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

1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling.
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. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
6.* 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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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; summarize all the SRO-only knowledge and non-A2 ability categories in the columns labeled "K" and "A". Use duplicate pages for RO and SRO-only exams.
8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A

Facility: V. C. Summer Date of Exam

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	K	A	A2	G*	Total
1. Emergency & Abnorma Plant Evoulution	1															3	3	6
	2															2	2	4
	Tier Totals															5	5	10
2. Plant Systems	1															3	2	5
	2															1	2	3
	Tier Totals															4	4	8
3. Generic Knowledge and Abilities Category					1		2		3		4			1	2	3	4	
														2	2	1	2	7

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8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Reactor Trip - Stabilization - Recovery / 1	1	0	0	0	0	0	007EK1.05	Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	Decay power as a function of time	3.3	3.8
Pressurizer Vapor Space Accident / 3	0	0	0	0	0	1	008AG2.4.49	This is a Generic, no stem statement is associated.	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4	4
Small Break LOCA / 3	0	0	0	0	0	0	009EA1.06	Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	3	3.3
Large Break LOCA / 3	0	1	0	0	0	0	011EK2.02	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	Pumps	2.6	2.7
RCP Malfunctions / 4	1	0	0	0	0	0	015AK1.02	Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	Consequences of an RCPS failure	3.7	4.1
Loss of Rx Coolant Makeup / 2	0	0	0	1	0	0	022AA1.08	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	VCT level	3.4	3.3
Loss of RHR System / 4	0	0	0	0	0	1	025AG2.1.32	This is a Generic, no stem statement is associated.	Ability to explain and apply all system limits and precautions.	3.4	3.8
Loss of Component Cooling Water / 8	0	0	0	1	0	0	026AA1.01	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	CCW temperature indications	3.1	3.1

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Pressurizer Pressure Control System Malfunction / 3	1	0	0	0	0	0	027AK1.02	Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	Expansion of liquids as temperature increases	2.8	3.1
ATWS / 1	0	0	0	0	0	0	029EK3.04	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	3.1	3.1
Steam Gen. Tube Rupture / 3	0	0	1	0	0	0	038EK3.03	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	Automatic actions associated with high radioactivity in S/G sample lines	3.6	4
Steam Line Rupture - Excessive Heat Transfer / 4	0	1	0	0	0	0	040AK2.02	Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	Sensors and detectors	2.6	2.6
Loss of Main Feedwater / 4	0	0	1	0	0	0	054AK3.01	Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	Reactor and/or turbine trip, manual and automatic	4.1	4.4
Station Blackout / 6	0	0	0	0	1	0	055EA2.05	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	When battery is approaching fully discharged	3.4	3.7
Loss of Off-site Power / 6	0	0	0	0	0	0	056AK1.03	Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	K/A Randomly Rejected	3.1	3.4

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Loss of Vital AC Inst. Bus / 6	0	0	0	0	0	1	057AG2.4.4	This is a Generic, no stem statement is associated.	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4	4.3
Loss of DC Power / 6	0	0	0	0	1	0	058AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	That a loss of dc power has occurred; verification that substitute power sources have come on line	3.7	4.1
Loss of Nuclear Svc Water / 4	0	0	0	1	0	0	062AA1.07	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	Flow rates to the components and systems that are serviced by the SWS; interactions among the components	2.9	3
Loss of Instrument Air / 8	0	0	1	0	0	0	065AK3.04	Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	Cross-over to backup air supplies	3	3.2
LOCA Outside Containment / 3	0	0	0	0	1	0	WE04EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.4	4.3
Loss of Emergency Coolant Recirc. / 4	0	0	0	0	0	0	WE11EK2.1	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	K/A Randomly Rejected	3.6	3.9
Steam Line Rupture - Excessive Heat Transfer / 4	0	1	0	0	0	0	WE12EK2.1	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes and automatic and manual features.	3.4	3.7

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	0	0	0	0	0	0	WE05EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.4

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Continuous Rod Withdr	0	0	0	0	0	0	001AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	4.2	4.2
Dropped Control Rod /	1	0	0	0	0	0	003AK1.17	Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	Fuel temperature coefficient	2.9	3.1
Inoperable/Stuck Contr	0	0	0	0	1	0	005AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Required actions if more than one rod is stuck or inoperable	3.5	4.4
Emergency Boration / 1	0	0	0	0	0	1	024AG2.4.6	This is a Generic, no stem statement is associated.	Knowledge symptom based EOP mitigation strategies.	3.1	4
Pressurizer Level Malfu	0	0	0	0	0	0	028AK3.04	Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	2.9	3
Loss of Source Range I	0	0	0	0	0	0	032AA2.09	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.5	2.9
Loss of Intermediate Ra	0	0	0	0	0	0	033AK1.01	Knowledge of the operational implications of the following concepts as they apply to the (ABNORMAL PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	K/A Randomly Rejected	2.7	3
Fuel Handling Accident	0	0	0	0	0	0	036AG2.1.27	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	2.8	2.9

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Steam Generator Tube	0	0	0	0	0	0	037AA2.09	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.8	3.4
Loss of Condenser Vac	0	0	0	1	0	0	051AA1.04	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	Rod position	2.5	2.5
Accidental Liquid RadW	0	0	0	0	0	0	059AA1.02	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	3.3	3.4
Accidental Gaseous Ra	0	0	0	0	0	0	060AA1.01	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	2.8	3
ARM System Alarms / 7	0	0	0	0	0	0	061AA1.01	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	3.6	3.6
Plant Fire On-site / 9 8	0	0	0	0	0	0	067AA1.08	Ability to operate and / or monitor the following as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	3.4	3.7
Control Room Evac. / 8	0	0	0	0	0	0	068AK3.02	Knowledge of the reasons for the following responses as they apply to (ABNORMAL PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	3.7	4.1

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Loss of CTMT Integrity /	0	0	0	0	0	0	069AK2.03	Knowledge of the interrelations between (ABNORMAL PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	K/A Randomly Rejected	2.8	2.9
Inad. Core Cooling / 4	0	0	0	0	0	0	074EK3.04	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	3.9	4.2
High Reactor Coolant A	0	0	0	0	0	0	076AG2.1.23	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.9	4
Rediagnosis / 3	0	0	0	0	0	0	WE01EK2.2	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	K/A Randomly Rejected	3.5	3.8
Steam Generator Over-	0	1	0	0	0	0	WE13EK2.2	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	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.	3.0	3.2
Containment Flooding /	0	0	1	0	0	0	WE15EK3.3	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.	2.9	2.9
High Containment Radi	0	0	0	0	0	0	WE16EA1.2	Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	2.9	3.0
SI Termination / 3	0	0	0	0	0	0	WE02EA1.2	Ability to operate and / or monitor the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.7 / 45.5 / 45.6)	K/A Randomly Rejected	3.6	3.8

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
LOCA Cooldown - Depi	0	0	0	0	0	0	WE03EK3.3	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	3.9	3.9
Natural Circ. / 4	0	0	0	0	0	1	WE09EG2.4.4	This is a Generic, no stem statement is associated.	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4	4
Natural Circ. With Sean	0	1	0	0	0	0	WE10EK2.2	Knowledge of the interrelations between (EMERGENCY PLANT EVOLUTION) and the following:(CFR: 41.7 / 45.7 / 45.8)	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.	3.6	3.9
RCS Overcooling - PTS	0	0	0	0	0	0	WE08EK1.3	Knowledge of the operational implications of the following concepts as they apply to the EMERGENCY PLANT EVOLUTION):(CFR: 41.8 to 41.10 / 45.3)	K/A Randomly Rejected	3.5	4.0
Degraded Core Cooling	0	0	0	0	0	0	WE06EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.5	4.1
Saturated Core Cooling	0	0	1	0	0	0	WE07EK3.2	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	Normal, abnormal and emergency operating procedures associated with (Saturated Core Cooling).	3.2	3.7
Loss of CTMT Integrity	0	0	0	0	0	0	WE14EK3.4	Knowledge of the reasons for the following responses as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.5 / 41.10 / 45.6 / 45.13)	K/A Randomly Rejected	3.3	3.6

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type		K/A Topic(s)	RO	SRO

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Reactor Coolant Pump	0	0	0	0	0	0	0	0	0	1	0	Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)	Seal injection	003A4.01	3.3	3.2
Chemical and Volume Control	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	004GG2.4.49	4.0	4.0
Residual Heat Removal	0	0	0	0	0	1	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)	RHR heat exchanger	005K6.03	2.5	2.6
Emergency Core Cooling	0	0	0	1	0	0	0	0	0	0	0	Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)	Reset of SIS	006K4.11	3.9	4.2
Pressurizer Relief/Quench Tank	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Exceeding PRT high-pressure limits	007A2.05	3.2	3.6
Component Cooling Water	0	0	0	0	0	0	0	0	1	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	Typical CCW pump operating conditions, including vibra- tion and sound levels and motor current	008A3.06	2.5	2.5
Pressurizer Pressure Control	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	010GG2.4.4	4.0	4.3
Reactor Protection	0	1	0	0	0	0	0	0	0	0	0	Knowledge of electrical power supplies	RPS channels, components and	012K2.01	3.3	3.7

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
												to the following:(CFR: 41.7)	interconnections			
Engineered Safety Features Actuation	1	0	0	0	0	0	0	0	0	0	0	Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)	ECCS	013K1.06	4.2	4.4
Containment Cooling	0	0	0	0	0	0	1	0	0	0	0	Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)	Cooling water flow	022A1.04	3.2	3.3
Ice Condenser	0	0	0	0	0	0	0	0	0	0	0		K/A Rejected	025A4.02	0	0
Containment Spray	0	0	1	0	0	0	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)	Recirculation spray system	026K3.02	4.2	4.3
Main and Reheat Steam	0	0	0	0	0	0	1	0	0	0	0	Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)	Air ejector PRM	039A1.10	2.9	3.0
Main Feedwater	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Ability to perform specific system and integrated plant procedures during all modes of plant operation.	059GG2.1.23	3.9	4.0
Auxiliary/Emergency Feedwater	0	0	0	0	1	0	0	0	0	0	0	Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)	Pump head effects when control valve is shut	061K5.03	2.6	2.9
AC Electrical	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the	Keeping the safeguards buses	062A2.06	3.4	3.9

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Distribution												following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	electrically separate			
DC Electrical Distribution	0	0	0	1	0	0	0	0	0	0	0	Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)	Manual/automatic transfers of control	063K4.01	2.7	3.0
Emergency Diesel Generator	0	0	0	0	0	1	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)	Fuel oil storage tanks	064K6.08	3.2	3.3
Process Radiation Monitoring	0	0	0	0	1	0	0	0	0	0	0	Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)	Relationship between radiation intensity and exposure limits	073K5.03	2.9	3.4
Service Water	0	0	0	0	0	0	1	0	0	0	0	Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)	Reactor and turbine building closed cooling water temperatures.	076A1.02	2.6	2.6
Instrument Air	0	0	0	1	0	0	0	0	0	0	0	Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)	Manual/automatic transfers of control	078K4.01	2.7	2.9
Containment	0	0	1	0	0	0	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)	Loss of containment integrity under normal operations	103K3.02	3.8	4.2
Containment Spray	0	1	0	0	0	0	0	0	0	0	0	Knowledge of electrical power supplies to the following:(CFR: 41.7)	MOVs	026K2.02	2.7	2.9

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Containment Cooling	0	0	1	0	0	0	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)	Containment instrumentation readings	022K3.02	3.0	3.3
Reactor Protection	0	0	0	0	0	0	0	0	0	1	0	Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)	Channel blocks and bypasses	012A4.03	3.6	3.6
Emergency Diesel Generator	0	0	0	0	0	1	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)	Air receivers	064K6.07	2.7	2.9
Pressurizer Relief/Quench Tank	1	0	0	0	0	0	0	0	0	0	0	Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)	Containment system	007K1.01	2.9	3.1
AC Electrical Distribution	0	0	0	0	0	0	0	0	1	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	Operation of inverter (e.g. precharging synchronizing light, static transfer)	062A3.04	2.7	2.9
Service Water	0	0	0	0	0	0	0	0	1	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	Emergency heat loads	076A3.02	3.7	3.7

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Hydrogen Recombiner and Purge Control	0	0	0	0	0	0	0	0	0	0	0	Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)	K/A Randomly Rejected	028A4.02	3.7	3.9
Containment Purge	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	029GG2.1.28	3.2	3.3
Spent Fuel Pool Cooling	0	0	0	0	0	0	0	0	0	0	0	Knowledge of electrical power supplies to the following:(CFR: 41.7)	K/A Randomly Rejected	033K2	0	0
Fuel Handling Equipment	0	0	0	0	0	0	1	0	0	0	0	Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)	Water level in the refueling canal	034A1.02	2.9	3.7
Steam Generator	0	0	0	0	0	1	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the following will have on the (SYSTEM):(CFR: 41.7 / 45.7)	Secondary PORV	035K6.02	3.1	3.5
Steam Dump/Turbine Bypass Control	0	0	0	0	0	0	0	0	0	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	K/A Randomly Rejected	041A3.02	3.3	3.4
Main Turbine Generator	0	0	0	0	1	0	0	0	0	0	0	Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)	Relationship between moderator temperature coefficient and boron concentration in RCS as T/G load increases	045K5.17	2.5	2.7
Condenser Air Removal	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	055A2	0	0

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Liquid Radwaste	0	0	0	0	0	0	0	0	0	0	0	Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)	K/A Randomly Rejected	068A4.04	3.8	3.7
Waste Gas Disposal	0	0	1	0	0	0	0	0	0	0	0	Knowledge of the effect that a loss or malfunction of the (SYSTEM) will have on the following:(CFR: 41.7 / 45.6)	ARM and PRM systems	071K3.05	3.2	3.2
Area Radiation Monitoring	0	0	0	1	0	0	0	0	0	0	0	Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)	Plant ventilation systems	072K4.03	3.2	3.6
Circulating Water	0	1	0	0	0	0	0	0	0	0	0	Knowledge of electrical power supplies to the following:(CFR: 41.7)	Emergency/essential SWS pumps	075K2.03	2.6	2.7
Station Air	0	0	0	0	0	0	0	0	0	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	K/A Randomly Rejected	079A3	0	0
Fire Protection	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	086A2.01	2.9	3.1
Control Rod Drive	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Loss of CCW to CRDS	001A2.08	2.9	3.3

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Reactor Coolant	0	0	0	0	0	0	0	0	0	1	0	Ability to manually operate and/or monitor in the control room:(CFR: 41.7 / 45.5 to 45.8)	Safety parameter display systems	002A4.08	3.4	3.7
Pressurizer Level Control	0	0	0	0	0	0	0	0	0	0	0	Ability to monitor automatic operations of the (SYSTEM) including:(CFR: 41.7 / 45.5)	K/A Randomly Rejected	011A3.01	2.8	2.8
Rod Position Indication	0	0	0	0	0	0	0	0	0	0	0	Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)	K/A Randomly Rejected	014K5.02	2.8	3.3
Nuclear Instrumentation	0	0	0	0	0	0	0	0	0	0	0	Knowledge of (SYSTEM) design feature(s) and or interlock(s) which provide for the following:(CFR: 41.7)	K/A Randomly Rejected	015K4.10	3.2	3.5
Non-nuclear Instrumentation	0	0	0	0	0	0	0	0	0	0	0	Knowledge of the operational implications of the following concepts as they apply to the (SYSTEM):(CFR: 41.5 / 45.7)	K/A Randomly Rejected	016K5.01	2.7	2.8
In-core Temperature Monitor	1	0	0	0	0	0	0	0	0	0	0	Knowledge of the physical connections and/or cause-effect relationships between (SYSTEM) and the following:(CFR: 41.2 to 41.9 / 45.7 to 45.8)	Plant computer	017K1.01	3.2	3.2
Containment Iodine Removal	0	0	0	0	0	0	0	0	0	0	0	Ability to predict and/or monitor changes in parameters associated with operating the (SYSTEM) controls including:(CFR: 41.5 / 45.5)	K/A Randomly Rejected	027A1	0	0
Condensate	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Knowledge of the purpose and function of major system components and controls.	056G2.1.28	3.2	3.3

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO

Date: 8/25/05

UNITED STATES

NUCLEAR REGULATORY COMMISSION

FACSIMILE TRANSMITTAL

SRO exam

TO: Mark Chitty
Name

RII/DRS/OL
Location

Pages: ____ + Transmittal Sheet

FROM: Browns Ferry

(256)729-6137 Resident Office BFN

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Reactor Trip - Stabilization - Recovery / 1	0	0	0	0	1	0	007EA2.01	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Decreasing power level from available indications	4.1	4.3
Pressurizer Vapor Space Accident / 3	0	0	0	0	0	0	008AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.9	4.2
Small Break LOCA / 3	0	0	0	0	0	1	009EG2.4.30	This is a Generic, no stem statement is associated.	Knowledge of which events related to system operations/status should be reported to outside agencies.	2.2	3.6
Large Break LOCA / 3	0	0	0	0	0	0	011EG2.2.25	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	2.5	3.7
RCP Malfunctions / 4	0	0	0	0	0	0	015AG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8
Loss of Rx Coolant Makeup / 2	0	0	0	0	0	1	022AG2.4.49	This is a Generic, no stem statement is associated.	Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.	4	4
Loss of RHR System / 4	0	0	0	0	0	0	025AG2.4.49	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	4	4
Loss of Component Cooling Water / 8	0	0	0	0	0	0	026AA2.05	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.4	2.5

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Pressurizer Pressure Control System Malfunction / 3	0	0	0	0	0	0	027AA2.14	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.8	2.9
ATWS / 1	0	0	0	0	0	0	029EG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8
Steam Gen. Tube Rupture / 3	0	0	0	0	0	0	038EG2.4.1	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.3	3.3
Steam Line Rupture - Excessive Heat Transfer / 4	0	0	0	0	0	0	040AA2.05	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	4.1	4.5
Loss of Main Feedwater / 4	0	0	0	0	1	0	054AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Conditions and reasons for AFW pump startup	4.1	4.2
Station Blackout / 6	0	0	0	0	0	0	055EG2.4.6	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.1	4
Loss of Off-site Power / 6	0	0	0	0	0	0	056AG2.1.33	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4
Loss of Vital AC Inst. Bus / 6	0	0	0	0	0	0	057AG2.4.30	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	2.2	3.6
Loss of DC Power / 6	0	0	0	0	0	0	058AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.5	3.9

Tier 1 Group 1

Name/Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Loss of Nuclear Svc Water / 4	0	0	0	0	0	0	062AG2.2.22	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4.1
Loss of Instrument Air / 8	0	0	0	0	0	0	065AA2.03	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.6	2.9
LOCA Outside Containment / 3	0	0	0	0	0	0	WE04EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.3
Loss of Emergency Coolant Recirc. / 4	0	0	0	0	0	0	WE11EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.2
Steam Line Rupture - Excessive Heat Transfer / 4	0	0	0	0	0	1	WE12EG2.4.4	This is a Generic, no stem statement is associated.	Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	4	4.3
Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4	0	0	0	0	1	0	WE05EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Facility conditions and selection of appropriate procedures during abnormal and emergency operations.	3.4	4.4

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Continuous Rod Withdr	0	0	0	0	0	0	001AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	4.2	4.2
Dropped Control Rod /	0	0	0	0	0	0	003AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.7	3.9
Inoperable/Stuck Contr	0	0	0	0	0	0	005AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.3	4.1
Emergency Boration / 1	0	0	0	0	0	0	024AG2.4.1	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.3	3.3
Pressurizer Level Malfu	0	0	0	0	0	0	028AA2.14	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.6	2.8
Loss of Source Range I	0	0	0	0	1	0	032AA2.08	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Testing required if power lost, then restored	2.2	3.1
Loss of Intermediate Ra	0	0	0	0	0	0	033AA2.13	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.2	2.8
Fuel Handling Accident	0	0	0	0	0	0	036AG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
Steam Generator Tube	0	0	0	0	0	0	037AG2.4.4	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	4	4.3
Loss of Condenser Vac	0	0	0	0	0	0	051AA2.02	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.9	4.1
Accidental Liquid RadW	0	0	0	0	0	0	059AG2.2.25	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	2.5	3.7
Accidental Gaseous Ra	0	0	0	0	0	0	060AA2.04	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	2.6	3.4
ARM System Alarms / 7	0	0	0	0	0	0	061AA2.06	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.2	4.1
Plant Fire On-site / 9 8	0	0	0	0	0	0	067AG2.4.30	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	2.2	3.6
Control Room Evac. / 8	0	0	0	0	0	0	068AG2.2.22	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4.1
Loss of CTMT Integrity.	0	0	0	0	0	0	069AA2.01	Ability to determine and interpret the following as they apply to ABNORMAL PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.7	4.3
Inad. Core Cooling / 4	0	0	0	0	0	0	074EG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
High Reactor Coolant A	0	0	0	0	0	0	076AG2.1.32	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8
Rediagnosis /3	0	0	0	0	0	0	WE01EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.2	4
Steam Generator Over-	0	0	0	0	0	1	WE13EG2.2.2[illegible]	This is a Generic, no stem statement is associated.	Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.	2.5	3.7
Containment Flooding /	0	0	0	0	0	0	WE15EG2.1.3[illegible]	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	4
High Containment Radi	0	0	0	0	0	0	WE16EG2.1.3[illegible]	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.4	3.8
SI Termination / 3	0	0	0	0	0	1	WE02EG2.4.3[illegible]	This is a Generic, no stem statement is associated.	Knowledge of which events related to system operations/status should be reported to outside agencies.	2.2	3.6
LOCA Cooldown - Depi	0	0	0	0	0	0	WE03EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.2
Natural Circ. / 4	0	0	0	0	1	0	WE09EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.	3.4	3.8
Natural Circ. With Sean	0	0	0	0	0	0	WE10EG2.2.2[illegible]	This is a Generic, no stem statement is	K/A Randomly Rejected	3.4	4.1

Tier 1 Group 2

Name / Safety Function	K1	K2	K3	A1	A2	G	KA	Question Type	K/A Topic(s)	RO	SRO
								associated.			
RCS Overcooling - PTS	0	0	0	0	0	0	WE08EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.4	4.2
Degraded Core Cooling	0	0	0	0	0	0	WE06EA2.2	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.5	4.1
Saturated Core Cooling	0	0	0	0	0	0	WE07EG2.4.6	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	3.1	4
Loss of CTMT Integrity	0	0	0	0	0	0	WE14EA2.1	Ability to determine and interpret the following as they apply to (EMERGENCY PLANT EVOLUTION):(CFR: 41.10 / 43.5 / 45.13)	K/A Randomly Rejected	3.3	3.8

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Reactor Coolant Pump	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Problems associated with RCP motors, including faulty motors and current, winding and bearing temperature problems	003A2.03	2.7	3.1
Chemical and Volume Control	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	004A2.06	4.2	4.3
Residual Heat Removal	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Knowledge of system purpose and or function.	005G2.1.27	2.8	2.9
Emergency Core Cooling	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	006A2.08	3.0	3.3
Pressurizer Relief/Quench Tank	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Overpressurization of the PZR	007A2.03	3.6	3.9
Component Cooling Water	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b)	PRMS alarm	008A2.04	3.3	3.5

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
												based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)				
Pressurizer Pressure Control	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	010A2.01	3.3	3.6
Reactor Protection	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	012GG2.1.32	3.4	3.8
Engineered Safety Features Actuation	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	013GG2.4.4	4.0	4.3
Containment Cooling	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	022GG2.1.2	3.0	4.0
Ice Condenser	0	0	0	0	0	0	0	0	0	0	0		K/A Rejected	025GG2.1.23	0	0
Containment Spray	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	026GG2.4.49	4.0	4.0
Main and Reheat Steam	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	039A2.03	3.4	3.7

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Main Feedwater	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	059GG2.1.2	3.0	4.0
Auxiliary/Emergency Feedwater	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	061A2.04	3.1	3.4
AC Electrical Distribution	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	062GG2.1.32	3.4	3.8
DC Electrical Distribution	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	063A2.01	2.5	3.2
Emergency Diesel Generator	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	064A2.14	2.7	2.9
Process Radiation Monitoring	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those	K/A Randomly Rejected	073A2.02	2.7	3.2

Tier 2 Group 1

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
												abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)				
Service Water	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	076A2.01	3.5	3.7
Instrument Air	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	078A2	0	0
Containment	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Ability to locate and operate components, including local controls.	103GG2.1.30	3.9	3.4
Emergency Diesel Generator	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	064GG2.4.50	3.3	3.3

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Control Rod Drive	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	001GG2.4.49	4.0	4.0
Reactor Coolant	0	0	0	0	0	0	0	1	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	Loss of heat sinks	002A2.04	4.3	4.6
Pressurizer Level Control	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	011GG2.4.31	3.3	3.4
Rod Position Indication	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	014GG2.4.49	4.0	4.0
Nuclear Instrumentation	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	015GG2.1.30	3.9	3.4
Non-nuclear Instrumentation	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	016GG2.4.49	4.0	4.0
In-core Temperature Monitor	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	017GG2.1.30	3.9	3.4
Containment Iodine Removal	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	027A2.01	3.0	3.3

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Hydrogen Recombiner and Purge Control	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	028GG2.1.33	3.4	4.0
Containment Purge	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	029GG2.2.22	3.4	4.1
Spent Fuel Pool Cooling	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	033GG2.4.49	4.0	4.0
Fuel Handling Equipment	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	034GG2.2.25	2.5	3.7
Steam Generator	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Knowledge of annunciators alarms and indications and use of the response instructions.	035GG2.4.31	3.3	3.4
Steam Dump/Turbine Bypass Control	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	041A2.02	3.6	3.9
Main Turbine Generator	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	045GG2.4.30	2.2	3.6
Condenser Air Removal	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	055A2	0	0

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO
Liquid Radwaste	0	0	0	0	0	0	0	0	0	0	1	This is a Generic, no stem statement is associated.	Ability to locate and operate components, including local controls.	068G2.1.30	3.9	3.4
Waste Gas Disposal	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	071GG2.1.27	2.8	2.9
Area Radiation Monitoring	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	072GG2.1.2	3.0	4.0
Circulating Water	0	0	0	0	0	0	0	0	0	0	0	This is a Generic, no stem statement is associated.	K/A Randomly Rejected	075GG2.1.30	3.9	3.4
Station Air	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	079A2.01	2.9	3.2
Fire Protection	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	086A2.04	3.3	3.9
Condensate	0	0	0	0	0	0	0	0	0	0	0	Ability to (a) predict the impacts of the following on the (SYSTEM) and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:(CFR: 41.5 / 43.5 / 45.3 / 45.13)	K/A Randomly Rejected	056A2.04	2.6	2.8

Tier 2 Group 2

Name / Safety Functio	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	Question Type	K/A Topic(s)	KA	RO	SRO

RO

Tier 3

Group	KA	Topic	RO	SRO
~~Conduct of Operations~~	~~G2.1.7~~	~~Ability to evaluate plant performance and make operational judgments based on operating ch~~ THIS K/A RANDOMLY REJECTED @	~~3.7~~	~~4.4~~
Conduct of Operations	G2.1.17	Ability to make accurate, clear and concise verbal reports.	3.5	3.6
Conduct of Operations	G2.1.29	Knowledge of how to conduct and verify valve lineups.	3.4	3.3
Equipment Control	G2.2.25	Knowledge of bases in technical specifications for limiting conditions for operations and safe	2.5	3.7
Equipment Control	G2.2.28	Knowledge of new and spent fuel movement procedures.	2.6	3.5
Equipment Control	G2.2.11	Knowledge of the process for controlling temporary changes.	2.5	3.4
Radiation Control	G2.3.1	Knowledge of 10 CFR: 20 and related facility radiation control requirements.	2.6	3
Radiation Control	G2.3.10	Ability to perform procedures to reduce excessive levels of radiation and guard against persor	2.9	3.3
Emergency Procedures/Plan	G2.4.32	Knowledge of operator response to loss of all annunciators.	3.3	3.5
Emergency Procedures/Plan	G2.4.15	Knowledge of communications procedures associated with EOP implementation.	3	3.5

CONDUCT OF OPERATIONS G.2.1.1 KNOWLEDGE OF CONDUCT OF OPERATIONS REQUIREMENTS 3.7 3.8

S/O

Tier 3

Group	KA	Topic	RO	SRO
Conduct of Operations	G2.1.34	Ability to maintain primary and secondary plant chemistry within allowable limits.	2.3	2.9
Conduct of Operations	G2.1.13	Knowledge of facility requirements for controlling vital / controlled access.	2	2.9
Equipment Control	G2.2.20	Knowledge of the process for managing troubleshooting activities.	2.2	3.3
Equipment Control	G2.2.7	Knowledge of the process for conducting tests or experiments not described in the safety anal	2	3.2
Radiation Control	G2.3.2	Knowledge of facility ALARA program.	2.5	2.9
Emergency Procedures/Plan	G2.4.33	Knowledge of the process used track inoperable alarms.	2.4	2.8
Emergency Procedures/Plan	G2.4.38	Ability to take actions called for in the facility emergency plan, including (if required), suppo	2.2	4

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Facility: V.C. Summer | Date of Examination: 12/12/05

Examination Level (circle one): RO / (SRO) | Operating Test Number: 2005-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	(N)	SRO Only – (CO1) Determine Overtime Availability. (K/A G2.1.4; 3.4) Given shift rotation schedule for the last two weeks, identify operators that would violate OT restrictions if called in. Also identify the OT restriction that would be violated. (See attached for ideas.)
Conduct of Operations	(N)	(CO3) Calculate the Maximum allowable head venting time per EOP-18.2 Step 17 and Attachment 2. The following conditions exist: RB pressure is psig. RB Temperature is 140°F. H_2 Concentration is 1.8%. RCS Pressu is 290 psig. (K/A G2.1.25; 2.8/3.1)
Equipment Control	(D)	SRO Only – (EC1) Review work package for SFP HEX 'A'; JPA-001 (K/A G2.2.13; 3.6/3.8)
Radiation Control	(N)	(RC1) Perform a Shielding Calculation (K/A G2.3.2; 2.5/2.9) (See attached)
Emergency Plan	(D)	SRO Only – (EP1) Classification of an Emergency Event

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:
(C)ontrol room
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)
(S)imulator

DRAFT

Facility: V.C. Summer Date of Examination: 12/12/05

Examination Level (circle one): (RO) SRO Operating Test Number: 2005-301

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	(N)	RO Only – (CO2) Perform RCS leak rate calculation with plant in Mode 4 per STP-114.002 (K/A G2.1.7; 3.7/4.4)
Conduct of Operations	(N)	(CO3) Calculate the Maximum allowable head venting time per EOP-18.2 Step 17 and Attachment 2. The following conditions exist: RB pressure is 9 psig. RB Temperature is 140°F. H_2 Concentration is 1.8%. RCS Pressure is 290 psig. (K/A G2.1.25; 2.8/3.1)
Equipment Control	(N)	RO Only – (EC2) Construct a tagout for SFP HEX 'A' (Construct the tagout without the use of pre-written tagouts or computerized tagging system) (K/A G2.2.13; 2.8/3.1)
Radiation Control	(N)	(RC1) Perform a Shielding Calculation (K/A G2.3.2; 2.5/2.9) (See attached)
Emergency Plan		

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:
(C)ontrol room
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)
(S)imulator

DRAFT

Facility: V.C. Summer Date of Examination: 12/12-12/15/05
Exam Level (circle one): RO / SRO-I / SRO-U Operating Test No.: 2005-301

Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)		
System / JPM Title	Type Code*	Safety Function
a. Start and load Diesel Generator "A" from the control room in the test start mode per SOP-306.16A, starting at step 2.2.i. (At step 2.5.b, the D/G will over speed requiring an emergency STOP.) (K/A 062A1.01; 3.4/3.8)	(N) (S) (A)	6
b. JPSF-059, Alternate Isolation of Rutured S/G ('C' MSIV) (K/A 038EA1.32; 4.6/4.7)	(D) (S) (A)	3
c. JPSF-012, Dropped Rod Recovery. When Rod F2 is withdrawn to the 30 step position, the rod stops moving (stuck). When the ROD CNTRL BANK SEL switch is taken to manual per AOP-403.5, rods F2 and another rod within the same group drop requiring a manual trip. (K/A 003AA1.02; 3.6/3.4)	(M) (S) (A)	1
d. Secure Normal letdown per SOP-102 Section IV Part N and place Excess Letdown in service to the RCDT per SOP-102 Section IV Part C. (K/A 004A2.07; 3.4/3.7)	(N) (S)	2
e. JPS-068, Shift Component Cooling Water Trains. (K/A 008A4.01; 3.3/3.1)	(D) (S)	8
f. JPSF-083, Respond to Loss of Secondary Heat Sink. (K/A W/E05EA1.1; 4.1/4.0)	(D) (S) (A)	4S
g. JPSF-062, Respond to RHR Pump Vortexing. (K/A 025AA2.07; 3.4/3.7)	(D) (S) (A) (L)	4P
h. Respond to a Source Range Nuclear Instrument Malfunction (MODE 6 refueling activities in progress)	(N) (S) (L)	7
In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. JPP-055, Locally Start the Turbine Driven Emergency Feedwater Pump per FEP-4.0 Enclosure F and manually adjust flow, steps 2-4. (K/A 061A2.04; 3.4/3.8)	(M) (E) (L)	4S
j. JPPF-166B, Establish Chilled Water Alternate Cooling to Charging Pumps. (K/A 026AA1.07; 2.9/3.0)	(D) (E) (R)	8
k. JPP-052, Startup a Battery Charger per SOP-311. (K/A 063A4.01; 2.8/3.1)	(D)	6

@	All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.	
	* Type Codes	Criteria for RO / SRO-I / SRO-U
	(A)lternate path	4-6 / 4-6 / 2-3
	(C)ontrol room	
	(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
	(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
	(L)ow-Power	≥ 1 / ≥ 1 / ≥ 1
	(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
	(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
	(R)CA	≥ 1 / ≥ 1 / ≥ 1
	(S)imulator	

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Facility: V.C. Summer Date of Examination: 12/12-12/15/05
Exam Level (circle one): RO / SRO-I / (SRO-U) Operating Test No.: 2005-301

Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)

System / JPM Title	Type Code*	Safety Function
a. Start and load Diesel Generator "A" from the control room in the test start mode per SOP-306.16A, starting at step 2.2.i. (At step 2.5.b, the D/G will over speed requiring an emergency STOP.) (K/A 062A1.01; 3.4/3.8)	(N) (S) (A)	6
b. JPSF-059, Alternate Isolation of Rutured S/G ('C' MSIV) (K/A 038EA1.32; 4.6/4.7)	(D) (S) (A)	3
c. JPSF-012, Dropped Rod Recovery. When Rod F2 is withdrawn to the 30 step position, the rod stops moving (stuck). When the ROD CNTRL BANK SEL switch is taken to manual per AOP-403.5, rods F2 and another rod within the same group drop requiring a manual trip. (K/A 003AA1.02; 3.6/3.4)	(M) (S) (A)	1
d.		
e.		
f.		
g.		
h.		
In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)		
i. JPP-055, Locally Start the Turbine Driven Emergency Feedwater Pump per FEP-4.0 Enclosure F and manually adjust flow, steps 2-4. (K/A 061A2.04; 3.4/3.8)	(M) (E) (L)	4S
j. JPPF-166B, Establish Chilled Water Alternate Cooling to Charging Pumps. (K/A 026AA1.07; 2.9/3.0)	(D) (E) (R)	8
k.		

@ All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes Criteria for RO / SRO-I / SRO-U

(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	