Facility: **River Bend Station** Date of Exam: **September 2004**

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	K	A	A 2	G *	Total
1. Emergency & Abnormal Plant Evolutions	1	**1**	**6**	**3**	0	0	0	**4**	**3**	0	0	**3**	**20**	**1**	**1**	**2**	**4**	**8**
	2	**2**	**0**	**2**	0	0	0	**1**	**1**	0	0	**1**	**7**	**1**	**1**	**2**	**0**	**4**
	Tier Totals	**3**	**6**	**5**	0	0	0	**5**	**4**	0	0	**4**	**27**	**2**	**2**	**4**	**4**	**12**
2. Plant Systems	1	**3**	**2**	**4**	**1**	**2**	**4**	**4**	**2**	**0**	**2**	**2**	**26**	**0**	**0**	**2**	**2**	**4**
	2	**1**	**0**	**1**	**1**	**0**	**2**	**1**	**2**	**2**	**2**	**0**	**12**	**1**	**1**	**0**	**0**	**2**
	Tier Totals	**4**	**2**	**5**	**2**	**2**	**6**	**5**	**4**	**2**	**4**	**2**	**38**	**1**	**1**	**2**	**2**	**6**
3. Generic Knowledge and Abilities Categories		1			2			3			4		**10**	1	2	3	4	**7**
		3			**2**			**2**			**3**			**2**	**2**	**1**	**2**	

Notes:

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 that two K/A topics from a given system or evolution unless they relate to plant-specific priorities.
4. Systems/evolutions with in 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 statements.

E/APE#/NAME/SAFETY FUNCTION *CFR REFERENCES*	K 1	K 2	K 3	A 1	A 2	G	K/A TOPIC(S)	IR	TYPE	QNO	QID
295001 Loss of Forced Core Circulation / 1 & 4 *CFR 41.3/41.5/41.6/41.14*		1					The **interrelations between** Partial or Complete Loss of Forced Core Flow Circulation and the **Recirculation System**.	3.6			
295003 Partial or Total Loss of AC Power / 6 *CFR 41.8-41.10*					1		**Determine/interpret the cause of partial or complete loss of A.C. power** as it applies to partial or complete loss of A.C. power.	3.4			
295004 Partial or Total Loss of DC Power / 6 *CFR 41.7/41.8*			3				The **reasons for reactor SCRAM** as it applies to partial or complete loss of D.C. Power.	3.1			
295005 Main Turbine Generator Trip / 3 *CFR 41.4*		2					The **interrelations between** Main Turbine Generator Trip and **feedwater temperature**.	2.9			
295006 SCRAM / 1 *CFR 41.10/43.5*			1				The **reasons for reactor water level response** as they apply to SCRAM.	3.8			
295016 Control Room Abandonment / 7 *CFR 41.7*					6		The **interrelations between** Control Room Abandonment and the **Remote Shutdown Panel**.	4.4			
295018 Partial or Total Loss of CCW / 8 *CFR 41.4/43.5*						1.28	Knowledge of the **purpose and function** of major system **components and controls**.	3.2			
295019 Partial or Total Loss of Inst. Air / 8 *CFR 41.741.10/43.5*				4			**Operate/monitor service air isolation valves** as they apply to Partial or Complete Loss of Instrument Air.	3.3			
295021 Loss of Shutdown Cooling / 4 *CFR 41.2/41.3/41.8/41.14*				2			**Operate/monitor RHR/Shutdown Cooling** as it applies to Loss of Shutdown Cooling.	3.5			
295023 Refueling Accidents / 8 *CFR 41.11/41.12/43.5/43.7*				8			**Operate/monitor Containment Building Ventilation** as it applies to Refueling Accidents.	3.3			
295024 High Drywell Pressure / 5 *CFR 41.9/41.10*						4.4	Ability to recognize abnormal indications for system operating parameters which are **entry-level conditions for emergency and abnormal operating procedures**.	4.0			
PAGE 1 TIER 1 GROUP 1 TOTAL	0	2	2	3	2	2	PAGE ONE TOTAL POINTS	11			

E/APE#/NAME/SAFETY FUNCTION ***CFR REFERENCES***	**K 1**	**K 2**	**K 3**	**A 1**	**A 2**	**G**	**K/A TOPIC(S)**	**IR**	**TYPE**	**QNO**	**QID**
295025 High Reactor Pressure / 3 *CFR 41.5/43.1/43.2*					4		**Determine/interpret suppression pool level** as it applies to High Reactor Pressure.	3.9			
295026 Supp. Pool High Water Temp. / 5 *CFR 41.6/41.9/41.10/43.5*			4				The **reasons for SBLC injection** as it applies to Suppression Pool High Water Temperature	3.7			
295027 High Containment Temperature / 5 *CFR 41.9/41.10/43.5*		4					The **interrelations between** High Containment Temperature and **ERIS**.	2.6			
295028 High Drywell Temperature / 5 *CFR 41.5/41.7/41.14*	2						The **operational implications of equipment environmental qualification** as they apply to High Drywell Temperature.	2.9			
295030 Low Suppression Pool Water Level / 5 *CFR 41.9/41.10/41.14*				3			**Operate/monitor HPCS** as it applies to Low Suppression Pool Water Level.	3.4			
295031 Reactor Low Water Level / 2 *CFR 41.2/41.14/43.2*		16					The **interrelations between** Reactor Low Water Level and **Reactor Water Level Control**.	4.1			
295037 SCRAM/Power >APRM Dnsc/Unkn / 1 *CFR 41.1/41.2/41.6/43.5/43.6*		8					The **interrelations between** Scram Condition Present and Reactor Power Above APRM Downscale or Unknown and **ERIS**	2.7			
295038 High Offsite Release Rate / 9 *CFR 41.7/41.13/43.4*						1.30	Ability to **locate and operate components, including local controls**.	3.9			
600000 Plant Fire On Site / 8 *CFR 41.4/41.10/43.3*		1					The **interrelations between** Plant Fire On Site and **sensors, detectors and valves**.	2.6			
PAGE 2 TIER 1 GROUP 1 TOTAL	1	4	1	1	1	1	PAGE TWO TOTAL POINTS	9			
PAGE 1 TIER 1 GROUP 1 TOTAL	0	2	2	3	2	2	PAGE ONE TOTAL POINTS	11			
K/A CATEGORY TOTALS	**1**	**6**	**3**	**4**	**3**	**3**	**TIER ONE GROUP ONE TOTAL**	**20**			

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 2 (RO)	

E/APE#/NAME/SAFETY FUNCTION *CFR REFERENCES*	K 1	K 2	K 3	A 1	A 2	G	K/A TOPIC(S)	IR	TYPE	QNO	QID
295009 Low Reactor Water Level / 2 *CFR 41.7*				2			**Operate/monitor Reactor Water Level Control** as it applies to Low Reactor Water Level.	4.0			
295010 High Drywell Pressure / 5 *CFR 41.7*					2		**Determine/interpret drywell pressure** as it applies to High Drywell Pressure.	3.8			
295011 High Containment Temperature / 5 *CFR 41.9/41.10/43.2*			1				The **reasons for increased containment cooling** as they apply to High Containment Temperature.	3.6			
295012 High Drywell Temperature / 5 *CFR 41.9*						1.2	Knowledge of **operator responsibilities during all modes** of plant operation.	3.0			
295013 High Suppression Pool Temp. / 5 *CFR 41.9/41.10*	1						The **operational implications of pool stratification** as they apply to High Suppression Pool Temperature.	2.5			
295034 Sec. CTMT Vent. High Radiation / 9 *CFR 41.9/41.11/41.13/43.4*			4				The **reasons for the Fuel Building Ventilation responses** as they apply to Secondary Containment Ventilation High Radiation.	3.7			
295036 Sec. CTMT High Sump/Area Levels / 5 *CFR*	1						The **operational implications of radiation releases** as they apply to Secondary Containment High Sump/Area Water Level	2.9			
K/A CATEGORY TOTALS	**2**	**0**	**2**	**1**	**1**	**1**	**TIER ONE GROUP TWO TOTAL**	**7**			

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	PLANT SYSTEMS - TIER 2 GROUP 1 (RO)	

SYSTEM#/NAME *CFR REFERENCE*	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	TYPE	QNO	QID.
203000 RHR/LPCI Mode *CFR 41.7/41.14*					2							The **operational implications of core cooling methods** as applied to RHR/LPCI.	3.5			
205000 Shutdown Cooling *CFR 41.7/41.14*		2										Electrical **power supplies to motor operated valves**.	2.5			
209001 LPCS *CFR 41.5/41.7/41.8/43.2*			3									The **effect a loss or malfunction** of the LPCS **will have on emergency generators**.	2.9			
209002 HPCS *CFR 41.7*							4					**Predict/monitor changes in reactor pressure** with operating HPCS controls.	3.3			
211000 SLC *CFR 41.6/41.7*	2											The physical **connections/cause-effect relationships** between SLC and **core plate ΔP indication**.	2.7			
212000 RPS *CFR 41.2/41.7*						5						The **effect that a loss or malfunction of the sensor inputs** will have on the RPS.	3.5			
215003 IRM *CFR 41.2/41.7/43.6*										7		**Manually operate/monitor** in the CR to verify proper **functioning/operability**.	3.6			
215004 Source Range Monitor *CFR 41.2/41.5*						1						The **effect a loss or malfunction of RPS** will have on the SRMs.	3.2			
215004 Source Range Monitor *CFR 41.2/41.5*							2					**Predict/monitor changes in reactor power indication** with operating the SRM controls.	3.6			
215005 APRM / LPRM *CFR 41.2/41.5*						7						The **effect a loss or malfunction of flow converter/comparator network** will have on APRM/LPRM.	3.2			
PAGE 1 TIER 2 GROUP 1 TOTAL	1	1	1	0	1	3	2	0	0	1	0	PAGE ONE TOTAL POINTS	10			

SYSTEM#/NAME *CFR REFERENCE*	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	TYPE	QNO	QID.
215005 APRM / LPRM *CFR 41.2/41.5*			8									The **effect a loss or malfunction** of the APRM/LPRM will have **on core thermal calculations**.	3.5			
217000 RCIC *CFR 41.5/41.7/41.8*										5		**Manually operate/monitor** in the control room **reactor water level**.	3.2			
217000 RCIC *CFR 41.5/41.7/41.8*											4.31	Knowledge of **annunciators alarms and indications**, and use of the **response instructions**.	3.3			
218000 ADS *CFR 41.7/41.8*								6				Predict **impacts of initiation signals present** on the ADS; and use procedures to **correct, control, or mitigate**.	4.2			
223002 PCIS / NSSSS CFR 41.7/41.9		1										Electrical **power supplies to the logic** power supplies. ***(See NOTE below)***	2.4			
223002 PCIS / NSSSS CFR 41.7/41.9			7									The **effect a loss or malfunction** of the PCIS/NSSSS will have **on reactor pressure**.	3.7			
239002 SRVs *CFR 41.2/41.3/41.14*							5					**Predict/monitor changes in reactor water level** associated with operating SRV controls.	3.7			
259002 Rtr Water Level Control *CFR 41.7*	2											The physical **connections/cause-effect** relationships between **Reactor Water Level Control and main steam flow**	3.2			
261000 SGTS *CFR*											4.6	Knowledge symptom based **EOP mitigation strategies**.	3.1			
PAGE 2 TIER 2 GROUP 1 TOTAL	1	1	2	0	0	0	1	1	0	1	2	PAGE TWO TOTAL POINTS	9			

NOTE: K/A statement 223002 has IR of 2.4 but is plant specific priority due to NSSSS logic being supplied by RPS power. RPS bus power transfer or loss will result in a Divisional isolation causing half of the BOP valves to close. This can have a significant impact on plant operation if not quickly identified and restored when operating at power.

SYSTEM#/NAME ***CFR REFERENCE***	**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**	**TYPE**	**QNO**	**QID.**
262001 AC Distribution *CFR 41.4/41.10/43.3*								9				Predict the **impacts of exceeding voltage limitations** on AC Distribution; and use procedures to **correct, control, or mitigate**.	3.1			
262001 AC Distribution *CFR 41.4/41.10/43.3*					1							The **operational implications of** the principle involved with **paralleling two AC sources** as applied to AC Distribution.	3.1			
262002 UPS (AC/DC) *CFR*	11											The physical **connections/cause-effect** relationships between **UPS (AC/DC) and control room recorders**.	2.5			
263000 DC Distribution *CFR 41.4/41.5*			3									The **effect a loss or malfunction** of the DC Distribution will have **on systems with DC components**.	3.4			
264000 EDGs *CFR 41.7*							9					**Predict/monitor maintaining minimum load** associated with operating EDG controls.	3.0			
300000 Instrument Air *CFR 41.4/41.7*						4						The **effect a loss or malfunction** of the **service air refusal valve** will have on the Instrument Air System.	2.6			
400000 Component Cooling Water *CFR 41.4*				1								**Design feature(s)/interlocks** which provide for **automatic start of standby pump**.	3.4			
PAGE 3 TIER 2 GROUP 1 TOTAL	1	0	1	1	1	1	1	1	0	0	0	PAGE THREE TOTAL POINTS	7			
PAGE 2 TIER 2 GROUP 1 TOTAL	1	1	2	0	0	0	1	1	0	1	2	PAGE TWO TOTAL POINTS	9			
PAGE 1 TIER 2 GROUP 1 TOTAL	1	1	1	0	1	3	2	0	0	1	0	PAGE ONE TOTAL POINTS	10			
K/A CATEGORY TOTALS	**3**	**2**	**4**	**1**	**2**	**4**	**4**	**2**	**0**	**2**	**2**	**TIER TWO GROUP ONE TOTAL**	**26**			

SYSTEM#/NAME ***CFR REFERENCE***	**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**	**TYPE**	**QNO**	**QID.**
201001 CRD Hydraulic *CFR 41.6/41.7*								14				Predict the **impacts of low drive header pressure** on CRDH; and use procedures to **correct, control, or mitigate**.	2.8			
201003 Control Rod and CRDM *CFR 41.2/41.5/41.6*							2					**Predict/monitor changes in CRD drive pressure** with operating the CRDM controls	2.8			
201005 RCIS *CFR 41.5/41.6/41.7/43.2/43.6*	2											The physical **connections/cause-effect** relationships between **RCIS and the reactor pressure control system**.	3.3			
202001 Recirculation *CFR 41.7*				9								**Design feature(s)/interlocks** which provide **for pump minimum flow** limit.	2.7			
204000 RWCU *CFR 41.4*						5						The **effect a loss or malfunction of AC power** will have on RWCU.	2.6			
239001 Main and Reheat Steam *CFR 41.4/41.5*										3		**Manually operate/monitor system flow** in the control room.	3.5			
239003 MSIV Leakage Control *CFR 41.7/41.9*										7		**Manually operate/monitor status lights and alarms** in the control room	2.8			
245000 Turbine Gen. and Aux. *CFR*									10			**Monitor auto operations** of the Main Turbine Generator **output voltage/reactive load**	2.5			
271000 Offgas *CFR*			1									The **effect a loss or malfunction** of the Offgas will have **on condenser vacuum**.	3.5			
PAGE 1 TIER 2 GROUP 2 TOTAL	1	0	1	1	0	1	1	1	1	2	0	PAGE ONE TOTAL POINTS	9			

SYSTEM#/NAME ***CFR REFERENCE***	**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**	**TYPE**	**QNO**	**QID.**
286000 Fire Protection *CFR 41.4*									6			**Monitor automatic operations** of the Fire Protection System **fire dampers**.	3.0			
288000 Plant Ventilation *CFR*						2						The **effect a loss or malfunction of the applicable component cooling water system** will have on the Plant Ventilation.	2.5			
290003 Control Room HVAC *CFR*								3				Predict the **impacts of initiation/reconfiguration failure** on the Control Room HVAC; and use procedures to **correct, control, or mitigate**	3.4			
PAGE 2 TIER 2 GROUP 2 TOTAL	0	0	0	0	0	1	0	1	1	0	0	PAGE TWO TOTAL POINTS	3			
PAGE 1 TIER 2 GROUP 2 TOTAL	1	0	1	1	0	1	1	1	1	2	0	PAGE ONE TOTAL POINTS	9			
K/A CATEGORY TOTALS	**1**	**0**	**1**	**1**	**0**	**2**	**1**	**2**	**2**	**2**	**0**	**TIER TWO GROUP TWO TOTAL**	**12**			

GENERIC CATEGORY *CFR REFERENCE*	K/A	K/A TOPIC(S)	IR	TYPE	QNO	QID.
2.1 CONDUCT OF OPERATIONS *CFR 41.7/43.2*	22	Ability to **determine Mode of Operation**.	2.8			
2.1 CONDUCT OF OPERATIONS *CFR 41.7*	24	Ability to **obtain and interpret station electrical and mechanical drawings**.	2.8			
2.1 CONDUCT OF OPERATIONS *CFR 41.10*	29	Knowledge of how to **conduct and verify valve lineups**.	3.4			
SUBTOTAL	**3**					
2.2 EQUIPMENT CONTROL *CFR 41.10*	22	Knowledge of **limiting conditions for operations and safety limits**.	3.4			
2.2 EQUIPMENT CONTROL *CFR 41.10/43.2/43.6*	26	Knowledge of **refueling administrative requirements**.	2.5			
SUBTOTAL	**2**					
2.3 RADIATION CONTROL *CFR 41.10/41.12/43.4*	4	Knowledge of radiation **exposure limits and contamination control**, including **permissible levels in excess of those authorized**.	2.5			
2.3 RADIATION CONTROL *CFR 41.11/41.12/43.4*	11	Ability to **control radiation releases**.	2.7			
SUBTOTAL	**2**					
2.4 EMERGENCY PROCEDURES / PLAN *CFR 41.10/43.5*	8	Knowledge of **how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs**.	3.0			
2.4 EMERGENCY PROCEDURES / PLAN *CFR 41.10/43.5*	18	Knowledge of the **specific bases for EOPs**.	2.7			
2.4 EMERGENCY PROCEDURES / PLAN *CFR 41.10/43.5*	50	Ability to **verify system alarm setpoints and operate controls** identified in the **alarm response manual**.	3.3			
SUBTOTAL	**3**					
TIER THREE POINT TOTAL	**10**					

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 1 (SRO)	

E/APE#/NAME/SAFETY FUNCTION *CFR REFERENCES*	K 1	K 2	K 3	A 1	A 2	G	K/A TOPIC(S)	IR	TYPE	QNO	QID
295001 Loss of Forced Core Circulation / 1 & 4 *CFR 41.3/41.5/41.6/41.14/**43.1/43.2***						2.25	Knowledge of **bases** in technical specifications for **limiting conditions for operations and safety limits**.	3.7			
295003 Partial or Total Loss of AC Power / 6 *CFR 41.8-41.10/**43.5***					2		**Determine/interpret reactor power, pressure, and level** as they apply to Partial or Complete Loss of AC Power.	4.3			
295005 Main Turbine Generator Trip / 3 *CFR 41.4/**43.5***					2		**Determine/interpret turbine vibration** as it applies to Main Turbine Generator Trip.	2.7			
295006 SCRAM / 1 *CFR 41.10/**43.5***	3						**Operational implications of reactivity control** as it applies to SCRAM.	4.0			
295018 Partial or Total Loss of CCW / 8 *CFR 41.4/**43.5***				1			**Operate/monitor backup systems** as they apply to Partial or Complete Loss of Component Cooling Water.	3.4			
295019 Partial or Total Loss of Inst. Air / 8 *CFR 41.741.10/**43.1/43.2***						1.33	Ability to recognize indications for system operating parameters which are **entry-level conditions for technical specifications**.	4.0			
295025 High Reactor Pressure / 3 *CFR 41.5/**43.1/43.2***						4.30	Knowledge of **which events** related to system operations/status **should be reported to outside agencies**.	3.6			
295028 High Drywell Temperature / 5 *CFR 41.5/41.7/41.14/**43.5***						1.23	Ability to **perform specific system and integrated plant procedures during different modes** of plant operation.	4.0			
K/A CATEGORY TOTALS	**1**	**0**	**0**	**1**	**2**	**4**	**TIER ONE GROUP ONE TOTAL**	**8**			

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	EMERGENCY & ABNORMAL PLANT EVOLUTIONS - TIER 1 GROUP 2 (SRO)	

E/APE#/NAME/SAFETY FUNCTION *CFR REFERENCES*	K 1	K 2	K 3	A 1	A 2	G	K/A TOPIC(S)	IR	TYPE	QNO	QID
295020 Inadvertent Containment Isolation / 5 *CFR 41.9/41.11/41.13/**43.5***				3			**Operate/monitor** the **containment ventilation system** as it applies to Inadvertent Containment Isolation.	3.1			
295032 High Sec. CTMT Area Temperature / 5 *CFR 41.9/**43.5***			2				The **reasons for reactor SCRAM** as they apply to High Secondary Containment Area Temperature.	3.8			
295035 Sec. CTMT Vent. High ΔP / 5 *CFR 41.9/**43.4***					1		**Determine/interpret secondary containment pressure** as it applies to Secondary Containment High Differential Pressure.	3.9			
500000 High Containment Hydrogen Conc. / 5 *CFR 41.7-41.10/**43.5***					4		**Determine/interpret combustible limits for wetwell** as they apply to High Primary Containment Hydrogen Concentrations.	3.3			
K/A CATEGORY TOTALS	**0**	**0**	**1**	**1**	**2**	**0**	**TIER ONE GROUP TWO TOTAL**	**4**			

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	PLANT SYSTEMS - TIER 2 GROUP 1 (SRO)	

SYSTEM#/NAME *CFR REFERENCE*	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	TYPE	QNO	QID.
205000 Shutdown Cooling *CFR 41.7/41.1/**43.2***											1.14	Knowledge of **system status criteria** which require the **notification of plant personnel**.	3.3			
212000 RPS *CFR 41.2/41.7/**43.5***								21				Predict the **impacts of the failure of individual relays to reposition** on RPS; and use procedures to **correct, control, or mitigate**.	3.9			
263000 DC Distribution *CFR 41.6/41.7*											1.32	Ability to **explain and apply system limits and precautions.**	3.8			
264000 EDGs *CFR 41.7/**43.2***								3				Predict the **impacts of operating unloaded, lightly loaded, and highly loaded** on the EDGs; and use procedures to **correct, control, or mitigate**.	3.4			
K/A CATEGORY TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**TIER TWO GROUP ONE TOTAL**	**4**			

RIVER BEND STATION	BWR EXAMINATION OUTLINE	ES-401-1
September 2004	PLANT SYSTEMS - TIER 2 GROUP 2 (SRO)	

SYSTEM#/NAME *CFR REFERENCE*	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	TYPE	QNO	QID.
234000 Fuel Handling Equipment *CFR 41.6/41.7/**43.7***									2			**Monitor auto operations** of Fuel Handling Equipment including **interlock operation**.	3.7			
290002 Reactor Vessel Internals *CFR **43.4/43.6***			4									The **effect a loss or malfunction** of the Reactor Vessel Internals will have **on plant radiation levels**.	3.2			
K/A CATEGORY TOTALS	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**TIER TWO GROUP TWO TOTAL**	**2**			

RIVER BEND STATION September 2004	BWR EXAMINATION OUTLINE GENERIC KNOWLEDGE AND ABILITIES - TIER 3 (SRO)					ES-401-3
GENERIC CATEGORY ***CFR REFERENCE***	**K/A**	**K/A TOPIC(S)**	**IR**	**TYPE**	**QNO**	**QID.**
2.1 CONDUCT OF OPERATIONS *CFR **43.4***	1	Knowledge of **conduct of operations requirements**.	3.8			
2.1 CONDUCT OF OPERATIONS *CFR **43.2***	2	Knowledge of **operator responsibilities during all modes of plant operation**.	4.0			
SUBTOTAL	**2**					
2.2 EQUIPMENT CONTROL *CFR 41.10/**43.3***	5	Knowledge of the **process for making changes in the facility as described in the SAR**.	2.7			
2.2 EQUIPMENT CONTROL *CFR 41.10/**43.3/43.5***	20	Knowledge of the process for **managing troubleshooting activities**.	3.3			
SUBTOTAL	**2**					
2.3 RADIATION CONTROL *CFR 41.11/41.12/**43.4***	1	Knowledge of **10 CFR 20 and related facility radiation control requirements**.	3.0			
SUBTOTAL	**1**					
2.4 EMERGENCY PROCEDURES / PLAN *CFR 41.10/**43.5***	5	Knowledge of the **organization of the operating procedures** network **for normal, abnormal, and emergency evolutions**.	3.6			
2.4 EMERGENCY PROCEDURES / PLAN *CFR 41.10/**43.6***	21	Knowledge of the **parameters and logic used to assess the status of safety functions** including (1) Reactivity control (2) Core cooling and heat removal (3) Reactor coolant system integrity (4) Containment conditions (5) Radioactivity release control.	4.3			
SUBTOTAL	**2**					
TIER THREE TOTAL	**7**					

KA Suppression Justification for September 2004 Written Examination Outline
RIVER BEND STATION (RBS)

2.0 GENERIC KAs:

2.2.3 & 2.2.4 Multi-unit KAs not applicable to the single unit RBS facility.

3.1 REACTIVITY CONTROL SYSTEMS KAs:

201002 **Reactor Manual Control System** – All KAs in this section were suppressed. The system is not part of the RBS GE BWR-6 design. The functions of this system are provided by the Rod Control and Information System (RC&IS) at River Bend.

3.2 INVENTORY CONTROL SYSTEMS KAs:

206000 **High Pressure Core Injection (HPCI)** – All KAs in this section were suppressed. This system is not part of the RBS GE BWR-6 design. HPCS provides this function at River Bend.

3.4 HEAT REMOVAL SYSTEMS KAs:

206000 **High Pressure Core Injection (HPCI)** – All KAs in this section were suppressed. This system is not part of the RBS GE BWR-6 design. HPCS provides this function at River Bend.

207000 **Isolation (Emergency) Condenser** – All KAs in this section were suppressed. This system is not part of the RBS GE BWR-6 design. RCIC provides this function at River Bend.

3.5 CONTAINMENT INTEGRITY SYSTEMS KAs:

226001 **RHR/LPCI: Containment Spray Mode** – All KAs in this section were suppressed. This system is not part of the RBS GE BWR-6 Mark III Containment design.

230000 **RHR/LPCI: Torus/Pool Spray Mode** – All KAs in this section were suppressed. This system is not part of the RBS GE BWR-6 Mark III Containment design.

KA Suppression Justification for September 2004 Written Examination Outline
RIVER BEND STATION (RBS)

3.7 INSTRUMENTATION SYSTEMS KAs SUPPRESSED:

215002 **Rod Block Monitor System** – All KAs in this section were suppressed. The system is not part of the RBS GE BWR-6 design. The functions of this system are provided by the Rod Control and Information System (RC&IS) at RBS.

214000 **Rod Position Information System** – All KAs in this section were suppressed. The system is not part of the RBS GE BWR-6 design. The functions of this system are provided by the Rod Control and Information System (RC&IS) at RBS.

201004 **Rod Sequence Control System** – All KAs in this section were suppressed. The system is not part of the RBS GE BWR-6 design. The functions of this system are provided by the Rod Control and Information System (RC&IS) at RBS.

201006 **Rod Worth Minimizer System** – All KAs in this section were suppressed. The system is not part of the RBS GE BWR-6 design. The functions of this system are provided by the Rod Control and Information System (RC&IS) at RBS.

Facility**: RIVER BEND STATION** Date of Exam: **9/17/2004** Exam Level: **RO** Page **1**

Tier / Group	Randomly Selected KA	Reason for Rejection
1/1	295024, G 2.4.30	RO IR is 2.2 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, G 2.4.4.
1/1	295038, G 2.2.25	Moved to SRO Tier 1 Group 1 topic 295001 (See SRO Record of Rejected K/As). Replaced with KA statement G 2.1.30, randomly selected for SRO topic 295001.
1/1	600000, AK2.02	RO IR is 2.4 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, AK2.01.
1/2	295012, G 2.1.27	KA statement "Knowledge of system purpose and or function" is inappropriate for Hi DW Temperature abnormal evolution. Randomly selected replacement KA statement, G 2.1.2.
2/1	211000, K1.08	RO IR is 2.3 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, K1.02.
2/1	215005, K6.05	Not a feature of River Bend. A loss or malfunction of IRMs does not affect the APRMs or LPRMs. Randomly selected replacement KA statement, K6.07.
2/1	215005, K3.06	Not a feature of River Bend. A loss or malfunction of APRMs or LPRMs does not affect the IRMs. Randomly selected replacement KA statement, K6.08.
2/1	300000, K6.11	RO IR is 2.3 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, K6.04.
2/2	288000, K2.01	RO IR is 2.4 (<2.5) with no site-specific priority justification. Also, the only remaining statement in this category, K2.02 has RO IR of 1.8 (<2.5) with no site-specific priority justification. Randomly selected new KA category and statement, K6.02.
3/	G 2.1.8	This ability is evaluated in the simulator part of the operating test. Randomly selected replacement KA statement, G 2.1.22.

Facility: **RIVER BEND STATION** Date of Exam: **9/17/2004** Exam Level: **RO** Page **2**

Tier / Group	Randomly Selected KA	Reason for Rejection
3/	G 2.1.26	RO IR is 2.2 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, G 2.1.16, which was also rejected due to it being evaluated in the simulator part of the operating test. Randomly selected replacement KA statement, G 2.1.24.
3/	G 2.3.8	RO IR is 2.3 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, G 2.3.11.
3/	G 2.4.33	RO IR is 2.4 (<2.5) with no site-specific priority justification. Randomly selected replacement KA statement, G 2.2.18.

Facility: **RIVER BEND STATION** Date of Exam: **9/17/2004** Exam Level: **SRO** Page **1**

Tier / Group	Randomly Selected KA	Reason for Rejection
1/1	295001, G 2.1.30	KA statement "Ability to locate and operate components, including local controls" is inappropriate for SRO-only knowledge level. Moved KA statement G 2.1.30 to RO Tier 1 Group 1 topic 295038 (See RO Record of Rejected K/As). Replaced with RO randomly selected KA statement, G 2.2.25 which is SRO-only knowledge.
1/1	295003, AA1.02	The KA selected is inappropriate for developing a psychometrically sound question that adequately discriminates at the SRO level. Randomly selected replacement KA statement, AA2.02.
1/1	295006, AA1.01	The KA selected is inappropriate for developing a psychometrically sound question that adequately discriminates at the SRO level. Randomly selected replacement KA statement, AK1.03.
1/1	295028, G 2.1.27	KA statement "Knowledge of system purpose and or function" is inappropriate for Hi DW Temperature emergency evolution. Also, the K/A statement is inappropriate for SRO-only knowledge level. Randomly selected replacement KA statement, G 2.1.23.
1/2	295020, AK3.02	The KA selected is inappropriate for developing a psychometrically sound question that adequately discriminates at the SRO level. Randomly selected replacement KA statement, AA1.03.
2/1	263000, K4.01	River Bend does not have features or interlocks as part of the D.C. Electrical Distribution System that provide for manual or automatic transfer of control. Randomly selected replacement KA statement, G 2.1.32.
3/	G 2.4.41	Knowledge of EAL thresholds and classifications will be evaluated in SRO Admin JPM (960-01). Randomly selected replacement KA statement, G 2.4.5.
/		
/		
/		

Facility: **RIVER BEND STATION** Date of Examination: 9/20/2004 – 9/24/2004
Examination Level: **RO** Operating Test Number: 1

Admin Topic *(Type Code*)* RBS JPM No.	**Description of activity to be performed** K/A Statement(s)	KA	IR	Notes
Conduct of Operations *(M) (A)* 976-04	**Complete Daily Logs verification of Power Distr. Limits during Single Loop Ops.** Use plant computer to obtain and evaluate parametric information on system or component status.	2.1.19	3.0	Determine MCPR exceeds LCO
Conduct of Operations *(M)* 800-23	**Determine containment water level per EOP Enclosure 23.** Ability to perform specific system and integrated plant procedures during different modes of plant operation.	2.1.23	3.9	
	Ability to obtain and interpret station reference materials such as graphs / monographs / and tables which contain performance data.	2.1.25	2.8	
Equipment Control *(D)* 201-02	**Identify required tags and hanging sequence for SLC component removal and replacement.** Knowledge of tagging and clearance procedures.	2.2.13	3.6	
Radiation Control *(M)* 001-02	**Entry and egress from the Controlled Access Area including entry into a High Radiation Area.** Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.	2.3.4	2.5	
	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.3.10	2.9	

* *Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path*

Facility: **RIVER BEND STATION** Date of Examination: 9/20/2004 – 9/24/2004
Examination Level: **SRO** Operating Test Number: 1

Admin Topic *(Type Code*)* RBS JPM No.	**Description of activity to be performed** K/A Statement(s)	KA	IR	Notes
Conduct of Operations *(N) (A)* 110-08	**Evaluate requested loading against Main Generator capability curves.** Ability to explain and apply system limits and precautions.	2.1.32	3.8	Determine dispatcher requested loading exceeds limits.
Conduct of Operations *(N)* 402-01	**Complete LCO Status Sheet for inoperable Control Room Fresh Air initiation instrumentation.** Ability to apply technical specifications for a system.	2.1.12	4.0	
Equipment Control *(N)*	**Review and approve completed IST surveillance procedure.** Knowledge of surveillance procedures.	2.2.12	3.4	
Radiation Control *(M)* 001-02	**Entry and egress from the Controlled Access Area including entry into a High Radiation Area.** Knowledge of radiation exposure limits and contamination control / including permissible levels in excess of those authorized.	2.3.4	3.1	
	Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	2.3.10	3.3	
Emergency Plan *(M)* 960-01	**Classify an Emergency Event** Knowledge of emergency action level thresholds and classifications.	2.4.41	4.1	

* *Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path*

Facility: **RIVER BEND STATION**	Date of Examination: **9/20/2004 – 9/24/2004**
Examination Level: **RO**	Operating Test Number: **1**

CONTROL ROOM SYSTEMS (8 for RO)

System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR	Notes
1. 201005 Rod Control and Information System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Defeat RCIS Interlocks Per EOP Encl. 14.** **JPM No. 800-14** *(D) (C)*	7	K1.02 K5.02 A1.01 EK2.12 EA1.08	3.3 2.8 3.2 3.6 3.6	
2. 400000 Component Cooling Water System **CCP Valve Quarterly Stroke Test Surveillance With Loss of NSW.** **JPM No. 500-02** *(N) (A) (S)*	8	K1.01 A4.01 AK3.07 AA1.01	3.2 3.1 3.1 3.3	(PRA-related, Loss of Normal Service Water is a DAS) RBS LERs
3. 223001 Primary Containment and Auxiliaries **Makeup to Suppression Pool Using HPCS With HPCS Pump Trip.** **JPM No. 800-42** *(D) (A) (S)*	5	K1.13 K1.14 A2.11	3.4 3.3 3.6	
4. 259002 Reactor Water Level Control System **Transfer from Startup to Master FWLC with Failure of 'A' FWRV.** **JPM No. 501-02** *(D) (A) (S) (L)*	2	K5.01 A1.05 A4.03	3.1 2.9 3.8	
5. 239002 Safety Relief Valves **Complete Back Panel Actions for Stuck Open SRV, Including Fuse Removal.** **JPM No. 109-06** *(M) (C)*	3	K2.01 K4.05 K6.04 A2.03	2.8 3.6 3.0 4.1	
6. 288000 Plant Ventilation System **Restore Fuel Building Ventilation to Standby Following Auto Initiation.** **JPM No. 406-20** *(D) (S)*	9	K4.03 A2.01 A4.01	2.8 3.3 3.1	

** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*

Facility: **RIVER BEND STATION**	Date of Examination: **9/20/2004 – 9/24/2004**
Examination Level: **RO**	Operating Test Number: **1**

CONTROL ROOM SYSTEMS, continued (8 for RO)

System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR	Notes
7. 262001 AC Electrical Distribution 295003 Partial/Complete Loss of AC Power **Parallel Offsite Power to ENS-SWG1B Supplied by Div II EDG With Rapid Load Transfer Following Breaker Closure.** **JPM No. 309-07** *(M) (A) (S) (L)*	6	A2.01 A2.05 A4.02 AA1.02	3.5 3.6 3.4 4.2	AOP-0004, Step 5.16.12 SOP-0053, Section 5.1. Guidance for alternate path action in SOP-0053 CAUTION. (PRA-related)
8. 202002 Recirculation Flow Control System **Reset Recirc Flow Control Valve Runback.** **JPM No. 053-03** *(D) (S)*	4	K4.08 A1.08 A2.07	3.3 3.4 3.3	

IN-PLANT SYSTEMS (3 for RO)

1. 201001 Control Rod Drive Hydraulic System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Vent Scram Air Header.** **JPM No. 800-11** *(D) (R)*	1	K1.09 EK3.07	3.1 4.2	To be done with Admin JPM for CAA/Hi Rad entry. With ATWS, RP declares Containment High Rad area.
2. 264000 Emergency Diesel Generators 295016 Control Room Abandonment **Place Standby Service Water in service for Div I EDG from Remote Shutdown Panel with SWP P2A pump trip.** **JPM No. 200-08** *(D) (A) (L)*	6	K6.07 AK2.01 AK2.02	3.8 4.4 4.0	With failure, must start P2C from different panel (EGS-PNL4C) then complete lineup at Remote Shutdown Panel per AOP-0031. (PRA-related)
3. 223002 Reactor Protection System **Restore RPS B Normal power supply.** **JPM No. 800-21** *(D)*	7	K1.04 K2.01 A1.01 A2.01	3.4 3.2 2.8 3.7	

** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*

Facility: **RIVER BEND STATION**	Date of Examination: **9/20/2004 – 9/24/2004**
Examination Level: **SRO-Instant**	Operating Test Number: **1**

CONTROL ROOM SYSTEMS (7 for SRO-I)

System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR	Notes
1. 201005 Rod Control and Information System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Defeat RCIS Interlocks Per EOP Encl. 14.** **JPM No. 800-14** *(D) (C)*	7	K1.02 K5.02 A1.01 EK2.12 EA1.08	3.5 3.3 3.3 3.8 3.6	
2. 400000 Component Cooling Water System **CCP Valve Quarterly Stroke Test Surveillance With Loss of NSW.** **JPM No. 500-02** *(N) (A) (S)*	8	K1.01 A4.01 AK3.07 AA1.01	3.3 3.0 3.2 3.4	(PRA-related, Loss of Normal Service Water is a DAS)
3. 223001 Primary Containment and Auxiliaries **Makeup to Suppression Pool Using HPCS With HPCS Pump Trip.** **JPM No. 800-42** *(D) (A) (S)*	5	K1.13 K1.14 A2.11	3.5 3.6 3.8	
4. 259002 Reactor Water Level Control System **Transfer from Startup to Master FWLC with Failure of 'A' FWRV.** **JPM No. 501-02** *(M) (A) (S) (L)*	2	K5.01 A1.05 A4.03	3.1 2.9 3.6	
5. 239002 Safety Relief Valves **Complete Back Panel Actions for Stuck Open SRV, Including Fuse Removal.** **JPM No. 109-06** *(M) (C)*	3	K2.01 K4.05 K6.04 A2.03	3.2 3.7 3.2 4.2	
6. 288000 Plant Ventilation System **Restore Fuel Building Ventilation to Standby Following Auto Initiation.** **JPM No. 406-20** *(D) (S)*	9	K4.03 A2.01 A4.01	2.9 3.4 2.9	

** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*

Facility: **RIVER BEND STATION**	Date of Examination: **9/20/2004 – 9/24/2004**
Examination Level: **SRO-Instant**	Operating Test Number: **1**

System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR	Notes
CONTROL ROOM SYSTEMS, continued (7 for SRO-I)				
7. 262001 AC Electrical Distribution 295003 Partial/Complete Loss of AC Power **Parallel Offsite Power to ENS-SWG1B Supplied by Div II EDG With Rapid Load Transfer Following Breaker Closure.** **JPM No. 309-07** *(M) (A) (S) (L)*	6	A2.01 A2.05 A4.02 AA1.02	3.6 3.6 3.4 4.3	AOP-0004, Step 5.16.12 SOP-0053, Section 5.1. Guidance for alternate path action in SOP-0053 CAUTION. (PRA-related)
IN-PLANT SYSTEMS (3 for SRO-I)				
1. 201001 Control Rod Drive Hydraulic System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Vent Scram Air Header.** **JPM No. 800-11** *(D) (R)*	1	K1.09 EK3.07	3.2 4.3	To be done with Admin JPM for CAA/Hi Rad entry. With ATWS, RP declares Containment High Rad area.
2. 264000 Emergency Diesel Generators 295016 Control Room Abandonment **Place Standby Service Water in service for Div I EDG from Remote Shutdown Panel with SWP P2A pump trip.** **JPM No. 200-08** *(D) (A) (L)*	6	K6.07 AK2.01 AK2.02	3.9 4.5 4.1	With failure, must start P2C from different panel (EGS-PNL4C) then complete lineup at Remote Shutdown Panel per AOP-0031. (PRA-related)
3. 223002 Reactor Protection System **Restore RPS B Normal power supply.** **JPM No. 800-21** *(D)*	7	K1.04 K2.01 A1.01 A2.01	3.6 3.3 2.9 3.9	

** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*

Facility: **RIVER BEND STATION**	Date of Examination: **9/20/2004 – 9/24/2004**
Examination Level: **SRO-Upgrade**	Operating Test Number: **1**

CONTROL ROOM SYSTEMS (2 or 3 for SRO-U)

System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR	Notes
1. 201005 Rod Control and Information System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Defeat RCIS Interlocks Per EOP Encl. 14.** **JPM No. 800-14** *(D) (C)*	7	K1.02 K5.02 A1.01 EK2.12 EA1.08	3.5 3.3 3.3 3.8 3.6	
2. 400000 Component Cooling Water System **CCP Valve Quarterly Stroke Test Surveillance With Loss of NSW.** **JPM No. 500-02** *(N) (A) (S)*	8	K1.01 A4.01 AK3.07 AA1.01	3.3 3.0 3.2 3.4	(PRA-related, Loss of Normal Service Water is a DAS)
3. 223001 Primary Containment and Auxiliaries **Makeup to Suppression Pool Using HPCS With HPCS Pump Trip.** **JPM No. 800-42** *(D) (A) (S)*	5	K1.13 K1.14 A2.11	3.5 3.6 3.8	

IN-PLANT SYSTEMS (3 or 2 for SRO-U)

1. 201001 Control Rod Drive Hydraulic System 295037 SCRAM and Reactor Power Above APRM Downscale or Unknown **Vent Scram Air Header.** **JPM No. 800-11** *(D) (R)*	1	K1.09 EK3.07	3.2 4.3	To be done with Admin JPM for CAA/Hi Rad entry. With ATWS, RP declares Containment High Rad area.
2. 264000 Emergency Diesel Generators 295016 Control Room Abandonment **Place Standby Service Water in service for Div I EDG from Remote Shutdown Panel with SWP P2A pump trip.** **JPM No. 200-08** *(D) (A) (L)*	6	K6.07 AK2.01 AK2.02	3.9 4.5 4.1	With failure, must start P2C from different panel (EGS-PNL4C) then complete lineup at Remote Shutdown Panel per AOP-0031. (PRA-related)

** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*

Facility: **RIVER BEND STATION** Date of Examination: **9/20/2004 – 9/24/2004** Examination Level: **ALL (Backup JPMs)** Operating Test Number: **1**				
CONTROL ROOM SYSTEMS (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)				
System / **JPM Title and No.** / *(Type Codes*)*	SF	KA	IR RO/SRO	Notes
1. 201003 Control Rod and Drive Mechanism **Perform Control Rod Operability Check with Rod Over-travel.** **JPM No. 052-06** *(D) (A) (S)*	1	K4.02 A2.02 A4.02	3.8/3.9 3.7/3.8 3.5/3.5	
IN-PLANT SYSTEMS (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)				
1. 223002 Containment Isolation System 500000 High Containment Hydrogen Conc. **Perform emergency containment venting for high H_2 concentration per EOP Encl. 21.** **JPM No. 800-21** *(D) (R) (L)*	5	K1.10 K4.08 EK1.01	3.1/3.2 3.3/3.7 3.3/3.9	Install jumpers in CR backpanel to bypass isolation. Verify CR panel lineup. In Aux Bldg, open final MOV to vent.
** Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA entry*				

Facility: River Bend Station **Scenario No.:** **1** (SIS-19.0, IC-163) **Op.-Test No.:** **1**
NEW SCENARIO

Examiners: _____ **Operators:** **CRS – Control Room Suprv. (SRO)**
_____ **ATC – At-the-Controls (RO)**
_____ **UO – Unit Operator (BOP-RO)**

Initial Conditions: Plant startup in progress at 30% power. APRM 'C' inoperable and bypassed. HDL–P1A and C tagged out. Main Generator voltage regulator in Manual.

Turnover: APRM 'C' INOP and bypassed due to power supply failure. Heater Drain Pumps, HDL–P1A and C tagged out due to excessive leakage. Main Generator voltage regulator in Manual due to erratic operation in Auto.
Continue plant startup by shifting Reactor Recirc Pumps to fast speed.

Event No.	Malf. No.	Event Type *	Event Description
1 T = 0 min.	N/A	R (ATC)	Shift Recirc pumps to fast speed
2 T = 10 min.	CRD001A	C (UO/CRS)	CRD Pump A trip.
	CRDM4813	I (ATC/CRS)	Accumulator Fault after CRD Pump A trip does not clear when CRD Pump B is started. *(Tech Specs for CRS)*
3 T = 20 min.	NMS015F	I (ATC/CRS)	APRM F flow reference signal fails downscale. *(Tech Spec for CRS)*
4 T = 30 min.	RPS003B	C (UO/CRS)	Loss of RPS B
5 T = 40 min.	FWS007C	I (ATC/CRS)	FWRV 'C' control signal fails high failing FWRV open.
Scram will be automatic on (or manual before reaching) high reactor water level.			
6 T = 40 min	CRD014	M (ALL)	Hydraulic ATWS
7 T = 42 min.	OR	C (UO/CRS)	First SLC Pump started trips after operating for 30 seconds. *(After EOP Entry)*

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: River Bend Station **Scenario No.:** 2 (SIS-17.1, IC-164) **Op.-Test No.:** 1
MODIFIED SCENARIO

Examiners: _____ **Operators:** **CRS – Control Room Suprv. (SRO)**
_____ **ATC – At-the-Controls (RO)**
_____ **UO – Unit Operator (BOP-RO)**

Initial Conditions: Steady state operation at 85% power. APRM 'C' inoperable and bypassed. HDL–P1A and C tagged out. Main Generator voltage regulator in Manual. RHR B is in suppression pool cooling.

Turnover: APRM 'C' INOP and bypassed due to power supply failure. Heater Drain Pumps, HDL–P1A and C tagged out due to excessive leakage. Main Generator voltage regulator in Manual due to erratic operation in Auto.
Complete preparations and slow roll RCIC following lube oil addition.

Event No.	Malf. No.	Event Type *	Event Description
1 T = 0 min.	N/A	N (UO/CRS)	Place Containment HVAC in High Volume Purge.
2 T = 10 min.	NMS011D CRDM1605	I (ATC/CRS)	APRM 'D' fails upscale with single rod scram. *(Tech Specs for CRS)*
3 T = 20 min.	OR	C (UO/CRS)	RCIC trip throttle valve fails to open during turbine slow roll. *(Tech Specs for CRS)*
4 T = 30 min.	OR_P680_3a:d-6	C (ATC/CRS)	Loss of TPCCW to Reactor Feed Pump FWS-P1C Gear Increaser Lube Oil Cooler (requiring P1C shutdown).
5 T = 35 min.	N/A	R (ATC/CRS)	Lower power with Recirc flow as needed for RFP shutdown.
Scram should be automatic on high reactor pressure with Turbine CVs ramping shut in ~4 seconds.			
6 T = 40 min	EHC006A	M (ALL)	EHC signal to Turbine Control Valves fails low. *[RBS LERs 2001-01 and 2003-08]*
	MSS001		Small steam leak in Drywell rises to 200 GPM over 10 minutes.
7 T = 42 min.	EHC002C	C (ATC/CRS)	One turbine Steam Bypass Valve sticks open *(After EOP Entry)*.
8 T = 45 min.	HPCS003	C (UO/CRS)	HPCS fails to auto initiate. *(After EOP Entry)*.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: River Bend Station **Scenario No.:** **3 [BU]** (SIS-3.4, IC-165) **Op.-Test No.:** **1**
MODIFIED SCENARIO

Examiners: _____ **Operators:** **CRS – Control Room Suprv. (SRO)**
_____ **ATC – At-the-Controls (RO)**
_____ **UO – Unit Operator (BOP-RO)**

Initial Conditions: Steady state operation at 100% power. APRM 'C' inoperable and bypassed. HDL–P1A and C tagged out. Main Generator voltage regulator in Manual. RHR B is in suppression pool cooling.

Turnover: APRM 'C' INOP and bypassed due to power supply failure. Heater Drain Pumps, HDL–P1A and C tagged out due to excessive leakage. Main Generator voltage regulator in Manual due to erratic operation in Auto.
Remove RHR B from suppression pool cooling.

Event No.	Malf. No.	Event Type *	Event Description
1 T = 0 min.	N/A	N (UO/CRS)	Remove RHR B from suppression pool cooling.
2 T = 10 min.	B21006B	I (UO/CRS)	Reactor water level transmitter for Level 2 isolations fails low. *(Tech Specs for CRS)*
3 T = 15 min.	NMS012F	I (ATC/CRS)	APRM 'F' fails downscale. *(Tech Specs for CRS)*
4 T = 25 min.	HDL001D	C (ATC /CRS)	Heater Drain Pump HDL-P1D trip.
	N/A	R (ATC)	Lower reactor power with Recirc flow to maintain RPV level
Scram will be automatically initiated on high drywell pressure.			
5 T = 35 min	RCS001	M (ALL)	Rupture of A recirculation loop (Large break LOCA)
6 T = 40 min	OR	C (ATC/CRS)	Recirc loop A suction isolation valve fails in open position. *(After EOP Entry)*
7 T = 42 min.	LPCS002	C (UO/CRS)	LPCS injection valve fails to open *(After EOP Entry)*.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor