

BWR RO EXAMINATION OUTLINEFacility: **RIVER BEND STATION**Date of Exam: **27 OCTOBER 2000**

TIER	GROUP	K/A CATEGORY POINTS											POINT TOTAL
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. EMERGENCY & ABNORMAL EVOLUTIONS	1	1	2	3				4	3			0	13
	2	2	3	4				2	8			0	19
	3	0	1	0				1	2			0	4
	TIER TOTAL	3	6	7				7	13			0	36
2. PLANT SYSTEMS	1	4	2	4	2	2	2	3	1	3	5	0	28
	2	1	2	1	2	2	1	1	2	2	5	0	19
	3	2	0	0	1	0	0	0	1	0	0	0	4
	TIER TOTAL	7	4	5	5	4	3	4	4	5	10	0	51

3. GENERIC KNOWLEDGE & ABILITIES	CAT 1	CAT 2	CAT 3	CAT 4	13
	4	3	2	4	

NOTE

- Attempt to distribute topics among all K/A categories; select at least one topic from every K/A category within each tier.
- Actual point totals must match those specific in the table.
- Select topics from many systems; avoid selecting more than two or three K/A topics from a given system unless they relate to plant specific priorities.
- Systems / evolutions within each group are identified on the associated outline.
- The shaded areas are not applicable to the category tier.

**RIVER BEND STATION
OCTOBER 2000**

**BWR RO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 1**

ES-401-2

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295005 Main Turbine Generator Trip / III CFR41.4/41.5					05		Ability to determine/interpret reactor pressure as it applies to a main turbine trip	3.8	86	RO		Bank	
295006 SCRAM / I CFR41.5/41.14				06			Demonstrate the ability to operate and monitor the CRD Hydraulic system during a scram	3.5	34	BOTH		Modified	
295007 High Reactor Pressure / III CFR41.5/41.14	03						Demonstrate a knowledge of the effects of high reactor pressure on reactor power	3.8	55	BOTH		Bank	
295009 Low Reactor Water Level / II CFR41.7			01				Describe the reaction of the Recirculation system to low reactor water level.	3.2	14	BOTH		Bank	
295010 High Drywell Pressure / V CFR41.4/41.9				07			Demonstrate the ability to operate Containment Atmospheric Control systems during conditions of high drywell pressure	3.2	49	BOTH		Bank	
295014 Inadvertent Reactivity Addition / I CFR41.1/41.2/41.6/43.6		09					Demonstrate the interrelationships between the RC&IS system and inadvertent reactivity addition	3.4	43	BOTH		Bank	
295015 Incomplete SCRAM / I CFR41.1/41.2/41.6/43.6			01				State the reason for bypassing rod insertion blocks under conditions of an incomplete scram	3.4	36	BOTH		New	
295024 High Drywell Pressure / V CFR41.9			06				Describe the reasons for an automatic reactor scram on high Drywell pressure	4.0	63	BOTH		Bank	
295025 High Reactor Pressure / III CFR41.3/41.5/41.7/43.2					01		Ability to determine/interpret the effects of high reactor pressure	4.3	4	BOTH		Bank	
295031 Reactor Low Water Level / II CFR41.10/43.5				08			Ability to operator and monitor alternate injection systems during conditions of low reactor water level	3.8	23	BOTH		Modified	
PAGE 1 TOTAL TIER 1 GROUP 1	1	1	3	3	2	0	PAGE TOTAL # QUESTIONS	10					

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 1**

ES-401-1

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295003 Partial or Complete Loss of AC Power/ VI CFR41.7			03				Demonstrate a knowledge of load shedding as it applies to a partial or complete loss of AC power	3.6	6	BOTH		Bank	
295006 SCRAM / I CFR41.5/41.14	02						Demonstrate a knowledge of the operational implications of shutdown margin as it applies to a SCRAM	3.7	87	SRO		New	
295006 SCRAM / I CFR41.5/41.14				06			Demonstrate the ability to operate and monitor the CRD Hydraulic system during a scram	3.6	34	BOTH		Modified	
295007 High Reactor Pressure / III CFR41.5/41.14	03						Demonstrate a knowledge of the effects of high reactor pressure on reactor power	3.9	55	BOTH		Bank	
295009 Low Reactor Water Level / II CFR41.7			01				Describe the reaction of the Recirculation system to low reactor water level.	3.3	14	BOTH		Bank	
295009 Low Reactor Water Level / II CFR41.7					01		Knowledge of reactor water level indication on low reactor water level conditions	4.2	82	SRO		Modified	
295010 High Drywell Pressure / V CFR41.4/41.9				07			Demonstrate the ability to operate Containment Atmospheric Control systems during conditions of high drywell pressure	3.4	49	BOTH		Bank	
295013 High Suppression Pool Temp. / V CFR41.9/41.10				01			Demonstrate the ability to operate and monitor suppression pool cooling during conditions of high suppression pool temperature	3.9	85	SRO		Modified	
295014 Inadvertent Reactivity Addition / I CFR41.1/41.2/41.6/43.6		09					Demonstrate the interrelationships between the RC&IS system and inadvertent reactivity addition	3.6	43	BOTH		Bank	
295015 Incomplete SCRAM / I CFR41.1/41.2/41.6/43.6			01				State the reason for bypassing rod insertion blocks under conditions of an incomplete scram	3.7	36	BOTH		New	
295016 Control Room Abandonment / VII CFR41.7				01			Demonstrate the ability to determine reactor power following an evacuation of the Main Control Room	4.1	81	SRO		New	
295017 High Offsite Release Rate / IX CFR41.10/41.12/43.5		04					Describe the response of the plant ventilation systems to a high radioactivity release rate.	3.3	88	SRO		New	
PAGE 1 TOTAL TIER 1 GROUP 1	2	2	3	4	1	0	PAGE TOTAL # QUESTIONS	12					

BWR SRO EXAMINATION OUTLINE

Facility: **RIVER BEND STATION**

Date of Exam: **27 OCTOBER 2000**

TIER	GROUP	K/A CATEGORY POINTS											POINT TOTAL
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	
1. EMERGENCY & ABNORMAL PLANT EVOLUTIONS	1	3	5	6				7	5			0	26
	2	1	3	2				2	9			0	17
	TIER TOTAL	4	8	8				9	14			0	43
2. PLANT SYSTEMS	1	3	2	3	2	3	3	2	2	2	1	0	23
	2	1	1	2	1	0	1	2	1	2	2	0	13
	3	1	0	0	0	0	0	0	1	1	1	0	4
	TIER TOTAL	5	3	5	3	3	4	4	4	5	4	0	40

3. GENERIC KNOWLEDGE & ABILITIES	CAT 1	CAT 2	CAT 3	CAT 4	17
	5	4	2	6	

- NOTE
- Attempt to distribute topics among all K/A categories; select at least one topic from every K/A category within each tier.
 - Actual point totals must match those specific in the table.
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 - Systems / evolutions within each group are identified on the associated outline.
 - The shaded areas are not applicable to the category tier.

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 1**

CONT.

ES-401-1

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295023 Refueling Accidents Cooling Mode / VIII CFR41.2/41.10/41.12/43.4/43.5/43.6/43.7				01			Demonstrate the ability to monitor secondary containment ventilation during fuel handling accidents	3.5	64	BOTH		New	
295023 Refueling Accidents Cooling Mode / VIII CFR41.2/41.10/41.12/43.4/43.5/43.6/43.7					05		Determine under conditions of fuel handling accidents whether entry into the site Emergency Plan is required	4.6	89	SRO		New	
295024 High Drywell Pressure / V CFR41.9		08					Knowledge of the high Drywell pressure conditions which will cause an automatic initiation of ADS	4.1	75	SRO		Modified	
295024 High Drywell Pressure / V CFR41.9			06				Describe the reasons for an automatic reactor scram on high Drywell pressure	4.1	63	BOTH		Bank	
295025 High Reactor Pressure / III CFR41.3/41.5/41.7/43.2					01		Ability to determine/interpret the effects of high reactor pressure	4.3	4	BOTH		Bank	
295026 Suppression Pool High Water Temp. / V CFR41.7/41.9/41.10/43.5			01				Reasons for emergency depressurization on high suppression pool temperature conditions	4.1	7	BOTH		Modified	
295027 High Containment Temperature / V CFR41.5/41.9/41.10/43.5		03					Knowledge of the relationship between high containment temperature and containment ventilation/cooling systems	3.7	10	BOTH		Bank	
295030 Low Suppression Pool Water Level / V CFR41.9	03						Knowledge of the effects of low suppression pool water level on suppression pool heat capacity.	4.1	37	BOTH		Bank	
295031 Reactor Low Water Level / II CFR41.10/43.5				08			Ability to operator and monitor alternate injection systems during conditions of low reactor water level	3.9	23	BOTH		Modified	
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / I CFR41.1/41.2/41.6/43.6				04			Ability to operate and monitor SLC during ATWS conditions	4.5	22	BOTH		Modified	
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / I CFR41.1/41.2/41.6/43.6					02		Ability to determine/interpret reactor water level during ATWS conditions	4.2	13	BOTH		Bank	
295038 High Offsite Release Rate / IX CFR41.13/43.4					04		Ability to determine source of release during conditions of high release rates	4.5	38	BOTH		Modified	
PAGE 2 TOTAL TIER 1 GROUP 1	1	2	2	3	4	0	PAGE TOTAL # QUESTIONS	12					

RIVER BEND STATION OCTOBER 2000		BWR SRO EXAMINATION OUTLINE EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 1					CONT.	ES-401-1					
E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
500000 High Containment Hydrogen Conc. / V CFR41.10/43.5		05					Knowledge of Hydrogen concentrations and operation of the Hydrogen recombiners	3.3	60	BOTH		Bank	
500000 High Containment Hydrogen Conc. / V CFR41.10/43.5			01				Describe the response of the containment atmospheric control systems under conditions of high Hydrogen concentrations.	3.3	77	SRO		New	
PAGE 3 TOTAL TIER 1 GROUP 1	0	1	1	0	0	0	PAGE TOTAL # QUESTIONS	2					
PAGE 1 TOTAL TIER 1 GROUP 1	2	2	3	4	1	0	PAGE TOTAL # QUESTIONS	12					
PAGE 2 TOTAL TIER 1 GROUP 1	1	2	2	3	4	0	PAGE TOTAL # QUESTIONS	12					
K/A CATEGORY TOTALS:	3	5	6	7	5	0	TIER 1 GROUP 1 POINT TOTAL	26					

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 2**

ES-401-1

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295001 Partial or Complete Loss of Forced Core Flow Circulation / I & IV CFR41.5/41.10/43.5			06				Describe the effect on core flow indication upon a partial or complete loss of forced circulation	3.0	26	BOTH		Bank	
295002 Loss of Main Condenser Vacuum / III CFR41.4					01		Ability to determine condenser vacuum	3.1	39	BOTH		Bank	
295004 Partial or Total Loss of DC Power / VI CFR41.7					02		Determine/interpret the effect of a partial or total loss of DC power	3.9	42	BOTH		Bank	
295005 Main Turbine Generator Trip / III													
295008 High Reactor Water Level / II CFR41.5		03					Demonstrate knowledge of the response to the reactor water level control system on high reactor water level	3.7	48	BOTH		Bank	
295011 High Containment Temperature / V CFR41.9	01						Describe the basis for Emergency Depressurization of the RPV on High Containment Temperature.	4.1	90	SRO		New	
295012 High Drywell Temperature / V CFR41.9													
295018 Partial or Total Loss of CCW / VIII CFR41.4					01		Ability to determine/interpret component temperatures on a partial or complete loss of Component Cooling Water	3.4	5	BOTH		Bank	
295019 Partial or Total Loss of Inst. Air / VIII CFR41.4/41.7					02		Ability to determine the status of safety related air load on a partial or complete loss of instrument air system	3.7	40	BOTH		Modified	
295020 Inadvertent Cont. Isolation / V & VII CFR41.9					06		Ability to determine the cause of an inadvertent containment isolation	3.8	24	BOTH		Modified	
295021 Loss of Shutdown Cooling / IV CFR41.5/43.5					04		Ability to determine reactor water temperature upon a loss of shutdown cooling	3.6	21	BOTH		Bank	
PAGE 1 TOTAL TIER 1 GROUP 2	1	1	1	0	6	0	PAGE TOTAL # QUESTIONS	9					

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 2**

CONT.

ES-401-1

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295022 Loss of CRD Pumps / I CFR41.5/41.6/43.2				02			Demonstrate the ability to operate and monitor RPS during a loss of CRD	3.6	47	BOTH		Bank	
295028 High Drywell Temperature / V		03					Describe the interrelationships between High Drywell Temperature and RPV level indication	3.8	1	BOTH		Modified	
295029 High Suppression Pool Water Level / V CFR41.7			01				State the reason for the requirement to emergency depressurize on a High Suppression Pool Level condition	3.9	12	BOTH		Bank	
295032 High Secondary Containment Area Temperature / V CFR41.4/41.9/41.10/43.5					03		Ability to determine/interpret the cause of high secondary containment area temperature	4.0	41	BOTH		New	
295033 High Secondary Containment Area Radiation Levels / IX CFR41.11/41.12/43.4					01		Ability to determine/interpret high secondary containment area radiation levels	3.9	50	BOTH		Bank	
295034 Secondary Containment Ventilation High Radiation / IX CFR41.7/41.11/41.13/43.4													
295035 Secondary Containment High Differential Pressure / V					02		Ability to determine/interpret offsite rad release rates under conditions of high secondary containment differential pressure	4.1	76	SRO		Bank	
295036 Secondary Containment High Sump/Area Water Level / V CFR41.4		01					Knowledge of the interrelations between high secondary containment /area water level and the secondary containment floor and equipment drain system	3.2	56	BOTH		Bank	
600000 Plant Fire On Site / VIII CFR41.10/43.5				05			Ability to monitor/operate plant and control room ventilation systems during a plant fire on site	3.1	61	BOTH		Bank	
PAGE 2 TOTAL TIER 1 GROUP 2	0	2	1	2	3	0	PAGE TOTAL # QUESTIONS	8					
PAGE 1 TOTAL TIER 1 GROUP 2	1	1	1	0	6	0	PAGE TOTAL # QUESTIONS	9					
K/A CATEGORY TOTALS:	1	3	2	2	9	0	TIER 1 GROUP 2 GROUP POINT TOTAL	17					

RIVER BEND STATION OCTOBER 2000				BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 1										ES-401-1				
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
201005 RCIS CFR41.6							01					Ability to monitor/predict changes in RC&IS including first stage turbine shell pressure/turbine load	3.3	2	BOTH		New	
202002 Recirculation Flow Control CFR41.6									01			Ability to monitor automatic operation of the Recirculation Flow Control system including flow control valve operation	3.4	15	BOTH		Bank	
203000 RHR/LPCI: Injection Mode CFR41.7		03										Knowledge of electrical power supplies to RHR/LPCI initiation logic	2.9	16	BOTH		Bank	
209001 LPCS CFR41.7/41.8						02						Knowledge of the effect of a malfunction of the emergency diesel generators will have on the LPCS system	3.9	52	BOTH		Bank	
209002 HPCS CFR41.7/41.8			01									Knowledge of the effect of a loss or malfunction of the HPCS system on RPV water level	3.9	51	BOTH		New	
211000 SLC CFR41.6								02				Ability to mitigate the failure of the explosive squib valves in the SLC system	3.9	30	BOTH		New	
212000 RPS CFR41.6							08					Ability to monitor parameters associated with the RPS system including system valve positions	3.4	17	BOTH		Bank	
215004 Source Range Monitor CFR41.6					03							Knowledge of the operational implications of changing SRM detector position	2.8	29	BOTH		New	
215005 APRM / LPRM CFR41.6			01									Knowledge of the effects of a loss of a APRM on the Reactor Protection System	4.0	44	BOTH		Bank	
216000 Nuclear Boiler Instrumentation CFR41.2		01										Knowledge of the electrical power supplies to the Nuclear Boiler Instrumentation analog trip system	2.8	65	BOTH		New	
PAGE 1 TOTAL TIER 2 GROUP 1	0	2	2	0	1	1	2	1	1	0	0	PAGE TOTAL # QUESTIONS	10					

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 1**

CONT.

ES-401-1

SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
217000 RCIC CFR41.7/41.10	01											Knowledge of the physical connections/cause effect relationship between RCIC and the condensate storage tank	3.5	19	BOTH		Modified	
218000 ADS CFR41.7/41.8				01								Knowledge of the ADS design features which prevent inadvertent initiation of ADS	3.9	57	BOTH		Bank	
223001 Primary CTMT and Auxiliaries CFR41.7/43.2			07									Knowledge of the effects of a loss or malfunction of primary containment auxiliaries on differential pressure between the drywell and suppression pool	3.2	11	BOTH		Bank	
223002 PCIS / Nuclear Steam Supply Shutoff CFR41.7/41.9									02			Ability to monitor automatic operation of NSSSS including valve closures	3.5	46	BOTH		Modified	
226001 RHR/LPCI: CTMT Spray Mode CFR41.9																		
239002 SRVs CFR41.3						01						Knowledge of the effect of a loss of pressure indication on the operation of the SRVs	3.4	66	BOTH		New	
239002 SRVs CFR41.3								03				Ability to respond using procedures to a stuck open SRV	4.2	91	SRO		New	
241000 Reactor / Turbine Pressure Regulator CFR41.5										02		Ability to manually operate/monitor reactor pressure in the main control room	4.1	18	BOTH		Bank	
241000 Reactor / Turbine Pressure Regulator CFR41.5						05						Knowledge of the effect of a loss of condenser vacuum on the operation of the turbine pressure regulating system	3.4	92	SRO		New	
259002 Reactor Water Level Control CFR41.5				13								Knowledge of the Reactor Water Level control system design features which provide for lockup of the Feedwater Regulating Valves	3.6	78	SRO		Bank	
PAGE 2 TOTAL TIER 2 GROUP 1	1	0	1	2	0	2	0	1	1	1	0	PAGE TOTAL # QUESTIONS	9					

RIVER BEND STATION OCTOBER 2000				BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 1								CONT.	ES-401-1						
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:	
261000 SGTS CFR41.13	01											Knowledge of the physical connection/cause effect relationship between SGTS and reactor building ventilation system	3.6	53	BOTH		New		
262001 AC Electrical Distribution CFR41.4					01							Principles involved in paralleling two AC sources	3.4	93	SRO		New		
264000 EDGs CFR41.8					06							Knowledge of the operational implications of load sequencing as it applies to the emergency diesel generators	3.5	59	BOTH		Bank		
290001 Secondary CTMT CFR41.9	04											Knowledge of the physical connections and the SGTS system	3.9	73	SRO		Bank		
PAGE 3 TOTAL TIER 2 GROUP 1	2	0	0	0	2	0	0	0	0	0	0	PAGE TOTAL # QUESTIONS	4						
PAGE 1 TOTAL TIER 2 GROUP 1	0	2	2	0	1	1	2	1	1	0	0	PAGE TOTAL # QUESTIONS	10						
PAGE 2 TOTAL TIER 2 GROUP 1	1	0	1	2	0	2	0	1	1	1	0	PAGE TOTAL # QUESTIONS	9						
K/A CATEGORY TOTALS:	3	2	3	2	3	3	2	2	2	1	0	TIER 2 GROUP 1 GROUP POINT TOTAL	23						

RIVER BEND STATION OCTOBER 2000				BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 2										ES-401-1				
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
201001 CRD Hydraulic CFR41.6			01									Knowledge of the effects of a loss of the CRD system on the Recirculation system	3.1	32	BOTH		Bank	
202001 Recirculation CFR41.5/41.6/43.6										01		Ability to manually operate the recirculation pumps in the main control room	3.7	33	BOTH		Bank	
204000 RWCU CFR41.4																		
205000 Shutdown Cooling CFR41.7						04						Knowledge of a loss or malfunction of reactor water level on shutdown cooling operation	3.6	45	BOTH		Bank	
215003 IRM							05					Ability to monitor and predict changes in scram and rod block setpoints associated with the IRMs	3.9	31	BOTH		Bank	
219000 RHR /LPCI Suppression Pool Cooling Mode CFR41.9										12		Ability to monitor suppression pool temperature during the suppression pool cooling mode of operation	4.1	35	BOTH		Bank	
234000 Fuel Handling Equipment CFR41.4/43.7																		
239003 MSIV Leakage Control																		
245000 Main Turbine Gen. and Auxiliaries								01				Ability to respond to a main turbine trip condition	3.9	20	BOTH		Bank	
259001 Reactor Feedwater CFR41.4									07			Ability to monitor automatic operation of the Feedwater system including feedwater regulating valves	3.2	54	BOTH		Modified	
262002 UPS (AC/DC) CFR41.4									01			Ability to monitor automatic operation of a UPS including transfer from the preferred to alternate source	3.1	67	BOTH		New	
PAGE 1 TOTAL TIER 2 GROUP 2	0	0	1	0	0	1	1	1	2	2	0	PAGE TOTAL # QUESTIONS	8					

RIVER BEND STATION OCTOBER 2000				BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 2										ES-401-1				
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
263000 DC Electrical Distribution							01					Ability to monitor parameters associated with battery charging and discharging	2.8	9	BOTH		Bank	
271000 Offgas CFR41.13				01								Knowledge of the Offgas design features which provide for the dilution of hydrogen gas	3.3	80	SRO		Bank	
272000 Radiation Monitoring CFR41.11/41.13/43.4			05									Knowledge of the effects of a loss of radiation monitoring will have on the Offgas system	3.7	94	SRO		New	
286000 Fire Protection CFR41.4																		
290003 Control Room HVAC	03											Knowledge of the physical connections between the Control Room HVAC and remote air intakes	2.9	58	BOTH		Bank	
300000 Instrument Air CFR41.4																		
400000 Component Cooling Water CFR41.4		01										Knowledge of electrical power supplies to the CCW pumps	3.0	68	BOTH		New	
PAGE 2 TOTAL TIER 2 GROUP 2	1	1	1	1	0	0	1	0	0	0	0	PAGE TOTAL # QUESTIONS	5					
PAGE 1 TOTAL TIER 2 GROUP 2	0	0	1	0	0	1	1	1	2	2	0	PAGE TOTAL # QUESTIONS	8					
K/A CATEGORY TOTALS:	1	1	2	1	0	1	2	1	2	2	0	TIER 2 GROUP 2 GROUP POINT TOTAL	13					

RIVER BEND STATION OCTOBER 2000				BWR SRO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 3										ES-401-1					
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO / BOTH	RELATED K/A	ORIGIN	NOTES:	
201003 Control Rod and Drive Mechanism CFR41.2																			
215001 Transversing In-core Probe	01											Knowledge of the physical connections and cause effect relationship between the TIP system and LPRMs	2.8	3	BOTH		Modified		
233000 Fuel Pool Cooling and Cleanup CFR41.10/43.5																			
239001 Main and Reheat Steam																			
256000 Reactor Condensate CFR41.4										03		Ability to monitor/operate in the control room the controls for Hotwell Level Control	3.1	69	BOTH		New		
268000 Radwaste																			
288000 Plant Ventilation										01		Ability to monitor automatic operation of plant ventilation systems including isolations	3.8	83	SRO		Bank		
290002 Reactor Vessel Internals CFR41.3/43.2								01				Ability to predict the impacts on the Reactor Vessel and Internals of a LOCA	4.0	70	BOTH		New		
K/A CATEGORY TOTALS:	1	0	0	0	0	0	0	1	1	1	0	TIER 2 GROUP 3 GROUP POINT TOTAL	4						

**RIVER BEND STATION
OCTOBER 2000**

**BWR SRO EXAMINATION OUTLINE
GENERIC KNOWLEDGE AND ABILITIES
TIER 3**

ES-401-5

CATEGORY	C1	C2	C3	C4	TOPIC(S)	IMP	REC #	SRO/RO /BOTH	RELATED K/A	ORIGIN	NOTES:
CONDUCT OF OPERATIONS - Station Orders CFR41.10/43.5	2.1.15				Given plant conditions and standing orders, determine the actions to be taken.	3.0	62	BOTH		Bank	
CONDUCT OF OPERATIONS - Ops Mode CFR41.10/43.2/43.5	2.1.19				Ability to use plant computer to obtain and evaluate parametric information on system or component status	3.0	71	BOTH		New	
CONDUCT OF OPERATIONS CFR41.10/43.5	2.1.28				Knowledge of the purpose and function of major system components and controls	3.3	95	SRO		New	
CONDUCT OF OPERATIONS CFR41.4	2.1.31				Ability to locate control room switches/controls and indications and to determine that they are correctly reflecting the desired lineup	3.9	96	SRO		New	
CONDUCT OF OPERATIONS CFR43.2	2.1.33				Ability to recognize indications for system operating parameters which are entry level for technical specifications	4.0	27	BOTH		Modified	
EQUIPMENT CONTROL CFR41.10/43.5		2.2.12			Knowledge of surveillance procedures	3.4	25	BOTH		Bank	
EQUIPMENT CONTROL - Safety Limits CFR41.10/43.2		2.2.22			Given plant conditions, determine the status of plant safety limits and actions which may be required.	4.1	86	SRO		New	
EQUIPMENT CONTROL - Thermal Limits CFR43.1/43.2		2.2.26			Knowledge of refueling administrative requirements	3.7	8	BOTH		Bank	
EQUIPMENT CONTROL - Refueling CFR41.10/43.7		2.2.32			Knowledge of the effects of alterations on core configuration	3.3	79	SRO		Bank	
RADIATION CONTROL - Containment Purge CFR43.2			2.3.4		Knowledge of radiation exposure limits and contamination control/ including permissible levels in excess of those authorized	3.1	28	BOTH		Bank	
RADIATION CONTROL - Exposure Control CFR43.4			2.3.11		Ability to control radiation releases	3.2	97	SRO		New	
PAGE 1 TOTAL TIER 3	5	4	2	0	PAGE TOTAL # QUESTIONS	11					

**RIVER BEND STATION
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**BWR SRO EXAMINATION OUTLINE
GENERIC KNOWLEDGE AND ABILITIES
TIER 3**

CONT.

ES-401-5

CATEGORY	C1	C2	C3	C4	TOPIC(S)	IMP	REC #	SRO/RO /BOTH	RELATED K/A	ORIGIN	NOTES:
EMERGENCY PROCEDURES/PLAN - Chemistry CFR43.2				2.4.12	Knowledge general operating crew responsibilities during emergency conditions	3.9	99	SRO		New	
EMERGENCY PROCEDURES/PLAN - E-Plan CFR41.10/43.5				2.4.35	Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications	3.5	72	BOTH		New	
EMERGENCY PROCEDURES/PLAN - EOPs CFR41.10/43.5				2.4.42	Knowledge of the emergency response facilities	3.7	98	SRO		New	
EMERGENCY PROCEDURES/PLAN - Offsite Notification CFR41.12/43.4				2.4.43	Knowledge of emergency communications systems and techniques	3.5	74	SRO		Bank	
EMERGENCY PROCEDURES/PLAN - Annunciators CFR41.10/43.5				2.4.48	Ability to interpret control room indications to verify status and operation of system and understand how operator action and directives affect plant and system conditions	3.8	100	SRO		Modified	
EMERGENCY PROCEDURES/PLAN - CFR43.3/43.5				2.4.40	Identify conditions in which deviation from authorized procedures and Tech Specs would be warranted.	4.0	84	SRO		Modified	
PAGE 2 TOTAL TIER 3	0	0	0	6	PAGE TOTAL # QUESTIONS	6					
PAGE 1 TOTAL TIER 3	5	4	2	0	PAGE TOTAL # QUESTIONS	11					
K/A CATEGORY TOTALS:	5	4	2	6	TIER 3 GROUP POINT TOTAL	17					

**RIVER BEND STATION
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**BWR RO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 1**

CONT.

ES-401-2

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / I CFR41.1/41.2/41.6/43.6				04			Ability to operate and monitor SLC during ATWS conditions	4.5	22	BOTH		Modified	
500000 High Containment Hydrogen Conc. / V CFR41.10/43.5		05					Knowledge of Hydrogen concentrations and operation of the Hydrogen recombiners	3.2	60	BOTH		Bank	
295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / I CFR41.6/41.10/43.5/43.6					02		Ability to determine/interpret reactor water level during ATWS conditions	4.1	13	BOTH		Bank	
PAGE 2 TOTAL TIER 1 GROUP 1	0	1	0	1	1	0	PAGE TOTAL # QUESTIONS	3					
PAGE 1 TOTAL TIER 1 GROUP 1	1	1	3	3	2	0	PAGE TOTAL # QUESTIONS	10					
K/A CATEGORY TOTALS:	1	2	3	4	3	0	TIER 1 GROUP 1 GROUP POINT TOTAL	13					

**RIVER BEND STATION
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**BWR RO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 2**

ES-401-2

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295001 Partial or Complete Loss of Forced Core Flow Circulation / I & IV CFR41.10/41.5/43.5			06				Describe the effect on core flow indication upon a partial or complete loss of forced circulation	2.9	26	BOTH		Bank	
295002 Loss of Main Condenser Vacuum / III CFR41.4					01		Ability to determine condenser vacuum	2.9	39	BOTH		Bank	
295003 Partial or Complete Loss of AC Power/ VI CFR41.7			03				Demonstrate a knowledge of load shedding as it applies to a partial or complete loss of AC power	3.5	6	BOTH		Bank	
295004 Partial or Total Loss of DC Power / VI CFR41.7					02		Determine/interpret the effect of a partial or total loss of DC power	3.5	42	BOTH		Bank	
295008 High Reactor Water Level / II CFR41.5		03					Demonstrate knowledge of the response to the reactor water level control system on high reactor water level	3.6	48	BOTH		Bank	
295011 High Containment Temperature / V													
295012 High Drywell Temperature / V CFR41.9	01						Demonstrate knowledge of the pressure/temperature relationship as it applies to high Drywell temperature	3.3	80	RO		Modified	
295013 High Suppression Pool Temp. / V CFR41.9/41.10													
295016 Control Room Abandonment / VII CFR41.7													
295017 High Offsite Release Rate / IX					04		Ability to determine the source of an offsite release	3.6	87	RO		Bank	
295018 Partial or Total Loss of CCW / VIII CFR41.4					01		Ability to determine/interpret component temperatures on a partial or complete loss of Component Cooling Water	3.3	5	BOTH		Bank	
PAGE 1 TOTAL TIER 1 GROUP 2	1	1	2	0	4	0	PAGE TOTAL # QUESTIONS	8					

**RIVER BEND STATION
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**BWR RO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 2**

CONT.

ES-401-2

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295019 Partial or Total Loss of Inst. Air / VIII CFR41.4/41.7					02		Ability to determine the status of safety related air load on a partial or complete loss of instrument air system	3.6	40	BOTH		Modified	
295020 Inadvertent Cont. Isolation / V & VII CFR41.9					06		Ability to determine the cause of an inadvertent containment isolation	3.4	24	BOTH		Modified	
295022 Loss of CRD Pumps / I CFR41.5/41.6/43.2				02			Demonstrate the ability to operate and monitor RPS during a loss of CRD	3.6	47	BOTH		Bank	
295026 Suppression Pool High Water Temp. / V CFR41.7/41.9/41.10/43.5			01				Reasons for emergency depressurization on high suppression pool temperature conditions	3.8	7	BOTH		Modified	
295027 High Containment Temperature / V CFR41.5/41.9/41.10/43.5		03					Knowledge of the relationship between high containment temperature and containment ventilation/cooling systems	3.5	10	BOTH		Bank	
295028 High Drywell Temperature / V		03					Describe the interrelationships between High Drywell Temperature and RPV level indication	3.6	1	BOTH		Modified	
295029 High Suppression Pool Water Level / V CFR41.7			01				State the reason for the requirement to emergency depressurize on a High Suppression Pool Level condition	3.5	12	BOTH		Bank	
295030 Low Suppression Pool Water Level / V CFR41.9	03						Knowledge of the effects of low suppression pool water level on suppression pool heat capacity.	3.8	37	BOTH		Bank	
295033 High Secondary Containment Area Radiation Levels / IX CFR41.11/41.12/43.4					01		Ability to determine/interpret high secondary containment area radiation levels	3.8	50	BOTH		Bank	
295034 Secondary Containment Ventilation High Radiation / IX CFR41.7/41.11/41.13/43.4													
295038 High Offsite Release Rate / IX CFR41.13/43.4					04		Ability to determine source of release during conditions of high release rates	4.1	38	BOTH		Modified	
600000 Plant Fire On Site / VIII				05			Ability to monitor/operate plant and control room ventilation systems during a plant fire on site	3.0	61	BOTH		Bank	
PAGE 2 TOTAL TIER 1 GROUP 2	1	2	2	2	4	0	PAGE TOTAL # QUESTIONS	11					
PAGE 1 TOTAL TIER 1 GROUP 2	1	1	2	0	4	0	PAGE TOTAL # QUESTIONS	8					
K/A CATEGORY TOTALS:	2	3	4	2	8	0	TIER 1 GROUP 2 GROUP POINT TOTAL	19					

**RIVER BEND STATION
OCTOBER 2000**

**BWR RO EXAMINATION OUTLINE
EMERGENCY & ABNORMAL PLANT
EVOLUTIONS - TIER 1 GROUP 3**

ES-401-2

E/APE#/NAME/SAFETY FUNCTION	K 1	K 2	K 3	A 1	A 2	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
295021 Loss of Shutdown Cooling / IV CFR41.5/43.5					04		Ability to determine reactor water temperature upon a loss of shutdown cooling	3.6	21	BOTH		Bank	
295023 Refueling Accidents Cooling Mode / VIII CFR41.2/41.10/41.12/43.4/43.5/43.6/43.7				01			Demonstrate the ability to monitor secondary containment ventilation during fuel handling accidents	3.3	64	BOTH		New	
295032 High Secondary Containment Area Temperature / V CFR41.4/41.9/41.10/43.5					03		Ability to determine/interpret the cause of high secondary containment area temperature	3.8	41	BOTH		New	
295035 Secondary Containment High Differential Pressure / V													
295036 Secondary Containment High Sump/Area Water Level / V CFR41.4		01					Knowledge of the interrelations between high secondary containment /area water level and the secondary containment floor and equipment drain system	3.1	56	BOTH		Bank	
K/A CATEGORY TOTALS:	0	1	0	1	2	0	TIER 1 GROUP 3 GROUP POINT TOTAL	4					

RIVER BEND STATION OCTOBER 2000						BWR RO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 1										ES-401-2		
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
201001 CRD Hydraulic CFR41.6			01									Knowledge of the effects of a loss of the CRD system on the Recirculation system	3.0	32	BOTH		Bank	
201005 RCIS CFR41.6							01					Ability to monitor/predict changes in RC&IS including first stage turbine shell pressure/turbine load	3.2	2	BOTH		New	
202002 Recirculation Flow Control CFR41.6									01			Ability to monitor automatic operation of the Recirculation Flow Control system including flow control valve operation	3.6	15	BOTH		Bank	
203000 RHR/LPCI: Injection Mode CFR41.7		03										Knowledge of electrical power supplies to RHR/LPCI initiation logic	2.7	16	BOTH		Bank	
203000 RHR/LPCI: Injection Mode CFR41.7				01								Knowledge of RHR?LPCI design which provides for automatic initiation	4.2	74	RO		Modified	
209001 LPCS CFR41.7/41.8						02						Knowledge of the effect of a malfunction of the emergency diesel generators will have on the LPCS system	3.8	52	BOTH		Bank	
209002 HPCS CFR41.7/41.8			01									Knowledge of the effect of a loss or malfunction of the HPCS system on RPV water level	3.9	51	BOTH		New	
211000 SLC CFR41.6									02			Ability to mitigate the failure of the explosive squib valves in the SLC system	3.6	30	BOTH		New	
211000 SLC CFR41.6										02		Knowledge of the electrical power supplies to the explosive valves associated with SLC	3.1	75	RO		New	
212000 RPS CFR41.6							08					Ability to monitor parameters associated with the RPS system including system valve positions	3.4	17	BOTH		Bank	
215003 IRM CFR41.6							05					Ability to monitor and predict changes in scram and rod block setpoints associated with the IRMs	3.9	31	BOTH		Bank	
215004 Source Range Monitor CFR41.6					03							Knowledge of the operational implications of changing SRM detector position	2.8	29	BOTH		New	
PAGE 1 TOTAL TIER 2 GROUP 1	0	1	2	1	1	1	3	1	1	1	0	PAGE TOTAL # QUESTIONS	12					

**RIVER BEND STATION
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**BWR RO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 1 CONT.**

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SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
215005 APRM / LPRM CFR41.6			01									Knowledge of the effects of a loss of a APRM on the Reactor Protection System	4.0	44	BOTH		Bank	
216000 Nuclear Boiler Instrumentation CFR41.2		01										Knowledge of the electrical power supplies to the Nuclear Boiler Instrumentation analog trip system	2.8	65	BOTH		New	
217000 RCIC CFR41.7/41.10	01											Knowledge of the physical connections/cause effect relationship between RCIC and the condensate storage tank	3.5	19	BOTH		Modified	
218000 ADS CFR41.7/41.8	06											Knowledge of the physical connection between the ADS system and the safety relief valves	3.9	76	RO		Modified	
218000 ADS CFR41.7/41.8										02		Demonstrate the ability to monitor/operate ADS logic initiation in the control room	4.2	57	BOTH		Bank	
223001 Primary CTMT and Auxiliaries CFR41.7/43.2			07									Knowledge of the effects of a loss or malfunction of primary containment auxiliaries on differential pressure between the drywell and suppression pool	3.1	11	BOTH		Bank	
223002 PCIS / Nuclear Steam Supply Shutoff CFR41.7/41.9										02		Ability to monitor automatic operation of NSSSS including valve closures	3.5	46	BOTH		Modified	
239002 SRVs CFR41.3						01						Knowledge of the effect of a loss of pressure indication on the operation of the SRVs	3.2	66	BOTH		New	
241000 Reactor / Turbine Pressure Regulator CFR41.5											02	Ability to manually operate/monitor reactor pressure in the main control room	4.1	18	BOTH		Bank	
259001 Reactor Feedwater CFR41.4											07	Ability to monitor automatic operation of the Feedwater system including feedwater regulating valves	3.2	54	BOTH		Modified	
259002 Reactor Water Level Control CFR41.5	15											Knowledge of the connections/cause effect relationship between reactor water level control and the recirculation system	3.2	81	RO		Modified	
259002 Reactor Water Level Control CFR41.5											11	Ability to monitor/operate the reactor water level high level lockout reset controls	3.5	78	RO		Modified	
PAGE 2 TOTALS TIER 2 GROUP 1	3	1	2	0	0	1	0	0	2	3	0	PAGE 2 TOTAL # QUESTIONS	12					

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**BWR RO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 1 CONT.**

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SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
261000 SGTS CFR41.13	01											Knowledge of the physical connection/cause effect relationship between SGTS and reactor building ventilation system	3.4	53	BOTH		New	
261000 SGTS CFR41.13										04		Ability to monitor/operate SGTS as it relates to primary containment pressure	3.3	88	RO		Modified	
264000 EDGs CFR41.8					06							Knowledge of the operational implications of load sequencing as it applies to the emergency diesel generators	3.4	59	BOTH		Bank	
216000 Nuclear Boiler Instrumentation CFR41.5				04								Knowledge of NBI design which inputs to RPS	3.7	89	RO		Modified	
PAGE 3 TOTALS TIER 2 GROUP 1	1	0	0	1	1	0	0	0	0	1	0		4					
PAGE 1 TOTALS TIER 2 GROUP 1	0	1	2	1	1	1	3	1	1	1	0		13					
PAGE 2 TOTALS TIER 2 GROUP 1	3	1	2	0	0	1	0	0	2	3	0		12					
K/A CATEGORY TOTALS:	4	2	4	2	2	2	3	1	3	5	0		28					

RIVER BEND STATION OCTOBER 2000				BWR RO EXAMINATION OUTLINE PLANT SYSTEMS - TIER 2 GROUP 2										ES-401-2				
SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
201003 Control Rod and Drive Mechanism CFR41.2				01								Knowledge of the CRDM design which acts to limit control rod speed in the event of a rod drop	2.9	90	RO		New	
202001 Recirculation CFR41.5/41.6/43.6										01		Ability to manually operate the recirculation pumps in the main control room	3.7	33	BOTH		Bank	
204000 RWCU CFR41.4									03			Ability to monitor RWCU automatic operation including response to system isolations	3.6	82	RO		Bank	
205000 Shutdown Cooling CFR41.7						04						Knowledge of a loss or malfunction of reactor water level on shutdown cooling operation	3.6	45	BOTH		Bank	
219000 RHR /LPCI Suppression Pool Cooling Mode CFR41.9										12		Ability to monitor suppression pool temperature during the suppression pool cooling mode of operation	4.1	35	BOTH		Bank	
226001 RHR/LPCI: CTMT Spray Mode CFR41.9																		
239001 Main and Reheat Steam CFR41.4					06							Knowledge of air operated MSIV associated with the Main and Reheat Steam system	2.8	79	RO		Bank	See Note 1
245000 Main Turbine Gen, and Auxiliaries CFR41.4								01				Ability to respond to a main turbine trip condition	3.7	20	BOTH		Bank	
PAGE 1 TOTAL TIER 2 GROUP 2	0	0	0	1	1	1	0	1	1	2	0	PAGE TOTAL # QUESTIONS	7					

Note 1 Replaced 239001 K5.07 with 239001 K5.06 because RBS has air operated MSIVs not hydraulic MSIVs.

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**BWR RO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 2**

CONT.

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SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
256000 Reactor Condensate CFR41.4											03	Ability to monitor/operate in the control room the controls for Hotwell Level Control	3.2	69	BOTH		New	
262001 AC Electrical Distribution CFR41.4									02			Ability to predict the impacts on the AC distribution system of a loss of coolant accident	3.6	77	RO		Modified	
262002 UPS (AC/DC) CFR41.4										01		Ability to monitor automatic operation of a UPS including transfer from the preferred to alternate source	2.8	67	BOTH		New	
263000 DC Electrical Distribution CFR41.4							01					Ability to monitor parameters associated with battery charging and discharging	2.5	9	BOTH		Bank	
271000 Offgas CFR41.13			01									Knowledge of the effects that a loss of the Offgas system will have on condenser vacuum	3.5	84	RO		New	
272000 Radiation Monitoring CFR41.11/41.13/43.4		01										Knowledge of the electrical power supplies to the main steam line radiation monitors	2.5	91	RO		New	
286000 Fire Protection CFR41.4					02							Knowledge of the effect of Halon on fires	2.6	92	RO		New	
286000 Fire Protection CFR41.4											05	Ability to operate/monitor in the control room the fire pumps	3.3	85	RO		Bank	
290001 Secondary CTMT CFR41.9											10	Ability to manually operate/monitor in the control room system lineups affecting secondary containment	3.4	83	RO		Bank	
PAGE 2 TOTAL TIER 2 GROUP 2	0	1	1	0	1	0	1	1	1	3	0	PAGE TOTAL # QUESTIONS	9					

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**BWR RO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 2**

CONT.

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SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
290003 Control Room HVAC CFR41.4	03											Knowledge of the physical connections between the Control Room HVAC and remote air intakes	2.8	58	BOTH		Bank	
300000 Instrument Air CFR41.4				01								Knowledge of IAS system which provides for cross-over to other air systems	3.0	93	RO		New	
400000 Component Cooling Water CFR41.4		01										Knowledge of electrical power supplies to the CCW pumps	2.9	68	BOTH		New	
PAGE 3 TOTALS	1	1	0	1	0	0	0	0	0	0	0	PAGE 3 TOTAL # QUESTIONS	3					
PAGE 1 TOTALS	0	0	0	1	1	1	0	1	1	2	0	PAGE TOTAL # QUESTIONS	7					
PAGE 2 TOTALS	0	1	1	0	1	0	1	1	1	3	0	PAGE TOTAL # QUESTIONS	9					
K/A CATEGORY TOTALS:	1	2	1	2	2	1	1	2	2	5	0	TIER 2 GROUP 2 GROUP POINT TOTAL	19					

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**BWR RO EXAMINATION OUTLINE
PLANT SYSTEMS - TIER 2 GROUP 3**

ES-401-2

SYSTEM#/NAME	K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G	TOPIC(S)	IMP	REC #	SRO/RO/ BOTH	RELATED K/A	ORIGIN	NOTES:
215001 Traversing In-core Probe	01											Knowledge of the physical connections and cause effect relationship between the TIP system and LPRMs	2.5	3	BOTH		Modified	
233000 Fuel Pool Cooling and Cleanup CFR41.10																		
234000 Fuel Handling Equipment CFR41.4/43.7				01								Knowledge of design features which prevent core alterations during control rod movements	3.3	73	RO		Bank	
239003 MSIV Leakage Control	01											Knowledge of the physical connections and /or cause effect relationship between MSIV Leakage Control and the Main Steam System	3.3	94	RO		Modified	
268000 Radwaste																		
288000 Plant Ventilation CFR41.13/43.4																		
290002 Reactor Vessel Internals CFR41.3/43.2								01				Ability to predict the impacts on the Reactor Vessel and Internals of a LOCA	3.7	70	BOTH		New	
K/A CATEGORY TOTALS:	2	0	0	1	0	0	0	1	0	0	0	TIER 2 GROUP 3 GROUP POINT TOTAL	4					

**RIVER BEND STATION
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**BWR RO EXAMINATION OUTLINE
GENERIC KNOWLEDGE AND ABILITIES
TIER 3**

ES-401-5

CATEGORY	C1	C2	C3	C4	TOPIC(S)	IMP	REC #	SRO/RO/BOTH	RELATED K/A	ORIGIN	NOTES:
CONDUCT OF OPERATIONS - Ops. Mode CFR41.10/43.2/43.5	2.1.15				Given plant conditions and standing orders, determine the actions to be taken.	2.3	62	BOTH		Bank	See Note ¹
CONDUCT OF OPERATIONS - Procedures CFR41.10	2.1.19				Ability to use plant computer to obtain and evaluate parametric information on system/component status	3.0	71	BOTH		New	
CONDUCT OF OPERATIONS - System purpose CFR41.7	2.1.28				Knowledge of the purpose and function of major system components and controls	3.2	95	RO		Modified	
CONDUCT OF OPERATIONS - Valve Lineup CFR41.10	2.1.33				Ability to recognize indications for system operating parameters which are entry level for technical specifications	3.4	27	BOTH		Modified	
EQUIPMENT CONTROL - Procedures CFR41.10		2.2.12			Knowledge of surveillance procedures	3.0	25	BOTH		Bank	
EQUIPMENT CONTROL - Surveillances CFR41.10/43.6		2.2.26			Knowledge of refueling administrative requirements	2.5	8	BOTH		Bank	
EQUIPMENT CONTROL - Tech Spec Bases CFR41.6/43.2		2.2.30			Knowledge of RO duties in the control room during fuel handling such as alarms from the fuel handling area/communications with the fuel storage facility systems operated from the control room to support fueling operations.	3.5	96	RO		Bank	
RADIATION CONTROL - Radiation Limits CFR41.10/43.4			2.3.4		Knowledge of radiation exposure limits and contamination control/ including permissible levels in excess of those authorized	2.5	28	BOTH		Bank	
RADIATION CONTROL - ALARA CFR41.10/43.4			2.3.11		Ability to control radiation releases	2.7	97	RO		Modified	
EMERGENCY PROCEDURES / PLAN - EOPs CFR41.10/43.5				2.4.12	Knowledge general operating crew responsibilities during emergency conditions	3.4	98	RO		Modified	
PAGE 1 TOTAL TIER 3	4	3	2	1	PAGE TOTAL # QUESTIONS	10					

¹ Per discussions with Operations Management at River Bend Station, licensed operators receive sufficient direction from standing orders and temporary night orders to justify sampling this topic with an IMP rating < 2.5

RIVER BEND STATION
OCTOBER 2000

BWR RO EXAMINATION OUTLINE
GENERIC KNOWLEDGE AND ABILITIES
TIER 3

ES-401-5

CATEGORY	C1	C2	C3	C4	TOPIC(S)	IMP	REC #	SRO/RO /BOTH	RELATED K/A	ORIGIN	NOTES:
EMERGENCY PROCEDURES / PLAN - EOPs CFR41.10/43.5				2.4.35	Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications	3.3	72	BOTH		New	
EMERGENCY PROCEDURES / PLAN - Diagnostics CFR41.5				2.4.39	Knowledge of the RO's responsibilities in emergency plant implementation	3.3	99	RO		Modified	
EMERGENCY PROCEDURES / PLAN - Fire CFR41.10/43.4/43.5				2.4.48	Ability to interpret control room indications to verify status and operation of system and understand how operator action and directives affect plant and system conditions	3.5	100	RO		Modified	
PAGE 2 TOTAL TIER 3	0	0	0	3	PAGE TOTAL # QUESTIONS	3					
PAGE 1 TOTAL TIER 3	4	3	2	1	PAGE TOTAL # QUESTIONS	10					
K/A CATEGORY TOTALS:	4	3	2	4	TIER 3 GROUP POINT TOTAL	13					