	Basis or Justification	
Correct:	A	The "A" Chlorine detector causes a partial chlorine isolation. The Loss of Div 3 DC completes the isolation and causes the "A" CREFAS Fan to start due to de-energizing the trip logic. Therefore, a manual isolation is not required and only verification of the existing isolation.
Incorrect:	B	The procedure reference is correct, however the "A" CREFAS is running.
Incorrect	C	The fan status is correct, however manual isolation is not required and only verification of the existing isolation.
Incorrect	D	The "A" CREFAS is running and manual isolation is not required and only verification of the existing isolation.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	N	N	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	E-1FC, SE-2	
Learning Objective:	LLOT0450.03, 07	
Knowledge/Ability K/A	290003 A2.01	Importance: RO / SRO 3.1 / 3.2
(Description of K&A, from catalog) Ability to predict the impact of the following on the Control Room HVAC, and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Initiation/reconfiguration		

Required Materials:

Notes and Comments

Prepared By:

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98. WHICH ONE of the following procedure revisions requires a Station Qualified Reviewer (SQR) review per AD-AA-101 and AD-AA-102?
- A. Changes to references in a Surveillance Test.
  - B. Editorial changes to an Operation's T&RM.
  - C. Addition of clarifying information in the form of a list of required tools in a systems procedure.
  - D. Changes to activities in an Off-Normal Procedure.

Answer Key		
Question ID# 098 SRO Only		
Choice		Basis or Justification
Correct:	D	Changes to activities in a procedure requires a SQR review
Incorrect:	A	Changes to reference are excluded from requiring SQR review
Incorrect	B	Editorial change are excluded from requiring SQR review
Incorrect	C	Addition of clarifying information is excluded from requiring SQR review

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
Low	2.5	4	N	N	Y (b)(3)

Source Documentation	
Source:	<input type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input checked="" type="checkbox"/> Modified NRC Bank Item <input type="checkbox"/> Other Exam Bank extensively modified ILT exam bank item <input type="checkbox"/> ILT Exam Bank
Reference(s):	AD-AA-101, Page 3, step 4.3.5
Learning Objective:	LLOT1570.013
Knowledge/Ability K/A	2.2.6 <span style="float: right;">Importance: RO / SRO 2.3 / 3.3</span>
(Description of K&A, from catalog) Knowledge of the process for making changes in procedures as described in the safety analysis report.	

Required Materials:

Notes and Comments

Prepared By:

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99. Fuel is being loaded into the core on Unit 1 with the following conditions:
- "1A" SRM count rate is 3.5 cps and has a signal-to-noise ratio of 2.0
  - "1B" SRM was declared inoperable last shift due to spiking
  - "1C" SRM count rate is 2.0 cps and has a signal-to-noise ratio of 1.5
  - "1D" SRM count rate is 2.5 cps and has a signal-to-noise ratio of 2.0

WHICH ONE of the following describes the limitations, if any, regarding loading fuel into the core?

- A. Fuel may be loaded into any quadrant.
- B. All fuel loading must be suspended immediately.
- C. Fuel may be loaded into "A" or "D" core quadrants ONLY.
- D. Fuel may be loaded into "A", "C" or "D" core quadrants ONLY.

Answer Key		
Question ID# 099 SRO Only		
Choice	Basis or Justification	
Correct:	C	"B" and "C" SRM's are inoperable ("C" due to inadequate signal/noise ratio, per T.S. fig 3.3.6-1) Therefore, Fuel movement is only permitted in quadrants "A" and "D" per T.S. 3.9.2
Incorrect:	A	See above
Incorrect	B	See above
Incorrect	D	Fuel cannot be loaded into quadrant "C" because its SRM is inoperable.

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	N	N	(b) (7)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> ILT Exam Bank	
	<input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Other Exam Bank	
Reference(s):	T.S. 3.9.2 and Figure 3.3.6-1	
Learning Objective:	LLOT0240.10	
Knowledge/Ability K/A	2.2.28	Importance: RO / SRO 2.6 / 3.5
(Description of K&A, from catalog) Knowledge of new and spent fuel movement procedures.		

Required Materials:

Notes and Comments

Prepared By:  
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## ATTACHMENT: GP-12 Provided

100. Unit 1 is at 100% power when the following occurs:

At 0100, Chemistry reports the following results of a Reactor water sample:

- Conductivity is 2.5  $\mu\text{mho/cm}$
- pH is 5.4
- Chloride concentration is 0.1 ~~ppm~~ **ppb** *Allmode 11/3/06*
- Hotwell conductivity is  $< 0.1 \mu\text{mho/cm}$  and steady

The RO reports a rising trend in Main Steam Line radiation.

WHICH ONE of the following describes the required action(s)?

- A. Check RWCU and Condensate Deep Bed Demin effluent conductivity to identify the source.
- B. Reduce power per GP-5, Appendix 2 and sequentially remove Circulating Water system loops from service to identify the source.
- C. Begin a GP-3 shutdown by 0200 and place reactor in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- D. Perform an engineering evaluation to determine the effects of any out-of-limit conditions on the structural integrity of the Reactor Coolant system.

Answer Key		
Question ID# 100 SRO Only		
Choice	Basis or Justification	
Correct:	A	ON-116 directs that with Conductivity >1.0 $\mu\text{mho/cm}$ <u>AND</u> Main Steam line radiation high <u>AND</u> ph low, to determine if RWCU or Condensate Deep Beds are passing resin
Incorrect:	B	This action would be correct if hot well conductivity were rising, which is not indicated
Incorrect	C	This action would be appropriate if GP-12 action level 3 (>5 $\mu\text{mho/cm}$ ) were reached
Incorrect	D	This action would be appropriate if the plant was in any OPCON other than 1, 2 or 3

Psychometrics					
Level of Knowledge	Difficulty	Time Allowance (minutes)	PRA	RO 10CFR55.41	SRO 10CFR55.43
High	3.0	4	N	Y (b)(10)	Y (b)(5)

Source Documentation		
Source:	<input checked="" type="checkbox"/> New Exam Item <input type="checkbox"/> Previous NRC Exam <input type="checkbox"/> Modified Bank Item <input type="checkbox"/> Other Exam Bank <input type="checkbox"/> ILT Exam Bank	
Reference(s):	GP-12, Sect 3.3, ON-116, T&RM 3.4.4	
Learning Objective:	LLOT1030.12	
Knowledge/Ability K/A	2.1.34	Importance: RO / SRO 2.3 / 2.9
(Description of K&A, from catalog) Ability to maintain primary and secondary plant chemistry within allowable limits.		

Required Materials:

## GP-12

Notes and Comments

Prepared By:

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