Facility: Vogtle Date of Exam: February 2017																		
Tier	Group		RO K/A Category Points					SRO-Only Points										
		K 1	K 2	К 3	K 4	<b>K</b> 5	K 6	A 1	A 2	A 3	A 4	G *	Total	Å	<b>A</b> 2	(	3*	Total
1.	1	3	3	3				2	3			3	18		3		3	6
Emergency & Abnormal Plant	2	2	1	2	N/A			1	2	N/A	1	9		2		2	4	
Evolutions	Tier Totals	5	4	5				3	5			4	27		5		5	10
	1	3	3	2	2	3	3	3	2	2	3	2	28		2		3	5
2. Plant	2	1	1	1	1	1	1	1	0	1	1	1	10		1		2	3
Systems	Tier Totals	4	4	3	3	4	4	4	2	3	4	3	38			_	5	8
3. Generic Knowledge and Abilities				s	,	1	- 2	2	3	3	4	4	10	1	2	3	4	7
(	Categories					2		3		2		3		1	2	_ 2	2	

- 1. Ensure that at least two topics from every applicable 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, the "Tier Totals" in each K/A category shall not be less than two). (One Tier 3 Radiation Control K/A is allowed if the K/A is replaced by a K/A from another Tier 3 Category).
- 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 section D.1.b of ES-401 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. Refer to section D.1.b of ES-401 for the applicable KAs.
- 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.

Page 1 of 2 01/11/2016 7:41 AM

Tcold temperature

ES-401N, RE	V 10	T10	G1 PWR EXAMINATION OUTLINE	FORM ES-401N-2	
KA	NAME / SAFETY FUNCTIO	IR RO SRO	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:	
ES-1.1EK1.12	Passive Safety System Termination	2.8		Pressurizer Pressure Control System	
ES-1.3EA1.14	ADS Stage 1-3 Actuation Response	3.6 0		ADS Stage 4	
ES-1.4EA2.01	ADS Stage 4 Actuation Response	3.6 3.8		ADS Stage 4 proper alignment	
FR-C.1EG2.4.1	Response to Inadequate Core Cooling	4.6 4.8		Knowledge of Emergency/Abnormal Operating Procedure entry conditions.	
FR-H.1EK3.14	Response to Loss of Heat Sink	4.4		Automatic Depressurization System Actuation	
FR-S.1EK2.03	Response to Nuclear Power Generation – ATWS	4.1		Failure to recognize the need and failure to manually trip the reactor through the Protection and Safety Monitoring System, given anticipated transient without scram (PRA related)	
SDP-1EA2.03	Response to Loss of RCS Inventory During Shutdown	3.6 3.6		Core exit temperature	

Page 2 of 2 01/11/2016 7:41 AM

FR-Z.4EA2.01

Low Containment Pressure

2.8 3

Containment pressure

Page 1 of 3 01/11/2016 7:41 AM

RCSK1.18

Reactor Coolant System

3.6

Page 2 of 3 01/11/2016 7:41 AM

Normal Residual Heat Removal System

ES-401N, F	REV 10	T20	1 PWR EXAMINATION OUTLINE	FORM ES-401N-2	
KA	NAME / SAFETY FUNCTION	IR	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:	
		RO SRO			
RNSA4.07	Normal Residual Heat Removal System	3.5		Post loss of coolant accident containment makeup	
RNSK6.04	Normal Residual Heat Removal System	2.7		Pump flow rate instrument	
RTSK2.02	Reactor Trip System	3.6		Reactor Trip System Instrumentation	
SGSK5.14	Steam Generator System	2.6		Chemistry and corrosion control	
SWSK1.03	Service Water System	2.7		Circulating Water System	
ZOSA3.01	Onsite Standby Power System	3.2		Standby Diesel Generator starting and loading	

Page 3 of 3 01/11/2016 7:41 AM

KA	NAME / SAFETY FUNCTIO	IR	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:
		RO SRO	o .	
G.2.3.9	Radiation Control	2.9 3.1		Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, or personnel monitoring equipment.
G2.1.5	Conduct of operations	2.9 3.9		Ability to use procedures related to shift staffing, such as minimum crew complement, or overtime limitations.
G2.1.8	Conduct of operations	3.4 4.1		Ability to coordinate personnel activities outside the control room.
G2.2.15	Equipment Control	2.6 3.8		Knowledge of the process for managing troubleshooting activities.
G2.2.22	Equipment Control	4.6		Ability to determine operability or availability of safety related equipment.
G2.2.24	Equipment Control	3.9 4.5		Knowledge of less than or equal to one hour Technical Specification action statements. (This K/A does not include Action Statements of one hour or less that follow the expiration of a completion time for a Technical Specification condition for which an A
G2.3.4	Radiation Control	3.5 3.6		Ability to comply with radiation work permit requirements during normal or abnormal conditions.
G2.4.16	Emergency Procedures/Plans	4 4.6		Knowledge of the parameters and logic used to assess the status of Emergency Operating Procedures Critical Safety Functions or Shutdown Critical Safety Functions.
G2.4.38	Emergency Procedures/Plans	4.2 4.2		Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material
G2.4.8	Emergency Procedures/Plans	3.8 4.2		Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.

ES-401N, REV 10

ES-401N, REV 10			RO T	1G1 PWR EXAMINATION OUTLINE	FORM ES-401N-2		
KA	NAME / SAFETY FUNCTIO		IR	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:		
		RO	SRO				
A-323AG2.2.21	Loss of 6.9KV, 4160 Volt, or 480 Volt Bus Power	3.1	4.2		Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.		
A-329AG2.1.14	Loss of Instrument Air	4	3.3		Ability to use integrated control systems to operate plant systems or components.		
A-336AA2.02	Malfunction of Protection and Safety Monitoring System	4	3.7		Diverse Actuation System indications		
E-1EA2.04	Loss of Reactor or Secondary Coolant	t 3.4	3.4		Passive Residual Heat Removal System flow		
FR-C.1EG2.2.19	Response to Inadequate Core Cooling	<b>j</b> 0	4.2		Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.		
FR-H.1EA2.02	Response to Loss of Heat Sink	3.8	3.7		Reactor Coolant System pressure and/or temperature		

Page 1 of 1 01/11/2016 7:41 AM

ES-401N, REV 10			SRO T1G2 PWR EXAMINATION OUTLINE	FORM ES-401N-2		
KA	NAME / SAFETY FUNCTIO	I	IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:		
		RO	SRO			
A-308AA2.02	Loss of Control Room Air Conditioning	2.3	3 2.8	Nuclear Island Nonradioactive Ventilation System flow		
A-318AG2.2.22	Condensate System Malfunctions	0	4.6	Ability to determine operability or availability of safety related equipment.		
ES-1.2EA2.07	Post Loss of Coolant Accident Cool Down and Depressurization	3.2	2: 3.7	Containment pressure		
FR-C.3EG2.4.14	Response to Saturated Core Cooling	3.4	4.1	Knowledge of Emergency/Abnormal Operating Procedures layout, symbols, and icons.		

Page 1 of 1 01/11/2016 7:41 AM

ES-401N, REV 10			T2G1 PWR EXAMINATION OUTLINE	FORM ES-401N-2	
KA	NAME / SAFETY FUNCTIO	IR	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:	
		RO S	SRO		
CASA2.06	Compressed Air System	3 2	.7	Loss of instrument air supply pressure	
CNSA2.03	Containment System	3.7 3	.6	Normal Residual Heat Removal System containment isolation	
ESASG2.4.3	Engineered Safeguards Actuation System	3.7 3	.9	Ability to identify post-accident instrumentation.	
FWSG2.1.21	Main and Startup Feedwater System	4.3 4	.4	Ability to perform general and/or normal operating procedures during any plant condition.	
RTSG2.4.1	Reactor Trip System	4.6 4	.8	Knowledge of Emergency/Abnormal Operating Procedure entry conditions.	

Page 1 of 1 01/11/2016 7:41 AM

ES-401N, R	EV 10	SRO T2G2 PWR EXAMINATION OUTLINE	FORM ES-401N-2
KA	NAME / SAFETY FUNCTIO	IR K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G TOPIC:	
		RO SRO	
FPSG2.4.39	Fire Protection System	4.2 4 Ability to verify system alarm setpoir controls identified in the Alarm Resp	
SDCSA2.08	Steam Dump Control System	2.7 2.9 Main steam header pressure	
VESG2.4.24	Main Control Room HVAC	4.2 4.1	dications, or

Page 1 of 1 01/11/2016 7:42 AM

ES-401N, REV 10		SRO	T3 PWR EXAMINATION OUTLINE	TOPIC:  Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, or personnel monitoring equipment.
KA	NAME / SAFETY FUNCTIO	IR	K1 K2 K3 K4 K5 K6 A1 A2 A3 A4 G	TOPIC:
		RO SRO		
G.2.3.9	Radiation Control	2.9 3.1		radiation monitors and alarms, or personnel monitoring
G2.1.30	Conduct of operations	3		Knowledge of the fuel-handling responsibilities of SROs.
G2.2.11	Equipment Control	3.9 4.3		Ability to determine the expected plant configuration using design and configuration control documentation, such as drawings, line-ups, or tag-outs.
G2.2.27	Equipment Control	3.5 3.9		Ability to obtain and/or interpret station electrical and mechanical drawings.
G2.3.5	Radiation Control	3.8 4.3		Ability to control radiation releases.
G2.4.39	Emergency Procedures/Plans	4.2 4		Ability to verify system alarm setpoints and operate controls identified in the Alarm Response Procedure.
G2.4.6	Emergency Procedures/Plans	3.7 4.7		Knowledge of Emergency/Abnormal Operating Procedures major action categories.

Draft ES-301-1, ES-301-2, RO Written Exam, SRO Written Exam, Simulator Scenarios, Simulator JPMs, In-Plant JPMs, and Administrative JPMs are located in Non-Public ADAMS due to being Proprietary information.