

Facility Name: River Bend Station		Date of Exam: 12/3/2010																	
Tier	Group	RO K/A Category Points											SRO-Only Points						
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	Total	A2	G*	Total			
1. Emergency & Abnormal Plant Evolutions	1	0	0	0	N/A				0	0	N/A			0	0	4	3	7	
	2	0	0	0	N/A				0	0	N/A			0	0	2	1	3	
	Tier Totals	0	0	0	N/A				0	0	N/A			0	0	6	4	10	
2. Plant Systems	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
	Tier Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	8	
3. Generic Knowledge and Abilities Categories				1	2	3	4	0				1	2	3	4	7			
				0	0	0	0	0				2	2	1	2				

Note: 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 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 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 K/As.

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.

ES-401 BWR Examination Outline Form ES-401-1  
 Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO)

Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
	295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4									0
	295003 Partial or Complete Loss of AC / 6									0
	295004 Partial or Total Loss of DC Pwr / 6									0
76	295005 Main Turbine Generator Trip / 3						04.50	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	4	1
	295006 SCRAM / 1									0
	295016 Control Room Abandonment / 7									0
77	295018 Partial or Total Loss of CCW / 8					03		Ability to determine and interpret cause for partial or complete loss as it applies to Partial Loss of CCW.	3.5	1
78	295019 Partial or Total Loss of Inst. Air / 8						04.34	Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.	4.1	1
	295021 Loss of Shutdown Cooling / 4									0
79	295023 Refueling Acc / 8						04.45	Ability to prioritize and interpret the significance of each annunciator or alarm.	4.3	1
	295024 High Drywell Pressure / 5									0
80	295025 High Reactor Pressure / 3					03		Ability to determine and interpret suppression pool temperature as it applies to High Reactor Pressure.	4.1	1
	295026 Suppression Pool High Water Temp. / 5									0
	295027 High Containment Temperature / 5									0
81	295028 High Drywell Temperature / 5					02		Ability to determine and interpret reactor pressure as it applies to High Drywell Temperature.	3.9	1
	295030 Low Suppression Pool Wtr Lvl / 5									0
	295031 Reactor Low Water Level / 2									0
82	295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1					06		Ability to determine and interpret reactor pressure as it applies to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown.	4.1	1
	295038 High Off-site Release Rate / 9									0
	600000 Plant Fire On Site / 8									0
	700000 Generator Voltage and Electric Grid Disturbances / 6									0
K/A Category Totals:		0	0	0	0	4	3	Group Point Total:		7

ES-401		BWR Examination Outline						Form ES-401-1		
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO)										
Q#	E/APE # / Name / Safety Function	K 1	K 2	K 3	A 1	A 2	G	K/A Topic(s)	IR	#
	295002 Loss of Main Condenser Vac / 3									0
	295007 High Reactor Pressure / 3									0
83	295008 High Reactor Water Level / 2					0 1		Ability to determine and interpret reactor water level as it applies to High Reactor Water Level.	3.9	1
	295009 Low Reactor Water Level / 2									0
	295010 High Drywell Pressure / 5									0
	295011 High Containment Temp / 5									0
	295012 High Drywell Temperature / 5									0
84	295013 High Suppression Pool Temp. / 5					0 1		Ability to determine and interpret suppression pool temperature as it applies to High Suppression Pool Temperature.	4	1
	295014 Inadvertent Reactivity Addition / 1									0
	295015 Incomplete SCRAM / 1									0
	295017 High Off-site Release Rate / 9									0
	295020 Inadvertent Cont. Isolation / 5 & 7									0
	295022 Loss of CRD Pumps / 1									0
	295029 High Suppression Pool Wtr Lvl / 5									0
85	295032 High Secondary Containment Area Temperature / 5						04. 47	Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.	4.2	1
	295033 High Secondary Containment Area Radiation Levels / 9									0
	295034 Secondary Containment Ventilation High Radiation / 9									0
	295035 Secondary Containment High Differential Pressure / 5									0
	295036 Secondary Containment High Sump/Area Water Level / 5									0
	500000 High CTMT Hydrogen Conc. / 5									0
K/A Category Totals:		0	0	0	0	2	1	Group Point Total:		3

ES-401		BWR Examination Outline											Form ES-401-1		
Plant Systems - Tier 2/Group 1 (SRO)															
Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
	203000 RHR/LPCI: Injection														0
	205000 Shutdown Cooling Mode														0
	206000 HPCI														0
	207000 Isolation (Emergency) Condenser														0
	209001 LPCS														0
86	209002 HPCS												01. 23 Ability to perform specific system and integrated plant procedures during all modes of plant operation.	4.4	1
87	211000 SLC												04. 21 Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.	4.6	1
	212000 RPS														0
88	215003 IRM								0 2				Ability to (a) predict the impact of an INOP condition on the IRMs and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of that abnormal operation.	3.7	1
	215004 Source Range Monitor														0
	215005 APRM / LPRM														0
89	217000 RCIC								1 4				Ability to (a) predict the impact of rupture disc failure on RCIC and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of that abnormal operation.	3.4	1
	218000 ADS														0
	223002 PCIS/Nuclear Steam Supply Shutoff														0
	239002 SRVs														0
	259002 Reactor Water Level Control														0
	261000 SGTS														0
	262001 AC Electrical Distribution														0
	262002 UPS (AC/DC)														0
	263000 DC Electrical Distribution														0
	264000 EDGs														0
90	300000 Instrument Air												02. 44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.	4.4	1
	400000 Component Cooling Water														0
															0
K/A Category Totals:		0	0	0	0	0	0	0	2	0	0	3	Group Point Total:		5

ES-401		BWR Examination Outline											Form ES-401-1		
Plant Systems - Tier 2/Group 2 (SRO)															
Q#	System # / Name	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	K/A Topic(s)	IR	#
	201001 CRD Hydraulic														0
	201002 RMCS														0
	201003 Control Rod and Drive Mechanism														0
	201004 RSCS														0
	201005 RCIS														0
	201006 RWM														0
	202001 Recirculation														0
	202002 Recirculation Flow Control														0
	204000 RWCU														0
	214000 RPIS														0
	215001 Traversing In-core Probe														0
	215002 RBM														0
	216000 Nuclear Boiler Inst.														0
	219000 RHR/LPCI: Torus/Pool Cooling Mode														0
	223001 Primary CTMT and Aux.														0
	226001 RHR/LPCI: CTMT Spray Mode														0
	230000 RHR/LPCI: Torus/Pool Spray Mode														0
	233000 Fuel Pool Cooling/Cleanup														0
	234000 Fuel Handling Equipment														0
91	239001 Main and Reheat Steam											04.06	Knowledge of EOP mitigation strategies.	4.7	1
	239003 MSIV Leakage Control														0
	241000 Reactor/Turbine Pressure Regulator														0
	245000 Main Turbine Gen. / Aux.														0
	256000 Reactor Condensate														0
92	259001 Reactor Feedwater											04.46	Ability to verify that the alarms are consistent with the plant conditions.	4.2	1
	268000 Radwaste														0
	271000 Offgas														0
	272000 Radiation Monitoring														0
	286000 Fire Protection														0
	288000 Plant Ventilation														0
	290001 Secondary CTMT														0
93	290003 Control Room HVAC								02				Ability to (a) predict the impact of extreme environmental conditions on Control Room HVAC and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of that abnormal operation.	3.4	1
	290002 Reactor Vessel Internals														0
K/A Category Totals:		0	0	0	0	0	0	0	1	0	0	2	Group Point Total:	3	

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Q#	Category	K/A #	Topic	RO		SRO-Only	
				IR	#	IR	#
94	1. Conduct of Operations	2.1. 20	Ability to interpret and execute procedure steps.			4.6	1
95		2.1. 34	Knowledge of primary and secondary plant chemistry limits.			3.5	1
		2.1.					
		2.1.					
		2.1.					
		2.1.					
		Subtotal				0	
96	2. Equipment Control	2.2. 18	Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.			3.9	1
97		2.2. 36	Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.			4.2	1
		2.2.					
		2.2.					
		2.2.					
		2.2.					
	Subtotal				0		2
98	3. Radiation Control	2.3. 04	Knowledge of radiation exposure limits under normal or emergency conditions.			3.7	1
		2.3.					
		2.3.					
		2.3.					
		2.3.					
		2.3.					
	Subtotal				0		1
99	4. Emergency Procedures / Plan	2.4. 35	Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.			4	1
100		2.4. 50	Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.			4	1
		2.4.					
		2.4.					
		2.4.					
		2.4.					
	Subtotal				0		2
Tier 3 Point Total					0		7