

corrected exam key

12-16-04

EXAMINATION ANSWER SHEET
Oyster Creek NRC ILT 2004 EXAM 12-10-2004

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KEY

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List of references for NRC ILT written exam 12-10-2004

Reference

Steam Tables

Attachment 202.1-2	Power to Flow map
Attachment 403-2	APRM/LPRM status sheet
TS 3.2 w/o bases	Reactivity Control TS
TS 3.3 w/o bases	Reactor Coolant TS
TS 3.7 & 4.7 w/o bases	Electrical TS, surveillance
TS 3.8	Isolation Condenser TS
SP-4	Operation of the Core Spray system
SP-28	Level Instrument Availability

Radiological Survey Map

609.4.001 -1 & -2 & acceptance criteria

EP-OC-1010 EAL chart

4 main EOP flow charts w/o entry conditions; RPV Control - No ATWS, RPV Control – With ATWS, Primary Containment Control, Secondary Containment & Radioactivity Release Control

Question #	1	
Examination Outline Cross-reference		
Level	RO	Tier # 1 Group # 1
Knowledge and Ability Reference Information		RO SRO
295001	Partial or Complete Loss of Forced Core Flow Circulation	AK3.02 Importance Rating 3.7 3.8
Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION:		Reactor power response
Question:		
<p>Given the following:</p> <ul style="list-style-type: none"> • The reactor is at 100% power and stable • Five reactor recirc pumps are operating • The "C" reactor recirc MG Drive Motor breaker trips on overcurrent • Reactor power stabilizes at 75% following the drive motor breaker trip <p>Which of the following is the correct plant response as the operator carries out the immediate operator actions of ABN-2, Recirculation Pump Trip? Assume no change to the Recirc Master Flow Controller setpoint during this transient.</p> <p>Power will...</p>		
A.	rise during the first two minutes of operator action due to the pump discharge valve closing	
B.	drop during the first two minutes of operator action due to the pump discharge valve closing	
C.	remain at 75% throughout the transient due to the Recirc Master Flow Controller setpoint	
D.	rise during the first two minutes of operator action due to the pump discharge valve closing, then return to 75%	
ANSWER:	A	
REFERENCE(S):	ABN-2	[ref #2] [ref #3]
Explanation:	<p>A is correct, as the discharge valve shuts, less flow is bypassed from the core, therefore more core flow after the discharge valve is fully shut.</p> <p>B is incorrect, as the sequence is backwards.</p> <p>C is incorrect as core flow will change during execution of ABN-2. This would be indicative of a discharge valve that failed to close.</p> <p>D is incorrect, as final power will be greater due to less bypass flow through the stopped recirc loop.</p>	
References to be provided during exam:	None	[ref prv #2]
Learning Objective	10450	

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (5)	55.43			

Question #	2						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295003	Partial or Complete Loss of AC Power		AA1.03	Importance Rating	4.4		
Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of AC Power:			Systems necessary to assure safe plant shutdown.				
Question:							
The plant has experienced a loss of offsite power, and the following conditions exist:							
<ul style="list-style-type: none"> Buses 1C and 1D are being supplied by their respective EDGs RPV pressure is being maintained at 935 psig with Isolation Condensers Oyster Creek has been informed that offsite power will be restored no sooner than 72 hours 							
If a plant cooldown is commenced at the MAXIMUM allowable cooldown rate, what will be the MINIMUM time it takes to clear the shutdown cooling interlocks, assuming a constant cooldown rate?							
A.	1.9 hours						
B.	2.2 hours						
C.	19 hours						
D.	22 hours						
ANSWER:	C						
REFERENCE(S):	ABN-36		[ref #2]	[ref #3]			
Explanation:	<p>Maximum allowable cooldown rate during loss of AC power is 10 deg. F/hr. Starting temperature @ 935 psig is 538 deg. F SDC interlocks clear @ 350 deg. F Required cooldown of 188 deg. F to clear SDC interlocks.</p> <p>A. assumes a Tech Spec allowable cooldown rate of 100 deg. F/hr B. assumes the administrative limit of 90 deg. F/hr. C. is the correct answer. D. is incorrect, but plausible if a math error is committed.</p>						
References to be provided during exam:	Steam tables		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (5)	55.43				

Question #	3						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295004	Partial or Complete Loss of D.C. Power	AA1.03	Importance Rating	3.4	3.6		
Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of D.C. Power:			AC electrical distribution				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is at 100% power • The plant is in a normal electrical plant alignment • DC Distribution Center C is de-energized due to a fault • Troubleshooting actions for DC-C are in progress 							
Subsequently, a reactor scram occurs.							
Once the plant has stabilized, what is the status of the 4160V AC buses? Assume no operator actions.							
A.	Buses 1A and 1C are de-energized; buses 1B and 1D are energized from offsite power.						
B.	Bus 1A is de-energized; bus 1C is energized from #1 EDG; buses 1B and 1D are energized from offsite power.						
C.	Buses 1B and 1D are de-energized; buses 1A and 1C are energized from offsite power.						
D.	Bus 1B is de-energized; bus 1D is energized from #2 EDG; buses 1A and 1C are energized from offsite power.						
ANSWER:	A						
REFERENCE(S):	ABN-55		[ref #2]	[ref #3]			
Explanation:	<p>A. is correct. On a loss of DC C and a subsequent turbine trip, both 1A and 1C buses will be de-energized if breaker 1A is closed (normal lineup for 100% power.)</p> <p>B. is incorrect. Bus tie breaker 1C will not open, and #1 EDG will not automatically start.</p> <p>C. is incorrect. Wrong control power source.</p> <p>D. is incorrect. Wrong control power source.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450, 08153						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	4						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295005	Main Turbine Generator Trip		AK1.01	Importance Rating	4.0		
Knowledge of the operational implications of the following concepts as they apply to Main Turbine Generator Trip:			Pressure effects on reactor power				
Question:							
Given the following:							
<ul style="list-style-type: none"> • A plant startup is in progress • Reactor pressure is 300 psig and rising slowly • Turbine shell warming is in progress • 5 minutes later the main turbine trips 							
Based on the above conditions, reactor power will...							
A.	rise due to loss of feedwater heating.						
B.	rise due to a rise in reactor pressure.						
C.	lower due to a drop in reactor pressure.						
D.	lower due to an automatic scram.						
ANSWER:	C						
REFERENCE(S):	315.1, step 3.3.13.3						
Explanation:	A. is incorrect, as feedwater heating is not in service below ~30% power. B. is incorrect, steam flow is cutoff, but BPV will open, lowering pressure. C. is correct, as all Bypass Valves will open following the trip. D. is incorrect, as the turbine trip scram is bypassed below 30% (40% by Tech Specs.) NOTE: This event occurred during 1R18 startup and is an LER						
References to be provided during exam:	None						
Learning Objective	1196, 1200						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (5)	55.43				

Question #	5						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295006	Scram	AK1.03	Importance Rating	3.7	4.0		
Knowledge of the operational implications of the following concepts as they apply to Scram:			Reactivity control				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The reactor scrammed from 100% power • All red scram lights on 4F are LIT • The "B" CRD pump is out of service for motor winding checks • Three control rods indicate "48" on the full core display • All other control rods indicate "GREEN-GREEN" on the full core display 							
Which of the following actions will provide the MAXIMUM dP for successful rod insertion?							
A.	Reset the scram and then manually re-scram the reactor.						
B.	Place the mode switch to REFUEL and manually drive the rods						
C.	Close the CRD cooling water pressure control valve and manually drive the rods						
D.	Reset the scram and individually scram the rods from the Rod Scram Test Panel						
ANSWER:	D						
REFERENCE(S):	SP-21	[ref #2]	[ref #3]				
Explanation:	<p>A is incorrect, as a full core scram will not develop maximum dP since scram discharge volume will not be vented and charging header pressure will be lower.</p> <p>B is incorrect, as the drive pressure will be significantly below scram pressure for those three rods.</p> <p>C is incorrect, as the cooling water pressure will be significantly below scram pressure for those three rods.</p> <p>D is correct, as this develops maximum dP for the individual rod scrams.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (5)	55.43				

Question #	6						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295006	Scram	AA2.01	Importance Rating	4.5	4.6		
Ability to determine and interpret the following as they apply to Scram:			Reactor power response				
Question:							
The reactor is operating at 100% power, when a loss of offsite power occurs.							
Reactor power will...							
A.	initially rise, then immediately drop due to a scram when the turbine stop valves close.						
B.	initially rise, then immediately drop due to a scram when the acceleration relay actuates.						
C.	immediately drop due to a scram when the turbine stop valves close.						
D.	immediately drop due to a scram when the acceleration relay actuates.						
ANSWER:	B						
REFERENCE(S):	UFSAR, section 15.2.2.2		[ref #2]	[ref #3]			
Explanation:	<p>As TCVs close in response to the LOOP, reactor power will initially rise due to void collapse, then will drop when control rods begin scrambling. Therefore:</p> <p>A. is incorrect because the stop valve closure happens after the acceleration relay actuates.</p> <p>B. is correct.</p> <p>C. is incorrect, as reactor power will initially rise due to void collapse.</p> <p>D. is incorrect, as reactor power will initially rise due to void collapse.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450, 01086, 10453						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (5)	55.43				

Question #	7					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
295016	Control Room Abandonment	AA2.02	Importance Rating	4.2	4.3	
Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT:			Reactor water level			
Question:						
Given the following:						
<ul style="list-style-type: none"> • A Control Room fire necessitated a Control Room Evacuation • All necessary actions IAW ABN-30, "Control Room Evacuation" were performed prior to leaving the Control Room • The Plant Process Computer has failed, and the backup Plant Process Computer is not available 						
Based on the above conditions, RPV water level indication is available at the Remote Shutdown Panel AND at...						
A.	RK01 and RK02					
B.	RK02 and RK03					
C.	RK03 and RK05					
D.	RK05 and RK01					
ANSWER:	A					
REFERENCE(S):	ABN-30	2000-OPS-3024.24	[ref #3]			
Explanation:	<p>A is correct. Fuel zones as well as both triple low Bartons are available, as level can be read from the triple low Barton instruments as well.</p> <p>B is incorrect, as it does not address the triple low Barton on RK01 and RK03 has no RPV water level instrumentation on it..</p> <p>C is incorrect, as it does not address the triple low Barton on RK01/2 and RK03/5 has no RPV water level instrumentation on it..</p> <p>D is incorrect, as it does not address the triple low Barton on RK02 and RK05 has no RPV water level instrumentation on it.</p>					
References to be provided during exam:	None		[ref prv #2]			
Learning Objective	10438					
Question Source	Bank		Modified Bank	New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	8						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295018	Partial or Complete Loss of Component Cooling Water.		AK1.01	Importance Rating	3.5	3.6	
Knowledge of the operational implications of the following concepts as they apply to partial or complete loss of component cooling water:			Effects on component/system operations				
Question:							
The plant is operating at 100% power when a leak in the RBCCW system occurs. The leak is determined to be on the common discharge header, and RBCCW surge tank level is constant.							
In accordance with ABN-19, RBCCW Failure Response, which one of the following actions is required?							
A.	Isolate the RWCU system to reduce heat loads.						
B.	Start the standby RBCCW pump.						
C.	Commence a plant shutdown IAW Procedure 203.						
D.	Scram the reactor IAW ABN-1.						
ANSWER:	C						
REFERENCE(S):	ABN-19		[ref #2]	[ref #3]			
Explanation:	<p>Given leak location cannot be isolated. Candidate must recognize this.</p> <p>A. is incorrect, would be correct for reduced cooling capability, not for a leak.</p> <p>B. is incorrect, would be correct for a pump trip, not for a leak.</p> <p>C. is the correct answer, and is dictated for a leak where surge tank level can be maintained,</p> <p>D. is incorrect, would be correct for a major leak where surge tank level cannot be maintained.</p>						
References to be provided during exam:	NONE			[ref prv #2]			
Learning Objective	00061						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (4)	55.43				

Question #	9	
Examination Outline Cross-reference		
Level	RO	Tier # 1 Group # 1
Knowledge and Ability Reference Information		RO SRO
295019	Partial or Complete Loss of Instrument Air	G2.1.30 Importance Rating 3.9 3.4
Conduct of Operations		Ability to locate and operate components, including local controls
Question:		
Given the following conditions:		
<ul style="list-style-type: none"> • The plant has experienced a total loss of Instrument Air • The reactor was scrammed successfully • RPV water level is 175 in. TAF and slowly rising • All feedwater pumps are secured • "A" CRD pump is operating 		
What actions are required to stabilize reactor water level?		
A.	Manually close Charging Header Isolation V-15-52	
B.	Manually close CRD Flow Control Valves NC-30 A/B	
C.	Manually close CRD Bypass Isolation Valve V-15-30	
D.	Manually open RWCU Letdown Flow Control valve ND-22	
ANSWER:	A	
REFERENCE(S):	ABN-1	[ref #2] [ref #3]
Explanation:	A is correct. B is incorrect, because flow control valves fail closed on loss of IA C is incorrect, not direct by procedure. D is incorrect, as RWCU is isolated	
References to be provided during exam:	None	[ref prv #2]
Learning Objective	10450	
Question Source	Bank	Modified Bank New [X]
Question Cognitive Level:	Memory or Fundamental Knowledge	Comprehension or Analysis [X]
10 CFR Part 55 Content:	55.41 (b) (10)	55.43

Question #	10						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295021	Loss of Shutdown Cooling		G2.4.48	Importance Rating	3.5	3.8	
Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.							
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is shutdown • Shutdown cooling is in service with "A" and "B" SDC loops in service • "C" SDC loop is filled and vented, and has 1500 gpm RBCCW flow through its HX • RPV temperature is 310 deg. F and being cooled down at 10 deg. F per hour with SDC • The temperature switch for the "A" SDC inlet water temperature fails to 390 degrees F due to a fault 							
What effect does this failure have on the SDC system, and what actions should be taken in response to this failure?							
A.	V-17-19 and V-17-54 (SDC Inlet and Outlet Isolation Valves) will close and the SDC system will isolate. The faulty temperature switch must be overridden in order to recover SDC.						
B.	V-17-19 and V-17-54 (SDC Inlet and Outlet Isolation Valves) will close and the SDC system will isolate. Alternate means of core cooling must be employed.						
C.	V-17-19 (SDC Inlet Isolation Valve) will close and "A" and "B" SDC pumps will trip. Alternate means of core cooling must be employed						
D.	V-17-19 and V-17-54 (SDC Inlet and Outlet Isolation Valves) will remain open and the "A" SDC pump will trip. Continue cooldown with "B" and "C" SDC pumps						
ANSWER:	D						
REFERENCE(S):		C-2-d RAP	Proc. 305		[ref #3]		
Explanation:	<p>When SDC loop suction temperature exceeds 350 degrees, this causes the respective SDC pump to trip. System does not isolate. If RCP loop temperatures exceed 350 degrees, this will cause the SDC system to isolate. Therefore;</p> <p>A is incorrect for this situation, but would be correct for a recirc pump suction temperature switch fault.</p> <p>B is incorrect, but would be correct for a recirc pump suction temperature switch fault.</p> <p>C is incorrect but is correct sequence if inlet isolation valve were to close.</p> <p>D is correct.</p>						
References to be provided during exam:		None		[ref prv #2]			
Learning Objective	00026						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	11					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
295023	Refueling Accidents		AA2.01	Importance Rating	3.6	4.0
Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS:			Area radiation levels			
Question:						
Given the following conditions:						
<ul style="list-style-type: none"> • The plant is in a refueling outage • Reactor Building Ventilation Exhaust radiation monitors are both reading 2 mr/hr • B9 and C9 radiation monitors are both reading 3 mr/hr • A fuel bundle is dropped from the grapple as it is being moved 						
At time T = 5 minutes, B9 radiation monitor reads 55 mr/hr						
At time T = 6 minutes, Reactor Building Ventilation Exhaust channel A-1 reads 10 mr/hr						
At time T = 7 minutes, Reactor Building Ventilation Exhaust channel A-2 reads 11 mr/hr						
At time T = 8 minutes, C9 radiation monitor reads 60 mr/hr						
Based upon the above, when will the Reactor Building Ventilation isolate?						
A.	T = 5 minutes					
B.	T = 6 minutes					
C.	T = 7 minutes					
D.	T = 8 minutes					
ANSWER:	B					
REFERENCE(S):	RAP 10F-1-f, 10F-3-m					
Explanation:	<p>B9 and C9 rad monitors alarm at 50 mr/hr. When either one alarms, it starts a 2-minute timer, which will then cause a RBHVAC isolation at the end of that 2-minute period. The RB Vent. Exhaust rad monitors alarm at 9 mr/hr. When either of these alarm, it causes an immediate RBHVAC isolation. Additionally, it takes one-out-of-two taken ONCE logic. Therefore:</p> <p>A is incorrect, as no time delay is factored in</p> <p>B is correct</p> <p>C is incorrect, as the RBHVAC is already isolated and it does not take both B9 and C9 monitors to isolate</p> <p>D is incorrect, as the RBHVAC is already isolated and it does not take both RB Vent. Exhaust monitors to isolate</p>					
References to be provided during exam:	None					
Learning Objective	01129					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	12						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295024	High Drywell Pressure		EA1.06	Importance Rating	3.7	3.7	
Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE:			Emergency Generators				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is operating at 100% power and stable • High Drywell Pressure sensor RV-46B fails high • All other Drywell Pressure sensors indicate 1.2 psig 							
What effect does this have on the plant?							
A.	NZ01B and NZ03B start, NZ01A and NZ03A do NOT start, both EDGs idle start						
B.	NZ01B and NZ03B start, ONLY #2 EDG idle starts						
C.	NZ01A&B start, NZ03A&B start, both EDGs idle start						
D.	NZ01A&B start, NZ03A&B start, ONLY #2 EDG idle starts						
ANSWER:	C						
REFERENCE(S):	341, B-1-e		[ref #2]	[ref #3]			
Explanation:	A is incorrect as both core spray systems start B is incorrect as both core spray systems and both EDGs start. C is the correct answer, both core spray systems and EDG start logic is cross connected D is incorrect as both EDGs start.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	00788						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	13						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295025	High Reactor Pressure	EA1.07	Importance Rating	4.1	4.1		
Ability to operate and/or monitor the following as they apply to HIGH REACTOR PRESSURE:			ARI/RPT/ATWS (Plant Specific)				
Question:							
Given the following:							
<ul style="list-style-type: none"> The plant is at 45% power and stable MSIVs inadvertently close All control rods remain at their pre-transient positions RPV pressure peaks at 1066 psig, then drops to 1040 psig within 5 seconds An operator is controlling pressure between 800 to 1000 psig with ICs & EMRVs NO other operator actions are taken 							
Based on the above conditions, reactor power will drop due to a ...							
A.	partial loss of recirculation flow, and will ultimately reach the source range because of ARI actuation						
B.	complete loss of recirculation flow, and will ultimately reach the source range because of ARI actuation						
C.	partial loss of recirculation flow, and will remain at that lowered power level, ultimately requiring an Emergency Depressurization due to exceeding the HCTL						
D.	complete loss of recirculation flow, and will remain at that lowered power level, ultimately requiring an Emergency Depressurization due to exceeding the HCTL						
ANSWER:	C						
REFERENCE(S):	E-1-a, E-2-a		[ref #2]	[ref #3]			
Explanation:	A is incorrect due to ARI setpoint at 1090 psig. B is incorrect since all pumps will not trip and ARI setpoint at 1090 psig C is correct as only 3 pumps trip on high pressure <10.5 seconds D is incorrect, not all pumps trip						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	00208, 00209						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis			[X]	
10 CFR Part 55 Content:	55.41	(b) (6)	55.43				

Question #	14					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
295026	Suppression Pool High Water Temperature		G 2.1.25	Importance Rating	2.8	
Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.						
Question:						
Given the following conditions:						
<ul style="list-style-type: none"> • An Emergency Depressurization has been performed and all 5 EMRVs are open • RPV level is being maintained 100 to 175 in. TAF • Torus pressure is being maintained between 4 and 12 psig • Core Spray pumps NZ01A and NZ01B are operating at 4,000 gpm each • Torus water level is 150 inches and stable • Containment Spray pump 51A is running in Torus Cooling mode at 4,500 gpm • Containment Spray pump 51C is running in Drywell Spray mode at 4,500 gpm 						
What is the HIGHEST Torus temperature that is allowed without exceeding any Core Spray limits?						
A.	190 deg. F					
B.	193 deg. F					
C.	200 deg. F					
D.	202 deg. F					
ANSWER:	B					
REFERENCE(S):	SP 4		[ref #2]	[ref #3]		
Explanation:	<p>For the conditions stated, CS static head adjustment is 2.1 psig. For 12 psig – “I” static head adjustment. For 4 psig – “G” static head adjustment. Use 4 psig and static head of 2.1 and NZ01C NOT running curve to determine 193 deg. F is the highest temp. Therefore: A is incorrect as it is using the NZ01C curve. B is correct. C is incorrect as it is using 12 psig and the NZ01C curve D is incorrect as it is using 12 psig.</p>					
References to be provided during exam:	SP-4		[ref prv #2]			
Learning Objective	03023					

Question Source	Bank		Modified Bank		New	[X]
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	15						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295028	High Drywell Temperature		EA2.03	Importance Rating	3.7		
Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE:			Reactor water level				
Question:							
Given the following:							
<ul style="list-style-type: none"> • A small steam line break has occurred in the drywell • RPV pressure is 500 psig and stable • Bulk drywell temperature is 255 deg. F and stable • "A" Yarway reference leg temperature is 495 deg. F • "B" Yarway reference leg temperature is 500 deg. F • NR & WR GEMAC reference leg temperatures are 450 deg. F • Yarway instruments read 90 in. TAF and stable • NR GEMAC instruments read 92 in. TAF and stable • WR GEMAC instrument reads 170 in. TAF and stable 							
Based upon the above, RPV water level...							
A.	is 90 in. TAF						
B.	is 92 in. TAF						
C.	is 170 in. TAF						
D.	cannot be determined						
ANSWER:	C						
REFERENCE(S):	SP-28		[ref #2]	[ref #3]			
Explanation:	All instruments are below RPV saturation pressure, therefore: A is incorrect as it is below minimum usable indicating level B is incorrect as it is below minimum usable indicating level C is correct. Minimum usable level is ~155 in. D is incorrect, as the WR instrument is usable						
References to be provided during exam:	SP-28		[ref prv #2]				
Learning Objective	10445						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b)(10)	55.43				

Question #	16					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
295030	Low Suppression Pool Water Level	EK2.08	Importance Rating	3.5	3.8	
Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following:			EMRV discharge submergence			
Question:						
Given the following:						
<ul style="list-style-type: none"> • The plant is operating at 100% and stable • The TORUS LEVEL HI/LO alarm annunciates • The STA informs you that torus water level is low, and dropping at 2 inches per minute 						
Assuming the time starts when the Torus low level alarm is received and assuming a constant rate of torus level drop, answer the following two questions.						
<ol style="list-style-type: none"> 1. What is the MAXIMUM time before EMRVs can NO LONGER be manually opened? 2. What is the basis for this requirement? 						
A.	Approximately 16 to 17 minutes, due to loss of suppression capability when EMRVs are open.					
B.	Approximately 16 to 17 minutes, due to loss of suppression capability for a LOCA.					
C.	Approximately 26 to 27 minutes, due to loss of suppression capability when EMRVs are open.					
D.	Approximately 26 to 27 minutes, due to loss of suppression capability for a LOCA.					
ANSWER:	C					
REFERENCE(S):	EOP Users Guide	RPV Control – No ATWS				
Explanation:	<p>Torus low level alarm is 143 inches, and is the entry condition for Primary Containment Control. Candidates are required to know this fact.</p> <p>At 2 in/min drop, it has to go from 143" to 90", or ~53/2 or 26.5 minutes.</p> <p>At 110 inches, torus downcomers are uncovered. At 90 inches, EMRV Y quenchers are uncovered. Even though the EOPs require ED before reaching 110 inches, it is appropriate to ED even if Torus level is below 110 inches. However, EMRVs can not be opened if Torus level is less than 90 inches when ED is commenced. Therefore:</p> <p>A is incorrect because the EMRVs are still covered.</p> <p>B is correct for basis for torus downcomers uncovered, but not for EMRVs.</p> <p>C is correct</p> <p>D is incorrect due to wrong basis applied.</p>					
References to be provided during exam:	None					
Learning Objective	00369					

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	17					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
295031	Reactor Low Water Level		EK3.05	Importance Rating	4.2	4.3
Knowledge of the reasons for the following responses as they apply to REACTOR LOW WATER LEVEL:			Emergency depressurization			
Question:						
Given the following conditions:						
<ul style="list-style-type: none"> • The Steam Cooling EOP was entered when RPV level reached 0 in. TAF • RPV pressure is being maintained between 800 and 1000 psig with ICs • The "B" CRD pump has been started and is injecting to the RPV • NO other injection systems are available • RPV water level is -35 in. TAF and steady 						
Based upon the above information, which of the following is correct and why?						
A.	Maintain present conditions and continue trying to restore additional injection systems, because adequate steam flow exists to keep the core less than 1500 deg. F.					
B.	Maintain present conditions and continue trying to restore additional injection systems, because adequate steam flow exists to keep the core less than 1800 deg. F.					
C.	Conduct an Emergency Depressurization because insufficient steam flow exists to keep the core less than 1500 deg. F.					
D.	Conduct an Emergency Depressurization because insufficient steam flow exists to keep the core less than 1800 deg. F.					
ANSWER:	D					
REFERENCE(S):		EOP Users Guide	Steam Cooling EOP			
Explanation:	<p>A is incorrect, because level must be above -20 in to ensure clad does not exceed 1500 deg. F.</p> <p>B is incorrect, because the -42 in level corresponds to less than 1800 deg. F with NO injection and no subcooling. By having CRD injection, this invalidates all steam cooling assumptions.</p> <p>C is incorrect, because level must be above -20 in to ensure clad does not exceed 1500 deg. F.</p> <p>D is correct</p>					
References to be provided during exam:		None				
Learning Objective	10450					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (5)	55.43			

Question #	18						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295037	SCRAM condition present and Reactor Power above APRM Downscale or Unknown		EK2.10	Importance Rating	3.8		
Knowledge of the interrelations between SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN and the following:			Reactor pressure				
Question:							
<p>The plant is at 100% power when the following occurs:</p> <ul style="list-style-type: none"> • The Main Turbine trips • A hydraulic ATWS occurs • Between 2 and 3 turbine bypass valves are controlling RPV pressure at 935 psig • Torus temperature is 76 deg. F and steady • All reactor recirculation pumps are tripped • There are NO power oscillations • RPV water level is being maintained between -20 and 30 in. TAF with Feedwater and Condensate • Control rods are being manually inserted IAW SP-21 <p>Based upon these conditions, when can a plant cooldown be commenced?</p>							
A.	When liquid poison tank is at 650 gallons						
B.	When power reaches IRM range 4, and is continuing to lower						
C.	Immediately, since power is within the capacity of the turbine bypass valves						
D.	When power is steady at 2% as indicated by LPRM downscale indicators						
ANSWER:	B						
REFERENCE(S):	EOPs		[ref #2]	[ref #3]			
Explanation:	<p>A is incorrect because there is no need to inject boron under these conditions.</p> <p>B is correct, the reactor is shutdown</p> <p>C is in correct, because the reactor is still at power.</p> <p>D is incorrect, because power is still in the power range at 2%</p>						
References to be provided during exam:	EOP flowcharts		[ref prv #2]				
Learning Objective	10450, 02257						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	19						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295038	High Off Site Release Rate		EK2.07	Importance Rating	3.5		
Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following:			Control Room ventilation				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> The plant is operating at 100% power and steady Annunciator 10F-1-d, STACK EFFLUENT HI-HI alarms Stack RAGEMS Channel 1 & 2 are reading above their HI-HI alarm setpoint 							
Which of the following correctly describes the REQUIRED Control Room HVAC System lineup for these conditions?							
A.	Normal Mode						
B.	Purge Mode						
C.	Partial Recirculation Mode						
D.	Full Recirculation Mode						
ANSWER:	C						
REFERENCE(S):	10F-1-d, 331.1		[ref #2]	[ref #3]			
Explanation:	<p>OC Control Room HVAC systems are manually controlled only. No automatic changes to system lineups.</p> <p>A is incorrect, as normal mode will not create a positive pressure in the control room.</p> <p>B is incorrect, as purge mode is only used to remove smoke, fumes or odors from the atmosphere.</p> <p>C is correct in accordance with actions taken IAW procedure 331.1.</p> <p>D is incorrect as full recirc mode prevents toxic gas from entering the control room.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	02324						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	20	
Examination Outline Cross-reference		
Level	RO	Group # 1
Knowledge and Ability Reference Information		RO SRO
600000	Plant Fire On Site	AA1.09 Importance Rating 2.5
Ability to operate and/or monitor the following as they apply to PLANT FIRE ON SITE:		Plant fire zone panel, including detector location
Question:		
Given the following:		
<ul style="list-style-type: none"> • The plant is operating at 100% power • The "B" Control HVAC system is operating in Normal mode • A fire starts in the Control Room due to a relay burning up • Significant amounts of smoke and combustion products are present from the fire • The fire CANNOT be extinguished with portable extinguishers • The following detectors have activated: <ul style="list-style-type: none"> • 2 detectors in Zone 1 for System A • 3 detectors in Zone 2 for System B • 1 detector in Zone 1 for System C • 2 detectors in Zone 2 for System C 		
Which of the following Control Room Halon system(s) will actuate?		
D. System A, B and C		
E. System A and B ONLY		
F. System B and C ONLY		
D. System C ONLY		
A.	System A, B and C	
B.	System A and B ONLY	
C.	System B and C ONLY	
D.	System C ONLY	
ANSWER:	D	
REFERENCE(S):	ABN-29	[ref #2] [ref #3]
Explanation:	A is incorrect, two detectors from opposing zones must actuate to cause HALON actuation. B is incorrect, two detectors from opposing zones must actuate to cause HALON actuation. C is incorrect, since two detectors from opposing zones must activate to cause auto initiation of HALON. D is correct, two detectors from opposing zones have actuated	
References to be provided during exam:	None	[ref prv #2]

Learning Objective	10445, 10450					
Question Source	Bank		Modified Bank		New	[X]
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	21						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295008	High Reactor Water Level	AA2.02	Importance Rating	3.4	3.4		
Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL:			Steam flow/feed flow mismatch				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is at 100% power • RPV water level is being maintained at 160 in. TAF in AUTO • Indicated steam flow is 7.20 E6 lbm/hr • Indicated feed flow is 7.16 E6 lbm/hr • "B" EMRV fails open • NO operator actions are taken 							
Once the plant stabilizes, RPV water level will be _____ (1) _____ AND the steam flow/feed flow mismatch will be _____ (2) _____ pre-transient conditions.							
A.	(1)	above 160 in. TAF					
	(2)	less than					
B.	(1)	below 160 in. TAF					
	(2)	less than					
C.	(1)	above 160 in. TAF					
	(2)	greater than					
D.	(1)	below 160 in. TAF					
	(2)	greater than					
ANSWER:	D						
REFERENCE(S):	ABN-40						
Explanation:	<p>EMRVs tap off upstream (vessel side) of the steam flow restrictors, such that the steam flow through an open EMRV will not be indicated. When this happens, the FWLC system will "see" a reduced steam flow, and the feed-forward component will cause FRVs to close. As level drops below the setpoint, the level error will eventually overcome the steam flow/feed flow mismatch, and will control at a lower level. Therefore:</p> <p>A is incorrect as level will be lower and mismatch will be higher B is incorrect as mismatch will be greater C is incorrect as level will be lower D is correct</p>						
References to be provided during exam:	None						
Learning Objective	10450						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (5)	55.43			

Question #	22						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295007	High Reactor Pressure	G2.1.23	Importance Rating	3.9	4.0		
Ability to perform specific system and integrated plant procedures during different modes of plant operation.							
Question:							
The reactor is at 100% power, when the following occurs:							
<ul style="list-style-type: none"> • MSIVs close on high Trunnion Room temperature • All rods remain at their pre-transient positions • RPV pressure is 1215 psig and steady • Drywell pressure is 17 psig and rising • All other systems operated as expected 							
Reactor pressure will be reduced by...							
A	placing BOTH ICs in service, IAW SP-11						
B	terminating and preventing injection, IAW SP-17						
C	reopening MSIVs, IAW RPV Control – with ATWS						
D	manually opening ALL EMRVs, IAW Emergency Depressurization						
ANSWER:	B						
REFERENCE(S):	EOP RPV Control with ATWS	EOP User's Guide	[ref #3]				
Explanation:	<p>A is incorrect, as both ICs will be in service (>1051 psig > 1.5 sec.)</p> <p>B is correct, as terminating and preventing injection will immediately cause power to turn due to decreased inlet subcooling and increased voiding.</p> <p>C is incorrect, as MSIVs cannot be opened as a steam line break has occurred.</p> <p>D is incorrect, as ED is not required</p>						
References to be provided during exam:	EOPs without entry conditions						
Learning Objective	02257						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b)(10)	55.43				

Question #	23						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295010	High Drywell Pressure		AK1.03	Importance Rating	3.2	3.4	
Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE:			Temperature increases				
Question:							
Given the following:							
<ul style="list-style-type: none"> • A high drywell pressure condition is in progress • Drywell pressure is 1.8 psig and rising slowly • Bulk drywell temperature is 140 deg. F and rising slowly 							
Given the above condition, which of the following is NOT an allowable mitigation strategy to lower Drywell temperature?							
A.	Reduce RBCCW loads.						
B.	Start all drywell cooling fans.						
C.	Start the second RBCCW pump.						
D.	Bypass RBCCW isolations and maximize drywell cooling.						
ANSWER:	D						
REFERENCE(S):	RAP C-3-f		C-8-h				
Explanation:	A is addressed in C-3-f B is addressed in C-3-f C is addressed in C-3-f D is an EOP action, and EOPs would not be applicable in this condition						
References to be provided during exam:	None						
Learning Objective	00446						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (4)	55.43				

Question #	24						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295013	High Suppression Pool Temperature		AK2.01	Importance Rating	3.6	3.7	
Knowledge of the interrelations between HIGH SUPPRESSION POOL TEMPERATURE and the following:			Suppression pool cooling				
Question:							
Given the following:							
<ul style="list-style-type: none"> • A plant startup following a refueling outage is in progress • RPV pressure is 1020 psig • Reactor power is 4% • EMRV testing is in progress • Torus cooling is in operation • Average torus temperature is rising 							
If Torus temperature continues to rise, we are required to immediately stop EMRV testing if torus temperature reaches _____ (1) _____ degrees F, or immediately SCRAM if torus temperature reaches _____ (2) _____ degrees F.							
A.	(1)	105					
	(2)	110					
B.	(1)	110					
	(2)	120					
C.	(1)	95					
	(2)	110					
D.	(1)	105					
	(2)	120					
ANSWER:		A					
REFERENCE(S):		Tech Specs 3.5.A.1.c					
Explanation:		A is correct. B is incorrect. Scram is at 110 and RPV depressurization at 120. C is incorrect. Normal operating limit is 95, and scram is 110. D is incorrect. EMRV testing can go to 105, but RPV depressurization is 120.					
References to be provided during exam:		None					
Learning Objective	10450						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge	<input checked="" type="checkbox"/>	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (3)	55.43			

Question #	25	
Examination Outline Cross-reference		
Level	RO	Tier # 1 Group # 2
Knowledge and Ability Reference Information		RO SRO
295022	Loss of CRD Pumps	AK3.01 Importance Rating 3.7 3.9
Knowledge of the reasons for the following responses as they apply to LOSS OF CRD PUMPS:		Reactor Scram
Question:		
Given the following:		
<ul style="list-style-type: none"> • A plant startup is in progress • RPV pressure is 800 psig • The "A" CRD pump trips on overload and CANNOT be restarted • The "B" CRD pump will not start 		
A scram is required _____ (1) _____ and rod scram times will be _____ (2) _____ allowable limits		
A.	(1) immediately (2) within	
B.	(1) immediately (2) greater than	
C.	(1) when the second accumulator alarms (2) within	
D.	(1) when the second accumulator alarms (2) greater than	
ANSWER:	A	
REFERENCE(S):	H-7-c RAP	
Explanation:	A is correct B is incorrect, as the accumulators will ensure all rods will scram within TS times. C is incorrect, waiting for the second accumulator is correct when RPV pressure is above 850 psig. With accumulator alarms in, scram times may not be within allowable limits D is incorrect, waiting for the second accumulator is correct when RPV pressure is above 850 psig.	
References to be provided during exam:	None	
Learning Objective	10450	

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	26						
Examination Outline Cross-reference							
Level	RO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295029	High Suppression Pool Water Level		EK3.01	Importance Rating	3.5		
Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL WATER LEVEL:			Emergency depressurization				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant has experienced a small LOCA • The reactor has been scrammed • Drywell pressure is being maintained between 4 and 12 psig with drywell sprays • RPV pressure is steady at 800 psig • RPV level is being maintained between 138 and 175 in. with Condensate/Feedwater and CRD • Torus level is 180 inches and rising at approximately 1 in. every 3 minutes • The US has ordered Emergency Depressurization 							
What is the basis for this decision?							
A.	To prevent exceeding the PCPL if the LOCA were to progress to a DBA LOCA.						
B.	To prevent exceeding allowable stresses on the EMRV Y quenchers and supports.						
C.	To lower pressure as necessary to allow the low pressure injection systems to inject.						
D.	To prevent possible torus structural damage due to the elevated water level.						
ANSWER:	B						
REFERENCE(S):		EOP bases	TLL curve				
Explanation:	<p>A is incorrect. If torus level cannot be maintained in the PSP and a vessel breach by core materials were to occur, the PCPL could be exceeded, but not by a DBA LOCA.</p> <p>B is the correct answer, based upon the definition of the Torus Load Limit curve.</p> <p>C is incorrect, as we are not in the Level Restoration leg of RPV control.</p> <p>D is incorrect. Structural damage will occur only if torus level is significantly above the PCPL curve.</p>						
References to be provided during exam:		EOPs without entry conditions					
Learning Objective	03000						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	27					
Examination Outline Cross-reference						
Level	RO	Tier #	1	Group #	2	
Knowledge and Ability Reference Information						
295009	Low Reactor Water Level	AA1.02	Importance Rating	4.0	RO	SRO
Ability to operate and/or monitor the following as they apply to Low Reactor Water Level:			Reactor water level control			
Question:						
Given the following:						
<ul style="list-style-type: none"> • Plant is at power • Feed flow is 5.5 E6 lbm/hr • 3 feed pumps operating • Reactor level control is in AUTO • Master feedwater level setpoint is 160 in. • "B" feed pump trips 						
With NO operator action, feed flow will be...						
A.	5.5 E6 lbm/hr					
B.	5.34 E6 lbm/hr					
C.	4.8 E6 lbm/hr					
D.	4.46 E6 lbm/hr					
ANSWER:	B					
REFERENCE(S):	J-8-c					
Explanation:	A is incorrect, as feed pumps will go into runout B is correct, flow is limited 2.67 E6 per loop C is incorrect, this is the ROPS actuate setpoint D is incorrect, this is the ROPS bypass setpoint					
References to be provided during exam:	None					
Learning Objective	10450					
Question Source	Bank		Modified Bank		New	[X]
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	28						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
205000	Shutdown Cooling		K4.01	Importance Rating	3.7		
Knowledge of the Shutdown Cooling system design features(s) and/or interlocks which provide for the following:			High temperature isolation				
Question:							
Given the following:							
<ul style="list-style-type: none"> • Shutdown cooling is in operation with "A "Shutdown Cooling (SDC) Pump running • "E" Recirculation Loop is in service; all other loops are idle • The "C" recirc loop temperature instrument fails upscale 							
Based on the above conditions, which one of the following will occur?							
A.	SDC system will isolate on low suction pressure AND running SDC pumps will trip on high temperature						
B.	Running SDC pumps will trip on low suction pressure AND SDC system will isolate on low suction pressure						
C.	SDC system will isolate on high temperature AND running SDC pumps will trip on isolation valve closure						
D.	Running SDC pumps will trip on high temperature AND SDC system will isolate on high temperature						
ANSWER:	C						
REFERENCE(S):	Proc. 305, C-2-d		[ref #2]	[ref #3]			
Explanation:	<p>When any of the five recirc loop temperature indicators reach 350 deg. F, this causes a complete isolation of the SDC system. SDC inlet and outlet valves will close. When the inlet SDC valve goes off its full-open seat, this causes all running SDC pumps to trip to prevent a low suction condition.</p> <p>Therefore:</p> <p>A is incorrect, system isolates on high temp, pumps will trip on isolation valve closure.</p> <p>B is incorrect, inlet and outlet valves will close on high temp, NOT low pressure.</p> <p>C is the correct answer, inlet and outlet valves on high temp, pumps isolation valve closure.</p> <p>D is incorrect, pumps will trip on low suction pressure.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	00401						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	29						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
207000	Isolation Condenser		K1.03	Importance Rating	3.7		
Knowledge of the physical connections and/or cause-effect relationships between ISOLATION CONDENSER and the following:			Reactor water level				
Question:							
At what RPV water level is the operator directed to close the Isolation Condenser DC isolation valves, <u>and WHY?</u>							
A.	160 in., to prevent water hammer of the piping.						
B.	160 in., to prevent automatic isolation.						
C.	180 in., to prevent water hammer of the piping.						
D.	180 in., to prevent automatic isolation.						
ANSWER:	C						
REFERENCE(S):	EOPs		Support Procedure 11				
Explanation:	<p>A is incorrect, as this is the basis for not initiating ICs above 160 inches, not for isolating them.</p> <p>B is incorrect, as the level pertains to initiation, and the high flow isolation deals with recirc pumps A/E running if ICs are initiated.</p> <p>C is correct</p> <p>D is incorrect, as the isolation on high flow precaution is to ensure recirc pumps A/E are secured prior to initiation.</p>						
References to be provided during exam:	None						
Learning Objective	02338						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	30					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
209001	Low Pressure Core Spray System	K2.03	Importance Rating	2.9	3.1	
Knowledge of electrical power supplies to the following:			Initiation logic			
Question:						
Given the following:						
<ul style="list-style-type: none"> 125 VDC Panel DC-D is deenergized due to a panel fault Two (2) minutes later, drywell pressure rises to 3.6 psig 						
Based upon these conditions, Isolation Condenser _____ (1) _____ will isolate AND Core Spray pumps _____ (2) _____ will start.						
A.	(1) A (2) NZ01B and NZ01C					
B.	(1) B (2) NZ01B and NZ01C					
C.	(1) A (2) NZ01A and NZ01B					
D.	(1) B (2) NZ01A and NZ01B					
ANSWER:	C					
REFERENCE(S):	RAP 9XF-3-d	RAP B-7-e				
Explanation:	<p>A loss of DC-D will cause the A Isolation Condenser to automatically isolate on a false high steam/condensate flow signal due to loss of power to the isolation logic. However, core spray initiation logic is provided from both DC-D and DC-F. Core spray system I pumps (NZ01A/C) initiation logic is normally from DC-D with a redundant logic circuit from DC-F. Core spray system II pumps (NZ01B/D) initiation logic is normally from DC-F with a redundant logic circuit from DC-D. Therefore, system I and II pump initiation logic will be powered from DC-F, and the primary main pumps will start (A and B).</p> <p>A is incorrect, as the backup main pump in system I (NZ01C) will not start. B is incorrect, as the wrong IC isolation is given, and NZ01C will not start. C is correct D is incorrect, as the wrong IC isolation is given.</p>					
References to be provided during exam:	None					
Learning Objective	02030, 00302					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	31						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
211000	Standby Liquid Control System		K6.03	Importance Rating	3.2	3.3	
Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY LIQUID CONTROL SYSTEM:			A.C Power				
Question:							
Which of the following 460V MCCs MUST have power in order to inject with SLC System 1?							
A.	1A21						
B.	1A21A						
C.	1A22						
D.	1A23						
A.	1A21						
B.	1A21A						
C.	1A22						
D.	1A23						
ANSWER:	A						
REFERENCE(S):	ABN-45, att. 5						
Explanation:	<p>A is correct, as the SLC pump 1A and it's squib are powered from 1A21, and SLC pump 1B and it's squib are powered from 1B21.</p> <p>B is incorrect, as 1A21A and 1B21A power Recirc Pump and Core Spray valves ONLY.</p> <p>C is incorrect, as 1A22 and 1B22 power Old Radwaste equipment ONLY.</p> <p>D is incorrect, as 1A23 and 1B23 power Reactor Building and Office Building fans ONLY.</p>						
References to be provided during exam:	None						
Learning Objective	10436						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	32					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
212000	Reactor Protection System	A3.06	Importance Rating	4.2	4.2	
Ability to monitor automatic operation of the REACTOR PROTECTION SYSTEM including:			Main turbine trip: Plant-Specific			
Question:						
The plant was operating at 40% power when the MOISTURE SEPARATOR HI-HI alarm is received and remains in for 15 seconds.						
Based upon this, the reactor will _____ (1) _____, and the turbine valve response will be _____ (2) _____.						
A.	(1) SCRAM (2) Turbine Control Valves Intercept Valves Reheat Stop Valves Bypass Valves	- - - -	CLOSED CLOSED OPEN All open initially; throttle closed to control reactor pressure			
B.	(1) NOT SCRAM (2) Turbine Control Valves Intercept Valves Reheat Stop Valves Bypass Valves	- - - -	OPEN OPEN OPEN CLOSED			
C.	(1) SCRAM (2) Turbine Control Valves Intercept Valves Reheat Stop Valves Bypass Valves	- - - -	CLOSED CLOSED CLOSED All open initially; throttle closed to control reactor pressure			
D.	(1) NOT SCRAM (2) Turbine Control Valves Intercept Valves Reheat Stop Valves Bypass Valves	- - - -	OPEN OPEN CLOSED CLOSED			
ANSWER:	C					
REFERENCE(S):	ABN-10		RAP P-1-a			
Explanation:	<p>One MS HI-HI level switch actuation will cause a turbine trip. Any turbine trip from 40% power and above will actuate an anticipatory scram.</p> <p>Therefore:</p> <p>A is incorrect, as the reheat stop valves also close on turbine trip</p> <p>B is incorrect, as the reactor will scram and the turbine will trip</p> <p>C is correct</p> <p>D is incorrect, as the reactor will scram, and the reheat stop valves will remain open if the turbine has not tripped</p> <p>NOTE: This transient happened in 2003</p>					

References to be provided during exam:		None			
Learning Objective	01187				
Question Source	Bank		Modified Bank		New
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (7)	55.43		

Question #	33					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
215003	Intermediate Range Monitor (IRM) System	K6.06	Importance Rating	3.2	3.4	
Knowledge of the effect that a loss or malfunction of the following will have on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM:			APRM			
Question:						
Given the following:						
<ul style="list-style-type: none"> • A plant startup is in progress • All IRMs are in Range 10 • The mode switch has just been taken to RUN • IRM 13 takes a step change to 40% • Before IRM 13 can be bypassed, LPRM string 12-17 fails to "0" as indicated on all four (4) LPRM channels 						
Besides the APRM DOWNSCALE alarm, which of the following will be received?						
A.	LPRM DOWNSCALE alarm ONLY .					
B.	LPRM DOWNSCALE and ROD BLOCK alarms ONLY .					
C.	LPRM DOWNSCALE, IRM HI-HI, and ROD BLOCK alarms ONLY .					
D.	LPRM DOWNSCALE, IRM HI-HI, ROD BLOCK alarms, and CHANNEL I half scram.					
ANSWER:	D					
REFERENCE(S):	RAP G-1-d		RAP G-4-f	RAP G-7-f		
Explanation:	<p>The candidate must recognize that 40% of Range 10 will cause an IRM HI-HI alarm on IRM 13. Must also determine that LPRM string 12-17 feeds APRM channels 3 and 7 (from Attachment 403-2). This combination will cause LPRM and APRM downscale alarms, Rod Block alarm, as well as a half-scram on System I due to IRM 13 upscale/APRM 3 downscale.</p> <p>Therefore:</p> <p>A is incorrect, as it is only one of four things that occur.</p> <p>B is incorrect, as it is only two of four things that occur.</p> <p>C is incorrect, as it is only three of four things that occur.</p> <p>D is correct.</p>					
References to be provided during exam:	Attachment 403-2 LPRM and APRM status information sheet					
Learning Objective	10441					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (6)	55.43			

Question #	34						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
215004	Source Range Monitoring System	K3.02	Importance Rating	3.4	3.4		
Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITORING SYSTEM will have on the following:			Reactor manual control: Plant Specific				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> Rx mode switch in "Startup" IRMs in range 1 IRMs and SRMs are full in 							
Which of the following will produce a rod block?							
A.	IRM 14 indicates 3 on 125 scale						
B.	APRM 7 indicates 1 on 150 scale.						
C.	SRM 24 indicates 100 cps						
D.	SRM 21 indicates 2 E5 cps						
ANSWER:	D						
REFERENCE(S):	H-7-a						
Explanation:	A is incorrect, would be true if not in range 1. B is incorrect, would be true if mode switch in RUN. C is incorrect, would be true if detector not full in D is correct,						
References to be provided during exam:	None						
Learning Objective	00731, 10449						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	35						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
215004	Source Range Monitoring System	A1.01	Importance Rating	3.0	3.1		
Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITORING SYSTEM controls including:			Detector position				
Question:							
During startup, when the reactor is critical, SRM detectors are initially withdrawn when _____ (1) _____ and SRM period will _____ (2) _____ as the detectors INITIALLY start moving							
A.	(1) all SRMs are greater than 1 E5 cps (2) become longer						
B.	(1) all SRMs are greater than 1 E5 cps (2) become shorter						
C.	(1) three IRMs in each RPS system read 50% on range 1 (2) become longer						
D.	(1) three IRMs in each RPS system read 50% on range 1 (2) become shorter						
ANSWER:	D						
REFERENCE(S):	RAP H-7-a		[see question #34]	procedure 201			
Explanation:	As SRM detectors are initially withdrawn, the move into a higher flux area of the core causing period to become shorter. Period will become longer/go negative only after the detectors pass beyond the high flux area. A. is incorrect, detector withdrawal is dictated by IRM indication and period will initially go shorter B. is incorrect, detector withdrawal is dictated by IRM indication C. is incorrect, as period will initially become shorter D is correct						
References to be provided during exam:	None						
Learning Objective	10444						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis			[X]	
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	36					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
215005	Average Power Range Monitor/Local Power Range Monitor System		A1.03	Importance Rating	3.6	3.6
Ability to predict and/or monitor changes in parameters associated with operating the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM controls including:			Control rod block status			
Question:						
Given the following:						
<ul style="list-style-type: none"> • A plant startup is in progress • The Mode Switch is in RUN • Reactor Power drops, causing APRM 1 DOWNSCALE white light to ILLUMINATE 						
Based upon the above, Control Rods. . .						
A.	cannot be driven in EITHER direction.					
B.	can be driven in the inward direction ONLY .					
C.	can be driven in the outward direction ONLY .					
D.	can be driven in the inward AND outward directions.					
ANSWER:	B					
REFERENCE(S):	RAP H-7-a		[see question #34]			
Explanation:	<p>At OC, APRM system 1 downscale (APRM 1, 2, 3, & 4) will cause a Rod withdraw block. Control rods can still be driven in. APRM system 2 downscale (APRM 5, 6, 7, & 8) will cause a Rod withdraw block as well as a reactor manual controls deselect. In this case, Control rods can neither be selected nor driven. This arrangement is unique to BWR 2s. Therefore:</p> <p>A would be correct for system 2 B is correct for this condition - with APRM downscale and Mode switch not in STARTUP/REFUEL a withdraw block is applied. C is incorrect. D is incorrect.</p>					
References to be provided during exam:	None					
Learning Objective	10444					
Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (6)	55.43			

Question #	37					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
215005	Average Power Range Monitor/Local Power Range Monitor System	A3.07	Importance Rating	3.8	3.8	
Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including:			RPS status			
Question:						
Given the following:						
<ul style="list-style-type: none"> Reactor power is 70% Total recirc flow on panel 4F is 15.0 E4 gpm The recirc flow transmitter in the "C" recirc loop, which feeds the Total Recirc Flow indicator on 4F, fails to 0 (zero) 						
Recirc flow on panel 4F will read _____ (1) _____ gpm, resulting in a _____ (2) _____.						
A.	(1) 12.0 E4 (2) rod block					
B.	(1) 12.0 E4 (2) half-scram					
C.	(1) 13.5 E4 (2) rod block					
D.	(1) 13.5 E4 (2) half-scram					
ANSWER:	A					
REFERENCE(S):	RAP G-5-f					
Explanation:	<p>Only 5 of 10 recirc flow transmitters feed the 4F total recirc flow indicator, causing indicated flow to read 80% of initial flow ($15 \times .8 = 12$). A 10% or greater flow mismatch will cause the flow comparator rod block. Therefore: A is correct</p> <p>B is incorrect, as this does NOT result in a flow comparator half scram</p> <p>C is incorrect, as 13.5 E4 gpm is only a 10% drop (this would be correct if all 10 flow transmitters fed the 4F total recirc flow indicator)</p> <p>D is incorrect, as 13.5 E4 is only a 10% drop, and this will NOT result in a flow comparator half scram</p>					
References to be provided during exam:	Power-to-Flow Map, 202.1-2					
Learning Objective	00219					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (6)	55.43			

Question #	38						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
218000	Automatic Depressurization System		K3.02	Importance Rating	4.5	4.6	
Knowledge of the effect that a loss or malfunction of the AUTOMATIC DEPRESSURIZATION SYSTEM will have on the following:				Ability to rapidly depressurize the reactor			
Question:							
Given the following:							
<ul style="list-style-type: none"> • A small break LOCA is in progress • Drywell pressure rose to 4 psig • All automatic actuations occurred as designed • Drywell sprays were initiated and drywell pressure is stable at 1.5 psig • All control rods are fully inserted • RPV water level is +20 inches and stable • ADS is being bypassed IAW Level Restoration • ADS Timer A bypass switch has been taken to BYPASS • ADS Timer B bypass switch cannot be moved from the AUTO position due to mechanical binding • NO other actions were taken 							
The ADS System will...							
A.	initiate and ALL 5 EMRVs will open.						
B.	initiate but ONLY C and D EMRVs will open.						
C.	NOT initiate because it is bypassed.						
D.	NOT initiate because drywell pressure is 1.5 psig.						
ANSWER:	A						
REFERENCE(S):	RAP B-1-h		RAP B-2-h		RAP B-5-h		
Explanation:	Drywell pressure signal for ADS seals in, and BOTH ADS timers must be in bypass in order to prevent ADS auto initiation. Therefore: A is correct B is incorrect, as ADS actuation will open all EMRVs, not just the ones on the North header C is incorrect, because it takes BOTH timers in bypass to inhibit ADS. D is incorrect, because the DW pressure signals to ADS seal in.						
References to be provided during exam:	None						
Learning Objective	10357, 00379						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	39					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-off	K3.10	Importance Rating	2.9	3.1	
Knowledge of the effect that a loss or malfunction of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF will have on the following:			Reactor water cleanup			
Question:						
39 Given the following:						
<ul style="list-style-type: none"> • The plant is shutdown • RPV pressure is 700 psig • An I&C tech causes drywell pressure transmitter RE04A to fail upscale • RWCU system isolates • RE04A has been returned to service and drywell pressure is 1.2 psig • RWCU pressure is 140 psig • Filter bypass valve V-16-83 is OPEN 						
Based on the above, the RWCU system SHOULD (1) _____ and the following actions are required, in the stated sequence , to open V-16-1: (2) _____						
A.	(1) have isolated (2) Depress DW ISOLATION RESET pushbutton on 4F, and reduce RWCU pressure to approximately 80 psig					
B.	(1) NOT have isolated (2) Reduce RWCU pressure to approximately 80 psig, and depress DW ISOLATION RESET pushbutton on 4F					
C.	(1) have isolated (2) Depress DW ISOLATION RESET pushbutton on 4F, reset the redundant high pressure isolation keylock in A/B Battery Room, and reduce RWCU pressure to approximately 80 psig					
D.	(1) NOT have isolated (2) Reduce RWCU pressure to approximately 80 psig, depress DW ISOLATION RESET pushbutton on 4F, and reset the redundant high pressure isolation keylock in A/B Battery Room					
ANSWER:	D					
REFERENCE(S):	RAP D-3-b Procedure 420 Procedure 303					
Explanation:	High pressure isolation setpoint for primary and redundant isolation circuits is 130 psig. It takes two (one-out-of-two twice) high drywell pressure signals to cause an isolation. Therefore:					

		A is incorrect, as isolation should not have occurred. B is incorrect, as the redundant high pressure trip must be reset also. C is incorrect, as isolation should not have occurred. D is correct			
References to be provided during exam:		None			
Learning Objective	00252				
Question Source	Bank		Modified Bank		New X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis	X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43		

Question #	40						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
223002	Primary Containment Isolation System/Nuclear Steam Supply Shut-off		A4.01	Importance Rating	3.6	3.5	
Ability to manually operate and/or monitor in the control room:			Valve closures				
Question:							
Given the following:							
<ul style="list-style-type: none"> • A plant shutdown is in progress • The drywell is being purged with air • The Mode Switch is in RUN 							
If power is lost to VMCC 1B2, which of the following isolation valves will close?							
A.	Air Supply to DW (V-28-42, -43) ONLY						
B.	DW Vent/Purge Valves (V-27-1, -2, -3, -4) ONLY						
C.	DW Sump Valves (V-22-28, -29) ONLY						
D.	DW Equipment Drain Valves V-22-1, -2) ONLY						
ANSWER:	B						
REFERENCE(S):	RAP 10F-4-k		RAP C-4-g, ABN-48		Inst. pwr restoration 3024.10f		
Explanation:	<p>Loss of power to VMCC 1B2 will result in deenergizing PAIPP-2, which causes "CHRRMS Channel 2" to lose power. On a loss of power, all vent valves for the drywell and torus will isolate on "Torus/DW Vent & Purge HI rad isolation", C-4-g. No other valves are affected. Therefore:</p> <p>A is incorrect as the air supply valves are not affected.</p> <p>B is the correct answer</p> <p>C is incorrect, as the sump valves are not affected</p> <p>D is incorrect, as the drain valves are not affected (sump isolation valve isolation on loss of PAIPP panels is a common mis-conception.)</p>						
References to be provided during exam:	None						
Learning Objective	00394						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	41						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
239002	Relief/Safety Valves		K5.02	Importance Rating	3.7	3.8	
Knowledge of the operational implications of the following concepts as they apply to RELIEF/SAFETY VALVES:			Safety function of SRV operation				
Question:							
The Main Steam Safety Valves are designed to mitigate (1) _____ and to ensure that peak RPV pressure will NOT exceed (2) _____ psig.							
A.	(1)	a Turbine Trip with ATWS					
	(2)	1,250					
B.	(1)	an MSIV Closure					
	(2)	1,250					
C.	(1)	a Turbine Trip with ATWS					
	(2)	1,375					
D.	(1)	an MSIV Closure					
	(2)	1,375					
ANSWER:	D						
REFERENCE(S):	UFSAR 5.2.2.4						
Explanation:	<p>Safety valves are designed to ensure peak pressure does not exceed 1,375 psig. They will not open on any pressure transient except those resulting from isolation with scram failure, failure of the EMRVs, or failure of the turbine bypass valves. Therefore:</p> <p>A is incorrect, as this is not an isolation, and the pressure is SS pressure limit of 1250 psig</p> <p>B is incorrect, as the pressure is the steady state pressure limit of 1250 psig</p> <p>C is incorrect, as this is not an isolation</p> <p>D is correct</p>						
References to be provided during exam:	None						
Learning Objective	00515, 01028						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (3)	55.43				

Question #	42						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
259002	Reactor Water Level Control System	A1.01	Importance Rating	3.8	3.8		
Ability to predict and/or monitor changes in parameters associated with operating the REACTOR WATER LEVEL CONTROL SYSTEM controls including:			Reactor water level				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is at 100% power and stable • The feedwater LEVEL TRANSMITTER SELECTOR switch is in AUTO • The "A" white light is LIT • The "AUTO" white light is LIT • The "B" white light is OUT • The "C" amber light is OUT • GEMAC "A" is indicating 165 inches • GEMAC "B" is indicating 162 inches • GEMAC "C" is indicating 164 inches • Master FW level controller is in AUTO at 165 inches 							
If GEMAC "A" fails to 140 inches, what reference level will digital feedwater use to control RPV level?							
A.	140 inches						
B.	160 inches						
C.	162 inches						
D.	164 inches						
ANSWER:	C						
REFERENCE(S):	RAP J-8-c						
Explanation:	<p>A is incorrect, as this level is divergent from B and C Gemac levels, therefore it is treated as a BAD signal</p> <p>B is incorrect, as a failure of all level transmitters will result in a default to 160 inches</p> <p>C is correct. since AUTO is selected, this will result in "B" transmitter indication will be used because it is the closet to "C"</p> <p>D is incorrect. If the level selector were in AUTO and both A and B transmitters failed, C would take over.</p>						
References to be provided during exam:	None						
Learning Objective	10446						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	43						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
261000	Standby Gas Treatment System	K1.08	Importance Rating	2.8	3.1		
Knowledge of the physical connections and/or cause-effect relationships between STANDBY GAS TREATMENT SYSTEM and the following:			Process radiation monitoring system				
Question:							
Given the following:							
<ul style="list-style-type: none"> Standby Gas has started on a high drywell pressure STANDBY GAS SELECT switch is in the SYS 1 position 							
Which ONE of the following describes the response of the Standby Gas Treatment System (SGTS) to a subsequent high alarm condition on BOTH Reactor Building Ventilation Exhaust Radiation channels?							
A.	#1 SGTS will remain operating, and #2 SGTS will automatically start						
B.	#1 SGTS will shutdown, then SGTS #1 and #2 will re-initiate.						
C.	#1 SGTS will remain operating, and #2 SGTS will remain in standby.						
D.	#1 SGTS will shutdown then re-initiate, and #2 SGTS will remain in standby.						
ANSWER:	C						
REFERENCE(S):	RAP 10F-1-f		Procedure 330				
Explanation:	<p>On an automatic initiation of SGTS, the initiation signals are sealed in. Because of this, subsequent initiation signals will NOT put the SGTS through a re-initiation sequence. Therefore:</p> <p>A is incorrect because system 2 fan will secure after the initial initiation sequence, as long as system 1 fan develops required flow within a 2 to 3 minute time period.</p> <p>B is incorrect, as it will not go through a re-initiation sequence.</p> <p>C is correct</p> <p>D is incorrect, as #1 SGTS will not go through a re-initiation sequence.</p>						
References to be provided during exam:	None						
Learning Objective	10445						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis			X	
10 CFR Part 55 Content:	55.41	(b) (13)	55.43				

Question #	44					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
261000	Standby Gas Treatment System	A4.03	Importance Rating	3.0	3.0	
Ability to manually operate and/or monitor in the control room:			Fan			
Question:						
Given the following:						
<ul style="list-style-type: none"> • A manual start of Standby Gas Treatment System (SGTS) is in progress • The STANDBY GAS SELECT switch is in SYS II position • All procedure prerequisites have been verified and EF-1-9 is taken to the HAND position • NO other actions are taken 						
FIVE (5) minutes later, SGTS I orifice valve, V-28-24 will be (1) and SGTS II orifice valve, V-28-28 will be (2).						
A.	(1) CLOSED (2) CLOSED					
B.	(1) CLOSED (2) OPEN					
C.	(1) OPEN (2) CLOSED					
D.	(1) OPEN (2) OPEN					
ANSWER:	C					
REFERENCE(S):	Procedure 330					
Explanation:	<p>On SGTS start, the orifice valve for the selected train will initially OPEN, but as soon as flow is established, will then close. The opposite train orifice valve will OPEN as soon as the selected train system flow low clears. Additionally, the given sequence will have SGTS and RB HVAC in service simultaneously, but will not result in SGTS fan trip. Therefore:</p> <p>A is incorrect, because V-28-24 will be open B is incorrect, because the valve lineups are backwards C is correct D is incorrect, because V-28-28 cannot be open once system flow has been established</p>					
References to be provided during exam:	None					
Learning Objective	10445					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge		X	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	45						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
262001	A.C. Electrical Distribution	K1.01	Importance Rating	3.8	4.3		
Knowledge of the physical connections and/or cause-effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following:			Emergency generators (diesel/jet)				
Question:							
Given the following:							
<ul style="list-style-type: none"> The plant is at 100% power and steady At time T=0 seconds, Annunciator T-3-a, BUS 1C VOLTS LO is received Bus 1C is reading 3750 volts 							
Based upon these conditions, EDG #1 will fast start at time _____ (1) _____ and 4160V breaker 1C will trip at time _____ (2) _____.							
A.	(1) T=0 seconds (2) T=3 seconds						
B.	(1) T=3 seconds (2) T=3 seconds						
C.	(1) T=3 seconds (2) T=10 seconds						
D.	(1) T=10 seconds (2) T=10 seconds						
ANSWER:	D						
REFERENCE(S):	RAP T-3-a		RAP T-4-a		[ref #3]		
Explanation:	<p>For low voltage (<3830 volts per RAP T-3-a), the low voltage condition must be present for 10 seconds before the EDG gets a fast start signal, and breaker 1C will trip. For lo-lo voltage (0 volts per RAP T-4-a), the EDG will fast start after 3 seconds and breaker 1C will trip. Therefore, since this is a low voltage condition:</p> <p>A is incorrect, because the timer starts upon receipt of the alarm, and both actions happen in 10 seconds</p> <p>B is incorrect for the low voltage condition, but is correct for 0 voltage condition</p> <p>C is incorrect, as EDG 1 will not fast start until 10 seconds</p> <p>D is correct</p>						
References to be provided during exam:	None						
Learning Objective	01086, 01087						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge		X	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	46					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
262001	A.C. Electrical Distribution		A2.01	Importance Rating	3.4	3.6
Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:			Turbine/generator trip			
Question:						
Given the following:						
<ul style="list-style-type: none">• A plant startup is in progress• The main generator has just been synchronized to the grid• Reactor power is 25%• Electrical loads have been shifted to the Auxiliary Transformers• Breaker 1A and 1B control switches are "red-flagged"• Breaker S1A control switch is "green-flagged"• Breaker S1B control switch is "red-flagged"• Five (5) minutes later, the Main Turbine trips						
Which of the following describes the plant response, AND what actions are required?						
A.	Reactor power is steady at 25%, perform a plant shutdown IAW Procedure 203.					
B.	Reactor power is less than 25%, perform a plant shutdown IAW Procedure 203.					
C.	Reactor power is steady at 25%, scram the reactor and enter ABN-1.					
D.	Reactor power is less than 25%, scram the reactor and enter ABN-1.					
ANSWER:	D					
REFERENCE(S):	Procedure 337	ABN-2				
Explanation:	A turbine trip under these conditions will result in a loss of 4160V buses 1A and 1C, because S1B will NOT fast transfer due to a failure to reset the breaker (by leaving the switch in the red-flagged position.) Two recirc pumps will trip, requiring a reactor scram for multiple recirc pump trips IAW ABN-2. Therefore: A is incorrect, as power will drop due to the loss of 2 recirc pumps B is incorrect, as a normal plant shutdown is NOT appropriate C is incorrect, as power will drop due to the loss of 2 recirc pumps D is correct					
References to be provided during exam:	None					
Learning Objective	10445					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (6)	55.43			

Question #	47						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
262002	Uninterruptable Power Supply (A.C./D.C.)		A2.01	Importance Rating	2.6	2.8	
Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:			Under voltage				
Question:							
<p>Degraded cabling from VMCC 1B2 to the VACP-1 Auto Transfer Switch has resulted in the following voltages supplied to the switch:</p> <ul style="list-style-type: none"> • VMCC 1A2 power supply is 460 VAC • VMCC 1B2 power supply is 250 VAC <p>Based upon the above, the VACP-1 PWR XFER alarm on 9XF will be <u> (1) </u>, and we can continue operating with this condition for up to <u> (2) </u> before a plant shutdown is required.</p>							
A.	(1)	LIT					
	(2)	7 days					
B.	(1)	LIT					
	(2)	96 hours					
C.	(1)	EXTINGUISHED					
	(2)	7 days					
D.	(1)	EXTINGUISHED					
	(2)	96 hours					
ANSWER:	B						
REFERENCE(S):	RAP 9XF-3-c						
Explanation:	<p>Normal power supply to VACP-1 ATS is VMCC 1B2. The switch will auto transfer at 70% sensed voltage ($460\text{ V} \times .7 = 322\text{ VAC}$), therefore, the ATS will switch to the alternate source, VMCC 1A2. Whenever the switch is aligned to VMCC 1A2, the VACP-1 PWR XFER alarm is received. The normal power supply must be restored and shifted back to VMCC 1B2 within 96 hours, or the reactor shall be placed in cold shutdown within the next 30 hours. This is a GL 91-11 concern. Therefore:</p> <p>A is incorrect, as 7 days is longer than 96 hours B is correct C is incorrect due to alarm not in and longer than 96 hours D is incorrect due to alarm not in</p>						
References to be provided during exam:	None						
Learning Objective	01085						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	48						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
263000	D.C. Electrical Distribution		K4.02	Importance Rating	3.1	3.5	
Knowledge of D.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following:			Breaker interlocks, permissives, bypasses, and cross ties				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is at 100% power • Both RWCU pumps are in service due to high sulfates • A total loss of DC Distribution Center C (DC-C) occurs 							
The RWCU System will . . .							
A.	isolate, and RWCU pump A will trip						
B.	isolate, and RWCU pump B will trip						
C.	NOT isolate, and RWCU pump A will trip						
D.	NOT isolate, and RWCU pump B will trip						
ANSWER:	B						
REFERENCE(S):	OPS 3024.10c section 4.3						
Explanation:	<p>On a loss of DC-C, all RWCU valves will isolate due to isolation logic actuation on loss of DC-F (fed from DC-C), but breaker control power for the RWCU pump A comes from DC-C, so RWCU pump A breaker cannot trip. RWCU pump B will trip, as its breaker control power is DC-B.</p> <p>Therefore:</p> <p>A is incorrect, as RWCU pump A has no breaker control power</p> <p>B is correct</p> <p>C is incorrect, as RWCU isolates on low flow and high NRHX outlet temp signals due to loss of DC-F power, and pump will not trip</p> <p>D is incorrect, as RWCU isolates on low flow and high NRHX outlet temp signals due to loss of DC-F power</p>						
References to be provided during exam:	None						
Learning Objective	01127, 10445						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X	
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	49						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
263000	D.C. Electrical Distribution		A3.01	Importance Rating	3.2	3.3	
Ability to monitor automatic operations of the D.C. ELECTRICAL DISTRIBUTION including:			Meters, dials, recorders, alarms, and indicating lights				
Question:							
<p>The C1 Battery Charger is in service, and the "C" battery ground indicating lights on Panel 8F/9F indicate as follows:</p> <ul style="list-style-type: none"> Line 1 (+) lamp is EXTINGUISHED Line 2 (-) lamp is BRIGHTLY LIT <p>This indicates a ground on _____ (1) _____, and the "GROUND DETECTED" red light on the C1 Battery Charger will be _____ (2) _____ for these conditions.</p>							
A.	(1)	Line 1 (+)					
	(2)	LIT					
B.	(1)	Line 2 (-)					
	(2)	LIT					
C.	(1)	Line 1 (+)					
	(2)	EXTINGUISHED					
D.	(1)	Line 2 (-)					
	(2)	EXTINGUISHED					
ANSWER:	C						
REFERENCE(S):	RAP U-4-f, pg. 2						
Explanation:	<p>When a battery ground indicating light goes dimmer or completely out, that indicates that line's voltage potential is approaching (dimmer) or is at ground potential (completely out). The other line's indicating light will correspondingly burn brighter, since it's overall potential has risen due to the ground on the other line. Normal configuration for the battery charger indicating lights are ON when there is no problem, and go OUT to indicate the problem. Therefore:</p> <p>A is incorrect, as the ground detected light will NOT be lit</p> <p>B is incorrect, as the wrong line ground is given, and the ground detected light will NOT be lit</p> <p>C is correct</p> <p>D is incorrect, as the wrong line ground is given</p>						
References to be provided during exam:	None						
Learning Objective	10446						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	50					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
264000	Emergency Generators (Diesel/Jet)		K3.01	Importance Rating	4.2	4.4
Knowledge of the effect that a loss or malfunction of the EMERGENCY GENERATORS (DIESEL/JET) will have on the following:			Emergency core cooling systems			
Question:						
Given the following:						
<ul style="list-style-type: none"> • Drywell pressure is 3.5 psig and rising • Breaker S1A failed to close when the Main Generator tripped • One (1) minute later, the #1 EDG Cooling Water Pump fails, causing an Engine Cooling Water Temperature High condition • All other equipment operates as designed 						
If no operator action is taken, which of the following explains the response of the Core Spray system and the EDG?						
NZ01A and NZ03A will...						
A.	trip due to EDG trip on Hi Temp THEN NZ01C will automatically start					
B.	trip due to EDG trip on Hi Temp, AND NZ01C will NOT automatically start					
C.	run until diesel failure occurs THEN NZ01C will automatically start					
D.	run until diesel failure occurs, AND NZ01C will NOT automatically start					
ANSWER:	C					
REFERENCE(S):	RAP T-4-b					
Explanation:	#1 EDG will fast start under these conditions due to UV. Therefore, Engine Temperature (ET) trips are bypassed. When #1 EDG eventually fails, bus 1C will deenergize, and the backup CS main pump (NZ01C) will automatically start when system 1 pressure drops below 100 psig. NZ03C will NOT start due to interlock. Therefore: A is incorrect, as the EDG will NOT trip on ET B is incorrect, as the EDG will NOT trip on ET C is correct D is incorrect, as NZ01C will start					
References to be provided during exam:	None					
Learning Objective	00303					

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	51						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
300000	Instrument Air		G 2.1.23	Importance Rating	3.9		
Ability to perform specific system and integrated plant procedures during different modes of plant operation							
Question:							
Given the following:							
<ul style="list-style-type: none"> • The reactor is operating at 100% power • 1-1 air compressor is the LEAD compressor • 1-2 air compressor is the LAG compressor • 1-3 air compressor is available • A loss of USS 1A1 occurs • Service Air pressure lowers to 78 psig 							
Based on the above conditions, what action is required?							
A.	Confirm ONLY 1-2 compressor is running IAW ABN 35, Loss of Instrument Air						
B.	Confirm 1-2 and 1-3 compressors are running IAW ABN 35, Loss of Instrument Air.						
C.	Isolate dryers, pre-filters and post-filters IAW M-3-b, RCVR 2 / INST AIR PRESS LO						
D.	Verify Service Air Valve, V-6S-2, is isolated IAW M-2-b, SVC AIR DISCH VLV CLOSED						
ANSWER:	B						
REFERENCE(S):	ABN-35		M-2-b, M-3-b, M-7-b		[ref #3]		
Explanation:	A is incorrect, 1-2 & 1-3 are required to be running. B is the correct answer, IAW ABN-35. C is incorrect, pressure not low enough for this action. D is incorrect, pressure not low enough for this action.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10453						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	52						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
300000	Instrument Air		K5.01	Importance Rating	2.5		
Knowledge of the operational implications of the following concepts as they apply to the Instrument Air:			Air Compressors				
Question:							
Given the following: <ul style="list-style-type: none"> • 1-3 air compressor is out of service. • 1-1 air compressor trips • 1-2 air compressor does NOT start. • Instrument Air pressure is 52 psig and lowering • NO control rods have moved. Based on the above conditions, what action is required?							
A.	Scram the reactor immediately IAW ABN-35, Loss of Instrument Air						
B.	Press the Remote Start switch for 1-1 air compressor IAW alarm response M-5-a						
C.	Scram the reactor after two or more rods move in IAW ABN-35, Loss of Instrument Air						
D.	Press the Remote Start switch for 1-2 air compressor IAW alarm response M-5-b						
ANSWER:	A						
REFERENCE(S):	ABN-35		[ref #2]	[ref #3]			
Explanation:	A is the correct answer IAW ABN-35, inst. Air < 55 psig. B is incorrect, Remote Start switch is not used under these conditions. C is incorrect, do not wait for rods to drift. D is incorrect, Remote Start switch is not used under these conditions.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	53						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
400000	Component Cooling Water System		G 2.4.4	Importance Rating	4.0		
Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures							
Question:							
The plant is operating at rated power when the following occurs:							
<ul style="list-style-type: none"> • The TBCCW "DISCH PRESS LO" alarm actuates. • The TBCCW "SURGE TANK LVL HI/LO" annunciator alarms. • All TBCCW pumps are running. • TBCCW surge tank level is confirmed to be low 							
What action is required?							
A.	Scram the reactor and execute ABN-1, Reactor Scram						
B.	Commence a normal plant shutdown IAW procedure 203, Plant Shutdown						
C.	Perform a rapid power reduction IAW procedure 202.1, Power Operations						
D.	Maximize TBCCW flow IAW procedure 309.1, Turbine Building Closed Cooling Water System						
ANSWER:	A						
REFERENCE(S):	ABN-20		RAP Q-1-f		[ref #3]		
Explanation:	A is the correct answer IAW ABN-20. B is incorrect, a scram is required. C is incorrect, this action would be for reduced cooling capability. D is incorrect, this action would be for reduced cooling capability.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank	<input checked="" type="checkbox"/>	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	54					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
201001	Control Rod Drive Hydraulic System	A1.06	Importance Rating	3.4	3.4	
Ability to predict and/or monitor changes in parameters associated with operating the Control Rod Drive Hydraulic System controls including:			HCU pressure/level			
Question:						
Given the following:						
<ul style="list-style-type: none"> Reactor Power is 100% Alarm H-8-c, ACCUMULATOR PRESS LO/LEVEL HI, comes in for HCU 38-15 The local test switch is depressed for HCU 38-15 and the light remains ON 						
Based on the above, the alarm is due to _____ (1) _____ and rod scram time will be _____ (2) _____.						
A.	(1) low pressure (2) slower					
B.	(1) high water level (2) slower					
C.	(1) low pressure (2) the same					
D.	(1) high water level (2) the same					
ANSWER:	A					
REFERENCE(S):	RAP H-8-c	[ref #2]	[ref #3]			
Explanation:	<p>If the light goes out the alarm is due to high level, if the light stays on it is due to low pressure. With lower accumulator pressure, scram times will be slower.</p> <p>A is the correct answer, CRD scram pressure will be lower, scram time will be slower.</p> <p>B is incorrect, it is not due to high level.</p> <p>C is incorrect, scram time will be slower.</p> <p>D is incorrect, it is not due to high level. and scram time will be slower</p>					
References to be provided during exam:	None	[ref prv #2]				
Learning Objective	02419, 10449					

Question Source	Bank		Modified Bank	<input checked="" type="checkbox"/>	New	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (6)	55.43			

Question #	55						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
202001	Recirculation System		A4.01	Importance Rating	3.7		
Ability to manually operate and/or monitor in the control room			Recirc pumps				
Question:							
Given the following:							
<ul style="list-style-type: none"> During power operation, the 'A' recirc pump is tripped due to high vibration The Unit Reactor Operator attempts to close the 'A' recirc pump discharge valve The 'A' recirc pump discharge valve will NOT close 							
What is the NEXT required action?							
A.	Immediately commence a normal plant shutdown						
B.	Close the discharge valve from its MCC						
C.	Close the pump suction valve from Panel 3F						
D.	Close the pump discharge bypass valve from Panel 3F						
ANSWER:	C						
REFERENCE(S):	ABN-2		[ref #2]	[ref #3]			
Explanation:	A is incorrect, plant shutdown not required yet. B is incorrect, not performed until suction valve is closed. C is the correct answer, shut suction valve is next action IAW ABN-2. D is incorrect, close suction valve from panel 3F is next action.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	56						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
202002	Recirculation Flow Control System		K6.01	Importance Rating	2.8		
Knowledge of the effect that a loss or malfunction of the following will have on the Recirculation Flow Control System:			A.C. power				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> • Plant is operating at 100% power • DCC-X computer is CONTROLLING • DCC-Y computer is OOS • Power to the DCC-X computer fails 							
What is the effect on the Recirculation Flow Control System?							
A.	Recirc flow lowers to minimum						
B.	The recirc pump scoop tubes lockup						
C.	Control is transferred to the Moore Stations						
D.	Control is transferred to the Local Manual Stations						
ANSWER:	C						
REFERENCE(S):	RAP J-1-c		[ref #2]	[ref #3]			
Explanation:	<p>DCC-X power supply is CIP-3, which is 120 Vital AC, powered from Vital MCC 1B2. DCC-Y power supply is PSP-1, which is 120 Vital AC, powered from Vital MCC 1A2.</p> <p>A is incorrect, recirc flow remains approximately the same</p> <p>B is incorrect, electrical signal lockup is disabled; air lockup is not in effect.</p> <p>C is the correct answer, control is transferred to the Moore Stations.</p> <p>D is incorrect, local manual stations are activated manually.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	00226						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (6)	55.43				

Question #	57					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
214000	Rod Position Information System	K5.01	Importance Rating	2.7		
Knowledge of the operational implications of the following concepts as they apply to the Rod Position Information System:			Reed switches			
Question:						
Given the following:						
<ul style="list-style-type: none"> Plant is conducting rod swaps at 90% power A control rod is driven from position "48" to position "38" Reactor power lowers as the rod is inserted The Rod Control switch is released as the rod passes position "39" Upon release of the Rod Control switch the rod position display indicates "black-black" Reactor power remains steady when the Rod Control switch is released 						
What has occurred?						
A.	The rod is uncoupled					
B.	The rod is at position "00"					
C.	The reed switch has failed					
D.	The rod stuck at position "39"					
ANSWER:	C					
REFERENCE(S):	235	[ref #2]	[ref #3]			
Explanation:	A is incorrect, rod is still coupled (change in power). B is incorrect, the rod is still at "38" (power has not continued to lower) C is the correct answer, if the reed switch is stuck/failed it will not indicate the position. D is incorrect, the rod would indicate "39".					
References to be provided during exam:	None			[ref prv #2]		
Learning Objective	00726					
Question Source	Bank		Modified Bank		New	[X]
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	58						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
215001	Traversing In-Core Probe			K4.01	Importance Rating	3.4	
Knowledge of Traversing In-Core Probe design feature(s) and or interlock(s) which provide for the following:				Primary Containment Isolation			
Question:							
Given the following:							
While an operator is inserting a TIP into the core, a containment isolation signal is received.							
The TIP purge valve _____ (1) _____ and the TIP _____ (2) _____.							
A.	(1) remains open (2) drive automatically shifts to reverse, withdraws the detector to the in-shield position and the ball valve closes.						
B.	(1) shuts (2) drive automatically shifts to reverse, withdraws the detector to the in-shield position and the ball valve closes.						
C.	(1) remains open (2) shear valve fires to cut the detector cable and seal the guide tube.						
D.	(1) shuts (2) shear valve fires to cut the detector cable and seal the guide tube.						
ANSWER:		B					
REFERENCE(S):		Procedure 405.2, 312.9	[ref #2]	[ref #3]			
Explanation:		A is incorrect, the purge valve will shut. B is the correct answer, IAW 405.2. C is incorrect, the purge valve will shut and the shear valve is not used unless the cable cannot be retracted. D is incorrect, the shear valve is not used unless the cable cannot be retracted..					
References to be provided during exam:		None		[ref prv #2]			
Learning Objective	10444						
Question Source		Bank	[X]	Modified Bank		New	
Question Cognitive Level:		Memory or Fundamental Knowledge		[X]	Comprehension or Analysis		
10 CFR Part 55 Content:		55.41	(b) (7)	55.43			

Question #	59						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
219000	Torus/Suppression Pool Cooling Mode		K2.02	Importance Rating	3.1		
Knowledge of electrical power supplies to the following:			Pumps				
Question:							
Given the following:							
<ul style="list-style-type: none"> Containment Spray pump 51C and ESW pump 52C are in the Torus Cooling Mode T-2-e, MN BRKR 1D 86 LKOUT TRIP, is received 							
Containment Spray/ESW pumps...							
A.	51C and 52C remain operating. 51A and 52A will be available as backups						
B.	51C and 52C remain operating. 51D and 52D will be available as backups						
C.	51C and 52C trip. 51A and 52A will be available as backups						
D.	51C and 52C trip. 51D and 52D will be available as backups						
ANSWER:	C						
REFERENCE(S):	Proc. 341, Att. 6		[ref #2]	[ref #3]			
Explanation:	51/52 A and B are powered from bus 1C, 51/52 C and D are powered from bus 1D. [unlike Core Spray power supplies] A is incorrect, 51C 52C will trip. B is incorrect, 51C 52C will trip and 51D 52D will have no power. C is the correct answer. D is incorrect, 51D 52D will have no power.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10444						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	60						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
223001	Primary Containment System and Auxiliaries	A2.10	Importance Rating	3.6	3.8		
Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations.			High drywell temperature				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is operating at 100% power • The supply breaker for MCC 1A23 has tripped on instantaneous overcurrent • The 1-4 and 1-5 Drywell Cooling fans have been verified running • RBCCW flow to the drywell has been maximized • The DW TEMP HI alarm, C-8-h is alarming and will NOT clear • The STA has confirmed the alarm is valid 							
Based upon the above, Bulk drywell temperature is approximately <u> (1) </u> and you are required to <u> (2) </u> ?							
A.	(1) 150 deg. F (2) Enter Primary Containment Control ONLY						
B.	(1) 281 deg. F (2) Enter Primary Containment Control, AND scram the reactor IAW ABN-1						
C.	(1) 150 deg. F (2) Enter Primary Containment Control, AND commence a plant shutdown IAW 203.1						
D.	(1) 281 deg. F (2) Enter Primary Containment Control, RPV Control – No ATWS, AND perform an Emergency Depressurization						
ANSWER:	C						
REFERENCE(S):	RAP C-8-h						
Explanation:	<p>This alarm indicates bulk drywell temperature is above 150 deg. F. Actions listed are to enter Primary Containment Control, and commence an orderly plant shutdown IAW procedure 203.1. Therefore:</p> <p>A is incorrect because no mention of plant shutdown</p> <p>B is incorrect because the alarm is not indicative of approaching design temperature of 281 deg. Also, a scram is not required</p> <p>C is correct</p> <p>D is incorrect because the alarm is not indicative of approaching design temperature of 281 deg. Also, ED is not required</p>						
References to be provided during exam:	None						
Learning Objective	03000, 03002						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (5)	55.43			

Question #	61						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
233000	Fuel Pool Cooling/Cleanup	A3.02	Importance Rating	2.6			
Ability to monitor automatic operations of the Fuel Pool Cooling/Cleanup including:			Pump trip(s)				
Question:							
Given the following:							
<ul style="list-style-type: none"> Fuel Pool system is operation with one pump running The fuel pool filter keylock switch in ORW is in the BYPASS position G-7-a, SKMR SRG TANK LVL LO-LO, alarm comes in 							
What will be the effect on the Fuel Pool Cooling system?							
A.	The fuel pool makeup valve opens						
B.	The fuel pool pump trips on low flow						
C.	The fuel pool pump trips on low surge tank level						
D.	The low surge tank level pump trip is bypassed						
ANSWER:	C						
REFERENCE(S):	G-7-a, Procedure 311	[ref #2]	[ref #3]				
Explanation:	A is incorrect, makeup valve is manually operated. B is incorrect, low flow trip is bypassed. C is the correct answer, pump trips. D is incorrect, low tank level pump trip is not bypassed.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	08570, 10441						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	62						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
245000	Main Turbine Generator and Auxiliary systems		K3.08	Importance Rating	3.7	3.8	
Knowledge of the effect that a loss or malfunction of the Main Turbine Generator and Auxiliary systems will have on the following:			Reactor/Turbine pressure control system				
Question:							
Given the following:							
<ul style="list-style-type: none"> The plant is operating at 100% power A leak develops in the vacuum sensing bellows for "B" main condenser On control room panel 5F/6F, the indicated vacuum for "B" condenser goes from 28.7 to 12 in. Hg 							
How will the main turbine respond?							
A.	The turbine will NOT trip, the turbine bypass valves will NOT open						
B.	The turbine will NOT trip, the turbine bypass valves will open						
C.	The turbine will trip, the turbine bypass valves will NOT open						
D.	The turbine will trip, the turbine bypass valves will open						
ANSWER:	D						
REFERENCE(S):	RAP Q-2-c		[ref #2]	[ref #3]			
Explanation:	Vacuum trip bellows assemblies for VT-1 and VT-2 are arranged in series; i.e., the bellows for A condenser feeds the bellows for B condenser, which feeds the bellows for C. Any ONE of these bellows reaching the setpoint of 22" will cause VT-1 to actuate, causing a main turbine trip and a reactor scram on low vacuum. Any ONE bellows reaching the setpoint of 10" will cause VT-2 to actuate, tripping the bypass valves closed. Therefore; A is incorrect, turbine will trip. B is incorrect, turbine will trip. C is incorrect, the bypass will still open greater than 10 in. Hg. D is correct,.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10444, 01723						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	63					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
256000	Reactor Condensate system	G 2.1.28	Importance Rating	3.2		
Knowledge of the purpose and function of major system components and controls						
Question:						
Given the following:						
<ul style="list-style-type: none"> • Reactor startup is in progress • All 8 IRMs are in Range 8 • RPV pressure is 150 psig and rising slowly • "A" Condensate pump is in service • Main Turbine heatup is in progress • SJAEs are in service 						
Which of the following would be the consequence if the hotwell level spill and makeup valves failed closed?						
A.	Reactor feedwater inlet temperature would rise.					
B.	The running CRD pump would trip on low suction pressure.					
C.	The "A" Condensate pump temperatures would rise.					
D.	Main Turbine exhaust hood temperatures would rise.					
ANSWER:	C					
REFERENCE(S):	FSAR,	[ref #2]	[ref #3]			
Explanation:	<p>During the stated conditions, there would be no condensate flow to the RPV (all injection is from CRD). The spill valves provide minimum flow for the condensate pumps, so a loss of the spill and makeup capability will result in the A condensate pump operating at dead-headed conditions. Therefore:</p> <p>A is incorrect, as the spill/makeup lines do not provide input to fw heaters.</p> <p>B is incorrect, as the water quality line to the CRD pumps is upstream of the spill/makeup valves, so it is still providing preferred suction to CRD.</p> <p>C is the correct answer, provides for condensate pump min flow</p> <p>D is incorrect, does not provide exhaust hood spray function.</p>					
References to be provided during exam:	None		[ref prv #2]			
Learning Objective	10435					

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41	(b) (4)	55.43			

Question #	63					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
256000	Reactor Condensate system	G 2.1.28	Importance Rating	3.2		
Knowledge of the purpose and function of major system components and controls						
Question:						
Given the following:						
<ul style="list-style-type: none"> • Reactor startup is in progress • All 8 IRMs are in Range 8 • RPV pressure is 150 psig and rising slowly • "A" Condensate pump is in service • Main Turbine heatup is in progress • SJAEs are in service 						
Which of the following would be the consequence if the hotwell level spill and makeup valves failed closed?						
A.	Reactor feedwater inlet temperature would rise.					
B.	The running CRD pump would trip on low suction pressure.					
C.	The "A" Condensate pump temperatures would rise.					
D.	Main Turbine exhaust hood temperatures would rise.					
ANSWER:	C					
REFERENCE(S):	BR 2003, sheet 1					
Explanation:	<p>During the stated conditions, there would be no condensate flow to the RPV (all injection is from CRD). The spill valves provide minimum flow for the condensate pumps, so a loss of the spill and makeup capability will result in the A condensate pump operating at dead-headed conditions. Therefore:</p> <p>A is incorrect, as the spill/makeup lines do not provide input to fw heaters.</p> <p>B is incorrect, as the water quality line to the CRD pumps is upstream of the spill/makeup valves, so it is still providing preferred suction to CRD.</p> <p>C is the correct answer, provides for condensate pump min flow</p> <p>D is incorrect, does not provide exhaust hood spray function.</p>					
References to be provided during exam:	None		[ref prv #2]			
Learning Objective	10435					

Question #	64					
Examination Outline Cross-reference						
Level	RO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
259001	Reactor Feedwater System		K1.08	Importance Rating	3.6	
. Knowledge of the physical connections and/or cause-effect relationships between Reactor Feedwater System and the following:			Reactor water level control system			
Question:						
Given the following conditions:						
<ul style="list-style-type: none"> Plant is operating at 65% power Master feedwater controller in "AUTO", setpoint is 163.5 in. TAF Feedpump 1A is running with its flow controller in "AUTO" Feedpump 1B is running with its flow controller in "MAN" The flows in the operating feed strings are equal 						
With the Master feedwater controller selected to the "S" display, the adjustment knob is rotated in the COUNTER-CLOCKWISE direction.						
What will occur?						
A.	Reactor level setpoint is lowered, the A and B MFRVs will close					
B.	Reactor level setpoint is lowered, ONLY the A MFRV will close					
C.	Reactor level setpoint is raised, the A and B MFRVs will open					
D.	Reactor level setpoint is raised, ONLY the A MFRV will open					
ANSWER:	B					
REFERENCE(S):	Procedure 317		[ref #2]	[ref #3]		
Explanation:	A is incorrect, the B MFRV does not move. B is the correct answer, the setpoint is lowered and the B MFRV does not move. C is incorrect, the setpoint is lowered. D is incorrect, the setpoint is lowered.					
References to be provided during exam:	None			[ref prv #2]		
Learning Objective	10447					
Question Source	Bank	[X]	Modified Bank		New	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]
10 CFR Part 55 Content:	55.41	(b) (7)	55.43			

Question #	65						
Examination Outline Cross-reference							
Level	RO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
272000	Radiation Monitoring System		A1.01	Importance Rating	3.2	3.2	
Ability to predict and/or monitor changes in parameters associated with operating the RADIATION MONITORING SYSTEM controls including:			Lights, alarms, and indications associated with normal operations				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> • The Plant is operating at 100% power • Channel B Off-gas radiation monitor failed downscale last shift • Channel A Off-gas radiation monitor indicates 1100 mr/hr at 1015 hours 							
Off-gas bypass valve V-7-31 will...							
A.	open AND the Off-gas system will isolate at 1030						
B.	remain closed AND Off-gas system will isolate at 1030						
C.	open AND Off-gas system will NOT isolate						
D.	remain closed AND Off-gas system will NOT isolate						
ANSWER:	B						
REFERENCE(S):	RAP 10F-1-c						
Explanation:	V-7-31 only opens on AOG isolation signal, not off gas isolation. Therefore: A is incorrect, as it will not open B is correct C is incorrect, as it will not open AND off gas will isolate D is incorrect, as off gas will isolate						
References to be provided during exam:	None						
Learning Objective	00666						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	66					
Examination Outline Cross-reference						
Level	RO	Tier #	3	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
2.1	Conduct of operations	2.1.2	Importance Rating	3.0	4.0	
Knowledge of operator responsibilities during all modes of plant operation.						
Question:						
Given the following:						
<ul style="list-style-type: none"> An RO left shift work on 9/1/2004 and was placed in a day shift assignment The RO had worked all previously scheduled days as a reactor operator until leaving shift 						
Since leaving shift, the RO has performed license duties as follows:						
<ul style="list-style-type: none"> 9/4/2004; 12 hours 10/1/2004; 12 hours 						
Which of the following is correct?						
A.	The operator's license is inactive on 10/1/2004.					
B.	The operator's license is inactive on 12/1/2004.					
C.	The operator must stand at least 3 additional 12-hour shifts before 11/30/2004 to maintain an active license.					
D.	The operator must stand at least 4 additional 12-hour shifts before 12/31/2004 to maintain an active license.					
ANSWER:	D					
REFERENCE(S):	OP-AA-105-102, section 4.1					
Explanation:	<p>A minimum of 7 8-hour shifts or 5 12-hour shifts per calendar quarter is required. Therefore:</p> <p>A is incorrect, as the license is still active</p> <p>B is incorrect, as the license is still active</p> <p>C is incorrect, as the requirement is per calendar quarter, not per running 3-month time frame</p> <p>D is correct</p>					
References to be provided during exam:	None					
Learning Objective						
Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	67						
Examination Outline Cross-reference							
Level	RO	Tier #	3	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
2.1	Conduct of operations		2.1.33	Importance Rating	3.4	4.0	
Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.							
Question:							
The plant is operating at 100% power with the following integrator readings:							
Date	Time	DWEDT Integrator		DW Sump Integrator			
12/5/04	0000	384789		728445			
	0400	385941		728949			
12/6/04	0000	391493		731499			
	0400	392603		732651			
What action is required IAW Technical Specifications?							
A.	Place the reactor in the shutdown condition within 12 hours.						
B.	Place the reactor in the cold shutdown condition within 30 hours.						
C.	Reduce the leak rate below the allowable limit within 8 hours, or place the reactor in the shutdown condition within the next 12 hours and be in the cold shutdown condition within the following 24 hours.						
D.	Identify the source of leakage within 4 hours, or be in the shutdown condition within the next 12 hours and be in the cold shutdown condition within the following 24 hours.						
ANSWER:	D						
REFERENCE(S):	T.S. 3.3.D.3						
Explanation:	DWEDT leakage (identified) is 4.8 gpm on 12/5 and 4.625 gpm on 12/6. DW Sump leakage (unidentified) is 2.1 gpm on 12/5 and 4.8 on 12/6. Therefore: A is incorrect because this would be the action taken for loss of unidentified leak rate determination B is incorrect because this is the action to take if there are no T.S. LCO for the condition (LCO 3.0.A) C is incorrect, as this is the action for greater than 5 gpm UILR D is correct						
References to be provided during exam:	TS 3.3						
Learning Objective	10451						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X	
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	68					
Examination Outline Cross-reference						
Level	RO	Tier #	3	Group #	1	
Knowledge and Ability Reference Information					RO	SRO
2.1	Conduct of operations	2.1.23	Importance Rating	3.9	4.0	
Ability to perform specific system and integrated plant procedures during different mode of plant operation.						
Question:						
Given the following:						
<ul style="list-style-type: none"> • The plant is shutdown • Shutdown Cooling loops A and B are in service • At 9:30 AM, all RBCCW is lost, reactor pressure is 41 psig • At 9:50 AM, reactor pressure is 70 psig 						
Based upon the above, the heatup rate is approximately...						
A.	28 deg. F per hour					
B.	35 deg. F per hour					
C.	84 deg. F per hour					
D.	105 deg. F per hour					
ANSWER:	C					
REFERENCE(S):	Steam tables		[ref #3]			
Explanation:	<p>At 70 psig, saturation temperature is 315 deg. At 41 psig, saturation temperature is 287.9 deg. The plant has heated up 28.1 degrees in a 20-minute period.</p> <p>At 70 psia, saturation temperature is 302.9 deg. At 41 psia, saturation temperature is approximately 268 deg. Therefore, if the candidate mistakes psig for psia, the result will be approximately 35 degrees in a 20-minute period. Therefore:</p> <p>A is incorrect because it was not factored for a one-hour period.</p> <p>B is incorrect, as the wrong values were determined (did not convert psig to psia) and it was not factored for a one-hour period.</p> <p>C is correct</p> <p>D is incorrect, as the wrong values were determined (did not convert psig to psia.)</p>					
References to be provided during exam:	Steam tables					
Learning Objective	00026, 00042					
Question Source	Bank		Modified Bank	New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis		X	
10 CFR Part 55 Content:	55.41	(b) (10)	55.43			

Question #	69					
Examination Outline Cross-reference						
Level	RO	Tier #	3	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
2.2	Equipment control		2.2.1	Importance Rating	3.7	3.6
Ability to perform pre-startup procedures for the facility/including operating those controls associated with plant equipment that could affect reactivity.						
Question:						
Given the following:						
<ul style="list-style-type: none">• A reactor startup is in progress• NO control rods have been withdrawn• Initial SRM counts are:• SRM 21 = 40 cps• SRM 22 = 45 cps• SRM 23 = 50 cps• SRM 24 = 55 cps						
Which of the following will require completely notch withdrawing control rods until the reactor is critical and adding heat to the coolant?						
A.	When SRM 24 = 440 cps					
B.	When SRM 21 = 600 cps					
C.	The reactor is not critical after reaching the +1% dk sequence step in the ECP.					
D.	The reactor is not critical after the first four control rod groups have been withdrawn.					
ANSWER:	D					
REFERENCE(S):	Procedure 201, step 6.24					
Explanation:	A is incorrect, as 3 doublings only requires notch withdrawal between position 06 and 24 B is incorrect, as greater than 3 but less than 4 doublings only requires notch withdrawal between position 06 and 24 C is incorrect, as the startup must stop and Reactor Engineering has evaluated the discrepancy and provided further instructions D is correct					
References to be provided during exam:	None					
Learning Objective	10447					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41	(b) (1)	55.43			

Question #	70						
Examination Outline Cross-reference							
Level	RO	Tier #	3	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
2.2	Equipment Control		2.2.13	Importance Rating	3.6	3.8	
Knowledge of tagging and clearance procedures							
Question:							
Which of the following is used to temporarily REMOVE clearance tags of an "ACTIVE" clearance without adding, deleting or altering the tag type of any clearance point?							
A.	Sub Clearance						
B.	Clearance Exception						
C.	Temporary Clearance						
D.	Clearance Suspension						
ANSWER:	D						
REFERENCE(S):	OP-MA-109-101						
Explanation:	A is incorrect, plausible but not for this situation B is incorrect, plausible but not for this situation C is incorrect, plausible but not for this situation D is correct, Clearance Suspension covers this situation						
References to be provided during exam:	None						
Learning Objective	C&T lesson plan – obj. #36						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge		X	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (10)	55.43				

Question #	71						
Examination Outline Cross-reference							
Level	RO	Tier #	3	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
2.2	Equipment Control		2.2.2	Importance Rating	4.0	3.5	
Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.							
Question:							
Given the following:							
<ul style="list-style-type: none"> • The plant is at 60% power and stable • The "B" Recirc loop is idle, all other recirc loops are operating in AUTO • All prerequisites have been met to start the "B" Recirc pump • The "B" MG Set Drive Motor breaker is shut • The "B" MG Set scoop tube is at 100% • The WARM LIGHT for the "B" Recirc MG Set has just illuminated 							
When the "B" Recirc Pump STRT/NORM pushbutton is depressed . . .							
A.	the field breaker will close immediately, and the scoop tube will remain at 100%.						
B.	the field breaker will close immediately, and the scoop tube will start running back.						
C.	the scoop tube will start running back, and the field breaker will close when the scoop tube passes through the 60% to 50% range.						
D.	the scoop tube will start running back, and the field breaker will close when the scoop tube passes through the 40% to 30% range.						
ANSWER:	D						
REFERENCE(S):	Procedure 301.2, step 8.3.14 &15						
Explanation:	A is incorrect, as the field breaker will not close if scoop tube position is beyond approximately 40% B is incorrect, as the field breaker will not close if scoop tube position is beyond approximately 40%, plus the sequence is out of order C is incorrect, as the field breaker will not close if scoop tube position is beyond approximately 40% D is correct						
References to be provided during exam:	None						
Learning Objective	10447						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41	(b) (6)	55.43				

Question #	72					
Examination Outline Cross-reference						
Level	RO	Tier #		Group #		
Knowledge and Ability Reference Information					RO	SRO
2.3	Radiation Control		2.3.10	Importance Rating	2.9	3.3
Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure..						
Question:						
Given the following:						
<ul style="list-style-type: none"> You are assigned work in a radiation area You exposure limit is 100 mrem The dose rate in the work area is 30 mr/hr Your assignment will take 90 minutes to complete. 						
10 minutes after entering the work area, your ESRD begins to chirp/beep.						
What action is required?						
A.	Monitor the dose rate on your ESRD, continue to work					
B.	Warn other workers, exit the area, notify Rad Pro					
C.	Wait for your exposure limit to be reached, then exit the area					
D.	Complete the work assignment, exit the area, notify Rad Pro					
ANSWER:	B					
REFERENCE(S):	NGET Study Guide, pg. 109					
Explanation:	A is incorrect, must leave the area B is correct, C is incorrect, must leave the area due to unexpected rad levels D is incorrect, due to possibility of exceeding limits					
References to be provided during exam:	None					
Learning Objective	Rad Worker training lesson plan, obj. 25, 31					
Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (12)	55.43			

Question #	73					
Examination Outline Cross-reference						
Level	RO	Tier #		Group #		
Knowledge and Ability Reference Information					RO	SRO
2.3	Radiation Control		2.3.4	Importance Rating	2.5	3.1
Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized						
Question:						
Given the following:						
<ul style="list-style-type: none"> • A plant transient has occurred • Radiation levels in the Reactor Building have forced an evacuation of the Reactor Building • The reactor did NOT scram due to an electrical ATWS • All attempts to insert control rods from the Control Room have been unsuccessful • It is decided the Scram Air Header must be vented in order to insert control rods 						
What is the MAXIMUM emergency exposure limit allowed under these conditions?						
A.	2,000 mrem TEDE					
B.	5,000 mrem TEDE					
C.	10,000 mrem TEDE					
D.	25,000 mrem TEDE					
ANSWER:	C					
REFERENCE(S):	RP-AA-203					
Explanation:	<p>This situation covers emergency exposure limits to an individual to protect valuable property. Since no indications are given of off-site dose, it cannot be surmised that protecting large populations is involved. The limit for protecting valuable property is 10 rem TEDE (10,000 mrem). Therefore:</p> <p>A is incorrect as that is the Administrative Dose Control level</p> <p>B is incorrect as that is the federal limit</p> <p>C is correct</p> <p>D is incorrect, as that is the limit for lifesaving or protecting large populations</p>					
References to be provided during exam:	None					
Learning Objective	Rad Worker training lesson plan, obj. 17					
Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	X	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	(b) (12)	55.43			

Question #	74					
Examination Outline Cross-reference						
Level	RO	Tier #	3	Group #	CAT 4	
Knowledge and Ability Reference Information					RO	SRO
		G 2.4.6	Importance Rating	3.1		
Knowledge symptom based EOP mitigation strategies.						
Question:						
Given the following:						
<ul style="list-style-type: none"> • A LOCA is in progress • Drywell pressure is 50 psig and rising slowly • Containment Spray pumps are NOT available • Drywell H₂/O₂ monitors have been placed in service and are warming up • Torus level is 160 inches and rising slowly • The containment is being vented from the Torus through the hardened vent IAW S.P.-35 						
Ten minutes later, the following conditions exist:						
<ul style="list-style-type: none"> • Torus level is 180 inches and rising slowly • Drywell pressure is 48 psig and rising slowly • Drywell H₂/O₂ monitors read 1.7% 						
(1) What action must be taken?						
(2) What is the basis for this?						
A.	(1) Shift containment venting to S.P.-33 (2) Vented atmosphere must be processed through SGTS before being released to the environment					
B.	(1) Shift containment venting to S.P.-33 (2) Hardened vent must be available to purge the containment					
C.	(1) Shift containment venting to S.P.-32 (2) Vented atmosphere must be processed through SGTS before being released to the environment					
D.	(1) Shift containment venting to S.P.-32 (2) Hardened vent must be available to purge the containment					
ANSWER:	D					
REFERENCE(S):	EOP bases	[ref #2]	[ref #3]			
Explanation:	<p>As long as containment level is below 348 inches, venting via the Torus is directed to scrub particulates prior to release. The preferred vent path is via the hardened vent, as this path will not cause vent duct failure. However, if hydrogen goes above 1.5%, the hardened vent path must be abandoned, because this vent path goes through the nitrogen purge lineup, which must be available to use as a purge medium to rid the containment of hydrogen and/or oxygen. Therefore:</p> <p>A is incorrect, because water level is below 348 inches, so venting will be via S.P.-32 and the hardened vent must be available for purging</p>					

		B is incorrect, because water level is below 348 inches C is incorrect, because the hardened vent must be available for purging D is correct			
References to be provided during exam:		None		[ref prv #2]	
Learning Objective	09546				
Question Source	Bank		Modified Bank		New X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis	X
10 CFR Part 55 Content:	55.41	(b) (10)	55.43		

Question #	75						
Examination Outline Cross-reference							
Level	RO	Tier #	3	Group #	4		
Knowledge and Ability Reference Information						RO	SRO
2.4	Emergency Procedures / Plan		2.4.31	Importance Rating	3.3	3.4	
Knowledge of annunciators, alarms, and indications / and use of the response instructions.							
Question:							
Given the following:							
<ul style="list-style-type: none"> • A small LOCA is in progress • Containment Spray System 1 is in the Drywell Spray mode • Containment Spray Pump 51A and ESW Pump 52A are operating • Drywell pressure is 10 psig and dropping slowly • Containment Spray SYSTEM 1 FLOW LO alarm (B-2-a) is received 							
What action occurs as a result of this alarm?							
A.	Torus Spray Valve V-21-18 automatically closes.						
B.	Containment Spray Pump 51A automatically trips.						
C.	Containment Spray Pump 51A must be manually tripped.						
D.	Containment Spray System 1 automatically shifts to Torus Cooling mode.						
ANSWER:	A						
REFERENCE(S):	RAP B-2-a						
Explanation:	A is correct B is incorrect, as 51A only trips on overload or low DW press (.6 psig) C is incorrect, as RAP directs starting additional pumps as required D is incorrect, as automatic shift to Torus Cooling will only occur on loss of power to logic (DC-F)						
References to be provided during exam:	None						
Learning Objective	10444						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X	
10 CFR Part 55 Content:	55.41	(b) (7)	55.43				

Question #	S01					
Examination Outline Cross-reference						
Level	SRO	Tier #	1	Group #	1	
Knowledge and Ability Reference Information						RO
295003	Partial or Complete Loss of AC power	AA2.04	Importance Rating		SRO 3.7	
Ability to determine and interpret the following as they apply to Partial or Complete Loss of AC power			System lineups			
Question:						
Given the following:						
<ul style="list-style-type: none"> The reactor is at 100% power Main breaker 1A trips as a result of a 1A bus fault. 						
One minute after the trip of Bus 1A, what USSs will be energized and what action is required?						
A.	ONLY USS 1A1 and 1A2 will be energized. Reenergize 1A3 IAW ABN-46, Loss of USS 1A3					
B.	ONLY USS 1A2 and 1A3 will be energized. Reenergize 1A1 IAW ABN-44, Loss of USS 1A1					
C.	ONLY USS 1A1 and 1A3 will be energized.. Reenergize 1A2 IAW ABN-45, Loss of USS 1A2					
D.	USS 1A1, 1A2 and 1A3 will be energized. Check for relay targets at main breaker 1A IAW S-2-e, MN BRKR 1A 86 LKOUT TRIP.					
ANSWER:	B					
REFERENCE(S):	S-2-e	[ref #2]	[ref #3]			
Explanation:	A is incorrect. 1A1P breaker opens and 1A1 will not be energized by the EDG B is the correct answer. Both 1A2 and 1A3 will be energized by the EDG C is incorrect. 1A1 will not be energized by the EDG D is incorrect. 1A1 will not be energized by the EDG					
References to be provided during exam:	None		[ref prv #2]			
Learning Objective	01086, 01087					
Question Source	Bank		Modified Bank	[X]	New	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S02						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
259001	Reactor Feedwater		G 2.1.7	Importance Rating		4.4	
Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation							
Question:							
<p>The plant is operating at 90% power with the following conditions:</p> <ul style="list-style-type: none"> Power ascension using recirculation flow is in progress. Feedwater pumps 'A', 'B' and 'C' are in service <p>One minute later Feedwater Pump 'C' trips and the following alarms are received:</p> <ul style="list-style-type: none"> FEED PUMP TRIP C, (J-1-f) FEED PUMP OL C, (J-2-f) <p>Which one of the following actions is required?</p>							
A.	Manually scram the reactor IAW ABN-1, Reactor Scram.						
B.	Restart the 'C' Feedwater pump IAW J-1-f, Feed Pump Trip.						
C.	Perform a rapid power reduction IAW 202.1, Power Operation.						
D.	Take manual control of feedwater and restore RPV level IAW ABN-17, Feedwater System Abnormal Condition.						
ANSWER:	C						
REFERENCE(S):	J-1-f, H-7-e, ABN-17		[ref #2]	[ref #3]			
Explanation:	<p>A is incorrect, scram not required, reduction in power is action.</p> <p>B is incorrect, C feed pump cannot be restarted due to pump OL.</p> <p>C is the correct answer, power reduction is required action.</p> <p>D is incorrect, feed control does not have to be placed in manual.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S03						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295006	SCRAM	AA2.03	Importance Rating			4.2	
Ability to determine and/or interpret the following as they apply to SCRAM:			Reactor water level				
Question:							
Given the following:							
<ul style="list-style-type: none"> Plant at 100% power Digital Feed Level Transmitter Selection on 4F is in AUTO A leak develops in the variable leg for the "A" level input to Digital Feed 							
If left UNCORRECTED , how will the plant respond and what actions are required?							
A.	Level will lower leading to a scram. Execute ABN-1, Reactor Scram						
B.	Level will rise leading to a turbine trip. Execute ABN-10, Turbine Trip and ABN-1, Reactor Scram						
C.	Level Transmitter Selection will automatically swap to the "B" level input. Adjust the level setpoint IAW procedure 317 Feedwater System						
D.	Level Transmitter Selection will substitute 160 in. for input to Digital Feed. Monitor level IAW procedure 202, Power Operation						
ANSWER:	B						
REFERENCE(S):	H-6-f, ABN-10						
Explanation:	<p>For variable leg leak actual level goes up, for reference leg leak actual level goes down. Since "A" and "C" share same variable and reference leg both instruments will show lower level and not result in an error signal to digital feed</p> <p>A is incorrect. Indicated level will drop, causing actual level to rise</p> <p>B is correct.</p> <p>C is incorrect, digital feed will not see this as an error.</p> <p>D is incorrect, digital feed will not see this as an error.</p>						
References to be provided during exam:	None						
Learning Objective	10450						
Question Source	Bank		Modified Bank	<input checked="" type="checkbox"/>	New		
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S04						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295019	Partial or Complete Loss of Instrument Air		G 2.1.31	Importance Rating		3.9	
Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup							
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> • Plant is operating at 100% power • Instrument air header pressure drops to 0 psig • MSIVs closed on low air pressure • The reactor scrammed and all rods are fully inserted • RPV pressure is 1055 psig and rising slowly 							
Based on the above conditions, which of the following alternate pressure control actions can be performed from the Control Room?							
A.	Direct the use of IC Vent Valves IAW SP-15.						
B.	Direct the use of IC Makeup valves IAW SP-11.						
C.	Direct the use of RWCU in the Recirculation Mode IAW SP-13.						
D.	Direct the use of RWCU in the Letdown Mode IAW SP-14.						
ANSWER:	B						
REFERENCE(S):	ABN-35		RPV Control EOP				
Explanation:	<p>On a total loss of instrument air, IC vent valves fail closed, RWCU flow control, pressure control and letdown control valves all fail closed. Therefore:</p> <p>A is incorrect, as the vent valves cannot be opened</p> <p>B is the correct answer, as accumulators are provided to allow these valves to be opened and makeup established to the ICs.</p> <p>C is incorrect, as the flow control and pressure control valves cannot be opened.</p> <p>D is incorrect, as the flow control, pressure control, and letdown control valves cannot be opened.</p>						
References to be provided during exam:	None						
Learning Objective	00666						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S05						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295021	Loss of Shutdown Cooling	G2.1.7	Importance Rating	3.7	4.4		
Conduct of Operations			Ability to evaluate plant performance and make operational judgments based on operating characteristics/reactor behavior/instrument interpretation.				
Question:							
Given the following:							
<ul style="list-style-type: none"> Reactor is shutdown following 100 days of full power operation Shutdown cooling is in service with all 3 loops Each SDC loop is operating at 2,550 gpm The vessel head has NOT been removed All 5 reactor recirc pumps are secured "B" recirc loop suction and discharge valves are open All other recirc loops are in the "idle" configuration RPV level is 162 in. TAF and steady 							
If a Shutdown Cooling pump trips and cannot be restarted, which of the following will occur and what actions are required to mitigate it?							
A.	Thermal stratification will occur. Direct raising RPV level to 200 inches.						
B.	Thermal stratification will occur. Direct shutting of the "B" recirc loop discharge valve.						
C.	Short-cycling will occur. Direct raising RPV level to 200 inches.						
D.	Short-cycling will occur. Direct shutting of the "B" recirc loop discharge valve.						
ANSWER:	A						
REFERENCE(S):	2000-OPS-3024.27		Procedure 305				
Explanation:	<p>Whenever SDC is in service with no recirc pumps operating, at least 1 recirc loop suction and discharge valves (other than "E" loop) must be open for communication between the annulus and shroud, and the "E" recirc loop suction and discharge valves must be shut (because SDC taps off the "E" recirc loop.) Because of this requirement, short-cycling through the open loop will be occurring, but it cannot be mitigated. In order to prevent thermal stratification, SDC system flow must be above 7,500 gpm with level between 160 and 165 in. TAF. Since the loss of one SDC pump will result in SDC system flow of 5,100 gpm, RPV level must be raised above 185 in. TAF to promote natural circulation. Therefore:</p> <p>A is correct B is incorrect, as all 5 loops cannot be idled C is incorrect, as short-cycling is already occurring and is not a result of the SDC pump trip D is incorrect, as short-cycling is already occurring and is not a result of the SDC pump trip, and idling the 5th recirc loop is not allowed</p>						
References to be provided during exam:	None			[ref prv #2]			

Learning Objective	10450					
Question Source	Bank		Modified Bank		New	[X]
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S06						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295024	High Drywell Pressure	G 2.4.50	Importance Rating			3.3	
Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.							
Question:							
The plant is at 100% power when the following events occur:							
T = 0 minutes;							
<ul style="list-style-type: none"> • Drywell pressure rises to 3.7 psig • Drywell temperature is 140 deg. F 							
T = 1 minute;							
<ul style="list-style-type: none"> • Core Spray Main pump B (NZ01B) & Core Spray Booster pump B (NZ03B) are the ONLY Core Spray pumps running • All other systems responded as designed 							
Which of the following actions is required based on the above conditions?							
A.	Start NZ01A & NZ03A IAW SP-1, Primary Containment initiations and isolations						
B.	Start NZ01D & NZ03D IAW SP-1, Primary Containment initiations and isolations						
C.	Secure EDG #1 & #2 locally IAW procedure 341, Emergency Diesel Generators						
D.	Maximize Drywell Cooling IAW Primary Containment Control						
ANSWER:	A						
REFERENCE(S):	RAP B-1-e,		SP-1	[ref #3]			
Explanation:	<p>A is the correct answer. NZ01A & NZ03A should have started and must be manually started</p> <p>B is incorrect, SP-1 directs one main and one booster in each system. 1D/3D are the same system as 1B/3B.</p> <p>C is incorrect, EDGs need to remain running..</p> <p>D is incorrect, drywell cooling not required at 3.2 psig.</p>						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge		[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S07						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295025	High Reactor Pressure	G 2.1.28	Importance Rating			3.3	
Knowledge of the purpose and function of major system components and controls							
Question:							
A plant transient resulted in the following:							
<ul style="list-style-type: none"> Reactor water level dropping to 100 in. above TAF for 5 seconds. Reactor pressure spiking to 1060 psig for 2.5 seconds. IC "A" condensate return line D/P reaching 500% for 25 seconds. IC "B" steam line D/P reaching 300% for 35 seconds. 							
Based on the above conditions, how will the plant respond?							
A.	IC "A" isolates ONLY . Enter RPV Control – No ATWS.						
B.	IC "B" isolates ONLY . Enter Primary Containment Control.						
C.	IC "A" initiates and IC "B" isolates. Enter RPV Control – No ATWS.						
D.	IC "B" initiates and IC "A" isolates. Enter Primary Containment Control.						
ANSWER:	C						
REFERENCE(S):	RAP C-3-b		[ref #2]	[ref #3]			
Explanation:	Hi flow is set at 300% sustained for 27 or more seconds before isolation occurs [generic fundamentals for 90 degree elbow flow measurement devices]. 300% corresponds to 15 psig for steam flow and 24" water for condensate flow. A is incorrect. B IC isolates B is incorrect. A IC initiates C is the correct answer. Both ICs initiate then B IC will isolate D is incorrect. B IC isolates						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	02030						
Question Source	Bank	[X]	Modified Bank		New		
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S08						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
295026	Suppression Pool High Water Temperature		EA2.01	Importance Rating		4.2	
Ability to determine and interpret the following as they apply to Suppression Pool High Water Temperature			Suppression Pool cooling				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> • RPV water level is 75 in. TAF • Drywell pressure is 1.2 psig • Torus temperature is 97 deg. F • ALL automatic actuations and initiations have occurred 							
Based on the above conditions, which one of the following actions satisfies ALL the requirements of 2000-EMG-3200.02, Primary Containment Control?							
Operating ALL pumps...							
A.	for ONE containment spray system in the Torus Cooling mode						
B.	for ONE containment spray system in the Drywell Spray mode						
C.	for BOTH containment spray systems in the Torus Cooling mode						
D.	for BOTH containment spray systems in the Drywell Spray mode						
ANSWER:	A						
REFERENCE(S):	EOP SP-25		[ref #2]	[ref #3]			
Explanation:	All automatic actuations and initiations have occurred includes two main CS pumps running A is the correct answer, limited to 4 core spray and/or containment spray pumps on the Torus at one time B is incorrect, drywell spray not required. C is incorrect, CS is running; cannot run more than 4 core spray and/or containment spray pumps on the Torus at one time. D is incorrect, drywell spray not required.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	00446						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S09						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295015	Incomplete Scram	G 2.4.6	Importance Rating	3.1	4.0		
Knowledge of symptom based EOP mitigation strategies							
Question:							
<p>Given the following:</p> <ul style="list-style-type: none"> • The plant scrammed from 100% power • 12 rods remain at notch position "48" • All APRMs are downscale • IRMs indicate 50% of range 6 • Torus Temperature is 82 degrees and steady • MSIVs are closed • Reactor Pressure is being maintained between 850 & 1000 psig using Isolation Condensers • Reactor water level is being maintained between 138 & 175 in. TAF using Feed & Condensate <p>During the next 3 minutes reactor power rises to 6%.</p> <p>What is the required action?</p>							
A.	Terminate and prevent all injection except boron and CRD until reactor power drops below 2%.						
B.	Execute Support Procedure 16, then re-open the MSIVs to establish the main condenser as a heat sink.						
C.	Terminate and prevent all injection except boron and CRD until RPV water level drops below 30 in. TAF.						
D.	Inject liquid poison.						
ANSWER:	C						
REFERENCE(S):	EMG-3200.01B	[ref #2]	[ref #3]				
Explanation:	<p>For ATWS with power above 2% and level above 30 inches, direction is given to wait for any required MSIV low level isolation bypasses, then terminate and prevent injection, lower level below 30 inches. This direction is independent of any resultant power level drops. Once actions are taken to lower level in this situation, injection is not allowed until level is below 30 inches. Further guidance is given for level/power situations where power is above 2%, heat is being added to the torus through a DW leak or open EMRVs, and level is above TAF. In that situation, level will be lowered below 30 inches, then continue lowering level until power is below 2%, or level reaches TAF, or the heat addition to the torus stops. This is NOT the situation given in this question. Therefore:</p> <p>A is incorrect, but would be appropriate for level/power issues</p> <p>B is incorrect, but would be appropriate for level/power issues (contained as</p>						

		a conditional statement in the Pressure Control leg) C is the correct answer. D is incorrect because the BIIT is not being approached				
References to be provided during exam:		EOPs w/o entry conditions		[ref prv #2]		
Learning Objective	10450					
Question Source	Bank		Modified Bank	[X]	New	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S10						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
215004	Source Range Monitor		A2.02	Importance Rating		3.7	
Ability to (a) predict the impacts of the following on the Source Range Monitor and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations:			SRM inop condition				
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> Rx mode switch in "Startup" SRM 21 bypassed SRM 22 mode switch is placed in PERIOD All IRMs in range 4 							
Based on the above conditions, rod withdrawal...							
A.	CAN continue without further action(s); the SRM Rod Block is bypassed at IRM Range 3, IAW H-7-a, ROD BLOCK						
B.	CANNOT continue without further action(s); the SRM Rod Block will NOT clear until IRM Range 8, IAW H-7-a, ROD BLOCK						
C.	CAN continue without further action(s); only 2 SRMs are required to be operable for Startup, IAW Att. 201-2, Pre-Critical Checkoff						
D.	CANNOT continue without further action(s); plant procedures will NOT allow a Startup with only 2 operable SRMs, IAW Att. 201-2, Pre-Critical Checkoff						
ANSWER:	B						
REFERENCE(S):	201, H-7-a		[ref #2]	[ref #3]			
Explanation:	Placing SRM mode switch in PERIOD causes an INOP Rod Block. A is incorrect, Rod Block will not clear until IRM Range 8 B is the correct answer, Startup cannot continue. C is incorrect. only 2 SRMs are required to be operable for Startup, IAW Att. 201-2, Pre-Critical Checkoff, but Rod Block will not clear until IRM Range 8 or switch to OPERATE, rods could not be moved to continue with startup D is incorrect, plant procedures WILL allow a Startup with only 2 operable SRMs.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	03002						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S11					
Examination Outline Cross-reference						
Level	SRO	Tier #	1	Group #	2	
Knowledge and Ability Reference Information						RO
295032	High Secondary Containment Temperatures	EA2.01	Importance Rating			SRO 3.8
Ability to determine and/or interpret the following as they apply to High Secondary Containment Temperatures			Area temperature			
Question:						
Given the following:						
A fire in the reactor building has spread from the 51' elevation to the 75' elevation. The following temperatures have been reported to the Unit Supervisor:						
<ul style="list-style-type: none"> • 51' RWCU PMP RM (WEST) indicates 225 deg. F • 75' DEMIN VAULT indicates 220 deg. F • 75' PRECOAT TANK indicates 230 deg. F • 95' ISO COND (NORTH) indicates 200 deg. F 						
Which of the following actions is required based on the above conditions?						
A.	Scram the reactor IAW RPV Control – No ATWS ONLY					
B.	Scram the reactor IAW RPV Control – No ATWS AND Emergency depressurize IAW Emergency Depressurization					
C.	Monitor area temperatures IAW Secondary Containment Control and commence a shutdown IAW procedure 203, Plant Shutdown					
D.	Shutdown RBHVAC, start SGTS IAW SP-49, Confirmation of Secondary Containment initiations and isolations					
ANSWER:	A					
REFERENCE(S):	EMG-3200.11 scc		[ref #2]	[ref #3]		
Explanation:	A is the correct answer. B is incorrect, ED not required but plausible. C is incorrect, additional action required. D is incorrect, not required.					
References to be provided during exam:	EMG-3200.11 SCC		[ref prv #2]			
Learning Objective	10450					
Question Source	Bank		Modified Bank	[X]	New	
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S12						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
295036	Secondary Containment High Sump/Water Level	G 2.4.6	Importance Rating			4.0	
Knowledge symptom based EOP mitigation strategies							
Question:							
<p>Given the following:</p> <ul style="list-style-type: none"> • Plant is at 100% power • The Torus develops a leak • Torus water level is 146 in. • Rx Bldg SW Corner Room water level is 24 in. and rising • Rx Bldg NW Corner Room water level is 12 in. and steady <p>Based on the above conditions, what equipment is affected and what procedures are required?</p>							
A.	Core Spray system 1 pumps NOT available, enter Primary Containment Control						
B.	Core Spray system 2 pumps NOT available, enter Secondary Containment Control						
C.	Containment Spray system 1 pumps NOT available, enter Primary Containment Control						
D.	Containment Spray system 2 pumps NOT available, enter Secondary Containment Control						
ANSWER:	B						
REFERENCE(S):	EOP bases	[ref #2]	[ref #3]				
Explanation:	<p>Candidates will be provided a copy of Secondary Containment Control with no entry conditions. Additionally, we removed the 16" level from Table 13 (Max Safe Water Level), and removed components located within each area. Candidates are required to know which pumps are located within the four corner rooms, and what the max safe level is for these areas.</p> <p>Therefore:</p> <p>A is incorrect, Core Spray sys 1 pump ARE available, PCC is NOT entered .</p> <p>B is the correct answer, Core Spray sys 2 pumps are NOT available, SCC IS entered.</p> <p>C is incorrect, Containment Spray sys 1 pump ARE available, PCC is NOT entered.</p> <p>D is incorrect, Containment Spray sys 2 pump ARE available</p>						
References to be provided during exam:	EOPs w/o entry conditions	[ref prv #2]					
Learning Objective	03082						

Question Source	Bank		Modified Bank	<input checked="" type="checkbox"/>	New	
Question Cognitive Level:	Memory or Fundamental Knowledge		<input checked="" type="checkbox"/>	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S13						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
209001	Low Pressure Core Spray	G 2.1.31	Importance Rating			3.9	
Ability to locate control room switches, controls and indications and to determine that they are correctly reflecting the desired plant lineup							
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> Core Spray Booster pump NZ03A breaker is racked out for repairs MN BRKR 1D 86 LOCKOUT TRIP annunciator is received Two (2) minutes later, drywell pressure reaches 4 psig and is rising RPV water level is +55 in. TAF and lowering slowly 							
Which of the following actions are required IAW the EOPs?							
A.	Confirm NZ01A, NZ01D and NZ03D pumps are operating, then reduce pressure with Isolation Condensers and EMRVs.						
B.	Confirm NZ01B, NZ01C and NZ03C pumps are operating, then reduce pressure with Isolation Condensers and EMRVs.						
C.	Confirm NZ01A, NZ01D and NZ03D pumps are operating, maintain RPV pressure until water level reaches 0 in. TAF, then Emergency Depressurize.						
D.	Confirm NZ01B, NZ01C and NZ03C pumps are operating, maintain RPV pressure until water level reaches 0 in. TAF, then Emergency Depressurize.						
ANSWER:	A						
REFERENCE(S):	T-2-e		RPV Control EOP				
Explanation:	<p>On a loss of bus 1D, the "B" and "C" Core Spray pumps lose power. Additionally, with the priority booster pump NZ03A racked out, this will enable the backup booster pump NZ03D to start. In Level Restoration, after confirming low pressure injection subsystems running (2 of 3 between condensate, core spray 1 and core spray 2), if low pressure systems are capable of recovering level, direction is given in the pressure control leg via the last override statement to lower pressure as needed to allow the low pressure systems to inject. This is done prior to ever reaching TAF, and in this case, would be accomplished with ICs and EMRVs. It would not be appropriate to wait until reaching TAF then EDing, as this puts the vessel through an unneeded thermal transient. Therefore:</p> <p>A is correct B is incorrect, based on wrong pumps available C is incorrect, based on not waiting to TAF for ED D is incorrect, based on wrong pumps and not waiting to TAF for ED</p>						
References to be provided during exam:	EOPs with no entry conditions		[ref prv #2]				
Learning Objective	10450						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S14						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
211000	Standby Liquid Control System	A2.04	Importance Rating			3.4	
Ability to (a) predict the impacts of the following on the Standby Liquid Control System system; and (b) based on these predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:			Inadequate system flow				
Question:							
Unit Supervisor orders the URO to initiate liquid poison IAW Support Procedure 22. The URO places the STANDBY LIQUID CONTROL keylock in the FIRE SYS 2 position. The following conditions are observed:							
<ul style="list-style-type: none"> PUMP ON light for system 2 illuminated (Panel 4F) PUMP DISCH PRESS greater than Rx pressure (Panel 4F) Squib continuity meter behind 4F reads 4.2 mA for system 2 RWCU system is in service 							
Liquid poison is...							
A.	Injecting, isolate the Reactor Water Cleanup system, IAW procedure 303						
B.	NOT injecting, place LIQUID CONTROL keylock to the FIRE SYS 1 position, IAW SP-22						
C.	Injecting, verify Standby Liquid Control tank level lowering and monitor reactor power, IAW SP-22						
D.	NOT injecting, place LIQUID CONTROL keylock to OFF and then back to FIRE SYS 2 position, IAW SP-22						
ANSWER:	B						
REFERENCE(S):	EOP SP 22		G-1-b, G-2-b		[ref #3]		
Explanation:	A is incorrect, liquid poison is not injecting. B is the correct answer, Squib valve did NOT fire and FLOW ON and SQUIB VALVE OPEN alarms are not in. Continuity meter shows squib did not fire, SP-22 directs System 1 to be initiated. C is incorrect, liquid poison is not injecting. D is incorrect, liquid poison is injecting but placing the keylock back to system 2 does not re-fire the squib valve						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank		New	[X]	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S15						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
218000	Automatic Depressurization System	G 2.1.28	Importance Rating			3.3	
Knowledge of the purpose and function of major system components and controls.							
Question:							
Following a plant transient, plant conditions are as follows:							
<ul style="list-style-type: none"> • The reactor is at 8% power • MSIVs are shut • Reactor pressure is fluctuating between 1045 and 1070 psig • Torus temperature is 75 deg. F • Torus level is 146 in. 							
The Automatic Depressurization System is...							
A.	operating as designed, initiate Standby Liquid Control, IAW SP-22						
B.	NOT operating as designed, place EMRVs to MAN to stabilize RPV pressure below 1045 psig, IAW RPV Control – w/ATWS						
C.	NOT operating as designed, open all 5 EMRVs, IAW Emergency Depressurization – w/ATWS						
D.	operating as designed, place EMRVs to MAN until RPV pressure is 920 psig, IAW RPV Control – w/ATWS						
ANSWER:	D						
REFERENCE(S):	EOP flowcharts		B-3-g	[ref #3]			
Explanation:	Fluctuating pressure indicates cycling EMRVs. A is incorrect, ADS working, but no requirement to inject SLC. B is incorrect, ADS working and stabilizing pressure is wrong action for cycling EMRVs. C is incorrect, ADS working, ED not required for these conditions. D is the correct answer, reduce to 920 psig IAW RPV Control – w/ATWS						
References to be provided during exam:	EOP flowcharts		[ref prv #2]				
Learning Objective	10450						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge	[X]	Comprehension or Analysis				
10 CFR Part 55 Content:	55.41		55.43	(b) (5)			

Question #	S16						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
212000	RPS	A2.06	Importance Rating	4.1	4.2		
Ability to (a) predict the impacts of the following on the RPS system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations			High Reactor Power				
Question:							
Given the following:							
<ul style="list-style-type: none"> • The reactor was at 100% power when NS03B failed closed • All remaining MSIVs closed on high flow • NO control rods moved • RPV level is being controlled -20 to 0 in. TAF • Both Isolation Condensers are in service • Two EMRVs are open, with a third being cycled to control pressure 800 to 1000 psig • Torus temperature is 145 deg. F and rising at 2 deg. F per minute • Torus level is 150 inches • Boron is being injected • SLC tank level is 1000 gal. and lowering 							
Based upon the above, what actions are required?							
A.	Emergency Depressurize immediately.						
B.	Reduce RPV pressure within the next 8 minutes.						
C.	Reduce RPV pressure within the next 12 minutes.						
D.	Maintain present RPV pressure band until SLC tank level is 150 gallons, then commence a cooldown.						
ANSWER:	B						
REFERENCE(S):	EOP bases		[ref #2]	[ref #3]			
Explanation:	<p>The conditions listed above put the candidate 17 degrees away from the HCTL at 150 inches and 1000 psig. Since torus temp. can't be maintained below the HCTL, the RPV Control Pressure Control override directs maintaining RPV pressure below the HCTL. The candidate must determine that the most restrictive limit is at 1000 psig. Given the 2 deg. F per minute torus heatup, this gives approximately 8.5 minutes before reaching the HCTL at 1000 psig. Actions must be taken to depressurize before reaching the HCTL, therefore:</p> <p>A is incorrect, as ED is not needed until the torus temperature and RPV pressure cannot be maintained below the HCTL.</p> <p>B is correct</p> <p>C is incorrect, as the HCTL will be exceeded after approximately 8.5 minutes. The 12 minute time limit would be true for RPV pressure at 800</p>						

	psig, but that is the lower end of the pressure band, and should not be used D is incorrect, as the HCTL would be exceeded, at which point an ED is required						
References to be provided during exam:		EOP flow charts w/o entry conditions		[ref prv #2]			
Learning Objective	10450						
Question Source		Bank		Modified Bank		New	[X]
Question Cognitive Level:		Memory or Fundamental Knowledge			Comprehension or Analysis		[X]
10 CFR Part 55 Content:		55.41		55.43	(b) (5)		

Question #	S17						
Examination Outline Cross-reference							
Level	SRO	Tier #	2	Group #	2		
Knowledge and Ability Reference Information						RO	SRO
201002	Reactor Manual Control System	A2.02	Importance Rating			3.3	
Ability to (a) predict the impacts of the following on the Reactor Manual Control System system; and (b) based on these predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations			Rod drift alarm				
Question:							
The plant is operating at 100% Power and the following conditions exist:							
<ul style="list-style-type: none"> • 6 control rods are valved out of service at "00" due to HCU problems • ROD DRIFT alarm is received and rod 10-35 moves out to position 48 without operator action • All attempts to insert the control rod are unsuccessful • Investigation reveals NO known cause for the failure 							
Based on the above conditions, what is required by Tech Specs?							
A.	Commence an uninterrupted plant shutdown immediately						
B.	Place the plant in a shutdown condition within 30 hours						
C.	Place the plant in a cold shutdown condition within 30 hours						
D.	Place the plant in a shutdown condition within 48 hours						
ANSWER:	A						
REFERENCE(S):	Tech Specs		ABN-6	[ref #3]			
Explanation:	<p>The plant must be placed in a shutdown condition in this situation. The definition is "proceed with an uninterrupted plant shutdown until all operable rods are inserted and the mode switch is in S/D. There is no time limit associated with this spec. Therefore:</p> <p>A is correct. B is incorrect, as the time limit is specified. C is incorrect, as cold shutdown is not required. D is incorrect, as the time limit is specified.</p>						
References to be provided during exam:	Tech Specs T.S. 3.2.B.4		[ref prv #2]				
Learning Objective	10447						
Question Source	Bank	[X]	Modified Bank		New		
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41		55.43	(b) (2)			

Question #	S18					
Examination Outline Cross-reference						
Level	SRO	Tier #	2	Group #	2	
Knowledge and Ability Reference Information					RO	SRO
241000	Reactor/Turbine Pressure Regulating System	G2.4.21	Importance Rating		4.3	
Knowledge of the parameters and logic used to assess the status of safety functions						
Question:						
<p>Given the following:</p> <ul style="list-style-type: none"> • A plant startup is in progress • Reactor power is 40% • Power ascension is limited to 10% per hour • Reactor pressure is being maintained at 1020 psig • EPR servo percent stroke is 40% • MPR servo percent stroke is 32% <p>Reactor pressure takes a step jump to 1024 psig, and the CRO reports the following indications:</p> <ul style="list-style-type: none"> • EPR servo percent stroke is 0% • MPR servo percent stroke is 40% <p>Based upon the above, the _____ (1) _____ has failed. As Unit Supervisor, your direction to the CRO is to _____ (2) _____.</p>						
A.	(1) EPR (2) continue with the startup					
B.	(1) MPR (2) continue with the startup					
C.	(1) EPR (2) commence a power reduction					
D.	(1) MPR (2) commence a power reduction					
ANSWER:	C					
REFERENCE(S):	315.5	GE SIL 614	[ref #3]			
Explanation:	<p>With the stated plant conditions, these indicate the EPR has failed. With power between 25% and 90% and only one pressure regulator, either raise power above 90% within 2 hours, or reduce power below 25% within the following 8 hours. Since the power ascension limit is 10% per hour, it is not possible to raise power above 90% within a two hour time frame. Therefore, power must be reduced below 25% within the next 8 hours.</p> <p>A is incorrect, as power ascension in this condition is not allowed B is incorrect, as MPR did not fail, and power ascension in this condition is not allowed C is correct D is incorrect, as the EPR failed</p>					

References to be provided during exam:	None		[ref prv #2]		
Learning Objective	01196, 01200				
Question Source	Bank		Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis	X
10 CFR Part 55 Content:	55.41		55.43	(b) (5)	

Question #	S19						
Examination Outline Cross-reference							
Level	SRO	Tier #	3	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
2.1	Conduct of operations		2.1.12	Importance Rating	2.9	4.0	
Ability to apply technical specifications for a system							
Question:							
Weekly surveillance results on the "B" Station Battery are as follows:							
<ul style="list-style-type: none"> Overall battery voltage while on Float Charge: 128.5 volts Pilot cell voltage while on Float Charge: 2.15 volts Pilot cell specific gravity (temperature corrected): 1.175 							
Tech Specs require...							
A.	NO additional action						
B.	the plant to be in SHUTDOWN within 30 hours						
C.	the plant to be in COLD SHUTDOWN within 24 hours						
D.	the plant to be in COLD SHUTDOWN within 30 hours						
ANSWER:	B						
REFERENCE(S):	T.S. 3.7.A.4; 4.7.B.1.d		634.2.002		OP-OC-100		
Explanation:	A is incorrect readings are out of spec B is correct C is incorrect for weekly surveillances D is incorrect for s/g <1.190 (would be correct for ≥1.190 but ≤1.205)						
References to be provided during exam:	T.S. section 4.7						
Learning Objective	10451						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X	
10 CFR Part 55 Content:	55.41		55.43	(b) (2)			

Question #	S20						
Examination Outline Cross-reference							
Level	SRO	Tier #	3	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
2.1	Conduct of operations			2.1.23	Importance Rating	3.9	4.0
Ability to perform specific system and integrated plant procedures during different modes of plant operation.							
Question:							
<p>"Isolation Condenser Valve Operability and in Service Test" Surveillance #609.4.001 has just been completed.</p> <p>Review the attached data sheets and:</p> <p>(1) determine status of Isolation Condensers</p> <p>(2) determine required actions</p>							
A.	<p>(1) Both Isolation Condensers are operable.</p> <p>(2) No actions required.</p>						
B.	<p>(1) Both Isolation Condensers are inoperable.</p> <p>(2) Place reactor in cold shutdown condition.</p>						
C.	<p>(1) "A" Isolation Condenser is operable; "B" Isolation Condenser is inoperable.</p> <p>(2) Operation may continue for up to 7 days.</p>						
D.	<p>(1) "A" Isolation Condenser is inoperable; "B" Isolation Condenser is operable.</p> <p>(2) Operation may continue for up to 7 days.</p>						
ANSWER:	C						
REFERENCE(S):	609.4.001		Tech Specs 3.8				
Explanation:	<p>Valve V-14-30 (IC "A") is out of acceptable range but within limiting value range making IC "A" degraded but operable. V-14-33 (IC "B") is out of acceptable range and outside of limiting value range making IC "B" inoperable. T.S. 3.8 states that with one IC inoperable the reactor may remain in operation not to exceed 7 days. Therefore:</p> <p>A is incorrect</p> <p>B is incorrect</p> <p>C is correct</p> <p>D is incorrect</p>						
References to be provided during exam:	Tech Spec section 3.8 w/no bases <i>& attached data sheets</i>		completed attachment 609.4-001-1 (page E1-2) and -2 (page E2-3) with Acceptance Criteria (page 20)				
Learning Objective	08653						
Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge				Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41		55.43	(b) (2)			

Question #	S21						
Examination Outline Cross-reference							
Level	SRO	Tier #	3	Group #	CAT 2		
Knowledge and Ability Reference Information						RO	SRO
				G 2.2.29	Importance Rating		3.8
Knowledge of SRO fuel handling responsibilities.							
Question:							
Which of the following would be a refueling error IAW procedure 205, Reactor Refueling?							
A.	A Fuel Assembly is discovered to be mis-located in the core after performing the following fuel move						
B.	A Fuel Assembly is discovered to be mis-located in the spent fuel pool						
C.	The fuel move worksheet is discovered to be in error prior to the next move						
D.	A Fuel Assembly is discovered to be mis-oriented in the core upon unlatching and raising the grapple						
ANSWER:	A						
REFERENCE(S):	Procedure 205		[ref #2]	[ref #3]			
Explanation:	A is the correct answer. B is incorrect, not an error in the fuel pool. C is incorrect not an error until fuel is moved and placed incorrectly. D is incorrect, not an error until bridge is moved north/south..						
References to be provided during exam:	None			[ref prv #2]			
Learning Objective	1129						
Question Source	Bank	[X]	Modified Bank		New		
Question Cognitive Level:	Memory or Fundamental Knowledge				Comprehension or Analysis		[X]
10 CFR Part 55 Content:	55.41		55.43	(b) (7)			

Question #	S22						
Examination Outline Cross-reference							
Level	SRO	Tier #	3	Group #	CAT 2		
Knowledge and Ability Reference Information						RO	SRO
		G 2.2.22		Importance Rating		4.1	
Knowledge of limiting conditions for operations and safety limits.							
Question:							
Given the following conditions:							
<ul style="list-style-type: none"> Reactor is at 100% power MCPR is determined to be 1.08 							
What action is required IAW Technical Specifications?							
A.	The reactor shall be shutdown immediately						
B.	The reactor shall be placed in cold shutdown in 30 hours						
C.	Return MCPR within limits in 2 hours or be shutdown in 36 hours						
D.	Return MCPR within limits in 2 hours or be in cold shutdown in 36 hours						
ANSWER:	A						
REFERENCE(S):	T.S. 2.1, sect. 6		[ref #2]	[ref #3]			
Explanation:	A is correct, for any safety limit violation. B is incorrect, plausible for violation of LCO but not for safety limit. C is incorrect, plausible for violation of steady state LCO, but cold shutdown required. D is incorrect, plausible for violation of steady state LCO.						
References to be provided during exam:	None		[ref prv #2]				
Learning Objective	10451						
Question Source	Bank		Modified Bank	[X]	New		
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		[X]	
10 CFR Part 55 Content:	55.41	(letter) (num)	55.43	(b) (2)			

Question #	S23					
Examination Outline Cross-reference						
Level	SRO	Tier #	3	Group #	3	
Knowledge and Ability Reference Information					RO	SRO
2.3	Radiation Control		2.3.1	Importance Rating	2.6	3.0
Knowledge of 10 CRF 20 and related facility radiation control requirements.						
Question:						
Given the following:						
<ul style="list-style-type: none"> Vibration readings are being taken at the marked spot on the attached survey map The job is expected to take 2.5 hours Your year-to-date dose is 1,750 mrem TEDE 						
If you were to stay in the area for the entire 2.5 hours, answer the following questions.						
(1) What is your expected dose for this job?						
(2) Besides the Radiation Protection Manager, whose permission is required to authorize this job?						
A.	(1) 275 mrem (2) No additional permission required					
B.	(1) 275 mrem (2) Operations Director					
C.	(1) 350 mrem (2) Shift Manager					
D.	(1) 350 mrem (2) Plant Manager					
ANSWER:	C					
REFERENCE(S):	RP-AA-203, Exposure Control and Authorization & <i>SURVEY MAP</i>					
Explanation:	<p>Administrative Dose Control Level (ADCL) is 2,000 mrem TEDE per year. To extend the ADCL to 3,000 mrem requires written approval from the Radiation Protection Manager and the work group supervisor. For Operations, this would be the Shift Manager. The work area noted is between a 110 mrem and 140 mrem area, so the operator should calculate exposure based upon the higher area dose level. 2.5 hours at 140 mrem/hr yields 350 mrem dose. 2.5 hours at 110 mrem/hr yields 275 mrem dose. Therefore:</p> <p>A is incorrect because the lower limit is used, and it requires more than the RPM permission.</p> <p>B is incorrect because the lower limit is used, and it does NOT require permission from the Operations Director at this level.</p> <p>C is correct</p> <p>D is incorrect, as it does not require Plant Manager permission at this level.</p>					

References to be provided during exam:		Survey map					
Learning Objective	18, 25 from NGET Rad Worker Training						
Question Source		Bank		Modified Bank		New	X
Question Cognitive Level:		Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:		55.41		55.43	(b) (4)		

Question #	S24						
Examination Outline Cross-reference							
Level	SRO	Tier #	1	Group #	1		
Knowledge and Ability Reference Information						RO	SRO
		G 2.4.38		Importance Rating		4.0	
Ability to take actions called for in the facility emergency plan, including (if required) supporting or acting as emergency coordinator.							
Question:							
The plant is at 100% power when the following events occur:							
At 0810:							
<ul style="list-style-type: none"> • All off-site power is lost • The generator trips and the reactor scrams • EDG 1 starts and its output breaker closes and supplies power to its respective bus • EDG 2 fails to start 							
At 0813:							
<ul style="list-style-type: none"> • EDG 2 fails to emergency start from the control room 							
At 0828:							
<ul style="list-style-type: none"> • EDG 2 is started locally and its output breaker is closed and it supplies power to its respective bus 							
What is the LATEST time that a classification declaration can be made based on the above conditions IAW EP-OC-111, Emergency Classification and PARs?							
A.	0825						
B.	0828						
C.	0840						
D.	0843						
ANSWER:	C						
REFERENCE(S):	EP-OC-1010		[ref #2]		[ref #3]		
Explanation:	<p>From time that conditions are present to meet an EAL the emergency director has 15 minutes to declare and then 15 minutes to notify NJSP/OEM. In this case it will take 15 minutes for the classification category to be met [from 0810 to 0825] and then 15 minutes to make the classification.</p> <p>A is incorrect, this is the time it takes for the conditions to occur.</p> <p>B is incorrect, not based on emergency start not working.</p> <p>C is the correct answer, this is the time limit to declare the event.</p> <p>D is incorrect, over the limit but would fit 15 min. from the 0828 time.</p>						
References to be provided during exam:	EP-OC-1010		[ref prv #2]				
Learning Objective	08908						

Question Source	Bank		Modified Bank		New	<input checked="" type="checkbox"/>
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		<input checked="" type="checkbox"/>
10 CFR Part 55 Content:	55.41		55.43	(b) (5)		

Question #	S25						
Examination Outline Cross-reference							
Level	SRO	Tier #	3	Group #	CAT 4		
Knowledge and Ability Reference Information						RO	SRO
		G 2.4.41		Importance Rating	2.3	4.1	
Knowledge of the emergency action level thresholds and classifications							
Question:							
<p>Given the following conditions:</p> <ul style="list-style-type: none"> • The plant is in a refueling outage • A refueling accident has occurred • The refuel floor has been evacuated • B9 and C9 radiation monitors are alarming • SGTS has initiated and Reactor Building HVAC has tripped <p>30 minutes later, the following conditions exist:</p> <ul style="list-style-type: none"> • High Range Stack RAGEMS reads 1.0 $\mu\text{Ci/cc}$ • NO field monitoring reports have been received <p>Based upon these conditions, classify the event.</p>							
A.	Unusual Event						
B.	Alert						
C.	Site Area Emergency						
D.	General Emergency						
ANSWER:	C						
REFERENCE(S):	EP-OC-1010						
Explanation:	<p>Damaged fuel, by itself, is an ALERT based on category RA5. With Stack RAGEMS indicating above 0.3 but below 3.0 $\mu\text{Ci/cc}$ and no verification from field monitoring teams of the actual offsite release within 15 minutes, this constitutes a SITE AREA EMERGENCY based on category RS1.</p> <p>Therefore: A is incorrect B is incorrect C is correct D is incorrect</p>						
References to be provided during exam:	EP-OC-1010						
Learning Objective	08908						

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41		55.43	(b)(5)		