

Draft Submittal

(Pink Paper)

Reactor Operator Written Exam

Facility: Sequoyah

Printed: 08/14/2007

Date Of Exam: 01/28/2008

Tier	Group	RO K/A Category Points												SRO-Only Points			
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2		G*	Total
1. Emergency & Abnormal Plant Evolutions	1	3✓	3✓	3✓	N/A			3✓	3✓	N/A		3✓	18✓	0		0	0
	2	1✓	2✓	1✓				1✓	2✓			2✓	9✓	0		0	0
	Tier Totals	4✓	5✓	4✓				4✓	5✓			5✓	27✓	0		0	0
2. Plant Systems	1	2✓	2✓	3✓	3✓	3✓	2✓	2✓	3✓	2✓	3✓	3✓	28✓	0		0	0
	2	1✓	1✓	1✓	1✓	1✓	1✓	1✓	0✓	1✓	1✓	1✓	10✓	0	0	0	0
	Tier Totals	3✓	3✓	4✓	4✓	4✓	3✓	3✓	3✓	3✓	4✓	4✓	38✓	0		0	0
3. Generic Knowledge And Abilities Categories				1		2		3		4		10✓	1	2	3	4	0
				3✓		2✓		3✓		2✓			0	0	0	0	

Note:

- ✓1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- ✓2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
- ✓3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
- ✓4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- ✓5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- ✓6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- ✓7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
- ✓8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
- ✓9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

PWR RO Examination Outline

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

PE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000007 Reactor Trip - Stabilization - Recovery / 1				X			EA1.08 - AFW System	4.4 ✓	1
000008 Pressurizer Vapor Space Accident / 3					X		AA2.29 - The effects of bubble in reactor vessel	3.9 ✓	1
000009 Small Break LOCA / 3					X		EA2.24 - RCP temperature setpoints	2.6 ✓	1
000011 Large Break LOCA / 3			X				EK3.13 - Hot-leg injection/recirculation	3.8 ✓	1
000015/000017 RCP Malfunctions / 4		X					AK2.08 - CCWS	2.6 ✓	1
000022 Loss of Rx Coolant Makeup / 2					X		AA2.03 - Failures of flow control valve or controller	3.1 ✓	1
000025 Loss of RHR System / 4		X					AK2.05 - Reactor building sump	2.6 ✓	1
000026 Loss of Component Cooling Water / 8			X				AK3.03 - Guidance actions contained in EOP for Loss of CCW	4.0 ✓	1
000027 Pressurizer Pressure Control System Malfunction / 3				X			AA1.02 - SCR-controlled heaters in manual mode	3.1* ✓	1
000038 Steam Gen. Tube Rupture / 3						X	2.1.3 - Knowledge of shift turnover practices.	3.0 ✓	1
000040 Steam Line Rupture - Excessive Heat Transfer / 4	X						AK1.03 - RCS shrink and consequent depressurization	3.8 ✓	1
W/E04 Station Blackout / 6						X	2.4.29 - Knowledge of the emergency plan.	2.6 ✓	1
000056 Loss of Off-site Power / 6	X						AK1.03 - Definition of subcooling: use of steam tables to determine it	3.1* ✓	1
000058 Loss of DC Power / 6	X						AK1.01 - Battery charger equipment and instrumentation	2.8 ✓	1
000062 Loss of Nuclear Svc Water / 4				X			AA1.01 - Nuclear service water temperature indications	3.1 ✓	1
W/E04 LOCA Outside Containment / 3						X	2.4.48 - 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.	3.5 ✓	1
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4			X				EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	3.4 ✓	1

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

PE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
W/E11 Loss of Emergency Coolant Recirc. / 4		X					EK2.2 - Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility	3.9 ✓	1
K/A Category Totals:	3 ✓	3 ✓	3 ✓	3 ✓	3 ✓	3 ✓	Group Point Total:	18 ✓	

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

PE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic	Imp.	Points
000001 Continuous Rod Withdrawal / 1		X					AK2.05 - Rod motion lights	2.9* ✓	1
000033 Loss of Intermediate Range NI / 7						X	2.4.21 - Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control; 2. Core cooling and heat removal; 3. Reactor coolant system integrity; 4. Containment conditions; 5. Radioactivity release control.	3.7 ✓	1
000036 Fuel Handling Accident / 8	X						AK1.01 - Radiation exposure hazards	3.5 ✓	1
000060 Accidental Gaseous Radwaste Rel. / 9				X			AA1.02 - Ventilation system	2.9 ✓	1
000069 Loss of CTMT Integrity / 5						X	2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.	3.3 ✓	1
000074 Inad. Core Cooling / 4			X				EK3.07 - Starting up emergency feedwater and RCPs	4.0 ✓	1
000076 High Reactor Coolant Activity / 9		X					AK2.01 - Process radiation monitors	2.6 ✓	1
W/E09 Natural Circ. / 4					X		EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations	3.1 ✓	1
W/E14 Loss of CTMT Integrity / 5					X		EA2.2 - Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments	3.3 ✓	1
K/A Category Totals:	1 ✓	2 ✓	1 ✓	1 ✓	2 ✓	2 ✓	Group Point Total: 9 ✓		

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ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
003 Reactor Coolant Pump			X									K3.04 - RPS	3.9✓	1
003 Reactor Coolant Pump											X	2.3.10 - Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9✓	1
004 Chemical and Volume Control					X							K5.31 - Purpose of flow path around boric acid storage tank (5.26)	3.0*✓	1
004 Chemical and Volume Control									X			A3.08 - Reactor power	3.9✓	1
005 Residual Heat Removal										X		A4.03 - RHR temperature, PZR heaters and flow, and nitrogen	2.8*✓	1
006 Emergency Core Cooling	X											K1.02 - ESFAS	4.3✓	1
007 Pressurizer Relief/Quench Tank			X									K3.01 - Containment	3.3✓	1
007 Pressurizer Relief/Quench Tank											X	2.1.1 - Knowledge of conduct of operations requirements.	3.7✓	1
008 Component Cooling Water				X								K4.07 - Operation of the CCW swing-bus power supply and its associated breakers and controls	2.6*✓	1
Pressurizer Pressure Control						X						K6.03 - PZR sprays and heaters	3.2✓	1
012 Reactor Protection				X								K4.04 - Redundancy	3.1✓	1
013 Engineered Safety Features Actuation		X										K2.01 - ESFAS/safeguards equipment control	3.6*✓	1
022 Containment Cooling								X				A2.04 - Loss of service water	2.9*✓	1
025 Ice Condenser					X							K5.02 - Heat transfer	2.6*✓	1
026 Containment Spray				X								K4.07 - Adequate level in containment sump for suction (interlock)	3.8*✓	1
026 Containment Spray											X	2.4.48 - 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.	3.5✓	1
039 Main and Reheat Steam							X					A1.09 - Main steam line radiation monitors	2.5*✓	1
059 Main Feedwater								X				A2.07 - Tripping of MFW pump turbine	3.0*✓	1
059 Main Feedwater										X		A4.01 - MFW turbine trip indication	3.1*✓	1

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Plant Systems - Tier 2 / Group 1

Form ES-401-2

/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
061 Auxiliary/Emergency Feedwater					X							K5.01 - Relationship between AFW flow and RCS heat transfer	3.6 ✓	1
062 AC Electrical Distribution	X											K1.02 - ED/G	4.1 ✓	1
063 DC Electrical Distribution		X										K2.01 - Major DC loads	2.9* ✓	1
064 Emergency Diesel Generator						X						K6.08 - Fuel oil storage tanks	3.2 ✓	1
073 Process Radiation Monitoring							X					A1.01 - Radiation levels	3.2 ✓	1
076 Service Water								X				A2.02 - Service water header pressure	2.7 ✓	1
076 Service Water										X		A4.02 - SWS valves	2.6 ✓	1
078 Instrument Air			X									K3.01 - Containment air system	3.1* ✓	1
103 Containment									X			A3.01 - Containment isolation	3.9 ✓	1
K/A Category Totals:	2 ✓	2 ✓	3 ✓	3 ✓	3 ✓	2 ✓	2 ✓	3 ✓	2 ✓	3 ✓	3 ✓	Group Point Total:	28 ✓	

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ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	Imp.	Points
011 Pressurizer Level Control						X						K6.05 - Function of PZR level gauges as postaccident monitors	3.1 ✓	1
015 Nuclear Instrumentation		X										K2.01 - NIS channels, components, and interconnections	3.3 ✓	1
016 Non-nuclear Instrumentation	X											K1.10 - CCS	3.1* ✓	1
017 In-core Temperature Monitor				X								K4.03 - Range of temperature indication	3.1 ✓	1
045 Main Turbine Generator					X							K5.17 - Relationship between moderator temperature coefficient and boron concentration in RCS as T/G load increases	2.5* ✓	1
055 Condenser Air Removal									X			A3.03 - Automatic diversion of CARS exhaust	2.5* ✓	1
068 Liquid Radwaste										X		A4.01 - Control board for boron recovery (A4.02)	2.7* ✓ 3.2	1
071 Waste Gas Disposal			X									K3.04 - Ventilation system	2.7 ✓	1
075 Circulating Water											X	2.2.11 - Knowledge of the process for controlling temporary changes.	2.5 ✓	1
Fire Protection							X					A1.01 - Fire header pressure	2.9 ✓	1
K/A Category Totals:	1 ✓	1 ✓	1 ✓	1 ✓	1 ✓	1 ✓	1 ✓	0 ✓	1 ✓	1 ✓	1 ✓	Group Point Total: 10 ✓		

Generic Knowledge and Abilities Outline (Tier 3)

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Form ES-401-3

<u>Generic Category</u>	<u>KA</u>	<u>KA Topic</u>	<u>Imp.</u>	<u>Points</u>
Conduct of Operations	2.1.3	Knowledge of shift turnover practices.	3.0 ✓	1
	2.1.27	Knowledge of system purpose and or function.	2.8 ✓	1
	2.1.28	Knowledge of the purpose and function of major system components and controls.	3.2 ✓	1
	Category Total:			3 ✓
Equipment Control	2.2.26	Knowledge of refueling administrative requirements.	2.5 ✓	1
	2.2.33	Knowledge of control rod programming.	2.5 ✓	1
	Category Total:			2 ✓
Radiation Control	2.3.2	Knowledge of facility ALARA program.	2.5 ✓	1
	2.3.9	Knowledge of the process for performing a containment purge.	2.5 ✓	1
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.9 ✓	1
	Category Total:			3 ✓
Emergency Procedures/Plan	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures.	3.0 ✓	1
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	3.0 ✓	1
	Category Total:			2 ✓

Generic Total: **10 ✓**

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Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	A2		G*	Total	
1. Emergency & Abnormal Plant Evolutions	1	3	3	3	N/A			3	3	N/A			3	18	0		0	0
	2	1	2	1				1	2				2	9	0		0	0
	Tier Totals	4	5	4				4	5				5	27	0		0	0
2. Plant Systems	1	2	2	3	3	3	2	2	3	2	3	3	28	0		0	0	
	2	1	1	1	1	1	1	1	0	1	1	1	10	0	0	0	0	
	Tier Totals	3	3	4	4	4	3	3	3	3	4	4	38	0		0	0	
3. Generic Knowledge And Abilities Categories					1		2		3		4		10	1	2	3	4	0
					3		2		3		2			0	0	0	0	

Note:

- Ensure that at least two topics from every K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ± 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
- Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
- Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
- For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

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PWR RO Examining Outline

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	KA	KA Topic	Comment
000007 Reactor Trip - Stabilization - Recovery / 1	EA1.08	AFW System	
000008 Pressurizer Vapor Space Accident / 3	AA2.29	The effects of bubble in reactor vessel	
000009 Small Break LOCA / 3	EA2.24	RCP temperature setpoints	
000011 Large Break LOCA / 3	EK3.13	Hot-leg injection/recirculation	
000015/000017 RCP Malfunctions / 4	AK2.08	CCWS	
000022 Loss of Rx Coolant Makeup / 2	AA2.03	Failures of flow control valve or controller	
000025 Loss of RHR System / 4	AK2.05	Reactor building sump	
000026 Loss of Component Cooling Water / 8	AK3.03	Guidance actions contained in EOP for Loss of CCW	
000027 Pressurizer Pressure Control System Malfunction / 3	AA1.02	SCR-controlled heaters in manual mode	
000038 Steam Gen. Tube Rupture / 3	2.1.3	Knowledge of shift turnover practices.	
000040 Steam Line Rupture - Excessive Heat Transfer / 4	AK1.03	RCS shrink and consequent depressurization	
000055 Station Blackout / 6	2.4.29	Knowledge of the emergency plan.	

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

E/APE # / Name / Safety Function	KA	KA Topic	Comment
000056 Loss of Off-site Power / 6	AK1.03	Definition of subcooling: use of steam tables to determine it	
000058 Loss of DC Power / 6	AK1.01	Battery charger equipment and instrumentation	
000062 Loss of Nuclear Svc Water / 4	AA1.01	Nuclear service water temperature indications	
W/E04 LOCA Outside Containment / 3	2.4.48	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.	
W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	EK3.1	Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics	
W/E11 Loss of Emergency Coolant Recirc. / 4	EK2.2	Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat	

removal systems, and relations between the proper operation of these systems to the operation of the facility

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ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

E/APE # / Name / Safety Function	KA	KA Topic	Comment
000001 Continuous Rod Withdrawal / 1	AK2.05	Rod motion lights	
000033 Loss of Intermediate Range NI / 7	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control; 2. Core cooling and heat removal; 3. Reactor coolant system integrity; 4. Containment conditions; 5. Radioactivity release control.	
000036 Fuel Handling Accident / 8	AK1.01	Radiation exposure hazards	
000060 Accidental Gaseous Radwaste Rel. / 9	AA1.02	Ventilation system	
000069 Loss of CTMT Integrity / 5	2.4.45	Ability to prioritize and interpret the significance of each annunciator or alarm.	
000074 Inad. Core Cooling / 4	EK3.07	Starting up emergency feedwater and RCPs	
000076 High Reactor Coolant Activity / 9	AK2.01	Process radiation monitors	
W/E09 Natural Circ. / 4	EA2.1	Facility conditions and selection of appropriate procedures during abnormal and emergency operations	
W/E14 Loss of CTMT Integrity / 5	EA2.2	Adherence to appropriate procedures and operation within the limitations in the facility's	

license and amendments

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ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	KA	KA Topic	Comment
003 Reactor Coolant Pump	K3.04	RPS	
003 Reactor Coolant Pump	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	
004 Chemical and Volume Control	K5.31	Purpose of flow path around boric acid storage tank	Plant design does not provide a flow path around the Boric Acid Storage Tank. Replace with randomly selected K/A 004 K5.26. The selection was randomly selected within the original K/A 004 K5.
004 Chemical and Volume Control	A3.08	Reactor power	
005 Residual Heat Removal	A4.03	RHR temperature, PZR heaters and flow, and nitrogen	
006 Emergency Core Cooling	K1.02	ESFAS	
007 Pressurizer Relief/Quench Tank	K3.01	Containment	
007 Pressurizer Relief/Quench Tank	2.1.1	Knowledge of conduct of operations requirements.	
008 Component Cooling Water	K4.07	Operation of the CCW swing-bus power supply and its associated breakers and controls	
010 Pressurizer Pressure Control	K6.03	PZR sprays and heaters	
012 Reactor Protection	K4.04	Redundancy	
013 Engineered Safety Features Actuation	K2.01	ESFAS/safeguards equipment control	

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ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	KA	KA Topic	Comment
022 Containment Cooling	A2.04	Loss of service water	
025 Ice Condenser	K5.02	Heat transfer	
026 Containment Spray	K4.07	Adequate level in containment sump for suction (interlock)	
026 Containment Spray	2.4.48	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.	
039 Main and Reheat Steam	A1.09	Main steam line radiation monitors	
059 Main Feedwater	A2.07	Tripping of MFW pump turbine	
059 Main Feedwater	A4.01	MFW turbine trip indication	
061 Auxiliary/Emergency Feedwater	K5.01	Relationship between AFW flow and RCS heat transfer	
062 AC Electrical Distribution	K1.02	ED/G	
063 DC Electrical Distribution	K2.01	Major DC loads	
064 Emergency Diesel Generator	K6.08	Fuel oil storage tanks	
073 Process Radiation Monitoring	A1.01	Radiation levels	
076 Service Water	A2.02	Service water header pressure	

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ES - 401

Plant Systems - Tier 2 / Group 1

Form ES-401-2

Sys/Evol # / Name	KA	KA Topic	Comment
076 Service Water	A4.02	SWS valves	
078 Instrument Air	K3.01	Containment air system	
103 Containment	A3.01	Containment isolation	

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ES - 401

Plant Systems - Tier 2 / Group 2

Form ES-401-2

Sys/Evol # / Name	KA	KA Topic	Comment
011 Pressurizer Level Control	K6.05	Function of PZR level gauges as postaccident monitors	
015 Nuclear Instrumentation	K2.01	NIS channels, components, and interconnections	
016 Non-nuclear Instrumentation	K1.10	CCS	
017 In-core Temperature Monitor	K4.03	Range of temperature indication	
045 Main Turbine Generator	K5.17	Relationship between moderator temperature coefficient and boron concentration in RCS as T/G load increases	
055 Condenser Air Removal	A3.03	Automatic diversion of CARS exhaust	
068 Liquid Radwaste	A4.01	Control board for boron recovery	The Boron Recovery System has been abandoned at the Sequoyah Plant. Replace with randomly selected K/A 068 A4.02. The selection was randomly selected within the original K/A 068 A4.
071 Waste Gas Disposal	K3.04	Ventilation system	
075 Circulating Water	2.2.11	Knowledge of the process for controlling temporary changes.	
086 Fire Protection	A1.01	Fire header pressure	

PWR RO Examination Outline

Form ES-401-3

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Generic Category	KA	KA Topic	Comment
Conduct of Operations	2.1.3	Knowledge of shift turnover practices.	
	2.1.27	Knowledge of system purpose and or function.	
	2.1.28	Knowledge of the purpose and function of major system components and controls.	
			Category Total: 3
Equipment Control	2.2.26	Knowledge of refueling administrative requirements.	
	2.2.33	Knowledge of control rod programming.	
			Category Total: 2
Radiation Control	2.3.2	Knowledge of facility ALARA program.	
	2.3.9	Knowledge of the process for performing a containment purge.	
	2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	
			Category Total: 3
Emergency Procedures/Plan	2.4.16	Knowledge of EOP implementation hierarchy and coordination with other support procedures.	
	2.4.22	Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.	
			Category Total: 2
			Generic Total: 10

QUESTIONS REPORT
for RO Written Exam Questions

1. 001 AK2.05 019

Given the following:

- Unit 1 operating at 50% power
- Rod control in AUTO with Bank D at 176 steps
- Tavg auctioneering unit fails LOW.

Which **ONE** (1) of the following identifies how the rod control system will respond **AND** what the indication will be on 1-M-4?

- A. Rods inserting as indicated by RODS IN 'RED' light LIT
- B. Rods inserting as indicated by RODS IN 'GREEN' light LIT
- C✓ Rods withdrawing as indicated by RODS OUT 'RED' light LIT
- D. Rods withdrawing as indicated by RODS OUT 'GREEN' light LIT

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, If the Tavg Auctioneering Unit failed low, the rod control system would see large error between Tref-Tavg causing the rods start withdrawing not inserting. However, if conditions existed that did result in the rods inserting the 'RODS IN' green light indication would be illuminated, but the light is green not red. Plausible if the candidate confuses the direction of rod movement and the color of the 'RODS IN' light with the color of the 'RODS OUT' light which is red.*
- B. *Incorrect, If the Tavg Auctioneering Unit failed low, the rod control system would see large error between Tref-Tavg causing the rods start withdrawing not inserting. However, if conditions existed that did result in the rods inserting the 'RODS IN ' green light indication would be illuminated. Plausible because the candidate could confuse the direction of rod movement but correctly identify the color of the 'RODS IN' light being green.*
- C. *Correct, If the Tavg Auctioneering Unit failed low, the rod control system would see a large error between Tref - Tavg causing the rods to start withdrawing. Rod withdrawal causes the 'RODS OUT' red light to be illuminated.*
- D. *Incorrect, If the Tavg Auctioneering Unit failed low, the rod control system would see large error between Tref- Tavg causing the rods start withdrawing. The 'RODS OUT' would be illuminated but the light is red not green. Plausible if the candidate determines the correct direction of rod movement but confuses the color of the 'RODS OUT' light with the color of the 'RODS IN' light which is green.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 19

Tier 1 Group 2

K/A 001 AK2.05

Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: Rod motion lights

Importance Rating: 2.9 / 3.1

Technical Reference: FSAR Section 7.7.1
TI-28, Curve Book, Attachment 9,

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200RDCNT B.5.d

Question Source:

Bank # _____
Modified Bank # X _____
New

Question History: SQN bank question RDCNT B.14.d 011mod for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7 / 45.7

Comments: SQN bank question RDCNT B.14.d 011 modified

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C C C D D A C A C D

Scramble Range: A - D

Source: BANK MOD

Source If Bank:

Cognitive Level: HIGHER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

2. 003 G2.3.10 029

During a plant shutdown/cooldown, which ONE (1) of the following describes the **earliest** condition required to perform Hydrogen Peroxide (H₂O₂) addition to the RCS with one RCP running, **and** the reason for the addition of Hydrogen Peroxide?

<u>Condition</u>	<u>Reason</u>
A. RCS Temp Less Than 250 ⁰ F provided RHR is in service.	Lower the corrosion rate of the RCS.
B. RCS Temp Less Than 250 ⁰ F provided RHR is in service.	Minimize Dose in Steam Generator area.
C. RCS Temp Less Than 180 ⁰ F	Lower the corrosion rate of the RCS.
D✓ RCS Temp Less Than 180 ⁰ F	Minimize Dose in Steam Generator area.

- A. *Incorrect. Plausible due to the Dissolved Oxygen Technical requirement limit not being applicable below 250 degrees and the addition of Hydrogen Peroxide occurs after RHR is in service. Since adding Hydrogen Peroxide will change ph, student may may Interpret this as affecting the corrosion rate. Corrosion rate is affected for a short time by actually raising the rate due to higher oxygen levels in RCS and ph change.*
- B. *Incorrect. Plausible due to the Dissolved Oxygen Technical requirement limit not being applicable below 250 degrees and the addition of Hydrogen Peroxide occurs after RHR is in service. Minimizing Dose in Steam Generator area is correct per note in procedure.*
- C. *Incorrect. Plausible due to correct temp listed but reason incorrect. Since adding Hydrogen Peroxide will change ph, student may may interpret this as affecting the corrosion rate. Corrosion rate is affected for a short time by actually raising the rate due to higher oxygen levels in RCS and ph change.*
- D. *Correct. Per 0-GO-7. Note: Any temperature less than 180F with at least one RCP running. This minimizes the dose in the Steam Generator area.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 29

Tier 2 Group 1

K/A 003 G2.3.10

Reactor Coolant Pump: Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

Importance Rating: 2.9 / 3.3

Technical Reference: O-GO-7 Section 5.5 Step 8 Note.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271GO-7 B.1

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 43.4 / 45.10)

Comments:

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: DDDDDDDDDDD	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

3. 003 K3.04 028

Given the following:

- Unit 1 is at 32% power.
- 1B Start Bus trips out on differential relay actuation.

Which ONE (1) of the following describes the plant response?

- A✓ Reactor trips due to the loss of power to RCP #2 and RCP #4.
- B. Reactor trips due to the loss of power to RCP #1 and RCP #3
- C. Only the 1B-B D/G starts and connects to the 1B-B 6.9 KV SD Bd.
- D. All 4 D/Gs start and but ONLY the 1B-B D/G connects to the 6.9 KV SD Bd.

- A. *Correct. UV due to 1B Start Bus trip on RCP#2 and 4 meets 2 of 4 logic for a reactor trip under 35% RTP.*
- B. *Incorrect. Plausible if student does not know power supplies to RCP's 1 and 3 comes through Start bus 1A and student understands Reactor will trip under 35% RTP.*
- C. *Incorrect. Plausible if student does not understand trip logic under 35% RTP. This part is plausible due to 1B start bus loss of power and student understands loss of power to S/D boards will start EDG's. The student may think only the 1B D/G would start due to 1B start bus loss of power and connect to the 1B SD Bd. All 4 D/G start, but only the 1A would connect which is the wrong D/G. 1B start bus feeds 1A shutdown boards.*
- D. *Incorrect. Plausible if student does not understand trip logic under 35% RTP. This part is plausible due to 1B start bus loss of power and student understands loss of power to S/D boards will start EDG's. The student may know ALL EDG's start but confuse which EDG would connect with the Shutdown boards. All 4 D/G start, but only the 1A would connect which is the wrong D/G per the answer listed. 1B start bus feeds 1A shutdown boards.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 28

Tier 2 Group 1

K/A 003 K3.04

Reactor Coolant Pump System: Knowledge of the effect that a loss or malfunction of the RCPS will have on the following, RPS.

Importance Rating: 3.9 / 4.2

Technical Reference: 611-99 drawings

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RCP B.4, 5

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, SQN Bank RCP-B.10.A 1

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 / 45.6)

Comments: Changed all distracters to increase the plausibility, Changed initial power level from 30% to 32%. Student may know logic but misunderstand setpoint as 30%. To ensure student knows the setpoint for power, power was increased 2%.

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A A A A A A A A A A	Items Not Scrambled
Source:	BANK		Source If Bank: SQN	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

4. 004 A3.08 031

Given the following plant conditions:

- Reactor power is stable at 66% with Tave on program.
- The pressurizer level control system is in Automatic.

Which ONE (1) of the following identifies the pressurizer level control setpoint?

- A. 41%
- B. 45%
- C✓ 48%
- D. 53%

QUESTIONS REPORT
for RO Written Exam Questions

Justification:

Candidate should realize that at 66% power and Tav_g on program, the pressurizer level should be 66% of the pressurizer level span added back to the Zero power level setpoint.

$$66\%(60 - 24.7) + 24.7 = 47.998 = 48\%$$

Because Tav_g determines pressurizer level, another method the candidate might choose is determine the Tav_g change and then determine pressurizer level change.

Per TI-28 page 10 with reactor power 66%, Tav_g should be between 567 and 568 degrees F.

Per Table in AOP-C.01 Appendix A with Rx power at 66%. Tav_g should be 567.6 degrees F and pressurizer level should be 48%

If Tav_g calculated using data in TI-28, Attachment 9,

$$\begin{aligned} &\% \text{ Rx power (Full power Tav}_g\text{ - Zero power Tav}_g\text{)} + \text{Zero power Tav}_g \\ &66\% (578.2 - 547) + 547 = 20.592 + 547 = 567.592 \end{aligned}$$

If Pressurizer level setpoint calculated using data in TI-28, Attachment 9, with Tav_g change of 20.592 divided by total Tav_g change from 0 to 100% power then multiplied by change in pressurizer level from 0 to 100% power and added back to the minimum pressurizer level

$$(20.592/31.2)(60\% - 24.7\%) + 24.7 = 47.998 = 48\%$$

A. Incorrect, Plausible if the level setpoint at zero power is multiplied by the % power instead of the change in pressurizer level (35.3)

$$66\%(24.7) + 24.7 = 41.002 = 41\%$$

B. Incorrect, Plausible if the change in Tav_g (31.2) is used instead of the change in pressurizer level (35.3)

$$66\%(31.2) + 24.7 = 42.292\% = 45\%$$

C. Correct, $66\%(60 - 24.7) + 24.7 = 47.998 = 48\%$

D. Incorrect, Plausible if the change in pressurizer level from 0 to 100% power is divided by the % change in power instead of multiplied.

$$35.3 / .66 = 53.485 = 53\%$$

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 31

Tier 2 Group 1

K/A 004 A3.08

Chemical and Volume Control: Ability to monitor automatic operation of the CVCS,
including: Reactor Power

Importance Rating: 3.9 / 3.9

Technical Reference: TI-28 Rev 212 Pg 10 Rx Power vs RX Temp.
TI-28, Attachment 9, Effective Date 6/28/07 page 14
AOP-C.01 R17, Appendix A, Tav_g/Tref and Pzr Level Program Values

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRLCS B.3.d

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SEQ Bank # PZR LEVEL 7

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 / 45.5)

Comments: Changed wording in the stem and power level of the reactor. change
value in distractor A,B and C.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C C B C A C C D D A	Scramble Range: A - D
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

5. 004 K5.26 030

Given the following:

- Unit 1 at 100% power
- Letdown in service at 75 gpm

Which ONE (1) of the following lists two conditions where **BOTH** would result in a decrease in the available NPSH to the CCPs?

(Evaluate each condition separately)

Condition 1

- A. VCT Level transmitter,
1-LT-62-130A fails Low
- B✓ VCT Level transmitter
1-LT-62-130A fails High
- C. Raising setpoint on
1-TCV-70-192, Letdown
Heat Exchanger TCV
- D. Lowering setpoint on
1-TCV-70-192, Letdown
Heat Exchanger TCV

Condition 2

- Loss of air to 1-FCV-62-77,
Letdown Flow Isolation
- Loss of air to 1-FCV-62-93,
Charging Flow Control
- Loss of air to 1-FCV-62-118,
Letdown Divert to HUT LCV
- Loss of air to 1-FCV-62-79,
Mixed Bed High Temp Bypass

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, the level transmitter failing low would result in automatic makeup to the VCT and cause the VCT pressure to rise causing an increase in NPSH to the CCP. Plausible because the candidate may not realize that the failure cause the auto make-up and how that would affect VCT pressure. Condition 2 is correct in that letdown would isolate lowering level in the VCT.*
- B. *Correct, the level transmitter failing high would result in the divert valve opening cause the VCT pressure to drop causing an decrease in NPSH to the CCP. Loss of air to the Charging Flow Control valve will cause the valve to fail open thus raising charging flow and increasing the head loss through the piping due to higher velocity, thus lowering NPSH.*
- C. *Incorrect, raising the setpoint on the letdown heat exchanger TCV would cause the temperature in the VCT to rise while the VCT pressure remained unchanged, thus decreasing the NPSH to the CCPs. Loss of air to the Letdown Divert to HUT LCV causes the valve to fail in the VCT position therefore not affecting VCT level or NPSH to the CCPs. Plausible because the candidate could get confused on which way the changes effect letdown or not know which way the valve fails on loss of air.*
- D. *Incorrect, lowering the setpoint on the letdown heat exchanger TCV would cause the VCT temperature to drop, thus raising the NPSH to the charging pumps. However, Loss of air to the Mixed Bed High Temp Bypass will cause the valve to fail in the bypass position and have no effect on VCT level or NPSH to the charging pump. Plausible because the candidate could get confused on which way the change of the setpoint effects letdown or the effect of the failure of the Mixed Bed High Temp Bypass valve.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 30

Tier 2 Group 1

K/A 004 K5.26

Chemical and Volume Control: Knowledge of the operational implications of the following concepts as they apply to the CVCS: Relationship between VCT pressure and NPSH for Charging pumps.

Importance Rating: 3.1 / 3.2

Technical Reference: 1-47W611-62-1
1-47W611-62-2
1-47W611-62-3
1-47W611-62-4
1-47W611-70-2

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CVCS B.4, & 5

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.5 / 45.7)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B A B A D C C C C	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

6. 005 A4.03 032

Given the following plant conditions:

- Plant cooldown in progress using two trains of RHR.
- The flow is 2500 gpm per train.
- The RCS cooldown rate is too high.
- RCS temperature is 210°F.

Which ONE (1) of the following operator actions is required to **DECREASE** the RCS cooldown rate while maintaining **CONSTANT** RHR flow?

- A. Throttle open 1-FCV-70-153 and 156, RHR 1B and 1A Outlet Isolation valves respectively.
- B. Throttle open 1-FCV-74-32, RHR Heat Exchanger Bypass Valve, and throttle closed 1-FCV-62-83, RHR Letdown Control Valve.
- C. Throttle open 1-FCV-74-16 and 28, RHR HX Outlet Flow Control valves, and throttle closed 1-FCV-74-32, RHR Heat Exchanger Bypass Valve.
- D✓ Throttle open 1-FCV-74-32, RHR Heat Exchanger Bypass Valve, and throttle closed 1-FCV-74-16 and 28, RHR HX Outlet Flow Control valves.

A. Incorrect; Plausible due to valves controlling heat sink flow for RHR heat exchangers. Opening the valves would cause a decrease in RHR temperature due to the higher flow rate but the question is asking what would decrease the cooldown RATE.

B. Incorrect; Plausible because listed valves will make changes to flow and temperature. Throttling open the bypass valve will lower cooldown rate but will increase the flow rate. Throttling closed the letdown Control valve will also raise the flow which would be incorrect.

C. Incorrect; Plausible due to flow listed valves will make changes to flow and temperature. Performing this action would keep flow constant but would raise the amount of cooling which is incorrect.

D. Correct; 0-SO-74-1, 5.5.2 Placing RHR in Service for Normal Shutdown Cooling, Steps 15-18.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 32

Tier 2 Group 1

K/A 005 A4.03

Residual Heat Removal: Ability to manually operate and /or monitor in the control room:
RHR Temperature, PZR Heaters and Flow, and nitrogen.

Importance Rating: 2.8 / 2.7

Technical Reference: 0-SO-74.1, RESIDUAL HEAT REMOVAL SYSTEM

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RHR B.4

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, SQN Bank RHR-B.18.B 1

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 / 45.5 to 45.8)

Comments:

MCS	Time:	4	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDDDDDDDDD	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

7. 006 K1.02 033

Which ONE (1) of the following correctly describes the response of the Eagle-21 system and SSPS if containment sump swapover level criteria is met with a valid Safety Injection signal present?

Eagle-21

SSPS

- | | |
|---------------------------|--------------------------|
| A. bistables de-energize. | input relays de-energize |
| B. bistables de-energize. | input relays energize |
| C. bistables energize. | input relays de-energize |
| D✓ bistables energize. | input relays energize |

- A. *Incorrect, Eagle-21 bistables do not de-energize, and the SSPS input relays do not de-energize. Plausible if the candidate confuses or is not aware which way the bistables/relays respond (energize or de-energize) to the containment sump swapover level criteria being met.*
- B. *Incorrect, Eagle-21 bistables do not de-energize, but the SSPS input relays do not energize. Plausible if the candidate confuses or is not aware which way the bistables/relays respond (energize or de-energize) to the containment sump swapover level criteria being met.*
- C. *Incorrect, Eagle-21 bistables do energize, but the SSPS input relays do not de-energize. Plausible if the candidate confuses or is not aware which way the bistables/relays respond (energize or de-energize) to the containment sump swapover level criteria being met.*
- D. *Correct, The Eagle -21 bistables would energize if the containment sump swapover level criteria being met, and SSPS inputs relays would energize to cause the logic circuitry to actuate the master relay in the SSPS system.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 33

Tier 2 Group 1

K/A 006 K1.02

Emergency Core Cooling System: Knowledge of the physical connections and/or cause-effect relationship between the ECCS and the following systems: ESFAS

Importance Rating: 4.3 / 4.6

Technical Reference: FSAR, Section 7.2 and 7.3
1-47W610-63-3

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RPS, B.3
OPT200.EAGLE21, B.3

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN Bank RPS-B.2 002 which has been modified.

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.2 to 41.9 / 45.7 to 45.8)

Comments:

MCS	Time: 2	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: D D D D D D D D D D Items Not Scrambled
Source:	BANK MOD		Source If Bank: SQN
Cognitive Level:	LOWER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

8. 007 EA1.08 001

Given the following plant conditions:

- Unit 1 tripped from 10% power.
- The AFW pumps start signal was generated from the trip of both MFPTs.
- Steam generator levels dropped when the trip occurred but recovered prior to the low steam generator level AFW start signal being generated.

Which ONE (1) of the following describes the operator response to enable the operator to MANUALLY control AFW flow?

- A✓ MD AFW LCVs must be taken to Accident Reset before the valves can be controlled manually.
NO reset is required to control TD AFW LCVs manually .
- B. TD AFW LCVs must be taken to Accident Reset before the valves can be controlled manually.
NO reset is required to control MD AFW LCVs manually .
- C. Both the TD AFW and the MD AFW LCVs must be taken to Accident Reset before the valves can be controlled manually.
- D. Neither the TD AFW nor the MD AFW LCVs must be taken to Accident Reset before the valves can be controlled manually.

- A. *Correct; The MD pump LCVs must be reset and while the TD AFW pump must be reset in order to control the speed of the turbine, the LCVs require no reset action.*
- B. *Incorrect; The TD LCVs do not require the accident reset and the MD AFW LCVs do require the reset. Plausible because the candidate could confuse the TD AFW pump reset action required with the MD AFW LCVs.*
- C. *Incorrect; The TD LCVs do not require the accident reset and the MD AFW LCVs do require the reset. Plausible because the candidate could correctly determine that the start from the trip of both MFP is an accident signal that requires the reset, but confuse the reset of the TD AFW speed control with the reset of the valves and conclude that both had to be reset.*
- D. *Incorrect; The TD LCVs do not require the accident reset and the MD AFW LCVs do require the reset. Plausible because the candidate could think that since the low level start signal was not reached no accident signal was generated and conclude that neither would not have to be reset.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 1

K/A: 007 EA1.08

Ability to operate and monitor the following as they apply to a reactor trip:
AFW System

Tier 1 Group 1

Importance Rating: 4.4 / 4.3

Technical Reference: ES-0.1 Reactor Trip Response
EA- 3.8, Manual Control of AFW Flow

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271EA-0.1 B.6

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC Exam 1/2008

Question Cognitive Level: Analysis

10 CFR Part 55 Content: 41.5 / 41.10 / 45.6 / 45.13

Comments:

MCS	Time: 5	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A A A A A A A A A A	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

9. 007 G2.1.1 035

Given the following:

- Unit 2 is operating at 100% RTP
- 6 hours into the shift annunciator WINDOW "LS-68-300A/B PRESSURIZER RELIEF TANK LEVEL HI-LOW " ALARMS and locks in on 1-XA-55-5A annunciator panel.
- The level indicator on M-5 indicates the level to be 72%
- Redundant instrumentation on in the Aux Control room shows the PRT level to be 72%.
- PRT temperature and pressure are verified to be the same as at shift turnover

Which ONE (1) of the following identifies the condition of the PRT and the required crew actions as a result of the level alarm?

- A. The PRT level is HIGH, adjust the PRT level per 2-SO-68-5, Pressurizer Relief Tank.
- B. The PRT level is HIGH, perform 0-SI-OPS-068-137.0, RCS water Inventory.
- C. The PRT level alarm is false. Initiate a WO and classify the alarm as a nuisance and disable the alarm within 7 days.
- D✓ The PRT level alarm is false. Initiate a WO and if alarm condition NOT corrected within 72 hours initiate actions to have alarm cleared/disabled.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, Plausible due to level in tank is on the high end but not at the alarm setpoint and adjusting lowering level to clear alarm is plausible due to dark board requirements. High alarm does not come in until 88%, action would be required if the level was high.*
- B. *Incorrect, Plausible due to level in tank is on the high end but not at the alarm setpoint and performing a leakrate is plausible due to RCS leakage could be going into this tank. High alarm does not come in until 88%, action would be required if the level was high.*
- C. *Incorrect, Plausible due to high alarm does not come in until 88%, which is correct however if alarm condition NOT corrected within 72 hours initiate actions to have alarm cleared/disabled. This answer states 7 days vs 72 hours. i.e., Per OPDP-1 (a nuisance alarm is an alarm that challenges crew communications or performance) since this alarm is not a nuisance and there is no 7 day requirement for nuisance alarms this answer is incorrect.*
- D. *Correct, The PRT level alarm is false. The High alarm does not come in until 88% . Per OPDP-1 "Initiate a WO and if alarm condition NOT corrected within 72 hours initiate actions to have alarm cleared/disabled".*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 35

Tier 2 Group 1

K/A 007 G2.1.1
Conduct of Operations
Knowledge of conduct of operations requirements.

Importance Rating: 3.7 / 3.8

Technical Reference: OPDP-1
2-AR-M5-A

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271C209 B.23
OPT200.RCS B.4, & 5

Question Source:
Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.10 / 45.13

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDADCAABAB	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

10. 007 K3.01 034

Given the following:

- Unit 1 was operating at 100% power when a Reactor Trip and Safety Injection occurred.

Shortly after the the SI actuation the following conditions were observed:

- Annunciator 1-RA-90-59A RX BLDG AREA RAD MON HIGH RAD in alarm
- Radiation rising on:
 - Rx Bldg Access Hatch - Upper, 1-RM-90-59
 - Rx Bldg Personnel Lock - Upper, 1-RM-90-60
 - Rx Bldg Instr Rm - Lower, 1-RM-90-61

Additionally the following annunciators were noted as being in alarm:

- TS-68-309 PRESSURIZER RELIEF TANK TEMP HIGH
- TS-30-31 LOWER COMPT TEMP HIGH
- TS-30-241 LOWER COMPT MOISTURE HI
- LS-63-104 CONTAINMENT SUMP FULL
- PS-68-301 PRESSURIZER RELIEF TANK PRESSURE HIGH alarmed and cleared.

Which ONE (1) of the following could result in these conditions, assuming NO operator action was taken?

- A. #2 seal on RCP #4 failed
- B✓ Pressurizer safety valve, 1-68-568, failed open
- C. Incore Thimble Tube ruptured at the Seal Table
- D. Reactor head vent valve, 1-FCV-68-394, failed open

QUESTIONS REPORT
for RO Written Exam Questions

- A. Incorrect, Plausible due to #1 seal leakoff would be routed to the PRT, but if the #2 seal failed the flow would not be to the PRT, it would be to the standpipe.*
- B. Correct, Lift if the Pressurizer safety valve would pressurize the PRT and rupture the Disc. Steam and radioactive fluid/steam would then be spread in containment.*
- C. Incorrect, Plausible due to radiation would increase at the seal table, This does not relieve to the PRT and conditions in PRT would not be as stated in the question stem.*
- D. Incorrect, Plausible because the Vent line is routed to the PRT failure of 1 valve in the vent line would not result in flow to the PRT due to another normally closed valve in series.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 34

Tier 2 Group 1

K/A 007 K3.01

Knowledge of the effect that a loss or malfunction of the PRTS will
have on the following: Containment

Importance Rating: 3.3 / 3.6

Technical Reference: 1-47W809-1 Rev 74, 1,2-47w813-1 Rev 52, 0-AR-M12-A Rev 51,
1-AR-M6-C Rev 32, 1-AR-M5-C Rev 18, 1-AR-M5-A Rev 31`,

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRPCS B.3, B.4.i

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, Bank KEWAUNEE 2/2/06 exam

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 41.7 / 45.6

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B C C C D D A A D A	Scramble Range: A - D
Source:	BANK		Source If Bank:	KEWAUNEE
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

11. 008 AA2.29 002

Given the following:

- Unit 1 Reactor Trip /Safety Injection initiated due to a pressurizer relief valve being stuck partially open.
- Reactor Coolant Pumps have been stopped.
- Pressurizer level is 60% and slowly rising.
- RCS pressure is 1310 psig and stable.
- Core Exit Thermocouple temperature is 580°F.

What would be the effect on Reactor Vessel Level and Pressurizer Level if the RCS pressure is lowered?

	Reactor Vessel <u>Level</u>	Pressurizer <u>Level</u>
A.	Rising	Continue to rise at the same rate.
B.	Rising	Rising faster.
C.	Dropping	Continue to rise at the same rate.
D✓	Dropping	Rising faster

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, with the RCS pressure and temperature given at saturation, a steam bubble would be formed in the reactor head if RCS pressure were lowered. This would cause the water level in the vessel to drop instead of rise as stated in the distractor and the pressurizer level to rise at a faster rate due to the expansion of the steam void forcing water into the pressurizer. Plausible if student does not recognize saturated conditions in RCS and effect of bubble growth on Pressurizer level.*
- B. *Incorrect, with the RCS pressure and temperature given at saturation, a steam bubble would be formed in the reactor head if RCS pressure were lowered. This would cause the water level in the vessel to drop instead of rise as stated in the distractor. Plausible if student does not recognize saturated conditions in RCS and effect of bubble growth on Pressurizer level.*
- C. *Incorrect, with the RCS pressure and temperature given at saturation, a steam bubble would be formed in the reactor head if RCS pressure were lowered. This would cause the water level in the vessel to drop as stated in the distractor. However the response of the pressurizer would be to rise at a faster rate due to the expansion of the steam void forcing water into the pressurizer. Plausible if student does recognize void formation in head and does not know effect of bubble growth on Pressurizer level.*
- D. *Correct, with the RCS pressure and temperature given at saturation, a steam bubble would be formed in the reactor head if RCS pressure were lowered. This would cause the water level in the vessel to drop as stated in the answer and the pressurizer level to rise at a faster rate due to the expansion of the steam void forcing water into the pressurizer.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 2

Tier 1 Group 1

K/A APE 008 AA2.29
 PZR Vapor Space Accident:
 Ability to determine and interpret the following as they apply to pressurizer Vapor
 Space Accident: The effects of bubble in reactor vessel

Importance Rating: 3.9 / 4.2

Technical Reference: ES-1.2, Post LOCA Cooldown and Depressurization

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ES-1.2 B.4

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 43.5 / 45.13

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDCAADCBAD	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

12. 008 K4.07 036

Given the following;

- Both Units in service at 100% RTP.
- C-S Component Cooling Water(CCS) Pump is in service.

Which ONE (1) of the following identifies requirements prior to, and after, transferring C-S CCS Pump power supply manual throwover switch to ALTERNATE?

	<u>Prior to the transfer</u>	<u>After the transfer</u>
A✓	Pump must be shutdown	1A-A DG declared INOPERABLE
B.	Pump must be shutdown	2B-B DG declared INOPERABLE
C.	Alternate feeder supply breaker must be closed	1A-A DG declared INOPERABLE
D.	Alternate feeder supply breaker must be closed	2B-B DG declared INOPERABLE

A. Correct, Per 0-SO-70-1, Pump must be shutdown prior to transfer and the alternate feeder supply breaker must be OPEN prior to operating manual throwover switch. Per D/G 1A-A must be considered INOPERABLE if Train A supply breaker is placed in service per 0-SO-70-1 precautions and limitations.

B. Incorrect, Pump must be shutdown. Train A supply breaker for C-S CCS pump is no longer tested in 1-SI-OPS-082-026.A. Therefore, load shedding and sequencing functions associated with Train A supply breaker are inoperable. D/G 1A-A must be considered INOPERABLE if Train A supply breaker is placed in service per 0-SO-70-1 precautions and limitations. Plausible because 2B-B is the normal supply.

C. Incorrect, Plausible since transferring to alternate the student may think the Alternate feeder supply needs to be closed prior to manual transfer. 1A-A DG would be declared INOP as identified in Distractor B.

D. Incorrect, Plausible since transferring to alternate student may think Alternate feeder supply needs to be closed prior to manual transfer. Plausible because 2B-B is the normal supply.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 36

Tier 2 Group 1

K/A 008 K4.07
Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Operation of the CCW swing-bus power supply and its associated breakers and controls

Importance Rating: 2.6 / 2.7

Technical Reference: 0-SO-70-1 Component Cooling Water System "B"Train

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200CCS B.4.b,c,g

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A D C B A C A A A B	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

13. 009 EA2.24 003

Unit 1 Reactor has been tripped with plant status as follows:

- RCS pressure is 1325 psig and slowly dropping.
- RCS temperature is 530°F and stable.
- Pressurizer level is 17% and slowly dropping.
- Containment pressure is 2.1 psig and slowly rising.
- SG pressures are ~ 1005 psig and stable.
- SG levels are ~ 40% and stable.
- Annunciator TS-62-43 REAC COOL PMPS SEAL WATER TEMP HIGH is LIT and indicator for RCP #3 reads 227°F and steady.
- Annunciator TS-62-42 REAC COOL PMPS LOWER BEARING TEMP HIGH is lit and indicator for RCP #1 reads 201°F and steady.

Which ONE (1) of the following is the correct action for the RCP(s) in these conditions?

- A. Secure all RCPs due to low RCS pressure.
- B. Secure all RCPs due to high containment pressure.
- C✓ Secure RCP #3 due to high seal outlet temperature.
- D. Secure RCP #1 due to high lower bearing temperature.

- A. *Incorrect. RCPs trip criteria is 1250 psig and the pressure is above the setpoint. Plausible because there is a low pressure trip criteria that has not been reached.*
- B. *Incorrect. RCPs trip criteria is when Phase B actuates at 2.81 psig and the pressure is below the Phase B setpoint. Plausible because there is a high-high containment pressure trip that if the setpoint is reached would require tripping the RCPs.*
- C. *Correct. RCP seal condition requiring trip is 225°F, and the stated seal temperature is above this value.*
- D. *Incorrect. The RCP Lower Bearing temperature is below the temperature(225°F) requiring the RCP to be tripped. Plausible because there is a setpoint for the Lower Bearing temperature requiring the affect RCP be tripped. Additionally, the Lower Motor bearing temperature trip setpoint is 200°F and the lower pump bearing temperature could be confused with the lower motor bearing.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 3

Tier 1 Group 1

K/A EPE009 EA2.24

Small Break LOCA: Ability to determine or interpret the following as they apply to a small break LOCA, RCP Temperature Setpoints

Importance Rating: 2.6 / 2.9

Technical Reference: E-1 Loss of Reactor or Secondary Coolant
AOP-R.04 Reactor Coolant Pump Malfunctions
Annunciator Response 1-AR-M5-B (E-2) and (E-4)

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RCP B.5.c
OPL271AOP-R.04

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: CFR 43.5 / 45.13

Comments:

MCS	Time: 4	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C C C C C C C C C C	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

14. 010 K6.03 037

Given the following:

- Unit 2 was operating at 100% power
- The Loop 1 pressurizer spray valve controller failed causing the spray valve to fully open.

Which ONE (1) of the following describes the response of the PZR pressure control system to these conditions? (Assume No Operator Actions taken)

- A. Master controller output would INCREASE to turn additional heaters on. PZR Pressure would be maintained above the Reactor Trip setpoint by the Backup heaters.
- B. Master controller output would INCREASE to turn additional heaters on. PZR pressure would continue to drop to the Reactor trip setpoint.
- C. Master controller output would DECREASE to turn additional heaters on. PZR Pressure would be maintained above the Reactor Trip setpoint by the Backup heaters.
- D✓ Master controller output would DECREASE to turn additional heaters on. PZR pressure would continue to drop to the Reactor trip setpoint.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, The output of the master controller increases as pressure goes high, not as pressure drops below setpoint. to turn on heaters not increasing, but with the spray valve fully open, the heaters would not be able to terminate the pressure drop, and a reactor trip on low pressurizer pressure would occur. Plausible if the candidate knowing that the heaters should be turned on but confuses the direction of the change in the output of the master controller or believes the the heaters coming on would prevent the pressure from continuing to drop to the reactor trip setpoint.*
- B. *Incorrect, The output of the master controller increases as pressure goes high, not as pressure drops below setpoint. to turn on heaters not increasing, but with the spray valve fully open, the heaters would not be able to terminate the pressure drop, and a reactor trip on low pressurizer pressure would occur. Plausible if the candidate knowing that the heaters should be turned on but confuses the direction of the change in the output of the master controller and knows that the heaters coming on would not prevent the pressure from continuing to drop to the reactor trip setpoint.*
- C. *Incorrect, The output of the master controller does decrease as the pressure drops below setpoint to turn on heaters, but with the spray valve fully open, the heaters would not be able to terminate the pressure drop, and a reactor trip on low pressurizer pressure would occur. Plausible if the candidate knowing that the heaters should be turned on and which direction the output of the master controller would change, but believes the the heaters coming on would prevent the pressure from continuing to drop to the reactor trip setpoint.*
- D. *Correct, The pressurizer pressure will be dropping due to the spray valve being open. As the lower pressure is compared to the setpoint pressure, the output of the master controller will start dropping to turn on heaters. With the spray valve fully open, the heaters would not be able to terminate the pressure drop, and a reactor trip on low pressurizer pressure would occur.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 37

Tier 2 Group 1

K/A 010 K6.03

Knowledge of the effect of a loss or malfunction of the following will have
on the PZR PCS: PZR sprays and heaters

Importance Rating: 3.2 / 3.6

Technical Reference: 1-,2-27W611-68-3

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRPCS B.11.a

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank Modified PZR PRESS-B.11 005

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7 /45.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDDDDDDDDD	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

15. 011 EK3.13 004

E-1, Loss of Reactor or Secondary Coolant, directs the operator to perform a transfer to Hot Leg Recirculation.

Which ONE (1) of the following statements correctly describes the basis for this realignment?

- A. Realigns the ECCS flow to take suction on the containment sump to avoid draining the RWST.
- B. Realigns the ECCS flow to cool the reactor vessel upper internals package.
- C. Realigns the ECCS flow to pass through the RHR heat exchangers to remove decay heat.
- D✓ Realigns the ECCS flow to reverse flow through the core to prevent the consequences of boron precipitation.

- A. *Incorrect; The Transfer to RHR Containmnt Sump procedure places the plant in COLD LEG RECIRCULATION places the ECCS suction on the containment sump. Plausible if the 2 recirculation paths are confused.*
- B. *Incorrect; The transfer to hot leg recirc does put flow on top of the core but not to cool the upper internals. Plausible due to aligning the flow to the core outlet and reversing flow the knowledge of known flowpaths in core specific to cooling upper internals.*
- C. *Incorrect; While the CCP and SIP ECCS flow when supplied from the RWST does not go through any heat exchanger, the RHR flow is always aligned through the RHR heat exchangers and when the transfer to the containment sump is initiated the cooling flow is placed on the RHR heat exchangers to cool the water coming from the containment sump. Plausible if confused in the alignment of the cooling flow, with the alignment of flow through the RHR heat exchangers.*
- D. *Correct; EPM-3-E-1 states ECCS flow is realigned to reverse flow through the core to address the consequences of boron stratification/plate out.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 4

Tier 1 Group 1

K/A EPE 011EK3.13

Large Break LOCA, Knowledge of the reasons for the following responses as they apply to the Large Break LOCA: Hot-Leg injection recirculation.

Importance Rating: 3.8 / 4.2

Technical Reference: E-1, Loss of Reactor or Secondary Coolant, Rev 23
EPM-3-E-1, Basis Document, For E-1, Rev 5

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271E-1 B.4

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, SQN Bank question E-1-B.4 003

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.5 / 41.10 / 45.6 / 45.13)

Comments: The words "step 23" was removed from stem. corrected answer wording changing from '*Realigns the ECCS flow to reverse flow through the core to address the consequences of boron stratification/plate out*' to '*Realigns the ECCS flow to reverse flow through the core to prevent the consequences of boron precipitation.*'

MCS	Time: 2	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: DDDDDDDDDDD Items Not Scrambled
Source:	BANK		Source If Bank: SQN
Cognitive Level:	LOWER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

16. 011 K6.05 056

Given the following:

- Unit 1 in MODE 4
- RCS temperature at 240°F
- Pressurizer level in automatic at 25% and a steam bubble is formed.
- 1-XS-68-339E, LEVEL CONTROL CHANNEL SELECTOR, is in a position that aligns 1-LT-68-320 as the channel controlling pressurizer level.

Which ONE (1) of the following identifies a failure of a Post Accident Monitoring (PAM) instrument that would result in a change to pressurizer level?

(Assume NO Operator Action)

- A. 1-LT-68-321, Cold Cal Pressurizer Level Transmitter, fails LOW
- B. 1-LT-68-321, Cold Cal Pressurizer Level Transmitter, fails HIGH
- C✓ 1-LT-68-335, Pressurizer Level Transmitter Channel III, fails LOW
- D. 1-LT-68-335, Pressurizer Level Transmitter Channel III, fails HIGH

Neither instrument in the choices is identified by the positioning of the selector switch

- A. Incorrect, 1-LT-68-321 is NOT a PAM instrument. Plausible due to question setup in MODE 4, candidate could think level would be affected.*
- B. Incorrect, 1-LT-68-321 is NOT a PAM instrument, Plausible due to question setup in MODE 4, candidate could think level would be affected.*
- C. Correct, Instrument failure would isolate letdown causing pressurizer level to rise, 1-LT-68-335 is PAM instrument.*
- D. Incorrect, Plausible because 1-LT-68-335 is a PAM instrument but failure would NOT effect pressurizer level.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 56

Tier 2 Group 2

K/A 011 K6.05 Pressurizer Level Control System (PZR LCS)
Knowledge of the effect of a loss or malfunction on the following will have
on the PZR LCS: Function of PZR level gauges as postaccident monitors

Importance Rating: 3.1 / 3.7

Technical Reference: Tech Spec 3.3.3.7, Print 1-47W611-68-2, 1-47W610-68-5

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRPLC B.4
OPT200.PZRPLC B.6

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.7 / 45.7

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C D A B A D D D C A	Scramble Range: A - D
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

17. 012 K4.04 038

Given the following events and conditions:

- Unit 1 was operating at 60% power.
- Pressurizer pressure decreased to 1940 psig.
- The SSPS Train A Low Pressurizer Pressure trip logic failed to actuate.

Which ONE (1) of the following identify the status of the trip coils on the reactor trip breakers RTA and RTB when the reactor trips?

	RTA 48v UV <u>trip coil</u>	RTA 120v Shunt <u>trip coil</u>	RTB 48v UV <u>trip coil</u>	RTB 120v Shunt <u>trip coil</u>
A.	Energized	De-energized	Energized	De-energized
B✓	Energized	De-energized	De-energized	Energized
C.	De-energized	Energized	Energized	De-energized
D.	De-energized	Energized	De-energized	Energized

QUESTIONS REPORT
for RO Written Exam Questions

As stated in FSAR 7.2.1.1...

For a reactor trip, 1) a loss of DC voltage to the undervoltage coil releases the trip plunger and 2) the shunt trip coil energizes, either of which will trip open the breaker.

In this question the Train B SSPS generates a trip and de-energizes the 'B' reactor trip breaker (RTA) undervoltage coil and energizes its shunt trip coil. However the Train A SSPS does not generate a trip, therefore, the 'A' reactor trip breaker (RTB) undervoltage coil will not be de-energized and its shunt trip coil will not be energized.

- A. Incorrect, the status of the RTA coils is correct, the status of RTB coils is incorrect, Plausible if the candidate does reverses the status of the coils or incorrectly identifies which coils are normally energized and how they function to cause a trip.*
- B. Correct, The Train A SSPS does not generate a trip, therefore, the breaker RTA undervoltage coil will be energized and its shunt trip coil will de-energized. The Train B SSPS generates a trip de-energizing breaker RTB undervoltage coil and energizing its shunt trip coil.*
- C. Incorrect, the status of the RTA and RTB coils is incorrect. Plausible if the candidate incorrectly identifies which coils are normally energized and how they function to cause a trip.*
- D. Incorrect, the status of the RTA coils is incorrect, the status of RTB coils is correct, Plausible if the candidate does reverses the status of the coils or incorrectly identifies which coils are normally energized and how they function to cause a trip.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 38

Tier 2 Group 1

K/A 012 K4.04 Reactor Protection system
Knowledge of RPS design feature(s) and/or interlock(s) which provide for the
following: Redundancy

Importance Rating: 3.1 / 3.3

Technical Reference: FSAR 7.2.1.1
45N699-1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RPS B.5.d & B.4.d

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B B B B B B B B B	Items Not Scrambled
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

18. 013 K2.01 039

The Unit 1 operating crew is responding to a reactor trip due to a loss of 120V AC Vital Instrument Power Board 1-I.

Which ONE (1) of the following describes the plant response if PZR pressure transmitter 1-PT-68-334 (Channel II) failed **LOW** with no operator action?

- A. SI master relays on both trains of SSPS would actuate AND both trains of ECCS equipment would start.
- B✓ SI master relays on both trains of SSPS would actuate AND only "B" train ECCS equipment would start.
- C. Only the "B" train SSPS SI master relays would actuate AND both trains of ECCS equipment would start.
- D. Only the "B" train SSPS SI master relays would actuate AND only "B" train ECCS equipment would start.

A. Incorrect, Master Relays on both trains will have power. Train A from Channel III via an auctioneering circuit, however, with the 1-I AC vital Instrument Power Board deenergized (Channel 1), the slave relays that control the Train A equipment will not have a power supply. Plausible if the candidate mistake the source of the power supply or thinks that the circuit that auctioneers power in the logic cabinet provides power to the slave relays.

B. Correct, Master Relays on both trains will have power. Train A from Channel III via an auctioneering circuit, however, with the 1-I AC vital Instrument Power Board deenergized, the slave relays that control the Train A equipment will not have power.

C. Incorrect, Master Relays on both trains will have power. Train A from Channel III via the auctioneering circuit, however, Channel 1 is the only power supply for the slave relays that control the Train A equipment. Plausible if the candidate mistake the source of the power supply or thinks that the circuit that auctioneers power in the logic cabinet provides power to the slave relays instead of the master relays.

D. Incorrect, Master Relays on both trains will have power. Train A from Channel III via an auctioneering circuit, however, Channel 1 is the only power supply for the slave relays that control the Train A equipment. Plausible if the candidate mistake the function of the circuit that auctioneers power in the logic cabinet.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 39

Tier 2 Group 1

K/A 013K2.01

Knowledge of bus power supplies to the following:
ESFAS/safeguards equipment control

Importance Rating: 3.6 / 3.8

Technical Reference: 47W611-63-1 Rev 4, AOP-P.03 Rev19, 0-SO-99-1 Att1,

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RPS B.4 & 5

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank RPS-B.9.A 002

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7

Comments: Bank question RPS-B.9.A 002 with minor format & wording change

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B C D A B C D A B C Scramble Range: A - D

Source: BANK

Source If Bank: SQN

Cognitive Level: HIGHER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

19. 015 K2.01 057

Which ONE (1) of the following sets of Nuclear Instruments would lose power if Vital Instrument Power Board 1-II were to be deenergized?

- A✓ Power Range N42, Source Range N32, and Intermediate Range N36.
- B. Power Range N42, Source Range N31, and Intermediate Range N35.
- C. Power Range N41, Source Range N32, and Intermediate Range N36.
- D. Power Range N41, Source Range N31, and Intermediate Range N35.

The correct answer is A

- A. Correct, 120v AC Vital Instrument Power Board 1-II is the power supply for all three instruments listed.*
- B. Incorrect, N31 and N35 are powered from 120v AC Vital Instrument Power Board 1-I. Plausible because N31 and N35 as well as the other listed instrument receive power from a 120v AC Vital Instrument Power Board as do the instruments in the correct answer and the candidate can mistake which board supplies which instruments.*
- C. Incorrect, N41 is powered from 120v AC Vital Instrument Power Board 1-I. Plausible because N41 as well as the other two of the listed instruments receive power from a 120v AC Vital Instrument Power Board as do the instruments in the correct answer and the candidate can mistake which board supplies which instruments.*
- D. Incorrect, all three instruments are powered from 120v AC Vital Instrument Power Board 1-I. Plausible because all of the listed instruments receive power from a 120v AC Vital Instrument Power Board as do the instruments in the correct answer and the candidate can mistake which board supplies which instruments.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 58

Tier 2 Group 2

K/A 015 K2.01

Knowledge of bus power supplies to the following:
NIS channels, components, and interconnections

Importance Rating: 3.3 / 3.7

Technical Reference: AOP-P.03, Loss of Unit 1 Instrument Power Board

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.NIS B.4.b

Question Source:

Bank # _____
Modified Bank # NIS B.4 010
New _____

Question History:

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A C C C C B D B C C	Scramble Range: A - D
Source:	BANK MOD		Source If Bank:	SQN
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

20. 015/017 AK2.08 005

Unit 1 is operating at full power. Given the following events and conditions on the RCPs:

- Alarms indicate a loss of **ALL** CCS flow to the RCPs.
- Seal injection flow rate to each RCP is 8 gpm.

Which ONE (1) of the following identifies how the operation of the RCP's will be affected if the operators do not respond to this alarm?

- A. The RCPs should operate without CCS indefinitely.
- B. The RCPs will experience seal failure within 3-5 minutes.
- C. The RCP stator windings will overheat which will cause damage.
- D✓ The RCP motor bearings will overheat which will cause damage.

- A. *Incorrect, the RCPs cannot operate without component cooling water because the motor bearings will overheat. Plausible to conclude that due to the seal injection flow, the loss of thermal barrier cooling would not be an issue.*
- B. *Incorrect, The RCPs will NOT experience seal failure as long as seal injection flow is present, but plausible because seal damage would occur if the CCS were lost and seal flow was not present.*
- C. *Incorrect, The RCP stator windings are not cooling by CCS. The motor coolers use ERCW to cool the air leaving the RCP motors. Plausible if the RCP motor cooling is confused with the RCP motor bearing cooling.*
- D. *Correct, Loss of cooling to the motor bearings will cause overheating of the motor bearings and damage to the RCP motor.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 5

Tier 1 Group 1

K/A 015/017 AK2.08 RCP Malfunctions, Knowledge of the interrelations between the Reactor Coolant Pump Malfunction and the following, CCWS.

Importance Rating: 2.6 / 2.6

Technical Reference: AOP-M.03
AOP-R.04
FSAR 5.5.1.2
1-47W859-2

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-M.03 B.6
OPT200.RCP B.4

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, SEQ Bank AOP-M.03-B.4 8

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 /45.7)

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: D D D D D D D D D D Items Not Scrambled
Source:	BANK		Source If Bank: SQN
Cognitive Level:	HIGHER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

21. 016 K1.10 058

Which ONE (1) of the following will occur as a result of containment pressure increasing to 1.54 psid?

- A. CRDM coolers trip
Upper compartment coolers trip
- B. CRDM coolers trip
Ice Cond Floor Cooling Isolation valves isolate
- C. Incore Instrument Room Chillers trip
Upper Compartment Coolers trip
- D✓ Incore Instrument Room Chillers trip
Ice Cond Floor Cooling Isolation valves isolate

- A. *Incorrect, Plausible due the CRDM coolers and Upper compartment coolers will trip on containment pressure however this would require containment pressure to reach 2.81 psid (Phase B).*
- B. *Incorrect, Plausible due the CRDM coolers will trip on containment pressure however this would require containment pressure to reach 2.81 psid (Phase B). Ice Cond Floor Cooling Isolation valves will isolate on a phase A (1.54 psid)*
- C. *Incorrect, Plausible due the Upper compartment coolers will trip on containment pressure however this would require containment pressure to reach 2.81 psid (Phase B). Incore Instrument Room Chillers will trip on a phase A (1.54 psid)*
- D. *Correct, Containment pressure of 1.54 psid will initiate a Safety Injection signal. A Safety Injection Signal will initiate a Containment Isolation Signal Phase A. The Phase A will trip the Incore Instrument room cooler and Ice Cond Floor Cooling Isolation valves will isolate.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 58

Tier 2 Group 2

K/A 016 K1.10

Non-Nuclear Instrumentation System: Knowledge of the physical connections and/or cause-effect relationships between the NNIS and the following systems: CCS

Importance Rating: 3.1 / 3.1

Technical Reference: 1,2-47W611-30-2,3, and 4. TI-28 Att 9
1-47W611-88-1
1,2-47W611-61-2

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PIS B.4

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, Modified SQN Bank CTMT COOL-B.12.A 003

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.2 to 41.9 / 45.7 to 45.8

Comments:

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D D D B A B A A C B Scramble Range: A - D

Source: BANK MOD

Source If Bank: SQN

Cognitive Level: LOWER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

22. 017 K4.03 059

Which ONE (1) of the following is the highest core temperature that can be indicated by an Incore Thermocouple while remaining in limits?

- A. 2200°F.
- B✓ 2300°F.
- C. 4700°F.
- D. 5000°F.

A. Incorrect, Plausible due to 10 CFR ECCS acceptance criteria that candidate could confuse with the upper range of the incore thermocouples.

B. Correct, GOI-6, Rev121, Section P identifies the indicating range of the incore thermocouples to be 200 - 2300°F.

C. Incorrect, Plausible due to fuel centerline temperature limit that candidate could confuse with the upper range of the incore thermocouples.

D. Incorrect, Plausible due to approximate fuel melt temperature that candidate could confuse with the upper range of the incore thermocouples.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 59

Tier 2 Group 2

K/A 017000K4.03

Knowledge of ITM system design feature(s) and/or interlock(s) which provide for the following: Range of temperature indication

Importance Rating: 3.1 / 3.3

Technical Reference: GOI-6, Apparatus Operation, Rev 121, Section P

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271INCORE, B.4.h

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, SQN bank INCORE-B.1.B 003

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B B B B B B B B	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

23. 022 A2.04 040

Given the following:

- Both Units in service at 100% RTP.
- Upper Compartment Cooling Units A-A and B-B are in service on both units.

Compare the effects on of the inadvertent closing of the **Lower** Compartment Cooling Unit (LCCU) valves listed :

- Unit 1, LCCU 1A-A ERCW Inlet FCV (Outboard), 1-FCV-67-107
- Unit 2, LCCU 1A-A ERCW Inlet FCV (Outboard), 2-FCV-67-107

If both of the valves were closed, which ONE (1) of the following identifies the effect on the Upper Containment temperature on the respective unit(s) and the mitigation strategy, if any?

- A. Upper containment temperature would RISE on Units 1 and 2.
No additional cooling unit would be available to be placed in service for both Units.
- B. Upper containment temperature would RISE on Units 1 and 2.
0-SO-30-4, Upper Compartment Cooling Units, would be used to place additional coolers in service on both units.
- C✓ Upper containment temperature would RISE on Unit 1 only.
No additional cooling unit would be available to be placed in service for this Unit.
- D. Upper containment temperature would RISE on Unit 1 only.
0-SO-30-4, Upper Compartment Cooling Units, would be used to place additional coolers in service for this Unit.

QUESTIONS REPORT
for RO Written Exam Questions

- A. Incorrect, Plausible due to U1 temperature would rise but Unit 2 temperature would remain constant. Unit 1 ERCW supply to UCCU comes from the line to the LCCU supply but Unit 2 supply is a separate line entering containment. Additional cooling units are not available.*
- B. Incorrect, Plausible due to U1 temperature would rise but Unit 2 temperature would remain constant. Unit 1 ERCW supply to UCCU comes from the line to the LCCU supply but Unit 2 supply is a separate line entering containment. Additional cooling units are not available.*
- C. Correct, Unit 1 only has 2 UCCU and the ERCW is supplied from the line to the LCCU. Additional cooling units are not available.*
- D. Incorrect, Plausible due to Temperature would not rise on Unit 2 and not Unit 1 because the supply to the UCCU is a separate line, additional cooling units are not available.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 40

Tier 2 Group 1

K/A 022 A2.04

Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of service water

Importance Rating: 2.9 / 3.2

Technical Reference: 0-S0-30-4, Upper Compartment Cooling Units
Drawing 1(2)-47W845-3 ERCW

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.ERCW B.4, 5

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.5 / 43.5/ 45.3 / 45.13

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C D A D A C C B A D	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

24. 022 AA2.03 006

Given the following plant conditions:

- Reactor power is steady-state at 75%.
- Pressurizer Level Control Selector Switch (XS-68-339E) is in the 339/335 position, and level control is in automatic.
- Temperature input to the pressurizer level control system fails to 530°F.

Which ONE (1) of the following describes the effect this condition would have on the pressurizer level control system? (Assume **NO** operator action)

- A. Charging initially increases to 120 gpm then returns to normal and pressurizer level stabilizes at previous value.
- B✓ Charging initially decreases to minimum flow and indicated pressurizer level lowers to 25% where it stabilizes.
- C. Charging decreases to minimum and indicated pressurizer level lowers to 17%, then level rises to the high level reactor trip setpoint.
- D. Charging increases to 120 gpm and the pressurizer level rises to the high level reactor trip setpoint.

QUESTIONS REPORT
for RO Written Exam Questions

The controller uses Tavg as the input for level setpoint. The programmed level ramps from 24.7 to 60 % as Tavg changes from 547-578 degreesF . If the controller setpoint input (Tavg) failed to a value of 530 degreesF, then the controller would sense the level as high and start reducing the charging flow to lower level. The controller has a minimum cap at 24.7% which is where level would be at 547 degreesF.

- A. Incorrect, Charging would not increase (as explained above) Plausible if candidate confuses which way the charging flow would be affected by the failure and/or because other failures would cause charging flow to increase. Level setpoint failing high would result in this scenario.*
- B. Correct, the temperature input failure results in the pressurizer level setpoint to drop to 24.7%. The initial level would be 60%, therefore the control system would decrease charging to lower the level from 60% to the 24.7% setpoint.*
- C. Incorrect, Level would stabilize at 24.7% as explained in above. Plausible because other failures would cause level to drop until letdown isolates at 17%, then pressurizer refills and trip on High level occurs. Controlling channel failing high would result in this scenario.*
- D. Incorrect, charging does not increase as explained in 'B' above. Plausible because other failures would cause level to increase until pressurizer fills and trip on High level occurs. Controlling channel failing low would result in this scenario.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 6

Tier 1 Group 1

K/A APE 022 AA2.03

Loss of Rx Coolant Makeup, Ability to determine and interpret the following as they apply to the loss of Reactor Coolant *Pump* Makeup: Failures of flow control valve or controller

Importance Rating: 3.1 / 3.6

Technical Reference: TI-28 Att 9.
1-47W611-68-2
AOP-I.04

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRLCS, B.5

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, SEQ Bank PZR LEVEL-B.12.D 1

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 43.5 / 45.13)

Comments:

MCS	Time:	4	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B B B B B B B B	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

25. 025 AK2.05 007

Unit 1 at 100% power. All conditions are normal with the following exceptions:

- 07:00, 1A RHR Pump is tagged due to motor replacement and will be returned to service in 24 hours.
- 08:00, Unit 1 has a reactor trip and SI due to a LOCA.
- 08:01, E-0, Reactor Trip Or Safety Injection, is entered followed by a transition to E-1, Loss of Reactor or Secondary Coolant
- 08:08, The 1B RHR Pump trips on overcurrent due to a locked rotor.
- 08:14, Step 15 of E-1, transitions crew to ECA-1.1, Loss of RHR Sump Recirculation.

The current conditions are:

- RCS pressure is 770 psig
- Containment pressure is 9.7 psid
- RWST level is 68% and dropping
- Containment sump level is 14% and rising

How many Containment Spray Pumps should be running with the given conditions and what is the suction source to the spray pumps?

	<u>Number of Pumps Running</u>	<u>Suction Source</u>
A✓	1	RWST
B.	1	Containment sump
C.	2	RWST
D.	2	Containment sump

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Correct, Due to the requirements of ECA-1.1 with containment pressure greater than 9.5 psid 1 containment spray pump is required to be running and the suction source would be from the RWST.*
- B. *Incorrect. Due to the requirements of ECA-1.1, with containment pressure greater than 9.5 psid, one containment spray pump should be running but the suction would be from the RWST NOT from the containment sump. Plausible because the suction path would be swapped to the sumps in ECA-1.1 with conditions other than stated in the stem.*
- C. *Incorrect. Due to the requirements of ECA-1.1, Containment pressure would have to be greater than 12.0 psid to require 2 containment spray pumps to be running. The suction would be from the RWST. Plausible because 2 sprays pumps could be required and in ECA-1.1 with conditions other than stated in the stem.*
- D. *Incorrect. Due to the requirements of ECA-1.1, Containment pressure would have to be greater than 12.0 psid to require 2 containment spray pumps to be running and the suction would be from the RWST not from the containment sump. Plausible because 2 sprays pumps could be required and the suction path would be swapped to the sump in ECA-1.1 with conditions other than stated in the stem.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 7

Tier 1 Group 1

K/A APE 025 AK2.05

Loss of RHR system, Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following, Reactor Building Sump

Importance Rating: 2.6 / 2.6

Technical Reference: ECA-1.1, Loss of RHR Sump Recirculation

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ECA-1.1 B6

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC EXAM 1/2008, SQN Bank ECA-1.1-B.2 002

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 / 45.7)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A D B B A B D B C	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

26. 025 K5.02 041

Which ONE (1) of the following identifies a provision of the containment ice condenser design that increases the ice condenser's ability to remove heat during a small break LOCA?

- A. Melted ice is directed away from the inlet doors and toward drain lines by turning vanes.
- B. Melted ice is directed away from the inlet doors by drains in the bottom of each ice bay.
- C✓ Inlet doors have proportioning springs to modulate door opening which equalizes air/steam flow through each ice bay.
- D. Intermediate doors have proportioning springs to modulate door opening which equalizes air/steam flow through each ice bay.

A. Incorrect, turning vanes direct air/steam flow not water drainage. Plausible if candidate confused the purpose of the turning vanes. From FSAR test results show that containment final peak pressure is not affected by drain performance.

B. Incorrect, All of the bays do not have drains. Most of them do and plausible if the candidate believes all bays have drains. From FSAR test results show that containment final peak pressure is not affected by drain performance.

C. Correct, The door panels are provided with tension spring mechanisms that produce a small closing torque on the door panels as they open. The zero load position of the spring mechanisms is set such that, with zero differential pressure across the door panels, the gasket holds the door slightly open. This setting provides assurance that all doors will be open slightly, upon removal of cold air head, therefore eliminating significant inlet maldistribution for very small incidents.

D. Incorrect, the springs are on the inlet doors, not the intermediate doors. Plausible because the intermediate doors do open when pressure builds up in the ice condenser bay.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 41

Tier 2 Group 1

K/A 025 K5.02

Knowledge of operational implications of the following concepts as they apply to the ice condenser system: Heat transfer

Importance Rating: 2.6 / 2.8

Technical Reference: FSAR 6.5- pages 35,36,6,7

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200ICE B.1

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, WBN Bank SYS061A.03 004

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.5 / 45.7

Comments:

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D A A B A C B C Scramble Range: A - D

Source: BANK MOD

Source If Bank: WBN

Cognitive Level: LOWER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

27. 026 AK3.03 008

Following a total loss of all AC power, the operator is directed to isolate CCS to the RCP thermal barriers per ECA-0.0, "Loss of Shutdown Power". When offsite power is restored, the operator is directed in ECA-0.1, "Recovery from Loss of Shutdown Power without SI Required", to ensure that the RCP thermal barrier isolation is complete prior to restarting a CCS pump.

Which ONE (1) of the following describes the **basis**, for isolating the CCS thermal barrier return prior to restarting the CCS pump?

- A. To prevent thermal shock to the RCP pump impeller and seal packages upon restart of the CCS system during recovery.
- B. To reduce CCS heat loads to minimum possible prior to restarting a CCS pump because RCP's are not required for recovery.
- C. To ensure elevated heat loads as a result of the loss of all AC power are within the design cooling capacity of CCS prior to starting a CCS pump.
- D✓ To prevent steam from forming and circulating in the CCS system and ensures the CCS system is available to cool equipment necessary for recovery.

A. Incorrect, Plausible if student confuses the reason seal injection is isolated with the reason the thermal barriers are isolated. This distractor describes the reason why the seal injection supply is isolated during performance of ECA-0.0.

B. Incorrect, Plausible due to Isolating the thermal barrier would reduce the heat load of the CCS system, however it is not the reason.

C. Incorrect, Plausible due to Isolating the thermal barrier would reduce the heat load on the CCS but the isolation is not to ensure the loads are within the capacity of the CCS system.

D. Correct, To prevent steam from forming and circulating in the CCS system and ensures the CCS system is available to cool equipment necessary for recovery.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 8

Tier 1 Group 1

K/A 026 AK3.03

Loss of Component Cooling Water: Knowledge of the following responses as they apply to the Loss of Component Cooling Water: Guidance actions contained in EOP for Loss of CCW.

Importance Rating: 4.0 / 4.2

Technical Reference: ECA-0.0, Loss of All AC Power
EPM-3-ECA-0.0, Basis Document for ECA-0.0 Loss of All AC Power

Proposed references to be provided to applicants during examination: None

Learning Objective: 271ECA-0.0 B.4

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, WBN Bank ECA0000.08 5

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.5,41.10 / 45.6 / 45.13)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D A B C D A B C D A	Scramble Range: A - D
Source:		BANK			Source If Bank:	WBN BANK	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

28. 026 G2.4.48 043

Given the following plant conditions:

- Unit 1 in service at 100% power.
- Due to the Normal feeder breaker to 6.9kV Shutdown Board 1B-B inadvertently opening, 1B-B Diesel Generator started and energized the board.

One hour later, the following occurs;

- At 1405 a steamline break occurs inside containment.
- Containment pressure is 3 psig and rising.
- At 1407 the CRO observes that 1B-B Containment Spray Pump ammeter reads '0' amps and the only light LIT above the handswitch is the GREEN light.

Which ONE (1) of the following describes the current status of the 1B-B Containment Spray Pump and response?

- A. Pump has failed to auto start, Immediately start 1B-B Containment Spray Pump.
- B. Pump has failed to auto start, Verify 1B-B D/G loading room available then start 1B-B Containment Spray Pump.
- C. Pump status is currently correct, UVX and UVY relays are preventing start of the 1B-B Containment Spray Pump
- D✓ Pump status is currently correct, Blackout timer has NOT timed out to start the 1B-B Containment Spray Pump.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, The Containment Spray Pump has not failed to start. It should not be running with the stated conditions. The timer to start the pump is active but has not timed out. Plausible because the 1B-B Shutdown Board experienced the blackout over an hour earlier, the student may think timer should already be timed out, which would result in the pump starting immediately when the containment pressure reached the setpoint. Starting the pump could cause a overload on the diesel generator if another pump auto started at the same time as the manual start.*
- B. *Incorrect, the Containment Spray Pump has not failed to start. It should not be running with the stated conditions. The timer to start the pump is active but has not timed out. Plausible because the 1B-B Shutdown Board experienced the blackout over an hour earlier, the student may think timer should already be timed out, which would result in the pump starting immediately when the containment pressure reached the setpoint. Verifying D/G loading prior to starting the pump is an action taken later when adding loads to a board supplied by a diesel generator but with the conditions given the time sequencer is still loading the board. Starting the pump could cause a overload on the diesel generator if another pump auto started at the same time as the manual start.*
- C. *Incorrect, While the Containment Spray Pump should not be running with the stated conditions, the reason is not because the UVX and UYV relays are preventing the start of the pump. These relays cause the load shedding of the pump when the board voltage is lost. After the board is reenergized these relays will allow the pump to restart when the blackout timer has timed out. The BOX and BOY relays are blocking the automatic start until the 180 second time delay elapses. The timer to start the pump is active but has not timed out. Plausible the student may know the UVX and UYV relays function during a blackout but confuse the function and purpose of the UVX and UYV relay functions during the blackout condition sequence.*
- D. *Correct, The Containment Spray Pump should not be running with the stated conditions. The loading sequence time to start the pump is 180 seconds and while some equipment timers start when the board voltage is restored, the spray pump timer does not start until both the voltage is restored and the containment pressure reaches 2.81 psig. Since only 2 minutes have elapsed, the timer to start the pump is active but has not timed out. The pump should start when the timer sequence when reached.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 43

Tier 2 Group 1

K/A 026 G2.4.48

Containment Spray System: 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.

Importance Rating: 3.5 / 3.8

Technical Reference: AOP-P.01, Loss of Offsite Power, Rev 22 Appendix B,
1,2-45N765-1 R16, 1,2-45N765-3 R22; 1,2-45N765-5 R14,
1,2-45N765-7 R16,

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271C368, B.4

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank Modified CSS-B.10 001

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 43.4 /45.12

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDDDDDDDDD	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

29. 026 K4.07 042

Given the following:

- Unit 1 has experienced a Reactor Trip/ Safety Injection due to a LOCA
- The operating crew is implementing the Emergency Instructions and preparing to align the suction of the Containment Spray Pumps to the containment sump.

Before 1-FCV-72-23, Containment Spray Pump 1A Suction From Containment Sump, would be opened, the water level in the containment sump would have to be at least _____ because of _____.

- A. 8%;
the interlock associated with 1-FCV-74-3, RHR Pump 1A Suction Isolation.
- B. 8%;
the interlock associated with 1-FCV-72-22, Containment Spray Pump 1A Suction From RWST.
- C✓ 11%;
the interlock associated with 1-FCV-74-3, RHR Pump 1A Suction Isolation.
- D. 11%;
the interlock associated with 1-FCV-72-22, Containment Spray Pump 1A Suction From RWST.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, Plausible due to 8% is the level in the RWST that is one of the two conditions that initiate the manual transfer of the containment spray pump suction to the containment sump. 1-FCV-74-3, RHR Pump 1A Suction Isolation, which is interlocked with the Containment sump suction to the RHR pumps. the automatic swapover for the RHR suction is 11%*
- B. *Incorrect, Plausible due to 8% is the level in the RWST that is one of the two conditions that initiate the manual transfer of the containment spray pump suction to the containment sump.. The containment spray pump suction from the RWST is not interlocked with a containment sump level. 1-FCV-74-3, RHR Pump 1A Suction Isolation, which is interlocked with the Containment sump suction to the RHR pumps. The automatic swapover for the RHR suction is 11%*
- C. *Correct, 1-FCV-74-3, RHR Pump 1A Suction Isolation, which is interlocked with the Containment sump suction to the RHR pumps. The automatic swapover for the RHR suction is 11%*
- D. *Incorrect, Plausible due to minimum level is correct however, the associated interlock is with opening of the RHR suction valve. The 1-FCV-74-3, RHR Pump 1A Suction Isolation, which is interlocked with the Containment sump suction to the RHR pumps. The automatic swapover for the RHR suction is 11%*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 42

Tier 2 Group 1

K/A 026 K4.07
Knowledge of CSS design feature(s) and/or interlock(s) which provide
for the following: Adequate level in containment sump for suction
(interlock)

Importance Rating: 3.8 / 4.1

Technical Reference: ES-1.3, Transfer to the Containment Sump
1-47W611-72-1 Rev 9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ES-1.3 B.2
 OPT200.CS B.4.g

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank Modified CSS 002.

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C A D D C B D A C C	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

30. 027 AA1.02 009

Given the following:

- Reactor at 85% RTP stable conditions for 10 days.
- Both Pressurizer Spray Valve Controllers in MANUAL and output set to "0".
- Backup heater bank C is out of service for breaker maintenance.
- All other systems and controllers in normal alignment.

Which ONE (1) of the following would be immediate effect if the Pressurizer Master Pressure Controller was placed in MANUAL and the output is raised to 100%?

- A. Pressurizer Pressure HI alarm, all available heaters ENERGIZE and Actual pressurizer pressure start to rise.
- B✓ Pressurizer Pressure HI alarm, all available heaters DEENERGIZE and Actual pressurizer pressure start to drop.
- C. Pressurizer Pressure LO alarm, all available heaters ENERGIZE and Actual pressurizer pressure start to rise.
- D. Pressurizer Pressure LO alarm, all available heaters DEENERGIZE and Actual pressurizer pressure start to drop.

A. Incorrect, The Hi pressure alarm is actuated. Heaters do not energize but plausible if that it did the pressure would start to rise and high pressure alarm could come in because the spray valves are in manual and will not open.

B. Correct, The Hi pressure alarm is actuated by the output of the controller as the output is increased, variable heaters all deenergize, with NO heaters the pressurizer pressure will start to drop due to ambient losses and pressurizer spray bypass flow.

C. Incorrect, low pressure alarm comes from the output of the controller dropping and the controller output is being raised to 100%, Heaters do not energize (but if they did the pressure would rise). Plausible to conclude that raising controller output could result in raising pressure.

D. Incorrect, low pressure alarm comes from the output of the controller dropping and the controller output is being raised to 100%, Heaters do deenergize and the pressure does drop. Plausible to conclude that the heater would deenergize causing pressure to lower and the low pressure alarm to come in.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 9

Tier 1 Group 1

K/A APE 027 AA1.02
Pressurizer Pressure Control System Malfunction, Ability to operate and / or
Monitor the following as they apply to the Pressurizer Pressure Control
Malfunction: SCR-controlled Heaters in manual mode.

Importance Rating: 3.1 / 3.0

Technical Reference: AOP-I.04, Pressurizer Instrument and Control Malfunctions

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRPCS B.4, B.5

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, WBN Bank SYS068C.22 20

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7 / 45.5 / 45.6

Comments: Added bullet in stem concerning C Bank Backup heater being out of
service. If on they would not turn off on increasing output of controller
and added 'available' in each choice.

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B C D A B C D A B C	Scramble Range: A - D
Source:		BANK			Source If Bank:	WBN BANK	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

31. 033 G2.4.21 020

Given the following plant conditions for Unit 2:

- Intermediate Range N36 failed high.
- Operators placed the level trip bypass switch for N36 to the bypass position.
- Subsequently the Reactor trips due to Large Break LOCA.

Which ONE (1) of the following describes the operation of source range instruments to be used to monitor the Subcriticality Status Tree?

- A. Source Range channel N31 and N32 are automatically reinstated when power decreases below P-10.
- B. Source Range channel N31 and N32 are automatically reinstated when power decreases below P-6.
- C✓ Both Source Range channels, N31 and N32, must be manually reinstated when the operable Intermediate Range channel (N35) decreases below the P-6 setpoint.
- D. Both Source Range channels, N31 and N32, must be manually reinstated when the operable Intermediate Range channel (N35) decreases below the P-10 setpoint.

- A. *Incorrect, Source range channels are not reinstated until the IRMs drop below the P-6 setpoint. With one IRM failed high the SRMs cannot automatically reinstate. Plausible because there in a P-10 backup to ground the output of the SRMs as power increases causing the SRMs output to read zero. This backup signal is automatically removed as the P-10 clears*
- B. *Incorrect, Source range channels are normally reinstated automatically when both of the IRMs drop below the P-6 setpoint. With one IRM failed high the SRMs cannot automatically reinstate. Plausible because the SRM trip can be blocked as power increases when one IRM increases above the P-6 setpoint and the candidate could confuse the 1 out of 2 requirement going up with the 2 out of 2 requirement coming down.*
- C. *Correct, with one of the IRMs failed high, manual reinstatement of the SRM is required.*
- D. *Incorrect, SRM are automatically reinstated when the IRM drop below the P-6 setpoint, not below the P-10 setpoint. Plausible because the candidate could mistake the 2 setpoints.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 20

Tier 1 Group 2

K/A 033 G2.4.21

Loss of Intermediate Range NI: Knowledge of the parameters and logic used to assess the status of safety functions including: 1. Reactivity control, 2. Core cooling and heat removal, 3. Reactor Coolant system integrity, 4. Containment Conditions, 5.

Radioactivity release control.

Importance Rating: 3.7 / 4.3

Technical Reference: AOP-I.0, Nuclear Instrument Malfunction, Rev 8 page 9
1,2-47W611-99-2 Rev 13

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-I.01, B.8

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank Modified NIS-B.2. 007

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 43.5 / 45.12)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	CCCCCCCCC	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

32. 036 AK1.01 021

Given the following:

- Unit 1 is in Mode 6 and currently loading fuel into the core.
- Ice is being blown into the Ice Condenser Baskets.
- A fuel assembly used in previous cycle was being transferred to its core location when the assembly is dropped.
- Bubbles can be seen rising from the dropped fuel assembly and Area Radiation Monitors go into high alarm.

In accordance with AOP-M.04, Refueling Malfunctions, all of the following would be required **EXCEPT**?

- A✓ Initiate Control Room Isolation.
- B. Evacuate el. 734 Refuel Floor.
- C. Initiate Auxiliary Building Isolation.
- D. Close 1-78-610, Transfer Tube Wafer Valve.

Could not identify enough plausible distractors to allow elimination of the negative approach in the stem of the question.

- A. Correct, Not required by procedure.*
- B. Incorrect, Evacuate Aux Building el. 734 Refuel Floor. To be performed per AOP-M.04 but Plausible due to dropped fuel occurring in the Containment Building and the refuel floor is outside containment.*
- C. Incorrect, To be performed per AOP-M.04 but Plausible due to dropped fuel occurring in the Containment Building.*
- D. Incorrect, Plausible if student thinks valve closure would not be required since water level is not dropping.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 21

Tier 1 Group 2

K/A 036 AK1.01

Fuel Handling Incidents: Knowledge of the operational implications of the following concepts as they apply to Fuel Handling Incidents: Radiation exposure hazards.

Importance Rating: 3.5 / 4.1

Technical Reference: AOP-M.04, Refueling Malfunctions, Rev 7

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-M.04 B.5,8

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008,

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.8 / 41.10 / 45.3)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A A A A A A A A A A	Items Not Scrambled
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

33. 038 G2.1.3 010

The CRO is performing an RCS cooldown at maximum rate in response to a Steam Generator tube rupture. The oncoming shift has arrived in the control room for turnover.

In accordance with OPDP-1, which ONE (1) of the following identifies turnover requirements?

- A✓ Complete the Cooldown prior to turnover;
A Control Board Walkdown and a Log Review by the oncoming operator are required to be completed.
- B. Complete the Cooldown prior to turnover;
A Control Board Walkdown by the oncoming operator is NOT required provided the Log Review is completed.
- C. Continue the cooldown while concurrently performing turnover;
A Control Board Walkdown and a Log Review by the oncoming operator are required to be completed.
- D. Continue the cooldown while concurrently performing turnover;
A Control Board Walkdown by the oncoming operator is NOT required provided the Log Review is completed.

QUESTIONS REPORT
for RO Written Exam Questions

- A. Correct, Per OPDP-1, Operations personnel performing shift turnover will not be involved in plant evolutions/activities during performance on shift turnover activities. The Cooldown should be complete prior to conducting turnover .The OPDP also requires a log review and a control board walkdown as a part of turnover.*
- B. Incorrect, The cooldown should be completed prior to turnover, there is no provision for not completing the board walkdown. Plausible due to candidate could think that due to being in an emergency the walkdown would not be required.*
- C. Incorrect, Plausible due to candidate not knowing requirement that personnel will not be involved in activities during turnover, and candidate could think that since the cooldown should not be delayed that turnover could be conducted in parallel.*
- D. Incorrect, Plausible due to candidate not knowing requirement that personnel will not be involved in activities during turnover, and candidate could think that since the cooldown should not be delayed that turnover could be conducted in parallel and that due to being in an emergency the walkdown would not be required*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 10

Tier 1 Group 1

K/A 038 G2.1.3

Steam Generator Tube Rupture, Conduct of Operations, Knowledge of shift turnover practices.

Importance Rating: 3.0 / 3.4

Technical Reference: OPDP-1, Conduct of Operations, Rev 8

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271C209 B.10

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR: 41.10 / 45.13)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B B C D B A D D A	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

34. 039 A1.09 044

Given the following:

- Unit 2 at 100% power.
- The control room staff currently performing AOP-R.01, Steam Generator Tube Leakage.
- At 1400 a shutdown was initiated due to Steam Generator #3 tube leakage of 65 gallons per day sustained for 1 hour in accordance with Action Level 2.
- At 1430, Annunciator STEAM LINE DETECTOR TROUBLE locks in on panel 2-XA-55-30.
- RM-23 module for #3 Main Steam Line Rad Monitor has GREEN OPERATE LIGHT extinguished, and uCi/cc PUSH BUTTON flashing.

Which of the following describes the condition causing the alarm on the steam line monitor and the required crew action if the leakage rate does not change?

- A. A loss of power has occurred on the steam line monitor;
Continue with AOP-R.01, and required to have the unit in MODE 3 by 1400 the following day.
- B. A loss of power has occurred on the steam line monitor;
Continue with AOP-R.01, and required to have the unit in MODE 3 by 2000 the same day.
- C✓ The steam line monitor has failed a source check;
Continue with AOP-R.01, and required to have the unit in MODE 3 by 1400 the following day.
- D. The steam line monitor has failed a source check;
Continue with AOP-R.01, and required to have the unit in MODE 3 by 2000 the same day.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, Plausible if student assumes green operate light being extinguished and the uCi/cc PUSH BUTTON could be caused by a power failure since the question is talking about RM-23 indications and not the Rad Monitor itself. Action level 2 requirements are greater than or equal to 50 gpd sustained for greater than one hour but less than 75 gpd. If RM-90-99 or RM-90-119 are available the unit must be placed in Mode 3 within 24 hours. If RM-90-99 or RM-90-119 is not available, then place unit in Mode 3 in 6 hours. Since RM-90-99 or RM-90-119 is available and the question is talking about the Main Steam Line Rad Monitor the unit is required to be placed in Mode 3 within 24 hours or 1400 the following day would be correct.*
- B. *Incorrect, Plausible if student assumes green operate light being extinguished and the uCi/cc PUSH BUTTON could be caused by a power failure since the question is talking about RM-23 indications and not the Rad Monitor itself. Action level 2 requirements are greater than or equal to 50 gpd sustained for greater than one hour but less than 75 gpd. If RM-90-99 or RM-90-119 are available the unit must be placed in Mode 3 within 24 hours. If RM-90-99 or RM-90-119 is not available, then place unit in Mode 3 in 6 hours. The student may mistake the Main Steam Line Rad Mon as being required and assume the Mode 3 requirement in 6 hours would be correct.*
- C. *Correct, Per SO-90-5 If source check fails GREEN OPERATE LIGHT is extinguished, and uCi/cc PUSH BUTTON will be flashing. Action level 2 requirements are greater than or equal to 50 gpd sustained for greater than one hour but less than 75 gpd. If RM-90-99 or RM-90-119 are available the unit must be placed in Mode 3 within 24 hours. If RM-90-99 or RM-90-119 is not available, then place unit in Mode 3 in 6 hours. Since RM-90-99 or RM-90-119 is available and the question is talking about the Main Steam Line Rad Monitor the unit is required to be placed in Mode 3 within 24 hours.*
- D. *Incorrect, Per SO-90-5 If source check fails GREEN OPERATE LIGHT is extinguished, and uCi/cc PUSH BUTTON will be flashing. This part is correct. Plausible due to Action level 2 requirements are greater than or equal to 50 gpd sustained for greater than one hour but less than 75 gpd. If RM-90-99 or RM-90-119 are available, the unit must be placed in Mode 3 within 24 hours. If RM-90-99 or RM-90-119 is not available then place unit in Mode 3 in 6 hours. The student may mistake the Main Steam Line Rad Mon as being required and assume the Mode 3 requirement in 6 hours would be correct.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 44

Tier 2 Group 1

K/A 039 A1.09
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MRSS controls including: Main steam line radiation monitors

Importance Rating: 2.5 / 2.7

Technical Reference: 2-SO-90-5, Area Radiation Monitors and MCR
Radiation Instrumentation 8.0 Note 2
AOP-R.01 Appendix B page 2 of 4.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RM B.5
OPL271AOP-R.01 B.4, 8, 2

Question Source:
Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.5 / 45.5

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C C C C C C C C C C	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

35. 040 AK1.03 011

Unit 2 experiences a large steam line rupture causing the RCS to undergo a rapid cooldown and depressurization.

Which ONE (1) of the statements below correctly identifies the major component and reason for brittle fracture concern?

Major Component

Reason for Concern

- | | |
|-------------------|---|
| A. Reactor Vessel | Increased stresses resulting from a rapid depressurization condition from a high temperature. |
| B✓ Reactor Vessel | Increased stresses resulting from a subsequent repressurization condition at low temperature. |
| C. S/G tube sheet | Increased stresses resulting from a rapid depressurization condition from a high temperature. |
| D. S/G tube sheet | Increased stresses resulting from a subsequent repressurization condition at low temperature. |

- A. *Incorrect per EPM-3-FR-0, Plausible because there is a rapid depressurization and cooldown from a high temperature, but without the subsequent repressurization causing additive stresses, there would not be a PTS concern.*
- B. *Correct per EPM-3-FR-0 "The thermal stress due to a rapid cooldown and the pressure increase stress are additive on the vessel wall." The Reactor Vessel beltline is the most limiting component.*
- C. *Incorrect per EPM-3-FR-0, Wrong component and reason. Plausible if thinking the tubes being the thinnest would be the area of concern and there is a rapid depressurization and cooldown from a high temperature, but without the subsequent repressurization causing additive stresses, there would not be a PTS concern.*
- D. *Incorrect per EPM-3-FR-0, Wrong component, right reason. Plausible if thinking the tubes being the thinnest would be the area of concern. The thermal stress due to a rapid cooldown and the pressure increase stress are additive on the vessel wall.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 11

Tier 1 Group 1

K/A 040 AK1.03
Steam Line Rupture, Knowledge of the operational implications of the following concepts as they apply to Steam Line Rupture: RCS Shrink and consequent depressurization.

Importance Rating: 3.8 / 4.2

Technical Reference: EPM-3-FR-0

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-P.1, B.4

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC EXAM 1/2008, SQN Bank FR-P.1-B.1.A 002

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 41.8 / 41.10 / 45.3

Comments: Small changes to original question (Does not classify as modified)

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B B B B B B B B B B	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

36. 045 K5.17 060

Which ONE (1) of the following combinations would result in the value for MTC being the **MOST** negative as turbine load was raised from 50% to 70%?

- A. Rod Position and Boron concentration are held constant allowing Tavg to change.
- B. Rods are withdrawn to maintain Tavg on program, with Boron concentration held constant.
- C✓ Rod position is held constant, while Boron concentration is lowered to maintain Tavg on program.
- D. A combination of rod withdrawal and lowering boron concentration to maintain Tavg on program.

A. Incorrect, Plausible due to temperature change would cause MTC to change however temperature would drop, MTC would get less negative.

B. Incorrect, Plausible due to candidate could conclude that withdrawing Rods would make MTC more negative which in reality it makes it Less Negative. However a competing affect of Tavg rising will have a negative affect on MTC.

C. Correct, Reduction in boron concentration results in more negative MTC, the Temperature rise effect is same as in B. This additive Negative affects is the MOST negative of all choices given.

D. Incorrect, Temperature change same but Boron being reduced less than as in C, thus MTC not as negative.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 60

Tier 2 Group 2

K/A 045 K5.17

Knowledge of the operational implications of the following concepts as they apply to the MT/B System: Relationship between moderator temperature coefficient and boron concentration in RCS as T/G load increases

Importance Rating: 2.5 / 2.7

Technical Reference: Nuclear Design Report Unit 1 Cycle 15

Proposed references to be provided to applicants during examination: None

Learning Objective: GFES Coefficients

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.5 / 45.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C A B C B C A D C D	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

37. 055 A3.03 061

Given the following:

- Unit 1 is at 60% RTP with shutdown in progress due to Steam Generator #3 tube leakage identified.
- The Condenser Vacuum Pump Discharge filters have been installed.
- 1-HS-2-255, COND VAC PUMP EXH FILTER BYPASS, is in P-auto.
- A leak on the condenser vacuum breaker develops leakage equal to 30 scfm.
- The following alarms are received at approximately the same time:
 - PDIS-2-255 COND VAC PMPS EXH FILTER DIFF PRESS HI.
 - 1-RA-90-99A CNDS VAC PMP LO RNG AIR EXH MON HIGH RAD.

Which ONE (1) of the following identifies the status of 1-FCV-255, Condenser Vacuum Pump Exhaust Filter Bypass Flow Control Isol?

The bypass valve _____.

- A. ✓ would have opened AUTOMATICALLY due to the high ΔP .
- B. would have opened AUTOMATICALLY to prevent radiation instrument malfunction alarms due to the high backpressure in the exhaust stack.
- C. would be prevented from opening AUTOMATICALLY or MANUALLY
- D. would be prevented from AUTOMATICALLY opening, however valve could be opened MANUALLY using control switch.

A. Correct, When CVP discharge filter train is installed, FCV-2-255 is designed to open automatically on a high filter DP of 5.5 in/water increasing.

B. Incorrect, Plausible due to requirement to open the bypass if the flow rate exceeds 45 scfm even when the filters are not installed to prevent the instrument malfunction alarms cause by the high back pressure in the exhaust stack. This is a precaution in the system operating instruction.

C. Incorrect, Plausible due to candidate could think the bypass valve would be prevented from opening to ensure all release gas went through the monitor to ensure release is monitored.

D. Incorrect, Plausible due to candidate could think the bypass valve would be prevented from opening in automatic to ensure all release gas went through the monitor, but would allow operator control in manual.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 61

Tier 2 Group 2

K/A 055 A3.03

Ability to monitor automatic operation of the CARS, including:
Automatic diversion of CARS exhaust

Importance Rating: 2.5 / 2.7

Technical Reference: 1-AR-M3-A
1-SO-2-9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200CONDVAC B.4

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.7 / 45.5

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A D C D C C B B D C	Scramble Range: A - D
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

38. 055 G2.4.29 012

Given the following:

- 0830 - Nuclear Security reports that they have determined that a Credible Insider Threat exists.
- 0841 - The Emergency Plan is activated.
- 0845 - SM/SED activates Assembly and Accountability
- 0905 - Security reports Assembly and Accountability complete and all employees accounted for.
- 1925 - A loss of Off-Site power occurs causing a dual unit trip and the 1B-B D/G fails to start.
- 1930 - The SM determines a need to send an operator to the DG Building determine the cause of the 1B-B DG failure to start.

Which ONE (1) of the following apply to the dispatching of an operator to the DG building?

- A. Delay the dispatch until security verifies the path of travel is safe.
- B. Delay the dispatch until Security resolves the Credible Insider Threat issue.
- C. Two people with the same qualification must be sent.
- ☒ D. Two people must be sent however, they do NOT have to possess the same qualifications.

A. Incorrect, Not required to delay the dispatch until travel path is safe, however, if delayed until the path was safe, personnel safety would not be an issue. Plausible if the candidate is thinking of other conditions that would require sheltering (hiding) employees for their protection until security has regained control of the site instead of sending them out.

B. Incorrect; Not required to delay the dispatch until threat issue is resolved, however, if delayed until the threat is resolved then personnel safety would not be an issue. Plausible if the candidate is thinking of other conditions that would require sheltering (hiding) employees for their protection instead of sending them out.

C. Incorrect, With a 'Creditable Insider Threat' the 'Two Person Line of Sight Rule' is required to be implemented per EPIP- 8, Personnel Accountability and Evacuation, and SPP-1.3, Plant Access and Security. the procedures state that both individual do not have to have the same qualification. Plausible if the individual knows the requirement for the two person rule but does not remember the qualification requirements.

D. Correct; With a 'Creditable Insider Threat' the 'Two Person Line of Sight Rule' is required to be implemented per EPIP- 8, Personnel Accountability and Evacuation, and SPP-1.3, Plant Access and Security.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 12

Tier 1 Group 1

K/A 055 G2.4.29

Station Blackout, Knowledge of the emergency plan.

Importance Rating: 2.6 / 4.0

Technical Reference: *EPIP 8 Appendix D page 19 step 24*

Proposed references to be provided to applicants during examination: None

Learning Objective: No objective identified

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR: 43.5 / 45.11)

Comments:

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: D D D D D D D D D D	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

39. 056 AK1.03 013

Given the following conditions:

- A Loss of Offsite Power occurred.
- Pressurizer pressure is 2085 psig
- Tcold is 548°F
- Tavg is 560°F
- Thot is 573°F
- Core exit thermocouples are 583°F

What is the current amount of RCS subcooling?

- A✓ 60°F
- B. 70°F
- C. 83°F
- D. 95°F

- A. *Correct. (2100 psia T_{sat} =643°F) $643^{\circ}F - 583^{\circ}F = 60^{\circ}F$*
- B. *Incorrect. Plausible if Thot is used instead of incore temperature
 $643^{\circ}F - 573^{\circ}F = 70^{\circ}F$*
- C. *Incorrect. Plausible if Tavg is used instead of incore temperature
 $643^{\circ}F - 560^{\circ}F = 83^{\circ}F$*
- D. *Incorrect. Plausible if Tcold is used instead of incore temperature
 $643^{\circ}F - 548^{\circ}F = 95^{\circ}F$*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 13

Tier 1 Group 1

K/A 056 AK1.03

Loss of off-site Power, Knowledge of the operational implications of the following concepts as they apply to Loss of Off-Site Power: Definition of Subcooling: use of steam tables to determine it

Importance Rating: 3.1 / 3.4

Technical Reference: ES-0.2 Natural Circulation Cooldown.
Steam Tables

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: OPL271ES-0.2

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008,056 AK1.03 Prairie Island Unit 1 2004 NRC EXAM

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.8 / 41.10 / 45.3)

Comments:

MCS	Time: 4	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: A A A A A A A A A A Items Not Scrambled
Source:	BANK		Source If Bank: PRAIRIE ISLAND
Cognitive Level:	HIGHER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

40. 058 AK1.01 014

Given the following plant conditions:

- Units 1 and 2 are operating at 100% power with No Tech Spec LCO actions in effect.
- The 125 V DC Power System is normally aligned with the exception of the Vital Battery Board IV, which is being supplied from the Vital Battery V and

and 2-S Vital Battery Charger.

- Offsite power is lost.
- 1A-A and 2B-B diesel generators start and load.
- 1B-B and 2A-A diesel generators fail to start.

If offsite power has been lost for longer than 4 hours, which ONE (1) of the following statements identifies the condition of the 125V Vital DC batteries? (Assume NO operator action is taken)

- A. All four 125v Vital DC Batteries would be charged.
- B. All four 125v Vital DC Batteries would be discharged.
- C✓ 125v Vital DC Batteries I and IV would be charged.
125v Vital DC Batteries II and III would be discharged.
- D. 125v Vital DC Batteries II and III would be charged.
125v Vital DC Batteries I and IV would be discharged.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, while the 125v Vital boards I and IV would have power available to their charger, the II and III boards would not have power. With power available to the chargers, the I and IV batteries would be charged, but the II and III batteries would be discharged. Plausible if the candidate confuses the power supply to the chargers or realizes the chargers have an alternate power supplies (which are available for the II and III boards) but does not recall that manual action would be required to place the alternate power supply in service.*
- B. *Incorrect, while the 125v Vital boards I and IV would have power available to their charger, the II and III boards would not have power. With power available to the chargers, the I and IV batteries would be charged, but the II and III batteries would be discharged. Plausible if the candidate concludes that the 480v boards that supply the battery chargers do not sequence back on when the DG recovers the board .*
- C. *Correct, as identified on 1,2-45N700-1, the 125v Vital boards I and IV would have power to the battery charger while the battery chargers for II and III would be deenergized, thus the I and IV batteries would be charging and keeping the board powered, while the Vital Batteries Boards II and III, without a battery charger, would be lost as the batteries discharged.*
- D. *Incorrect, the 125v Vital boards II and III would NOT have power to the battery charger while the battery chargers for I and IV would be energized, thus the I and IV batteries would be charging and keeping the board powered, while the Vital Batteries Boards II and III, without a battery charger, would be lost as the batteries discharged. Plausible if the candidate reverses the chargers that have power available to them.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 14

Tier 1 Group 1

K/A 058 AK1.01

Loss of DC Power: knowledge of the operational implications of the following concepts as they apply to Loss of DC Power: Battery charger equipment and instrumentation.

Importance Rating: 2.8 / 3.1

Technical Reference: 1,2-45N700-1
FSAR 8.1.4
1-AR-M1-C
AOP-P.02

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.DC, b.4, b5

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC EXAM 1/2008, SQN Bank DC-B.0 002

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.8 / 41.10 / 45.3)

Comments: reworded question to address the condition of both the batteries and the battery chargers after greater than 4 hours of DC load be supplied by the batteries board.

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C C C C C C C C C C Items Not Scrambled

Source: BANK

Source If Bank: SQN

Cognitive Level: HIGHER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

41. 059 A2.07 045

Given the following:

- Unit 2 operating at 55% power.
- All CBPs and HDTPs in service.
- Both MFPs in service.

If the Main Feed Pump Turbine(MFPT) 2B trips, which ONE (1) of the following identifies the correct status of MFPT 2B Condenser Inlet and Outlet Valves(FCVs) **AND** the status of the AFW Pumps following the trip both before any Operator action is taken and after the Abnormal Operating Procedure has been completed?

	<u>Before any Operator Action</u>	<u>After AOP Completion</u>
A. 2B MFPT Cond FCVs - AFW pumps -	Closed Running	Open Off
B. 2B MFPT Cond FCVs - AFW pumps -	Closed Running	Closed Off
C. 2B MFPT Cond FCVs - AFW pumps -	Open Off	Open Off
D. 2B MFPT Cond FCVs - AFW pumps -	Open Off	Closed Off

QUESTIONS REPORT
for RO Written Exam Questions

If one of the MFPTs trip, the Condenser inlet and outlet FCVs will automatically close if the unit is above 60%.

The AFW pumps will automatically start when one MFPT trips if the plant is above 80% as stated in TI-28.

- A. Incorrect, With the trip occurring at less than 60%, the AFW pumps would not be running and the condenser valves would not automatically close due to the trip of the MFPT. Plausible if the candidate does not correctly recall the conditions that will cause the automatic closure of the condenser FCVs or the AFW start conditions associated with a MFPT trip or the actions contained in the AOP for loss of a MFPT at less than 77% power.*
- B. Incorrect, With the trip occurring at less than 60%, the AFW pumps would not be running and the condenser valves would not automatically close due to the trip of the MFPT. Plausible if the candidate does not correctly recall the conditions that will cause the automatic closure of the condenser FCVs or the AFW start conditions associated with a MFPT trip or the actions contained in the AOP for loss of a MFPT at less than 77% power.*
- C. Correct, with the trip occurring at less than 60%, the valves would remain open and the AFW pumps would remain off. After completing the AOP the valves would remain open as the AOP only directs ensuring the valves are closed if the power level is not less than 60%.*
- D. Incorrect, with the trip occurring at less than 60%, the valves would remain open and the AFW pumps would remain off. After completing the AOP the valves would remain open as the AOP only directs ensuring the valves are closed if the power level is not less than 60%. Plausible if the candidate does not correctly recall the conditions that will cause the automatic closure of the condenser FCVs or the AFW start conditions associated with a MFPT trip or the actions contained in the AOP for loss of a MFPT at less than 77% power.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 45

Tier 2 Group 1

K/A 059 A2.07
Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Tripping of MFW pump turbine

Importance Rating: 3.0 / 3.3

Technical Reference: AOP-S.01, Loss of Normal Feedwater, Rev 12
TI-28, Curve Book rev 212, Att.9 effective date 06-28-2007
1, 2-47W611-2-1 Rev 8
1, 2-47W611-3-1 Rev 19
1, 2-47W611-6-1 Rev 19

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-S.01 B.2
OPT200.COND B.4

Question Source:
Bank # _____
Modified Bank # _____
New x

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
Memory or fundamental knowledge _____
Comprehension or Analysis x

10 CFR Part 55 Content: 41.5 / 43.5 / 45.3 / 45.13

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C A B C C A D D C D	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

42. 059 A4.01 046

Given the following:

- Unit 1 operating at 100% power.
- A main feedwater transient occurs resulting in several alarms.

The Operator notes the following:

- Turbine VPL is approximately 68%.
- Control Rods inserting at 72 step/min.
- MFPT 1B SPEED CONTROLLER at 100% and pump discharge flow increased.
- MFPT 1A indicates 0 flow.
- MFW reg valves demand at 100% and S/G below setpoint.
- Steam Dump valves armed and open.

Which ONE (1) of the following identifies the status of MFP 1A and the position of the low pressure (LP) control valves in the steam supply to the MFP 1A turbine?

- A. MFP 1A has tripped;
LP Control valves OPEN.
- B✓ MFP 1A has tripped;
LP Control valves CLOSED.
- C. MFP 1A is NOT tripped but has unloaded;
LP Control valves OPEN.
- D. MFP 1A is NOT tripped but has unloaded;
LP Control valves CLOSED.

QUESTIONS REPORT

for RO Written Exam Questions

- A. Incorrect, the MFPT has tripped and all stop and control valves would be closed. Plausible because the candidate could confuse the LP control valve response of the MFPT with the control valve response of the AFWP turbine. On the AFW PT, if the turbine trips, the stop valve trips closed but the control valve goes full open due to loss of oil pressure. However on the MFPT both sets of valves close.*
- B. Correct, the MFPT has tripped and all control valves would be closed.*
- C. Incorrect, The valve position limiter would be at near 100% unless a runback occurred and the runback is initiated by a MFPT tripping. If the turbine unloaded, both sets of valves would be closed. Plausible because all other conditions are correct for the unloading of the 1A MFP and the candidate could think that only the HP control valves would be closed if the turbine unloaded but did not trip.*
- D. Incorrect, The valve position limiter would be at near 100% unless a runback occurred and the runback is initiated by a MFPT tripping. Plausible because all other conditions are correct for the unloading of the 1A MFP and the control valves would be closed and the stop valves open if the turbine unloaded but did not trip. An event similar to this occurred in the plant.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 46

Tier 2 Group 1

K/A 059 A4.01
Ability to manually operate and monitor in the control room:
MFW turbine trip indication

Importance Rating: 3.1 / 3.1

Technical Reference: AOP-S.01, Loss of Normal Feedwater, Rev 12;
1-47W610-46-3 R15

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.MFW B.4.f
OPL271AOP-S.01 B.2

Question Source:

Bank # _____
Modified Bank # x
New _____

Question History: SQN Bank AOP-S.10-B-1 006

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis x

10 CFR Part 55 Content: 41.7 / 45.5 to 45.8

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B C B A D D B A B C	Scramble Range: A - D
Source:	BANK MOD		Source If Bank:	SQN
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

43. 060 AA1.02 022

Waste Gas Decay Tank J contains high activity gas. Waste Gas Decay Tank J relief valve develops a leak.

Which ONE (1) of the following would identify the response of the Rad Monitors listed?

- A✓ Waste Gas Rad Monitor (RE-90-118) would alarm, but the Auxiliary Building Ventilation Monitor (RE-90-101) would **NOT** alarm.
- B. Waste Gas Rad Monitor (RE- 90-118) would alarm, and the Auxiliary Building Ventilation Monitor (RE-90-101) would alarm.
- C. Waste Gas Rad Monitor (RE- 90-118) would **NOT** alarm, but the Auxiliary Building Ventilation Monitor (RE-90-101) would alarm.
- D. Waste Gas Rad Monitor (RE- 90-118) would **NOT** alarm, and the Auxiliary Building Ventilation Monitor (RE-90-101) **NOT** alarm.

- A. *Correct, when a WGDT relief valve line goes into the WGDT release line where it passes the waste gas radiation monitor RE-90-118, the release line is routed to the shield building stack on one of the 2 units (selectable). Since it does not path the Aux building stack radiation monitor RE-90-101 the monitor could not alarm..*
- B. *Incorrect, the flow path is not past the Aux building stack radiation monitor RE-90-101 therefore it could not detect the radiation. Plausible because when a planned release is in progress an Aux Building Gas Treatment system fan is placed in service for dilution flow and the candidate may confuse the flow path*
- C. *Incorrect, the flow path is past the waste gas radiation monitor RE-90-118 thus it would alarm. But the flow path is not past the Aux building stack radiation monitor RE-90-101 therefore it could not detect the radiation. Plausible that the radiation monitor would not alarm becuae the relief line enters the release line downstream of the valve that automatically closes when high radiation is detected by the waste gas radiation monitor RE-90-118. The candidate could confuse the flow path relationship between the isolation valve, relief line, and the rad monitor and because when a planned release is in progress an Aux building Gas Treatment system fan is placed in service for dilution flow and the candidate may confuse the flow path*
- D. *Incorrect, the flow path is past the waste gas radiation monitor RE-90-118 thus it would alarm. Plausible that the radiation monitor would not alarm becuae the relief line enters the release line downstream of the valve that automatically closes when high radiation is detected by the waste gas radiation monitor RE-90-118. The candidate could confuse the flow path relationship between the isolation valve, relief line, and the rad monitor. Since the flow path is not past the Aux building stack radiation monitor RE-90-101, it could not detect the radiation making this part of the answer correct.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 22

Tier 1 Group 2

K/A 060 AA1.02

Accidental Gaseous Radwaste Release: Ability to operate and / or monitor the following as they apply to accidental gaseous radwaste: Ventilation system

Importance Rating: 2.9 / 3.1

Technical Reference: 1,2-47W830-4
1,2-47W866-1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.GRW, B.5
OPT200.RM, B.4

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC EXAM 1/2008, modified from WGDS-B.3.A 006

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.7 / 45.5 / 45.6)

Comments: modified from SQN question WGDS-B.3.A 006

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A A D C C D B B D B	Scramble Range: A - D
Source:	BANK MOD		Source If Bank: SQN	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

44. 061 K5.01 047

Given the following;

- Unit 1 experienced a Reactor trip from 100% power.
- The Operators have not operated any controls post-trip.
- The crew completed E-0, Reactor Trip and Safety Injection, and has entered ES-0.1, Reactor Trip Response.
- Pressurizer level is 25% and slowly decreasing.
- All Steam Generator levels readings are between 12% and 18% on

the

narrow range.

- Steam Generators pressures are approximately 990 psig and slowly decreasing.
- Tavg is 545 degrees F and slowly decreasing.
- RCS pressure is 2020 psig and slowly decreasing.

Which ONE (1) of the following actions should be the first priority of the crew in accordance with ES-0.1 to address the conditions?

- A. Establish Emergency Boration.
- B✓ Throttle Auxiliary Feedwater Flow.
- C. Close MSIVs and bypass valves.
- D. Initiate Safety Injection and Return to E-0.

A. Incorrect, ES-0.1 addresses emergency boration if cooldown drops to less than 540 degrees making this choice plausible.

B. Correct, ES-0.1 step 3 RNO c directs the throttling of AFW to address the cooldown.

C. Incorrect, ES-0.1 step 3 RNO c. directs the closing of MSIVs and bypass valves if the cooldown continues in step 3 RNO d. making this choice plausible, but this action is after the throttling of AFW flow.

D. Incorrect, ES-0.1 step 1 directs the initiation of SI and return to E-0 but only if SI is actuated. Actuation of SI is not warranted for the stated conditions. Plausible for the candidate to misuse the data trends in stem and conclude that SI will be required.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 47

Tier 2 Group 2

K/A 061 K5.01

Auxiliary/Emergency Feedwater System: Knowledge of the operational implications of the following concepts as they apply to the AFW: Relationship between AFW flow and RCS heat transfer.

Importance Rating: 3.6 / 3.9

Technical Reference: ES-0.1, Reactor Trip Response

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.AFW B.2
OPL271ES-0.1 B.4

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC EXAM 1/2008, Millstone exam 2004

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 41.5 / 45.7

Comments: SQN Bank AFW B.2.A 003

MCS Time: 4 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B B B B B B B B B B Items Not Scrambled

Source: BANK

Source If Bank: MILLSTONE

Cognitive Level: HIGHER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

45. 062 AA1.01 015

Which ONE (1) of the following conditions would require entry into Tech Spec 3.7.5, Ultimate Heat Sink?

- A. Water level of 675 ft and ERCW supply temperature of 81.5 degrees F.
- B. Water level of 677 ft and ERCW supply temperature of 82.5 degrees F.
- C✓ Water level of 679 ft and ERCW supply temperature of 83.5 degrees F.
- D. Water level of 681 ft and ERCW supply temperature of 84.5 degrees F.

Question requires the candidate to recall both the temperature and level requirements of the UHS. with water temperature above 83 degrees, the river level must be greater than 680' and the temperature equal to or less than 84.5 degrees. If temperature is less than 83 degrees the requirement for river elevation is 670' or greater.

- A. Incorrect. Both level and temperature are within the limits required. Plausible because candidate could not be certain where the temperature requirement changed due to river level or may not know the minimum level requirement.*
- B. Incorrect. Both level and temperature are within the limits required. Plausible because candidate could not be certain where the temperature requirement changed due to river level.*
- C. Correct. A temperature of 83.5 degrees is above the limit with the river level less than 680'.*
- D. Incorrect. Both level and temperature are within the limits required. Plausible because the temperature listed is the highest temperature and candidate may not recall the higher temperature is allowed with the river level above 680" or may not recall that there are provisions for exceeding the lower limit listed in the tech spec.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 15

Tier 1 Group 1

K/A 062 AA1.01

Loss of Nuclear Service Water, Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water: Nuclear Service water temperature indication

Importance Rating: 3.1 / 3.1

Technical Reference: Tech Spec 3.7.5

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.ERCW B.6

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC EXAM 1/2008, SQN Bank Modified ERCW-B.6 001

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.7 / 45.5 / 45.6)

Comments:

MCS	Time:	4	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C C C C C C C C C C	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

46. 062 K1.02 048

Given the following plant conditions:

- Unit 1 & 2 are operating steady-state at 100%
- All systems are normally aligned
- Voltage on 6.9 kV Shutdown Board 1B-B instantaneously drops to 5400 volts.

Which ONE (1) of the following describes the plant response to these conditions?

- A✓ After 1.25 seconds, all diesel generators will auto start and load shedding will be initiated on 1B-B 6.9 kV Shutdown Board.
- B. After 9.5 seconds, 1B-B Diesel Generator will auto start and load shedding will be initiated on 1B-B 6.9 kV Shutdown Board.
- C. After 30 seconds all diesel generators will auto start and load shedding will be initiated on all 6.9 kV Shutdown Boards.
- D. After 300 seconds all diesel generators will auto start and load shedding will be initiated on 1B-B 6.9 kV Shutdown Board.

- A. Correct, Voltage would have to be <5520 volts to start the 1.25 second timers.*
- B. Incorrect, Plausible due to voltage value is correct to pickup the degraded voltage relays but an SI must exist in conjunction with low voltage for 9.5 seconds, to get diesel start, also all diesel generators are started in this condition.*
- C. Incorrect, Plausible due to there is a 30 second timer but only produces an alarm.*
- D. Incorrect, Plausible due to voltage less than 6451 volts but greater than 5520 volts for 300 seconds these actions will occur.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 48

Tier 2 Group 1

K/A 062 K1.02
Knowledge of the physical connections and/or cause effect
relationships between the ac distribution system and the following
systems: ED/G

Importance Rating: 4.1 / 4.4

Technical Reference: TI-28, Att 9, Drawing 1-45N724-2, 1-45N765-1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.DG, Obj.B.4.e
OPT200.BLKOUT, Obj.B.4.e

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, SQN Exam Bank D/G-B.9.A 005

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 41.2 to 41.9

Comments: Changed third bullet from '*Voltage on 6.9 kV Shutdown Board 1B-B is 5400 volts*' to '*Voltage on 6.9 kV Shutdown Board 1B-B instantaneously drops to 5400 volts*'

5400 volts.added "*instantaneously* dropped to"

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A A A A A A A A A A	Items Not Scrambled
Source:	BANK		Source If Bank:	SQN
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

47. 063 K2.01 049

Given the following:

- Both Units in service at power
- 6.9kv Shutdown Board 1A-A control power is being supplied from the BACKUP bus NORMAL feeder in support of a maintenance activity.
- A 60v negative DC ground develops on the control circuit of the 1A-A Shutdown Board Emergency feeder breaker 1912.

Which ONE (1) of the following identifies the Battery Board ground detector that will indicate the ground?

- A. 125v Vital Battery Board I
- ☒ B. 125v Vital Battery Board III
- C. Diesel Generator 1A 125v Battery Board
- D. Diesel Generator 2A 125v Battery Board

- A. Incorrect, Plausible due to this is the power supply for the 1A-A control power when being feed from the Backup bus alternate feeder.*
- B. Correct, This is the power supply for the 1A-A control power when being feed from the Backup bus normal feeder.*
- C. Incorrect, Plausible due to the emergency feed to the shutdown board is from the DG and candidate may think the control power for the breaker is from the DG battery.*
- D. Incorrect, Plausible due to the emergency feed to the shutdown board is from the DG and candidate may think the control power for the breaker is from the DG battery. Since stem indicates Backup bus being used Diesel Generator 2A 125v Battery Board would seem plausible.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 49

Tier 2 Group 1

K/A 063 K2.01
 Knowledge of bus power supplies to the following: Major DC loads

Importance Rating: 2.9 / 3.1

Technical Reference: AOP-P.02, Loss of 125V DC Vital Battery Board
 0-45N703-3

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.DC B.4
 OPT200.AC6.9KV B.4.b

Question Source:
 Bank # _____
 Modified Bank # _____
 New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
 Memory or fundamental knowledge _____
 Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D B D C C A A B A	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

48. 064 K6.08 050

The 2A-A DG is running. The lead Fuel Oil Transfer pump starts in response to low level in the Fuel Oil Day Tank. This pump fails to develop adequate discharge pressure due to sheared shaft and continues to run.

Which ONE (1) of the following correctly describes the operation of the 2A-A DG Fuel Oil Transfer pumps?

- A✓ The second Fuel Oil Transfer pump will start if in AUTO at a lower level.
- B. The second Fuel Oil Transfer pump will NOT start unless the alternator circuit is manually reset.
- C. The second Fuel Oil Transfer pump will start due to low discharge pressure of the running Fuel Oil Transfer pump.
- D. The second Fuel Oil Transfer pump will NOT start due to the lead pump's breaker being shut and pump is running.

A. Correct, Two setpoints (Upper low, and Lower low) on the Fuel Oil Day Tank for auto start of Fuel Oil Transfer Pumps. The alternator alternates which pump is lead and starts the lead pump on Upper Low first. The Second pump will auto start on the Lower Low setpoint.

B. Incorrect, Plausible because candidate may think that the alternator circuit would only allow 1 pump to run and alternator would need to be reset to get other pump running.

C. Incorrect, Plausible because candidate may think the low pressure is a second start feature to backup the start level switches to ensure diesels have fuel.

D. Incorrect, Plausible because candidate may think the pump needs to cycle off for the alternator to start the second pump.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 50

Tier 2 Group 1

K/A 064 K6.08

Knowledge of the effect of a loss or malfunction of the following
will have on the ED/G system: Fuel oil storage tanks

Importance Rating: 3.2 / 3.3

Technical Reference: 45N771-4

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.DG B.4c and 5.d.e

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC Exam 1/2008, SQN Bank D/G-B.10 001

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 41.7 / 45.7

Comments: reworded stem and distracters not enough to "Modify"

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B A D B B D D A B	Scramble Range: A - D
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

49. 068 A4.02 062

With the pump control handswitches in AUTO, which ONE (1) of the following correctly describes operation of the Reactor Coolant Drain Tank (RCDT) pumps when 2-FCV-68-310, PRT Drain to RCDT, is opened to reduce the level in the Pressurizer Relief Tank (PRT)?

- A. RCDT Pump A will auto start ONLY if the level in the RCDT is above the low level pump cutoff level switch.
- B. RCDT Pump A will auto start EVEN if the level in the RCDT is below the low level pump cutoff level switch.
- C. RCDT Pump B will auto start ONLY if the level in the RCDT is above the low level pump cutoff level switch.
- D✓ RCDT Pump B will auto start EVEN if the level in the RCDT is below the low level pump cutoff level switch.

- A. *Incorrect, The A pump does not receive a start signal when 2-FCV-68-310 is opened, only the B pump has this start function. Plausible because the candidate could confuse which pump starts when the valve opens and due to the pump having an auto start / trip based on RCDT tank level.*
- B. *Incorrect, The A pump does not receive a start signal when 2-FCV-68-310 is opened, only the B pump has this start function. Plausible because the candidate could confuse which pump starts when the valve opens and due to the pump having an auto start / trip based on RCDT tank level with the trip being bypassed if the valve were open.*
- C. *Incorrect, The B pump will start when 2-FCV-68-310 is opened. The valve open limit switch in the start circuit is in parallel to the contact that would be open if RCDT level were low. Plausible because there is a level switch that would trip the pump if the RCDT level decreased to the setpoint while pumping down the RCDT, however, this switch is bypassed when 2-FCV-68-310 is opened.*
- D. *Correct, The B pump will start when 2-FCV-68-310 is opened. The valve open limit switch in the start circuit is in parallel to the contact that would be open if RCDT level were low.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 62

Tier 2 Group 2

K/A 068 A4.02

Ability to manually operate and/or monitor in the control room:
Remote radwaste release

Importance Rating: 3.2 / 3.1

Technical Reference: 2-SO-68-5, Pressurizer Relief Tank, Rev 17
1,2-45N779 -17 Rev 21
1,2-45N779 -45 Rev 8

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.PZRPCS B.4.
OPT200.LRW B.4

Question Source: SQN NRC EXAM 1/2008, Modified WB Bank 007A1.01 034

Bank # _____
Modified Bank # ____X_____
New _____

Question History: New for SQN NRC Exam 1/2008

Question Cognitive Level:
Memory or fundamental knowledge ____X_____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7 / 45.5 to 45.8

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D A B A A A C C B C	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	WBN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

50. 069 G2.4.45 023

Given the following for Unit 1:

- Plant is at 100% power.
- Containment entry is in progress for maintenance.
- The following annunciators are locked in.
 - LWR PERS ACCESS OUTER DR LOCK
 - LWR PERS ACCESS INNER DR LOCK
 - UPR/LWR AIR LOCK BREACH
- Containment pressure has rapidly equalized with the Aux Building.
- Containment pressure currently indicates 0.18 PSID.

In addition to TS 3.0.3, which ONE (1) of the following meets both, a required TS entry **AND** the required action?

- A. Enter TS 3.6.1.4 "INTERNAL PRESSURE" and required to restore Containment to annulus DP within 1 hour.
- B✓ Enter TS 3.6.1.1 "CONTAINMENT INTEGRITY" and required to restore Containment integrity within 1 hour.
- C. Enter TS 3.6.1.3 "CONTAINMENT AIR LOCKS" and required to restore both Containment Access doors to operable status within 1 hour.
- D. Enter TS 3.6.1.2 "SECONDARY CONTAINMENT BYPASS LEAKAGE" and required to restore Secondary Containment Bypass Leakage within 1 hour.

A. Incorrect, Plausible if student does not know LCO for Containment pressure with question indicating rapid drop in pressure. Containment pressure still within limits of Tech Spec 3.6.1.4 of -0.1 and 0.3 psig.

B. Correct, Due to Not meeting requirements of TS 3.6.1.3 per surveillance requirements of TS 4.6.1.1

C. Incorrect, Plausible if student does not know LCO for Containment Air Locks. There is no 1 hour action for TS 3.6.1.3 associated with any doors being inoperable.

D. Incorrect, Plausible if student does not know that Containment Access doors are not considered bypass leakage paths to the Auxiliary Building.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 23

Tier 1 Group 2

K/A 069 G2.4.45

Loss of CTMT Integrity: Ability to prioritize and interpret the significance of each annunciator or alarm.

Importance Rating: 3.3 / 3.6

Technical Reference: 0-AR-M12-C page 2,3,4, and 7. Tech Specs 3.6.1.1, 3.6.1.3.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CntmtStructure B.5 & 6

Question Source:

Bank # _____
Modified Bank # _____
New X

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 43.5 / 45.3 / 45.12)

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B B B B B B B B B	Items Not Scrambled
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

51. 071 K3.04 063

Given the following plant conditions:

- Gas Decay Tank 'C' release is in progress with Train A ABGTS running for dilution flow.
- Irradiated Fuel assembly insert shuffles are being conducted in the Spent Fuel Pit.
- Fuel Handling Area Exhaust Fan A is running.
- A leak occurs on the waste gas compressor which results in a gas release to the Auxiliary Building.
- 0-RE-90-101, Auxiliary Building Vent Monitor, alarms due to High radiation.
- 0-RE-90-102 and 0-RE-90-103, Fuel Storage Pool Area Monitors, indicate NORMAL radiation levels and are NOT in alarm.

Which ONE (1) of the following indicates the effect this would have on the running Fuel Handling Area Exhaust Fan and on the ABGTS?

(Assume no operator action has been taken)

- A. Fuel Handling Area Exhaust Fan would remain in service:
Train B ABGTS would start .
- B. Fuel Handling Area Exhaust Fan would remain in service:
Train B ABGTS would NOT start.
- C. ✓ Fuel handling Area Exhaust Fan would be stopped;
Train B ABGTS would start.
- D. Fuel handling Area Exhaust Fan would be stopped:
Train B ABGTS would NOT start.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect - Fuel Handling Area Exhaust Fan will be stopped due to an ABI being initiated and the Train B ABGTS will be started by the ABI. Plausible because the candidate may conclude that the Fuel Handling Area Exhaust Fan would not be stopped due to normal radiation on the Spent Fuel Pool Area Monitors.*
- B. *Incorrect - Fuel Handling Area Exhaust Fan will be stopped due to an ABI being initiated and the Train B ABGTS will be started by the ABI. Plausible because the candidate may conclude that the Fuel Handling Area Exhaust Fans would be stopped due to High radiation in the Aux Building stack but that the Train B ABGTS would not start because the Train A ABGTS was already in service.*
- C. *Correct - High radiation in the the aux building stack will cause an aux building Isolation resulting in the tripping of the Fuel Handling Area Exhaust Fan and the starting of both trains of ABGTS.*
- D. *Incorrect - Fuel Handling area exhaust fan will be stopped due to an ABI being initiated and the Train B ABGTS will be started by the ABI. Plausible because the candidate may conclude that the Fuel Handling Area Exhaust Fans would not be stopped due to normal radiation on the Spent Fuel Pool Area Monitors and that the Train B ABGTS would not start because the Train A ABGTS was already in service.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 63

Tier 2 Group 2

K/A 071 K3.04
Knowledge of the effect that a loss or malfunction of the Waste Gas Disposal System will have on the following: Ventilation Systems

Importance Rating: 2.7 / 2.9

Technical Reference: 0-AR-M12-B, Common Radiation Monitor 0-XA-55-12B,
Window B-1
0-S0-30-10, Auxiliary Building Ventilation Systems, Rev 38
1,2-47W611-30-6

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.ABVENT B.4.g. and i.
OPT200.ABGTS B.4.f

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: Modified from question on SQN 2007 exam

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7 / 45.6

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C B D C B A D D A A	Scramble Range: A - D
Source:	BANK MOD		Source If Bank: SQN	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

52. 073 A1.01 051

Given the following plant conditions:

- Both Units operating at 100% RTP
- A leak in the the Unit 2 Letdown Heat Exchanger has resulted in an increase in the radiation level on Radiation Monitor 2-RM-90-123A.
- The radiation level is trending upward

Which ONE (1) of the following identifies how the CCS surge tank vent valves, 1-FCV-70-66 and 2-FCV-70-68, will be affected as the radiation level continues to rise?

- A✓ Both vent valves, 1-FCV-70-66 and 2-FCV-70-68, will automatically isolate when 2-RA-90-123A CCS LIQ EFF MON HIGH RAD alarm comes in.
- B. Both vent valves, 1-FCV-70-66 and 2-FCV-70-68 will require manual isolation by the Reactor Operator when 2-RA-90-123A CCS LIQ EFF MON HIGH RAD alarm comes in.
- C. 2-FCV-70-68 automatically isolate when the monitor high radiation setpoint is reached. 1-FCV-70-66 will left open until 1-RA-90-123A CCS LIQ EFF MON HIGH RAD alarm comes in.
- D. 2-FCV-70-68 will automatically isolate when 2-RA-90-123A CCS LIQ EFF MON HIGH RAD alarm comes in. 1-FCV-70-66 will be manually isolated by the Reactor Operator when 2-RA-90-123A CCS LIQ EFF MON HIGH RAD alarm comes in.

- A. *Correct, Both surge Tank vents will isolate, if setpoint is reached on any of the Rad. monitors on the CCS system.*
- B. *Incorrect, Plausible due to other PRMs will trigger alarms and require manual operator action to terminate any releases. An example is the turbine building sump rad monitor.*
- C. *Incorrect, Both surge Tank vents will isolate, if setpoint is reached on any of the Rad. monitors on the CCS system. Plausible due to candidate could think that the U2 monitors only isolated the vent with the unit 2 designator and that would not be need to isolate the vent with U1 designator until radiation was sensed on the U1 CCS system.*
- D. *Incorrect, Both surge Tank vents will isolate, if setpoint is reached on any of the Rad. monitors on the CCS system. Plausible due to candidate could think that the U2 monitors only isolated the vent with the unit 2 designator.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 51

Tier 2 Group 1

K/A 073 A1.01
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including:
Radiation levels

Importance Rating: 3.2 / 3.5

Technical Reference: 0-M-AR12-D
 1,2-47W611-70-1
 1,2-47W611-70-2

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CCS B.5

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.5 / 45.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B D D A C A C D A	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

53. 074 EK3.07 024

During the performance of FR-C.1, "Inadequate Core Cooling" the operators are directed to start the RCPs if Incore TCs remain >1200°F.

Which ONE (1) of the following describes the purpose of starting the RCPs?

- A. Establish motive force required for reflux boiling heat removal to occur.
- B✓ Provides temporary cooling to the core by forcing two-phase flow through the core.
- C. Prevents the RCS from repressurizing thereby increasing effectiveness of the ECCS flow established earlier.
- D. Ensure steam in the RCS intermediate legs is removed to minimize RCS flow restrictions for cooling the core.

A. Incorrect, Plausible due to reflux boiling will remove heat however RCP's are not required for motive force for reflux boiling to occur. Reflux boiling is used as a heat transfer method with low RCS inventory and RCP's secured.

B. Correct, Provides temporary cooling to the core by forcing two-phase flow through the core.

C. Incorrect, Plausible due to raising RCS pressure will lower ECCS flow which would lower the heat removal effectiveness. However starting RCP is not to stop RCS repressurization.

D. Incorrect, Plausible due to starting RCP's will actually clear the water inventory in the intermediate leg and permit circulation of hot gases from the core to the S/G's. The student may equate the formation of a loop seal to stopping any flow through the leg.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 24

Tier 1 Group 2

K/A 074 EK3.07

Inadequate Core Cooling: Knowledge of the reasons for the following
responses as they apply to the Inadequate Core Cooling, Starting up
emergency feedwater and RCP's

Importance Rating: 4.0 / 4.4

Technical Reference: FR-C.1 Step 21 starts RCP's. EPM-3-FR-C.1 for step 21.

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-C.1 B.4

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN NRC EXAM 1/2008, SQN Bank SQN FR-C.1 002

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: (CFR 41.5 / 41.10 / 45.6 / 45.13)

Comments: Some distracters changed

MCS	Time: 2	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B C B B C A D A A B	Scramble Range: A - D
Source:	BANK		Source If Bank: SQN	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

54. 075 G 2.2.11 064

Given the following:

- The Unit 1 Condenser Circulating Water (CCW) system is being shutdown during an unit outage.
- The 1A and 1B CCW pump have been removed from service.

When the 1C CCW pump is stopped, the pump discharge valve will _____ (1) _____ and if this design was changed via Temporary Alteration Control Form (TACF) process, the resulting changes to the System Operating Instruction are required to be completed _____ (2) _____ issuing the TACF?

- A. (1) Automatically close;
(2) Prior to
- B. (1) Automatically close;
(2) within 14 days of
- C✓ (1) Remain open;
(2) Prior to
- D. (1) Remain open;
(2) within 14 days of

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, While the discharge valve will normally close when a CCWP is stopped, the discharge valve on the last pump stopped will remain open. The TACF process requires the affected procedures to be revised prior to issuing the TACF. Plausible because the discharge valve would close if the 1C CCWP was not the last pump stopped.*
- B. *Incorrect, While the discharge valve will normally close when a CCWP is stopped, the discharge valve on the last pump stopped will remain open. The TACF process requires the affected procedures to be revised when the TACF is issued. Plausible because the discharge valve would close if the 1C CCWP was not the last pump stopped and the procedure control process does allow 14 days for urgent handwritten changes to be processed in the system, however this is not the condition stated.*
- C. *Correct, The discharge valve on the last pump to be stopped will remain open as discussed in 0-SO-27-1. the TACF process requires that affected procedures be revised then the TACF is issued.*
- D. *Incorrect, The discharge valve on the last pump to be stopped will remain open as discussed in 0-SO-27-1 However, the TACF process requires the affected procedures to be revised when the TACF is issued. Plausible because the discharge valve would remain open because the 1C CCWP is the last pump stopped and because the procedure control process does allow 14 days for urgent handwritten changes to be processed in the system, however this is not the condition stated.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 64

Tier 2 Group 2

K/A 075 G 2.2.11

Knowledge of the process for controlling temporary changes.

Importance Rating: 2.5 / 3.4

Technical Reference: SPP-9.5, Temporary Alterations, Rev 8
0-SO-27-1 Rev 64
SPP-2.2, Administration of Site Technical Procedures, Rev 14
1,2-47W611-27-1, Rev 8

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271SPP-9.5 B.4
OPT200.CCW B.4.f

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC Exam 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.10 / 43.3 / 45.13

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C D C B B A D D C A	Scramble Range: A - D
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

55. 076 A2.02 052

Given the following plant conditions and information:

- Both Units operating at 100% power
- All systems aligned normal

If a large ERCW leak developed at the inlet to the 1A1 CCS Heat Exchanger, which ONE (1) of the ERCW Headers would have increased flow, and when the leak was isolated, how would the 1A and 2A ERCW header pressures be effected?

	<u>Header with Flow Increase</u>	<u>Effect on Header Pressure</u>
A.	1A	Both 1A and 2A header pressures would increase
B.	1A	Only the 1A header pressure would increase
C✓	2A	Both 1A and 2A header pressures would increase
D.	2A	Only the 2A header pressure would increase

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, The 1A ERCW supply header is not the header supplying the flow for the 1A1&1A2 CCS Heat Exchangers, the 2A header ERCW is the supply. However, because the headers are common at the pumping station, isolating the leak would cause both 1A and 2A header pressures to increase. Plausible because the component with the leak is a Unit 1 heat exchanger and standard configuration would be for a Unit 1 water header to supply the cooling and if so the flow would increase in the 1A header and the candidate could correctly relate the reduction in flow when the leak is isolated to only effecting pressures in both the 1A and 2A headers.*
- B. *Incorrect, The 1A ERCW supply header is not the header supplying the flow for the 1A1&1A2 CCS Heat Exchangers, the 2A header ERCW is the supply. Additionally, because the headers are common at the pumping station, isolating the leak would cause both 1A and 2A header pressures to increase. Plausible because the component with the leak is a Unit 1 heat exchanger and standard configuration would be for a Unit 1 water header to supply the cooling and if so the flow would increase in the 1A header and the candidate could relate the reduction in flow when the leak is isolated to only effecting pressure in the 1A header and not consider the connection at the pumping station.*
- C. *Correct. 2A ERCW supply header is the normal supply for the 1A1&1A2 CCS Heat Exchangers and the 2A1&2A2 CCS Heat Exchangers. Isolating the leak would cause both 1A and 2A header pressures to increase because the headers are common at the ERCW Pumping Station.*
- D. *Incorrect. 2A ERCW supply header is the normal supply for the 1A1&1A2 CCS Heat Exchangers and the 2A1&2A2 CCS Heat Exchangers. However because the headers are common at the pumping station, isolating the leak would cause both 1A and 2A header pressures to increase. Plausible because the flow would increase in only the 2A header and the candidate could relate the reduction in flow when the leak is isolated to only effecting pressure in the 2A header and not consider the connection at the pumping station.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 52

Tier 2 Group 1

K/A 076 A2.02
Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Service water header pressure

Importance Rating: 2.7 / 3.1

Technical Reference: 0-SO-67-1, Essential Raw Cooling Water
1, 2-47W845-1 R47; 1, 2-47W845-2 R93; 1, 2-47W845-5 R59,

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200ERCW B.3
OPT200ERCW B.4
OPT200ERCW B.5

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.5 / 43.5 / 45/3 / 45/13

Comments:

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C B D C D D A D C B	Scramble Range: A - D
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

56. 076 A4.02 053

Given the following plant conditions and information:

- Unit 1 was operating at 100% power
- A Safety Injection just occurred on Unit 1 due to a LOCA

Each of the valves listed below have a required position when aligning ERCW in accordance with EA-67-1 following the U1 Safety Injection signal:

- 0-FCV-67-152 is the CCS HX 0B1 and 0B2 outlet valve
- 1-FCV-67-146 is the CCS HX 1A1 and 1A2 outlet valve
- 2-FCV-67-146 is the CCS HX 2A1 and 2A2 outlet valve

Which ONE (1) of the following describes how the valves will be positioned (Automatically or Manually) to the required position as a result of the Safety Injection?

	<u>0-FCV-67-152</u>	<u>1-FCV-67-146</u>	<u>2-FCV-67-146</u>
A.	Automatic	Manual	Automatic
B✓	Automatic	Manual	Manual
C.	Manual	Automatic	Automatic
D.	Manual	Automatic	Manual

QUESTIONS REPORT

for RO Written Exam Questions

All Valves listed are automatically or manually manipulated as required by EA-67-1 or an SI signal, thus plausible. The student would be required to know which valve would receive an automatic signal or required to be manipulated manually.

- A. Incorrect. 0-FCV-67-152 automatically goes to the 35% open position for an SI signal on either unit. This ensures adequate flow and CCS system backpressure for the B train ESF equipment for the accident unit. 2-FCV-67-146 remains in its current position until manually realigned as directed by EA-67-1.*
- B. Correct. 0-FCV-67-152 automatically goes to the 35% open position for an SI signal on either unit. This ensures adequate flow and CCS system backpressure for the B train ESF equipment for the accident unit. 1-FCV-67-146 and 2-FCV-67-146 remains in its current position until manually realigned as directed by EA-67-1.*
- C. Incorrect. 0-FCV-67-152 automatically goes to the 35% open position for an SI signal on either unit. This ensures adequate flow and CCS system backpressure for the B train ESF equipment for the accident unit. 1-FCV-67-146 and 2-FCV-67-146 remain in their current position until manually realigned as directed by EA-67-1.*
- D. Incorrect. 0-FCV-67-152 automatically goes to the 35% open position for an SI signal on either unit. This ensures adequate flow and CCS system backpressure for the B train ESF equipment for the accident unit. 1-FCV-67-146 remains in its current position until manually realigned as directed by EA-67-1.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 53

Tier 2 Group 1

K/A 076 A4.02

Ability to manually operate and/or monitor in the control room:
SWS Valves

Importance Rating: 2.6 / 2.6

Technical Reference: EA-67-1
47W845-2
47W611-67-5
47W611-99-3

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.ERCW B.4

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC EXAM 1/2008, SQN Bank ERCW-B.9.E 003

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7 / 45.5 to 45.8

Comments:

MCS	Time: 3	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B D D D C A D C D A	Scramble Range: A - D
Source:	BANK MOD		Source If Bank: SQN	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

57. 076 AK 2.01 025

Given the following:

- The unit has been at 100% power
- Total primary to secondary leakage is 29 gpd
- Identified RCS leakage is 0.02 gpm
- Unidentified RCS leakage is 0.02 gpm
- Pzr level, VCT level, charging flow, and letdown flow are all stable

If a fuel element defect occurred, which ONE (1) of the following identifies how the identified process rad monitors would respond in accordance with AOP-R.01, Steam Generator Tube Leak?

1-RM-90-106 - Lower Containment Radiation Monitor

1-RM-90-119 - Condenser Vacuum Pump Exhaust Rad Monitor

	<u>1-RM-90-106</u>	<u>1-RM-90-119</u>
A.	Stable	Rising
B.	Stable	Stable
C✓	Rising	Rising
D.	Rising	Stable

QUESTIONS REPORT
for RO Written Exam Questions

- A. Incorrect, The lower containment radiation monitors will increase concurrently with the condenser vacuum pump radiation monitor as described in AOP-R.01. Plausible if the candidate concludes that the radiation in lower containment will not increase.*
- B. Incorrect, Both of the radiation monitors will see increased radiation as described in AOP-R.01. Plausible if the candidate concludes that with the radiation in lower containment will not increase and that with the identified leakage numbers that the condenser vacuum pump would not sense the increase.*
- C. Correct, If a fuel defect occurred concurrently with a steam generator tube leak, the lower containment radiation and the radiation sensed at the condenser vacuum pump discharge could increase as described in AOP-R.01, Steam Generator Tube Leak.*
- D. Incorrect, The condenser vacuum pump radiation monitor, would not be stable, it would increase as described in AOP-R.01. Plausible because the candidate may conclude that the radiation in lower containment would rise but also conclude that the condenser vacuum pump would not sense the increase because of the amount of leakage in the question.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 25

Tier 2 Group 2

K/A 076AK2.01
High Reactor Coolant Activity: Knowledge of the interrelations between
the High Reactor Coolant Activity and the following:
Process Radiation Monitors.

Importance Rating: 2.6 / 3.0

Technical Reference: AOP-R.01, Steam Generator Tube Leakage

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271AOP-R.01 B.6

Question Source:

Bank # X
Modified Bank #
New

Question History: SQN question AOP-R.06-B.0 001

Question Cognitive Level:

Memory or fundamental knowledge
Comprehension or Analysis X

10 CFR Part 55 Content: 41.5 / 45.5

Comments:

MCS	Time:	4	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C C C C C C C C C C	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

58. 078 K3.01 054

Which ONE (1) of the following identifies the air supply header pressure at which the Train A essential air valve, 1-FCV-32-80, Aux Cmpsr A-A Rx Bldg U-1 Isol, would automatically CLOSE and the effect the loss of air to containment would have on the Pressurizer Spray Valve?

	<u>Header Pressure</u>	<u>Spray Valve Position</u>
A✓	50 psig decreasing	Fails CLOSED
B.	50 psig decreasing	Fails OPEN
C.	69 psig decreasing	Fails CLOSED
D.	69 psig decreasing	Fails OPEN

- A. *Correct; 50 psig decreasing and Spray Valves fail closed.*
- B. *Incorrect; correct Pressure, Incorrect valve position (plausible because many valves do fail open.)*
- C. *Incorrect; Incorrect pressure Plausible due to 69 psig is the pressure that a valve closed to isolate Auxiliary air from Control Air, correct valve position*
- D. *Incorrect; Incorrect pressure. Plausible due to 69 psig is the pressure that a valve closed to isolate Auxiliary air from Control Air), Incorrect valve position (plausible because many valves do fail open.)*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 54

Tier 2 Group 1

K/A 078 K3.01
Knowledge of the effect that a loss or malfunction of the IAS will have
on the following: Containment air system .

Importance Rating: 3.1 / 3.4

Technical Reference: 0-SO-32-2
 AOP-M.02

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CSA B.4

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank AIR 008

Question Cognitive Level:

Memory or fundamental knowledge _____x_____

Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7 / 45.6

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A A D C C B A D D A	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

59. 086 A1.01 065

Which ONE (1) of the following identifies the design features for preventing an overpressure condition on the High Pressure Fire Protection header if the Diesel Fire Pump (DFP) were to overspeed while in operation?

- A✓ The DFP has an overspeed trip that will trip pump anytime pump overspeeds regardless of start signal. There is a relief valve on the discharge of the pump.
- B. The DFP has an overspeed trip that will trip pump anytime pump overspeeds regardless of start signal. The DFP will automatically shutdown if pressure reaches high setpoint.
- C. The DFP has an overspeed trip for protection during testing but it is removed from service if the pump is started from a fire detection signal. There is a relief valve on the discharge of the pump.
- D. The DFP has an overspeed trip for protection during testing but it is removed from service if the pump is started from a fire detection signal. The DFP will automatically shutdown if pressure reaches a high pressure setpoint .

- A. Correct, The DFP has both a Overspeed trip and a relief valve.*
- B. Incorrect, The DFP has an overspeed trip, but the pump will not shutdown on high pressure. However, plausible due to the Jockey pump in parallel that will shutdown due to pressure after a minimum run time delay.*
- C. Incorrect, The DFP overspeed trip is always in service, but plausible due to some trips being removed from service during fire detection actuation signals. There is a relief valve on the discharge of the pump.*
- D. Incorrect, The DFP overspeed trip is always in service, but the pump will not shutdown on high pressure. However, plausible due to the Jockey pump in parallel that will shutdown due to pressure after a minimum run time delay.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 65

Tier 2 Group 2

K/A 086 A1.01
Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Fire Protection System operating the controls including: Fire header pressure

Importance Rating: 2.9 / 3.3

Technical Reference: 0-SO-26.2,
 1,2-47W850-27

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200HPFP B.3

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.5 / 45.5

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A A A A C D C A D A	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

60. 103 A3.01 055

Given the following plant conditions:

- Unit 2 experienced a spurious Safety Injection (SI).
- Lower Containment Rad Monitor, 2-RM-90-106A, indicates stable trend with no rise in radiation.
- Containment Vent Isolation occurred on Train A.
- Containment Vent Isolation did NOT occur on Train B.
- SI signal has NOT been RESET.

Which ONE (1) of the following describes the status of the Containment Vent Isolation(CVI) system?

The CVI _____ and _____.

- A✓ should have occurred on B Train;
the CVI can be reset with the SI signal present.
- B. should have occurred on B Train;
the SI signal must be reset before the CVI can be reset.
- C. should NOT have occurred on A Train;
the CVI can be reset with the SI signal present.
- D. should NOT have occurred on A Train;
the SI signal must be reset before the CVI can be reset.

A. Correct, A SI signal will initiate CVI on both trains. A reset switch exists that is self sealing which will allow CVI to be reset with a SI signal still present.

B. Incorrect, First part correct. Second part incorrect. Plausible if student believes since an SI signal initiates a CVI that the SI must be cleared before resetting the CVI can be accomplished.

C. Incorrect, Plausible if student does not know an SI signal will initiate CVI on both trains, and since radiation levels did not go up on the A Train Rad monitor CVI Train A should not have occurred.

D. Incorrect, An SI signal will initiate CVI on both trains. Since radiation levels did not go up on the A Train Rad monitor CVI Train A should not have occurred. Second part plausible if student believes since an SI signal initiates a CVI that the SI must be cleared before resetting the CVI can be accomplished.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 55

Tier 2 Group 1

K/A 103 A3.01
Ability to monitor automatic operation of the containment system, including:
Containment isolation

Importance Rating: 3.9 / 4.2

Technical Reference: 2-47W611-63-1, 2-47W611-88-1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.RPS, Obj. B.18.b
 OPT200PIS

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank RPS-B.9 005 Modified

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X _____

10 CFR Part 55 Content: 41.7 / 45.5

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A B C D A B C D A B	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

61. G 2.1.27 067

Given the following:

- Unit 2 at 35% RTP with power ascension in progress in accordance with 0-GO-5, Normal Power Operation, following a refueling outage.
- A loss of feedwater results in a reactor trip.
- The level in all 4 Steam Generators drops to < 0% Narrow Range and start recovering.
- 25 seconds after the trip the Steam Generator level are:
 - SG #1 - 6%
 - SG #1 - 9%
 - SG #1 - 4%
 - SG #1 - 3%

Which ONE (1) of the following identifies the expected response of the ATWS Mitigation System Actuation Circuitry(AMSAC)?

- A✓ AMSAC will NOT actuate because the AMSAC system was NOT armed.
- B. AMSAC will have actuated because S/G levels are below the actuation setpoint.
- C. AMSAC will NOT actuate because S/G levels have recovered above the actuation setpoint.
- D. AMSAC will actuate when the time delay is met unless S/G levels continue to increase.

A. Correct, The system does not arm until unit power is >40% and the stated power in question is 35%.

B. Incorrect, Levels are below the setpoint, however, the system does not arm until unit power is >40% and the stated power in question is 35%. Plausible if student does not know arming setpoint.

C. Incorrect, True that AMSAC will not actuate, however, the levels are still below the actuation setpoint (3 out 4 < 8%). So level recovery is NOT the reason it does not actuate. Plausible if student does not know 3 out 4 < 8% logic.

D. Incorrect, Plausible if student remembers a time delay exists and does not know AMSAC is not armed given the current plant conditions of 35% power.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 67

Tier 3

K/A G 2.1.27
Knowledge of system purpose and or function

Importance Rating: 2.8 / 2.9

Technical Reference: 1.2-47W611-3-5
TI-28 Attachment 9
1-AR-M3-C

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.AMSAC B.4

Question Source: Robinson 9/2004 exam

Question History:

Question Cognitive Level:
Memory or fundamental knowledge _____
Comprehension or Analysis _____X_____

10 CFR Part 55 Content: 41.7

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A D D B B D D C B C	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	ROBINSON	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

62. G 2.1.28 068

Which ONE (1) of the following identifies...

(1) the purpose of the Essential Raw Cooling Water (ERCW) pump selector switch 0-XS-67-285, PUMPS J-A & Q-A DG POWER SEL?

and

(2) how this function is performed if the pump controls are in Auxiliary mode?

- A. (1) Determines which pump will restart when load is sequenced on the Shutdown Board following a blackout;
(2) 6.9 kv breaker position of the pumps prior to the blackout.
- B✓ (1) Determines which pump will restart when load is sequenced on the Shutdown Board following a blackout;
(2) Positioning of the handswitches on the 6.9 kv breaker compartments for the pumps.
- C. (1) Determines the sequence the paired pumps will restart when load is sequenced on the Shutdown Board following a blackout;
(2) 6.9 kv breaker position of the pumps prior to the blackout.
- D. (1) Determines the sequence the paired pumps will restart when load is sequenced on the Shutdown Board following a blackout;
(2) Positioning of the handswitches on the 6.9 kv breaker compartments for the pumps.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, Switch purpose is correct, the switch determines which pump is selected for restart to prevent overload of the DG. Auxiliary mode function is on the 6.9kv breaker switchgear handswitch not on previous breaker position. Plausible if the candidate thinks the pump to restart is based on previous breaker position as there are cell switches on the breakers that could perform the function.*
- B. *Correct, Switch determines which pump is selected for restart to prevent overload of the DG. When the pump controls are in auxiliary, the pump whose 6.9kv breaker switchgear handswitch was taken to start last will be the pump selected to start.*
- C. *Incorrect, Pumps do not sequence back on, only the selected pump will start. The auxiliary mode function is on the 6.9kv breaker switchgear handswitch not on previous breaker position. Plausible if the candidate thinks the pumps both sequence back on and the sequence the pumps restart is based on previous breaker position as there are cell switches on the breakers that could perform the function.*
- D. *Incorrect, Both of the pumps do not sequence back on, only the selected pump will start. The (2) part is correct. auxiliary mode function is on the 6.9 kvbreaker switchgear handswitch not on previous breaker position. Plausible if the candidate thinks the pumps both sequence back and knows that with the controls in the auxiliary mode the pump restart is based on handswitch position.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 68

Tier 3

K/A 2.1.28
 Knowledge of the purpose and function of major system components and controls.

Importance Rating: 3.2 /3.3

Technical Reference: 0-47W611-67-6 Rev 14

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.ERCW B.4.f, B.4.m

Question Source:

Bank # _____
Modified Bank # X _____
New _____

Question History: SQN NRC Exam 1/2008, SQN Bank Mod ERCW008

Question Cognitive Level:

Memory or fundamental knowledge X _____
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.7

Comments: ERCW008 (ERCW-B.4 002)

MCS	Time: 2	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: B A D D A A B C C A	Scramble Range: A - D
Source:	BANK MOD		Source If Bank: SQN	
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant: SEQUOYAH	
Date:	1/2008		Last 2 NRC?: NO	

QUESTIONS REPORT
for RO Written Exam Questions

63. G 2.1.3 066

Which ONE (1) of the following identifies actions, in the list below, that are included in the listing of activities required to be reviewed during during Shift Turnover in accordance with OPDP-1, Conduct of Operations, by an on-coming OAC at Sequoyah?

1. Radiological changes in plant
2. PERs generated since last shift worked
3. Standing Orders
4. Temporary Alteration Control forms (TACFs)
5. LCOs
6. Priority 1 and 2 Operator Workarounds

- A. All EXCEPT 1 and 2
- B. All EXCEPT 1 and 4
- C✓ All EXCEPT 2 and 6
- D. All EXCEPT 4 and 6

A. Incorrect, Radiological changes in plant are required to be reviewed, PERs are identified on the Turnover Sheet but are applicable for WBN only.

B. Incorrect, Radiological changes in plant and TACFs are required to be reviewed.

C. Correct, Neither are identified as being required on the Turnover Sheet.

D. Incorrect, TACFs are required to be reviewed, Priority 1 and 2 Operator Workarounds are not required on the Turnover Sheet.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 66

Tier 3

K/A 2.1.3
 Knowledge of shift turnover practices

Importance Rating: 3.0 / 3.4

Technical Reference: OPDP-1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271C209 B.10

Question Source:

Bank # _____
Modified Bank # _____
New X _____

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: 41.10 / 45.13

Comments: Got idea from the Kewaunee 11/15/2004 exam

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C B A D D B A D A B	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

64. G 2.2.26 069

Given the following:

- Unit 1 is in MODE 6 with core reload in progress.
- LS-78-3, SPENT FUEL PIT LEVEL HIGH-LOW is in alarm and an AUO has been sent to investigate.
- Source Range counts indicate N31=2cpm, and N32=3cpm.
- The 17th fuel assembly to be loaded is in the Refuel Machine Mast and is being lowered into the core.

Which ONE (1) of the following identifies a condition that would require fuel movement to be stopped?

REFERENCE PROVIDED

- A. During shift rounds an AUO reports the Spent Fuel Pit Temperature to be 69 degrees F.
- B✓ Source Range counts during Fuel Assembly insertion indicate N31=4cpm, and N32=7cpm.
- C. AUO reports Spent Fuel Pit level is stable approximately half way between the EL 725.5 rung and the EL 726 rung.
- D. The MCR RO maintaining the Fuel Assembly Transfer Forms (FATF) determines that the 18th fuel assembly is in the Pit Side Upender before the 17th assembly is set in the core.

- A. Incorrect, Spent Fuel Pit temperature is analyzed down to 50 degrees F. Plausible because the candidate may know that there is a lower limit on analyzed temperature but not remember the value of the limit.*
- B. Correct, If both SRMs increase by a factor of 2 during any single loading step after the first 12 assemblies, fuel loading must stop.*
- C. Incorrect, the level is slightly below the low level alarm but above the TS required level. Plausible because the candidate may know that there is a lower limit on SFP level but not remember the minimum level.*
- D. Incorrect, Fuel assemblies located as stated are within the requirements for assemblies outside of approved storage locations. Plausible because the candidate may know that there is a maximum number of fuel assemblies that can be outside approved storage but not remember the actual requirement or confuse the sequence of movement.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 69

Tier 3

K/A 2.2.26
Knowledge of refueling administrative requirements.

Importance Rating: 2.5 / 3.7

Technical Reference: FHI-3 Movement of Fuel, Rev 51
 0-SO-78-1, Spent fuel Pit Cooling System, Rev 33

Proposed references to be provided to applicants during examination:
 0-SO-78-1 Spent fuel Pit Cooling System, Appendix C

Learning Objective: OPT200.FH B.5.a, B.6.a

Question Source: New

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
 Memory or fundamental knowledge _____
 Comprehension or Analysis _____X_____

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	B D C B A A B C D B	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

65. G 2.2.33 070

Given the following plant conditions:

- Unit 1 is at 40% power, steady-state, MOL
- Rod control system is in AUTO
- All process parameters are on program
- A malfunction in the steam dump system causes three steam dump valves to fail partially open, increasing reactor power to 50%

Which ONE (1) of the following identifies the final rod position compared to the initial rod position and the value T_{avg} should be when the plant stabilizes? (Assume NO operator action.)

- A. Control Rods further inserted,
Tavg would stabilize approximately equal to 559°F
- B. Control Rods further inserted,
Tavg would stabilize approximately equal to 562°F.
- C✓ Control Rods further withdrawn,
Tavg would stabilize approximately equal to 559°F
- D. Control Rods further withdrawn,
Tavg would stabilize approximately equal to 562°F

QUESTIONS REPORT

for RO Written Exam Questions

Tavg @ 40% power = 559°F. Turbine is operated on IMP OUT so when dumps open there is little/no change in Tref.

Tavg goes < Tref; Rods step out to restore Tavg to Tref.

Plant will stabilize @ ~ same Tavg with a larger delta T supporting increased steam load.

- A. Incorrect, Rod would not be further inserted, they would be further withdrawn to restore Tavg to Tref. The Tavg would stabilize at approximately 559°F which is the Tref for 40% power. Plausible if the candidate mistakes which way the control rods will travel but correctly concludes the Tref would be at the 40% value.*
- B. Incorrect, Rod would not be further inserted, they would be further withdrawn to restore Tavg to Tref. The Tavg would stabilize at approximately 559°F which is the Tref for 40% power, not at 562°F which is the Tref for 50% power. Plausible if the candidate mistakes which way the control rods will travel and concludes the Tref would be 50% value instead of the actual value of 40%.*
- C. Correct, Rods will be more withdrawn and Tavg will be approximately equal to Tref. The Tref comes from turbine impulse pressure and with the plant operated in Imp Out, the Tref value will not have changed. The rod control will see a lowering Tavg due to the increase in steam flow and withdraw the rods to cause Tavg to recover to the original Tref value (559°F.)*
- D. Incorrect, Rods will be more withdrawn and Tavg will be approximately equal to Tref for 40% power due to the Tref signal not changing. Tavg would not stabilize at 562°F which is the Tref for 50%. Plausible if the candidate concludes the Tref would be 50% value instead of the actual value of 40%.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 70

Tier 3

K/A G 2.2.33
 Equipment Control Knowledge of control rod programming.

Importance Rating: 3.4 / 4.0

Technical Reference: TI-28, Curve Book Att.9

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200RDCNT B.4.e, B.5.d

Question Source: SQN Exam Bank modified RDCNT B.4.08

Question History:

Question Cognitive Level:
 Memory or fundamental knowledge _____
 Comprehension or Analysis _____X_____

10 CFR Part 55 Content: 43.6

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C C C C C C C C C C	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

66. G 2.3.10 073

You are exiting the Radiation Control Area (RCA) after completing your work for the day. The PCM-1B Personnel Contamination Monitor alarms and indicates contamination on your left shoe. You exit the PCM-1B and perform a frisk using a hand held frisker. No contamination is detected during the frisk. RadCon is aware of the PCM-1B alarm.

In this situation, which ONE (1) of the following would be correct to exit the RCA?

- A. Since the hand held frisker did not detect any contamination, you may proceed and exit the RCA.
- B. Contact RadCon supervision. A whole body count or personnel gamma screening is required to allow you to exit the RCA.
- C✓ Perform one additional PCM-1B count using a different PCM-1B. If no PCM-1B alarm is received, proceed and exit the RCA.
- D. Perform one additional frisk using a different frisker. If no contamination is detected on the second frisk, proceed and exit the RCA.

A. Incorrect, Individuals should not be free released from the RCA solely on the basis of a GM frisker check . Plausible if student believes one check using a frisker is good enough for checking for contamination.

B. Incorrect, While a whole body count or screening would identify contamination to exit the RCA it is not required to allow exit. Plausible if student does not know requirements.

C. Correct, Per RCI-01. Individual must pass PCM not to exceed TWO opportunities to pass the PCM.

D. Incorrect, Individuals should not be free released from the RCA solely on the basis of a GM frisker check . The individual must pass through the PCM to proceed to exit the RCA. Plausible if student believes if no contamination is found using a different frisker the he/she can proceed and exit the RCA.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 73

Tier 3

K/A 2.3.10

Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

Importance Rating: 2.9/3.3

Technical Reference: RCI-1 General Requirements

Proposed references to be provided to applicants during examination: None

Learning Objective: GET

Question Source: Bank

Question History: RADCON.10 in SQN Bank, 2002 Point Beach NRC RO Exam

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis

10 CFR Part 55 Content: 43.4 / 45.10

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C C C C C C C C C C	Items Not Scrambled
Source:	BANK		Source If Bank:	SQN
Cognitive Level:	LOWER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

67. G 2.3.2 071

Given the following:

- Unit 2 is stable at 3% RTP.
- An RCS sample line fitting has a small leak inside the Polar Crane Wall.
- A work plan is being prepared to repair the leak and the work is being merged into the schedule.

Which ONE (1) of the following identifies the the lowest level of approval required to make the entry inside the Polar Crane Wall at the current plant conditions?

- A. Plant Manager
- B. Site Vice President
- C✓ Rad Protection Manager
- D. Rad Ops Shift Supervisor

A. Incorrect, Plant Manager approval for inside polar crane is required only in MODE 1 and question stem has plant in MODE 2.

B. Incorrect, Site VP approval is not required, however candidate could believe it is due to being at a power above 0%.

C. Correct, Rad Protection Manager approval is required for containment entries outside pre-determined containment building schedule.

D. Incorrect, Rad Ops Shift Supervisor can waive ALARA during emergencies.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 71

Tier 3

K/A G 2.3.2
 Knowledge of facility ALARA program.

Importance Rating: 2.5 / 2.9

Technical Reference: RCI-10 Rev 30

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271C260 B.9

Question Source: New

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:
Memory or fundamental knowledge _____
Comprehension or Analysis _____X_____

10 CFR Part 55 Content: 41.12 / 43.4 / 45.9 / 45.10

Comments:

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C D B A C D A C A D	Scramble Range: A - D
Source:	NEW		Source If Bank:	
Cognitive Level:	HIGHER		Difficulty:	
Job Position:	RO		Plant:	SEQUOYAH
Date:	1/2008		Last 2 NRC?:	NO

QUESTIONS REPORT
for RO Written Exam Questions

68. G 2.3.9 072

Given the following:

- Unit 1 in Mode 1
- Operators are in the process of placing Train A Containment Purge in service to lower containment.

Which ONE (1) of the following damper(s) is opened LAST to ensure that the lower ice doors remain closed during startup of the purge?

- A. 1-FCO-30-1A, Purge Air Supply Fan 1A Suction Isolation Dampers
- B✓ 1-FCV-30-2, Purge Air Supply Fan 1A Discharge Isolation Damper
- C. 1-FCV-30-61, Purge Air Exhaust Fan 1A Suction Isolation Damper
- D. 1-FCV-30-213, Purge Air Exhaust Fan 1A Discharge Isolation Damper

- A. *Incorrect. This damper opens when the fans are started. Plausible because opening it last would provide the the same d/p effect as opening the supply discharge damper last.*
- B. *Correct. Opening this damper last is in accordance with the procedure. Need to minimize d/p accross the doors which blow in to open.*
- C. *Incorrect. This may open the doors. Plausible because this would be the last damper open if purging upper containment.*
- D. *Incorrect. This may open the doors. Plausible because the candidate could confuse this damper with the supply fan discharge damper.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 72

Tier 3

K/A G 2.3.9

Knowledge of the process for performing a containment purge.

Importance Rating: 2.5 / 3.4

Technical Reference: 0-SO-30-3

Proposed references to be provided to applicants during examination: None

Learning Objective: OPT200.CONTPURGE B.5

Question Source: Bank

Question History: SQN NRC Exam 1/2008, CTMT PURGE-B.16.C 001

Question Cognitive Level:

Memory or fundamental knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 43.4 / 45.10

Comments: SQN bank CTMT PURGE-B.16.C 001. Changed stem setup and wording, changed the original question A distractor, reordered distracters, added damper unique identifiers. No significant changes

MCS Time: 3 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B B B B B B B B B B Items Not Scrambled

Source: BANK

Source If Bank: SQN

Cognitive Level: LOWER

Difficulty:

Job Position: RO

Plant: SEQUOYAH

Date: 1/2008

Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

69. G 2.4.16 074

Given the following:

- A reactor trip and safety injection has occurred.
- E-0, Reactor Trip Or Safety Injection, is entered.
- While the Unit Supervisor (US) is reading Step 3, an ORANGE Path condition on the CONTAINMENT Critical Safety Function (CSF) Status Tree is identified by the STA.
- There are NO other ORANGE path conditions present.

Which ONE (1) of the following identifies when the transition to the ORANGE Path procedure is to take place:

- A. Immediately after the US confirms the ORANGE Path condition is present.
- B. As soon as verification that NO RED Path conditions exist on remaining status trees.
- C. As soon as the reading of the E-0 IMMEDIATE ACTION steps has been completed by the US.
- D✓ When transition is made from E-0 and verification that NO RED Path condition exist.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect, No transition has been made in the stem of the question, therefore status tree should not be implemented until a transition is made from E-0 or a step is reached in E-0 that directs monitoring. Plausible because Orange paths could be implemented but only after meeting the criteria listed above which is not met in the stem of the question.*
- B. *Incorrect, No transition has been made in the stem of the question, therefore status tree should not be implemented until a transition is made from E-0 or a step is reached in E-0 that directs monitoring. Plausible because Orange paths could be implemented after verification no RED path exists which would take a higher priority and only after meeting the criteria listed above which is not met in the stem of the question.*
- C. *Incorrect, No transition has been made in the stem of the question, therefore status tree should not be implemented until a transition is made from E-0 or a step is reached in E-0 that directs monitoring. Plausible because operators are allowed to take prudent action after immediate actions steps have been completed.*
- D. *Correct. No transition has been made in the stem of the question, therefore status tree should not be implemented until a transition is made from E-0 or a step is reached in E-0 that directs monitoring. If no RED path exists then orange paths may be implemented.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 74

Tier 3

K/A G 2.4.16

Knowledge of EOP implementation hierarchy and coordination with other support procedures.

Importance Rating: 3.0 / 4.0

Technical Reference: EPM-4, User's Guide, Revision 19

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271EPM-4 B.11

Question Source: Indian Point 2004

Question History: SQN NRC Exam 1/2008, Bank Modified Indian Point 2004 Exam

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	D B B D B B D D C B	Scramble Range: A - D
Source:		BANK MOD			Source If Bank:	INDIAN POINT	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

70. G 2.4.22 075

Which ONE (1) of the following explains the BASES for the prioritization of the HEAT SINK safety function compared to the PRESSURIZED THERMAL SHOCK safety function?

- A✓ HEAT SINK safety function is prioritized **HIGHER** than the PRESSURIZED THERMAL SHOCK safety function because HEAT SINK has a Larger impact on the barriers to a fission product release.
- B. HEAT SINK safety function is prioritized **HIGHER** than the PRESSURIZED THERMAL SHOCK safety function because Heat Sink must exist before a PRESSURIZED THERMAL SHOCK could occur.
- C. HEAT SINK safety function is prioritized **LOWER** than the PRESSURIZED THERMAL SHOCK safety function because a Heat Sink must exist before a PRESSURIZED THERMAL SHOCK could occur.
- D. HEAT SINK safety function is prioritized **LOWER** than the PRESSURIZED THERMAL SHOCK safety function because PRESSURIZED THERMAL SHOCK has a Larger impact on the barriers to a fission product release.

- A. *Correct. Per EPM-4 HEAT SINK safety function is prioritized **HIGHER** than the PRESSURIZED THERMAL SHOCK and HEAT SINK has a Larger impact on the barriers to a fission product release.*
- B. *Incorrect. Correct prioritization; incorrect Bases. Plausible because student could think that a heat sink be required to induce a rapid cooldown of the primary for the basis.*
- C. *Incorrect. Incorrect prioritization; Incorrect Bases. Plausible if student does not know prioritization of safety functions and student could think that a heat sink be required to induce a rapid cooldown of the primary for the basis.*
- D. *Incorrect. Incorrect prioritization; correct Bases. Plausible if student does not know prioritization of safety functions*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 75

Tier 3

K/A G 2.4.22

Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

Importance Rating: 3.0/4.0

Technical Reference: EPM-3-FR-0

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-0 B.2

Question Source: NEW

Question History: New for SQN NRC EXAM 1/2008

Question Cognitive Level:

Memory or fundamental knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: CFR: 43.5 / 45.12

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A A B C C B A A A D	Scramble Range: A - D
Source:		NEW			Source If Bank:		
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

71. W/E04 G2.4.28 016

Given the following plant conditions:

- A Loss Of Coolant Accident (LOCA) outside containment has resulted in RCS Subcooling dropping to 0 degrees F.
- The operating crew is performing the actions of ECA-1.2, LOCA Outside Containment.
- Actions are being taken to isolate the leak.

In accordance with ECA-1.2 "LOCA Outside Containment," which ONE (1) of the following parameters is required to be used to determine if a LOCA outside containment has been isolated?

- A. ECCS flow decreasing.
- B. Subcooling increasing
- C. Pressurizer level increasing
- D✓ RCS pressure increasing

A. Incorrect; The procedure directs the use of RCS pressure increasing as the method used to indicate the leak has been isolated. Plausible because the ECCS flow would be decreasing as the pressure was increasing.

B. Incorrect; The procedure directs the use of RCS pressure increasing as the method used to indicate the leak has been isolated. Plausible because the subcooling would be increasing as the pressure was increasing.

C. Incorrect; The procedure directs the use of RCS pressure increasing as the method used to indicate the leak has been isolated. Plausible because the pressurizer level could be increasing as the pressure was increasing.

D. Correct; The procedure directs the use of RCS pressure increasing as the method used to indicate the leak has been isolated.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 16

Tier 1 Group 1

K/A W/E04 G2.4.48

LOCA Outside Containment: 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.

Importance Rating: 3.5 / 3.8

Technical Reference: ECA-1.2

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ECA-1.2, B.5

Question Source:

Bank # X

Modified Bank #

New

Question History: SQN NRC EXAM 1/2008, Modified bank question see comments

Question Cognitive Level:

Memory or fundamental knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 43.5 / 45.12

Comments: Question modified from combination of SQN bank question
ECA-1.2-B.1.A 001 and question in INPO bank from Diablo
Canyon Unit 1 1/1999

MCS	Time:	4	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDDDDDDDDD	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

72. W/E05 EK3.1 017

Which ONE (1) of the following is an adverse consequence that could result from delaying feed and bleed cooling if the conditions to initiate feed and bleed are met in FR-H.1, "Loss of Secondary Heat Sink"?

- A. High Temperature induced failure of S/G U-tube bends.
- B. An overpressurization challenge to the Reactor Vessel.
- C✓ Inability to prevent or minimize core uncover due to high RCS pressure.
- D. Inability to recover the S/Gs without damage from high thermal stresses.

A. Incorrect, Plausible due to U-tube uncover with assumed RCS high Temp due to loss of cooling.

B. Incorrect, Plausible due to loss of cooling to RCS and assumed RCS pressure rise due to loss of cooling.

C. Correct, Per EPM-3-FR-H.1. In order to minimize core uncover due to loss of heat sink, the operator must identify loss of heat sink conditions and immediately initiate feed and bleed.

D. Incorrect, Plausible due to possible S/G dryout with subsequent refill.

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 17

Tier 1 Group 1

K/A W/E05 EK3.1

Loss of Secondary Heat Sink, Knowledge of the reasons for the following responses as they apply to the Loss of Secondary Heat Sink: Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and the reasons for these operating characteristics.

Importance Rating: 3.4 / 3.8

Technical Reference: EPM-3-FR-H.1, page 12, step 5 note 1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-H.1 B.6

Question Source:

Bank # X

Modified Bank # _____

New _____

Question History: SQN NRC EXAM 1/2008, SQN Bank FR-H.1-03 001

Question Cognitive Level:

Memory or fundamental knowledge X

Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 41.5 / 41.10, 45.6, 45.13)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	C C C C C C C C C C	Items Not Scrambled
Source:		BANK			Source If Bank:	SQN	
Cognitive Level:		LOWER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

73. W/E09 EA2.1 026

Given the following plant conditions:

- Reactor trip occurred with subsequent loss of RCPs.
- Operators have implemented ES-0.2, "Natural Circulation Cooldown" to go to Cold Shutdown.
- A cooldown rate of 25°F/hour has been established.
- RCS depressurization has been initiated.
- RVLIS upper plenum range - 98%.
- The Shift Manager has determined that cooldown shall proceed as quickly as possible due to reduced CST inventory.

Which ONE of the following describes the appropriate actions and cooldown limit?

- A. Use ES-0.2, "Natural Circulation Cooldown", and repressurize to collapse the voids, then raise the cooldown rate not to exceed 50°F/hr.
- B. Use ES-0.2, "Natural Circulation Cooldown", and repressurize to collapse the voids, then raise the cooldown rate not to exceed 100°F/hr.
- C. Use ES-0.3, "Natural Circulation Cooldown With Steam Voids in Vessel (with RVLIS)", and raise the cooldown rate not to exceed 50°F/hr.
- D✓ Use ES-0.3, "Natural Circulation Cooldown With Steam Voids in Vessel (with RVLIS).", and raise the cooldown rate not to exceed 100°F/hr.

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect. Plausible if student does not remember a transition point to ES-0.3 due to need for cooldown due to low CST inventory and cooldown rate limits for the procedures. Also ES-0.2 has steps to repressurize to collapse voids in vessel head so transition to ES-0.3 would not be necessary to collapse voids. Cooldown limit of 50 degrees/hr is the normal cooldown limit on natural circulation however ES-0.3 allows up to 100 degrees/hr*
- B. *Incorrect. Plausible if student does not remember a transition point to ES-0.3 due to need for cooldown due to low CST inventory and cooldown rate limits for the procedures. Also ES-0.2 has steps to repressurize to collapse voids in vessel head so transition to ES-0.3 would not be necessary to collapse voids. Cooldown limit of 50 degrees/hr is the normal cooldown limit on natural circulation however ES-0.3 allows up to 100 degrees/hr*
- C. *Incorrect. Plausible if student does remember a transition point to ES-0.3 due to SM decision to proceed as quickly as possible due to a condition such as CST inventory and student does not know cooldown rate limit ES-0.3. 50 degrees/hr is the normal cooldown limit on natural circulation and ES-0.3 allows up to 100 degrees/hr*
- D. *Correct. The SM decision to proceed as quickly as possible due to a condition such as CST inventory takes precedence over collapsing of voids and requires transition to ES-0.3. ES-0.3 limits cooldown to 100 degrees/hr*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 26

Tier 1 Group 2

K/A W/E09 EA2.1

Natural Circulation with Steam Void in Vessel with/without RVLIS: Ability to determine and interpret the following as they apply to the Natural Circulation with Steam Void in Vessel with/without RVLIS: Facility condition and selection of appropriate procedures during abnormal and emergency operations.

Importance Rating: 3.2 / 3.9

Technical Reference: ES-0.2 Rev 15 Step 13

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271ES-0.3 B.4 & 5

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC Exam 1/2008, Reworded from SQN FR-C.2-B.4.C 001

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 43.5 / 45.13)

Comments:

MCS	Time: 4	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: D D D D D D D D D D Items Not Scrambled
Source:	BANK		Source If Bank: SQN
Cognitive Level:	HIGHER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO

QUESTIONS REPORT
for RO Written Exam Questions

74. W/E11 EK2.2 018

Given the following conditions:

- At 0900 the Reactor Trips due to 2 dropped rods.
- At 0920 a small break LOCA occurs.
- At 0950 the crew transitioned to ECA-1.1, "Loss of RHR Sump Recirculation", due to the failure of both RHR pumps.
- Crew has reduced ECCS flow to 1 SIP and 1 CCP per ECA-1.1.
- SI flow cannot be terminated due to lack of subcooling.
- At 1030 the crew is performing ECA-1.1 Step 20 RNO to establish the **minimum** required ECCS flow to remove decay heat.

Which ONE of the following flow rates should be established to satisfy the intent of the ECA-1.1 Step 20 RNO?

REFERENCE PROVIDED

- A. 420 gpm
- B. 400 gpm
- C. 360 gpm
- D✓ 325 gpm

QUESTIONS REPORT
for RO Written Exam Questions

- A. *Incorrect. Plausible if student uses 0950 - 1030 (40 Min) for time frame lookup on ECA-1.1 Curve 9. The Basis states "the operator is then instructed to establish the minimum ECCS flow needed to match decay heat in order to further decrease ECCS pump Flow and delay RWST depletion. This value of 420 gpm is in the acceptable region using the graph using the wrong time frame AND meets the requirement of Minimum Flow to delay RWST depletion.*
- B. *Incorrect. Plausible if student uses correct time 0900 - 1030 (90 Min) for time frame lookup on ECA-1.1 Curve 9. This value of 400 gpm is well into the acceptable region of the graph, however the intent of the step is to be equal to or slightly greater than minimum flow per step 20 b, b2. The Basis states "the operator is then instructed to establish the minimum ECCS flow needed to match decay heat in order to further decrease ECCS pump Flow and delay RWST depletion.*
- C. *Incorrect. Plausible if student uses 0920 - 1030 (70 Min) for time frame lookup on ECA-1.1 Curve 9. The Basis states "the operator is then instructed to establish the minimum ECCS flow needed to match decay heat in order to further decrease ECCS pump Flow and delay RWST depletion. This value of 360 gpm is in the acceptable region using the graph using the wrong time frame AND meets the requirement of Minimum Flow to delay RWST depletion.*
- D. *Correct. 0900 - 1030 (90 Min) Using ECA-1.1, curve 9, the value is approximately 325 gpm. The Basis states "the operator is then instructed to establish the minimum ECCS flow needed to match decay heat in order to further decrease ECCS pump Flow and delay RWST depletion. This value of 325 gpm is in the acceptable region using the graph from time of trip AND meets the requirement of Minimum Flow to delay RWST depletion.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 18

Tier 1 Group 1

K/A W/E11 EK2.2
Loss of Emergency Coolant Recirculation, Knowledge of the interrelations between the Loss of Emergency Coolant Recirculation and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

Importance Rating: 3.9 / 4.3

Technical Reference: ECA-1.1, Curve 9

Proposed references to be provided to applicants during examination: Provide ECA-1.1, Curve 9.

Learning Objective: OPL271ECA-1.1, B.6

Question Source:

Bank # _____
Modified Bank # X
New _____

Question History: SQN NRC EXAM 1/2008, WBN NRC EXAM 2006 WE11G2.1.13. Modified

Question Cognitive Level:

Memory or fundamental knowledge _____
Comprehension or Analysis X

10 CFR Part 55 Content: (CFR 41.7 / 45.7)

Comments:

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	DDDDDDDDDD	Items Not Scrambled
Source:		BANK MOD			Source If Bank:	SQN	
Cognitive Level:		HIGHER			Difficulty:		
Job Position:		RO			Plant:	SEQUOYAH	
Date:		1/2008			Last 2 NRC?:	NO	

QUESTIONS REPORT
for RO Written Exam Questions

75. W/E14 EA2.2 027

While performing actions of FR-Z.1, "Response to High Containment Pressure", what steps are taken to limit the peak pressure rise in containment in the event of a Main Steam Line Break in containment?

- A. Start Ice Condenser Air Handling Units.
- B. Dispatch personnel to open Air Return Fan breakers.
- C. Throttle all AFW Flow to less than 25 gpm per Steam Generator.
- D✓ Isolate AFW Flow to any Steam Generator depressurizing in an uncontrolled manner.

- A. *Incorrect. Plausible due to concept of starting Ice Condenser Air Handling Units may help cool containment thus reducing containment pressure. Step 12 directs opening of Ice Condenser AHU Breakers so option to start Ice Condenser Air Handling Units is wrong.*
- B. *Incorrect. Plausible due to requirement to check one containment air return fan running. Since there is a step to open the Ice Condenser AHU Breakers the student may mistake the opening on the Ice Condenser Air Handling Unit Breakers with Containment Air Return Fan breakers.*
- C. *Incorrect. Plausible due to throttling feedwater would reduce inventory going into containment thus minimizing steam release pressure rise in containment. Step 10 (If all S/Gs faulted then control feed flow to greater than or equal to 25 gpm to each S/G to prevent dryout).*
- D. *Correct. Step 11 Isolates feed flow to affected S/G. This step may eliminate mass and energy releases to the containment.*

QUESTIONS REPORT
for RO Written Exam Questions

Question No. 27

Tier 1 Group 2

K/A W/E14 EA2.2

High Containment Pressure: Ability to determine and interpret the following as they apply to the High Containment Pressure: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

Importance Rating: 3.3 / 3.8

Technical Reference: FR-Z.1 High Containment Pressure
EPM-3-FR-Z.1 Basis Document for FR-Z.1

Proposed references to be provided to applicants during examination: None

Learning Objective: OPL271FR-Z.1 B.6

Question Source:

Bank # X
Modified Bank # _____
New _____

Question History: SQN NRC EXAM 1/2008, Braidwood Unit 1, NRC Exam given 7/17/2002.

Question Cognitive Level:

Memory or fundamental knowledge X
Comprehension or Analysis _____

10 CFR Part 55 Content: (CFR 43.5 / 45.13)

Comments:

MCS	Time: 4	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9
			Answer: D D D D D D D D D D Items Not Scrambled
Source:	BANK		Source If Bank: BRAIDWOOD UNIT 1
Cognitive Level:	LOWER		Difficulty:
Job Position:	RO		Plant: SEQUOYAH
Date:	1/2008		Last 2 NRC?: NO