

| Facility: | | River Bend Station | | | | | | | | | | | | Date of Exam: 12/1/2008 | | | | |
|-----------------------------------------------|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-------------------------|----|-------|----|---|
| Tier | Group | RO K/A Category Points | | | | | | | | | | | SRO-Only Points | | | | | |
| | | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G * | Total | A2 | G* | Total | | |
| 1. Emergency & Abnormal Plant Evolutions | 1 | 2 | 1 | 4 | N/A | | | 7 | 4 | N/A | | | 2 | 20 | | | 7 | |
| | 2 | 1 | 3 | 1 | N/A | | | 0 | 1 | N/A | | | 1 | 7 | | | 3 | |
| | Tier Totals | 3 | 4 | 5 | N/A | | | 7 | 5 | N/A | | | 3 | 27 | | | 10 | |
| 2. Plant Systems | 1 | 2 | 2 | 4 | 4 | 1 | 0 | 3 | 3 | 4 | 3 | 0 | 26 | | | 5 | | |
| | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 12 | | | 3 | | |
| | Tier Totals | 4 | 2 | 4 | 4 | 2 | 2 | 5 | 4 | 5 | 4 | 2 | 38 | | | 8 | | |
| 3. Generic Knowledge and Abilities Categories | | | | 1 | | 2 | | 3 | | 4 | | 10 | | 1 | 2 | 3 | 4 | 7 |
| | | | | 3 | | 3 | | 2 | | 2 | | | | | | | | |

Note:

- Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
- 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.
- Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
- Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
- Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
- Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
- * The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
- On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
- For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

| ES-401 | | BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO) | | | | | | Form ES-401-1 | |
|-------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------|--------|--------|--------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----|
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | | | 1 | | | | (AK3.04) Knowledge of the reason for a reactor scram as it applies to a partial or complete loss of forced core flow circulation. | 3.4 | 1 |
| 295003 Partial or Complete Loss of AC / 6 | | | | | 1 | | (AA2.03) Ability to determine and/or interpret battery status as it applies to a partial or complete loss of AC power. | 3.2 | 2 |
| 295004 Partial or Total Loss of DC Pwr / 6 | | | | 1 | | | (AA1.01) Ability to operate and/or monitor the DC electrical distribution system during a partial or complete loss of DC power. | 3.3 | 3 |
| 295005 Main Turbine Generator Trip / 3 | | | | 1 | | | (AA1.02) Ability to operate and/or monitor RPS following a Main Turbine or Generator trip. | 3.6 | 4 |
| 295006 SCRAM / 1 | | 1 | | | | | (AK2.02) Knowledge of the interrelations between SCRAM and reactor water level control. | 3.8 | 5 |
| 295016 Control Room Abandonment / 7 | | | | | | 1 | (G.2.4.4) Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures as they relate to control room abandonment. | 4.5 | 6 |
| 295018 Partial or Total Loss of CCW / 8 | | | 1 | | | | (AK3.07) Knowledge of the reasons for the cross connecting of backup systems as it applies to the partial or complete loss of component cooling water. | 3.1 | 7 |
| 295019 Partial or Total Loss of Inst. Air / 8 | | | | | | 1 | (G.2.4.47) Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material during a partial or total loss of instrument air. | 4.2 | 8 |
| 295021 Loss of Shutdown Cooling / 4 | | | 1 | | | | (AK3.05) Knowledge of the reason for establishing alternate heat removal paths during a loss of shutdown cooling. | 3.6 | 9 |
| 295023 Refueling Acc / 8 | | | | 1 | | | (AA1.06) Ability to operate or monitor neutron monitoring during a refueling accident. | 3.3 | 10 |
| 295024 High Drywell Pressure / 5 | | | 1 | | | | (EK3.06) Knowledge of the reasons for Reactor Scram as it applies to High Drywell Pressure. | 4.0 | 11 |
| 295025 High Reactor Pressure / 3 | | | | | | | | | |
| 295026 Suppression Pool High Water Temp. / 5 | | | | 1 | | | (EA1.01) Ability to operate and/or monitor suppression pool cooling as it applies to a suppression pool high water temperature. | 4.1 | 12 |
| 295027 High Containment Temperature / 5 | | | | 1 | | | (EA1.03) Ability to operate and/or monitor emergency depressurization as it applies to High Containment Temperature. | 3.5 | 13 |
| 295028 High Drywell Temperature / 5 | 1 | | | | | | (EK1.02) Knowledge of the operational implications of equipment environmental qualifications as they apply to high drywell temperature. | 2.9 | 14 |

| | | | | | | | | | |
|--------------------------------------------------------------------------------------|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| 295030 Low Suppression Pool Wtr Lvl / 5 | | | | | 1 | | (EA2.01) Ability to determine and/or interpret suppression pool level as it applies to a low suppression pool water level. | 4.1 | 15 |
| 295031 Reactor Low Water Level / 2 | | | | 1 | | | (EA1.06) Ability to operate and/or monitor the automatic depressurization system as it applies to a reactor low water level. | 4.4 | 16 |
| 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1 | 1 | | | | | | (EK1.01) Knowledge of the operational implications of reactor pressure effects on reactor power as they apply to an ATWS. | 4.1 | 17 |
| 295038 High Off-site Release Rate / 9 | | | | | 1 | | (EA2.03) Ability to determine and/or interpret the Radiation Levels during a High Offsite Release Rate. | 3.5 | 18 |
| 600000 Plant Fire On Site / 8 | | | | 1 | | | (AA1.09) Ability to operate and/or monitor the plant fire zone panel (including detector location) during a Plant Fire On Site. | 2.5 | 19 |
| 700000 Generator Voltage and Electric Grid Disturbances / 6 | | | | | 1 | | (AA2.06) Ability to determine and/or interpret generator frequency limitations as they apply to Generator Voltage and Electrical Grid Disturbances. | 3.4 | 20 |
| | | | | | | | | | |
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| | | | | | | | | | |
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| | | | | | | | | | |
| K/A Category Totals: | 2 | 1 | 4 | 7 | 4 | 2 | Group Point Total: | | 20/7 |

| ES-401 | | BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO) | | | | | | Form ES-401-1 | |
|-------------------------------------------------------------|--------|------------------------------------------------------------------------------------------|--------|--------|--------|---|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----|
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
| 295002 Loss of Main Condenser Vac / 3 | | 1 | | | | | (AK2.04) Knowledge of the interrelations between loss of main condenser vacuum and the reactor/turbine pressure regulating system. | 3.2 | 21 |
| 295007 High Reactor Pressure / 3 | | 1 | | | | | (AK2.06) Knowledge of the interrelations between High Reactor Pressure and NSSSS. | 3.5 | 22 |
| 295008 High Reactor Water Level / 2 | | | | | | | | | |
| 295009 Low Reactor Water Level / 2 | | | | | | | | | |
| 295010 High Drywell Pressure / 5 | | | | | | | | | |
| 295011 High Containment Temp / 5 | 1 | | | | | | (AK1.01) Knowledge of the operational implications of containment pressure as it applies to a High Containment Temperature. | 4.0 | 23 |
| 295012 High Drywell Temperature / 5 | | | | | | | | | |
| 295013 High Suppression Pool Temp. / 5 | | | | | | 1 | (G.2.2.12) Knowledge of surveillance procedures associated with High Suppression Pool Temperature. | 3.7 | 24 |
| 295014 Inadvertent Reactivity Addition / 1 | | | | | | | | | |
| 295015 Incomplete SCRAM / 1 | | | | | | | | | |
| 295017 High Off-site Release Rate / 9 | | | | | | | | | |
| 295020 Inadvertent Cont. Isolation / 5 & 7 | | | | | | | | | |
| 295022 Loss of CRD Pumps / 1 | | | | | 1 | | (AA2.03) Ability to determine and/or interpret CRD mechanism temperature as it applies to a Loss of CRD Pumps. | 3.1 | 25 |
| 295029 High Suppression Pool Wtr Lvl / 5 | | | | | | | | | |
| 295032 High Secondary Containment Area Temperature / 5 | | | | | | | | | |
| 295033 High Secondary Containment Area Radiation Levels / 9 | | 1 | | | | | (EK2.01) Knowledge of the interrelations between High Secondary Containment Area Radiation Levels and the area radiation monitoring system. | 3.8 | 26 |
| 295034 Secondary Containment Ventilation High Radiation / 9 | | | 1 | | | | (EK3.02) Knowledge of the reasons for starting SBT as it applies to a Secondary Containment Ventilation High Radiation condition. | 4.1 | 27 |
| 295035 Secondary Containment High Differential Pressure / 5 | | | | | | | | | |
| 295036 Secondary Containment High Sump/Area Water Level / 5 | | | | | | | | | |
| 500000 High CTMT Hydrogen Conc. / 5 | | | | | | | | | |
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|----------------------------|---|---|---|---|---|---|--------------------|-----|
| K/A Category Point Totals: | 1 | 3 | 1 | 0 | 1 | 1 | Group Point Total: | 7/3 |
|----------------------------|---|---|---|---|---|---|--------------------|-----|

| ES-401 | | BWR Examination Outline Plant Systems - Tier 2/Group 1 (RO) | | | | | | | | | | | Form 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 | K/A Topic(s) | IR | # |
| 203000 RHR/LPCI: Injection Mode | | | | | | | 1 | | 1 | | | (A1.02) Ability to predict and/or monitor changes in reactor pressure associated with the operating of RHR/LPCI injection mode. | 3.9 | 28 |
| | | | | | | | | | | | | (A3.01) Ability to monitor automatic valve operation of the RHR/LPCI injection mode | 3.8 | 29 |
| 205000 Shutdown Cooling | | | 1 | | | | | | | | | (K3.03) Knowledge of the effect that a loss or malfunction of the Shutdown Cooling System will have on reactor temperatures (moderator, vessel, flange) | 3.8 | 30 |
| 206000 HPCI | | | | | | | | | | | | | | |
| 207000 Isolation (Emergency) Condenser | | | | | | | | | | | | | | |
| 209001 LPCS | | 1 | | | | | | | 1 | | | (K2.01) Knowledge of the electrical power supply to the pump. | 3.0 | 31 |
| | | | | | | | | | | | | (A3.01) Ability to monitor automatic valve operations of LPCS. | 3.6 | 32 |
| 209002 HPCS | | | | | | | | | 1 | | | (A3.06) Ability to monitor lights and alarms associated automatic operation of HPCS. | 2.8 | 33 |
| 211000 SLC | | | | | | | 1 | | | | | (A1.03) Ability to predict and/or monitor changes in pump discharge pressure associated with operating the Standby Liquid Control System. | 3.6 | 34 |
| 212000 RPS | | | 1 | | | | | | | | | (K3.09) Knowledge of the effect that a loss or malfunction of RPS will have on the magnitude of heat energy that must be absorbed by the containment during accident/transient conditions. | 3.2 | 35 |
| 215003 IRM | | | | 1 | | | | | | | | (K4.04) Knowledge of the IRM design feature and/or interlocks that provide for varying system sensitivity levels using range switches. | 2.9 | 36 |
| 215004 Source Range Monitor | | | | | | | | 1 | | | | (A2.02) Ability to predict the impact of an SRM inop and based on those predictions, use procedures to correct, control, or mitigate the consequences of that condition. | 3.4 | 37 |
| 215005 APRM / LPRM | | 1 | | | | | | | | | | (K2.02) Knowledge of electrical power supplies to APRM channels. | 2.6 | 38 |
| 217000 RCIC | | | | | | | | | 1 | | | (A3.04) Ability to monitor system flow during automatic operation of RCIC. | 3.6 | 39 |
| 218000 ADS | | | | | | | | | | 1 | | (A4.09) Ability to manually operate and/or monitor suppression pool temperature in the control room. | 3.9 | 40 |

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|------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|--------------------|---|---|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | 1 | | | | | | | | | | | | | | | (K4.07) Knowledge of NSSSS design features which provide for physical separation of system components (to prevent localized environmental factors, electrical faults, and physical events from impairing system response). | 2.8 | 41 |
| 239002 SRVs | | | | 1 | | | | | | | | | | | | | | | (K3.02) Knowledge of the effect that a loss or malfunction of the Relief/Safety Valves will have on reactor over pressurization. | 4.2 | 42 |
| 259002 Reactor Water Level Control | 1 | | | | | | | | | | | | | | | | | | (K1.03) Knowledge of the physical connections and/or cause-effect relationships between Reactor Water Level Control System and reactor water level. | 3.8 | 43 |
| 261000 SGTS | | | | 1 | | | | | | | | | 1 | | | | | | (K3.01) Knowledge of the effect that a loss or malfunction of the Standby Gas Treatment System will have on secondary containment and environment differential pressure. | 3.3 | 44 |
| | | | | | | | | | | | | | | | | | | | (A4.09) Ability to manually operate and/or monitor ventilation valves and dampers in the control room. | 2.7 | 45 |
| 262001 AC Electrical Distribution | | | | | | | | | | | | | 1 | | | | | | (K5.02) Knowledge of the operational implications of breaker control as it applies to the AC electrical distribution system. | 2.6 | 46 |
| | | | | | | | | | | | | | | | | | | | (A4.03) Ability to manually operate and/or monitor local operation of breakers in the control room. | 3.2 | 47 |
| 262002 UPS (AC/DC) | | | | | | | | | | | | | | | | | | | (K4.01) Knowledge of the UPS design feature and/or interlocks which provide for the transfer from preferred power to alternate power supplies. | 3.1 | 48 |
| 263000 DC Electrical Distribution | 1 | | | | | | | | | | | | | 1 | | | | | (K1.02) Knowledge of the physical connections and/or cause-effect relationships between DC electrical distribution system and the battery charger and batteries. | 3.2 | 49 |
| | | | | | | | | | | | | | | | | | | | (A2.02) Ability to predict the impact of a loss of ventilation during charging and based on those predictions, use procedures to correct, control, or mitigate the consequence of this condition. | 2.6 | 50 |
| 264000 EDGs | | | | | | | | | | | | | | 1 | | | | | (A1.03) Ability to predict and/or monitor changes in operating voltages, currents, and temperatures associated with the Emergency Diesel Generators. | 2.8 | 51 |
| 300000 Instrument Air | | | | | | | | | | | | | | | | | | | (A2.01) Ability to predict the impact of air dryer and filter malfunctions on the Instrument Air System and based on those predictions, use procedures to correct, control, or mitigate the consequences of this condition. | 2.9 | 52 |
| 400000 Component Cooling Water | | | | | | | | | | | | | | | | | | | (K4.01) Knowledge of the CCW design feature and/or interlocks which provide for the automatic start of the standby pump. | 3.4 | 53 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| K/A Category Point Totals: | 2 | 2 | 4 | 4 | 1 | 0 | 3 | 3 | 4 | 3 | 0 | Group Point Total: | | | | | | | 26/5 | | |

| ES-401 | BWR Examination Outline Plant Systems - Tier 2/Group 2 (RO) | | | | | | | | | | | Form 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 | K/A Topic(s) | IR | # |
| 201001 CRD Hydraulic | | | | | | | | | | | 1 | (G.2.2.39) Knowledge of less than or equal to one hour Technical Specification action statements for CRD Hydraulics. | 3.9 | 54 |
| 201002 RMCS | | | | | | | | | | | | | | |
| 201003 Control Rod and Drive Mechanism | | | | | | | | | | | | | | |
| 201004 RSCS | | | | | | | | | | | | | | |
| 201005 RCIS | | | | | | | 1 | | | | | (A1.01) Ability to predict and/or monitor changes in first stage shell pressure associated with RCIS. | 3.2 | 55 |
| 201006 RWM | | | | | | | | | | | | | | |
| 202001 Recirculation | | | | | | 1 | | | | | | (K6.09) Knowledge of the effect that a loss of reactor water level will have on the Recirculation System. | 3.4 | 56 |
| 202002 Recirculation Flow Control | 1 | | | | | | | | | | | (K1.09) Knowledge of the physical connections and/or cause effect relationships between Recirculation Flow Control and reactor water level. | 3.1 | 57 |
| 204000 RWCU | | | | | | | | | | | | | | |
| 214000 RPIS | | | | | | | | | | | | | | |
| 215001 Traversing In-core Probe | | | | | | | | | | | | | | |
| 215002 RBM | | | | | | | | | | | | | | |
| 216000 Nuclear Boiler Inst. | | | | | | | 1 | | | | | (A1.03) Ability to predict and/or monitor changes in parameters associated with operating the Nuclear Boiler Instrumentation including surveillance testing. | 2.9 | 58 |
| 219000 RHR/LPCI: Torus/Pool Cooling Mode | | | | | | | | | | | | | | |
| 223001 Primary CTMT and Aux. | | | | | | | | | | | | | | |
| 226001 RHR/LPCI: CTMT Spray Mode | | | | | | | | | | | | | | |
| 230000 RHR/LPCI: Torus/Pool Spray Mode | | | | | | | | | | | | | | |
| 233000 Fuel Pool Cooling/Cleanup | | | | | | | | | | | | | | |
| 234000 Fuel Handling Equipment | | | | | | | | 1 | | | | (A2.03) Ability to predict the impacts of a loss of electrical power on the Fuel Handling Equipment and based on those predictions, use procedures to correct, control, or mitigate the consequences of this condition. | 2.8 | 59 |
| 239001 Main and Reheat Steam | | | | | | | | | | | 1 | (G.2.4.20) Knowledge of the operational implications of EOP warnings, cautions, and notes as related to main and reheat steam.. | 3.8 | 60 |
| 239003 MSIV Leakage Control | | | | | | | | | | | | | | |
| 241000 Reactor/Turbine Pressure Regulator | | | | | | | | | | | | | | |
| 245000 Main Turbine Gen. / Aux. | | | | | | | | | 1 | | | (A3.05) Ability to monitor operation of main turbine generator and control valve automatic operation. | 3.0 | 61 |

| Facility: | | Date of Exam: | | | | |
|-----------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|----------|---|
| Category | K/A # | Topic | RO | | SRO-Only | |
| | | | IR | # | IR | # |
| 1. Conduct of Operations | 2.1.19 | Ability to use plant computers to evaluate system or component status. | 3.9 | 66 | | |
| | 2.1.29 | Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc. | 4.1 | 67 | | |
| | 2.1.34 | Knowledge of primary and secondary plant chemistry limits. | 2.7 | 68 | | |
| | 2.1. | | | | | |
| | 2.1. | | | | | |
| | 2.1. | | | | | |
| | Subtotal | | | | | |
| 2. Equipment Control | 2.2.12 | Knowledge of surveillance procedures. | 3.7 | 69 | | |
| | 2.2.17 | Knowledge of the process for managing maintenance activities during plant operations, such as risk assessments, work prioritization, and coordination with the transmission system operator. | 2.6 | 70 | | |
| | 2.2.18 | Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc. | 2.6 | 71 | | |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | Subtotal | | | | | |
| 3. Radiation Control | 2.3.11 | Ability to control radiation releases. | 3.8 | 72 | | |
| | 2.3.15 | Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. | 2.9 | 73 | | |
| | 2.3. | | | | | |
| | 2.3. | | | | | |
| | 2.3. | | | | | |
| | Subtotal | | | | | |
| 4. Emergency Procedures / Plan | 2.4.1 | Knowledge of EOP entry conditions and immediate action steps. | 4.6 | 74 | | |
| | 2.4.5 | Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions. | 3.7 | 75 | | |
| | 2.4. | | | | | |
| | 2.4. | | | | | |
| | 2.4. | | | | | |
| | Subtotal | | | | | |
| Tier 3 Point Total | | | | 10 | | 7 |

| Tier / Group | Randomly Selected K/A | Reason for Rejection |
|--------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1/1 | 295024 EK3.08 | Containment spray is not applicable to RBS design. Re-selected 295024 EK3.05. |
| 1/1 | 600000 AA1.07 | Importance rating <2.5. Based on review of Plant Safety Analysis performance of this action is not of high significance. Re-selected 600000 AA1.09 |
| 1/1 | 295021 AK3.04 | This function is not performed in the associated abnormal operating procedure. Re-selected. 295021 AK3.05 |
| 2/1 | 203000 A1.07 | Importance rating <2.5. Based on review of Plant Safety Analysis performance of this action is not of high significance. Re-selected 203000 A1.02 |
| 2/1 | 259002 K1.07 | Rod worth minimizer is not applicable to RBS design. Re-selected 259002 K1.03. |
| 2/1 | 261000 A4.05 | RBS is equipment with a Mark III containment, this KA therefore is not applicable. Re-selected 261000 A4.09 |
| 2/1 | 400000 K5.01 | Importance rating <2.5. Based on review of Plant Safety Analysis knowledge of this item and associated actions is not of high significance. Re-selected 400000 A4.01 |
| 2/2 | 201001 K3 | K3s were oversampled while K5 and Generics had <2 topics selected. In order to balance the Tier, two K3 topics were randomly selected to be rejected in favor of a K5 and a Generic. In this case, re-selected 201001 G2.2.39. |
| 2/2 | 271000 K3 | K3s were oversampled while K5 and Generics had <2 topics selected. In order to balance the Tier, two K3 topics were randomly selected to be rejected in favor of a K5 and a Generic. In this case, 271000 K5.11 |
| 3 | G.2.2.5 | Importance rating <2.5 and is of no particular importance to the site. Re-selected G.2.2.12 |
| 1/1 | 295024 EK3.05 | Rejected due high drywell pressure not being a condition that requires RPV flooding. Reselected 295024 EK3.06 |
| 1/1 | 295038 EA2.02 | Rejected due to this not being a function performed by the Reactor Operator. Reselected 295038 EA2.03 |
| 1/2 | 295022 AK2.06 | Rejected due to low operational validity for discriminatory RO level question. Reselected 295022 AK2.04 |

| Facility: | | River Bend Station | | | | | | | | | | | Date of Exam: 11/21/2008 | | | | | | |
|-----------------------------------------------|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------------------|----|----|-------|---|---|---|
| Tier | Group | RO K/A Category Points | | | | | | | | | | | SRO-Only Points | | | | | | |
| | | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G * | Total | A2 | G* | Total | | | |
| 1. Emergency & Abnormal Plant Evolutions | 1 | | | | | | | | | | | | | 20 | 2 | 5 | 7 | | |
| | 2 | | | | | N/A | | | | | | N/A | 7 | 0 | 3 | 3 | | | |
| | Tier Totals | | | | | | | | | | | | 27 | 2 | 8 | 10 | | | |
| 2. Plant Systems | 1 | | | | | | | | | | | | | 26 | 3 | 2 | 5 | | |
| | 2 | | | | | | | | | | | | | 12 | 0 | 1 | 2 | | |
| | Tier Totals | | | | | | | | | | | | | 38 | 4 | 4 | 8 | | |
| 3. Generic Knowledge and Abilities Categories | | | | | | 1 | 2 | 3 | 4 | | | | | 10 | 1 | 2 | 3 | 4 | 7 |
| | | | | | | | | | | | | | | | 2 | 1 | 2 | 2 | |

- Note:
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
 2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems/evolutions that are not included on the outline should be added. Refer to Section D.1.b of ES-401 for guidance regarding the elimination of inappropriate K/A statements.
 4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
 5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
 6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
 - 7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. Refer to Section D.1.b of ES-401 for the applicable K/As.
 8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above; if fuel handling equipment is sampled in other than Category A2 or G* on the SRO-only exam, enter it on the left side of Column A2 for Tier 2, Group 2 (Note #1 does not apply). Use duplicate pages for RO and SRO-only exams.
 9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

| ES-401 | | BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (SRO) | | | | | | Form ES-401-1 | |
|--------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------|--------|--------|--------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------|
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | | | | | | | | | |
| 295003 Partial or Complete Loss of AC / 6 | | | | | | | | | |
| 295004 Partial or Total Loss of DC Pwr / 6 | | | | | | | | | |
| 295005 Main Turbine Generator Trip / 3 | | | | | | 1 | (G.2.4.6) Knowledge of EOP mitigation strategies as they relate to main turbine and generator trips. | 4.7 | 76 |
| 295006 SCRAM / 1 | | | | | 1 | | (AA2.04) Ability to determine and/or interpret reactor pressure as it applies to a SCRAM condition. | 4.1 | 77 |
| 295016 Control Room Abandonment / 7 | | | | | | | | | |
| 295018 Partial or Total Loss of CCW / 8 | | | | | | | | | |
| 295019 Partial or Total Loss of Inst. Air / 8 | | | | | 1 | | (AA2.01) Ability to determine and/or interpret the instrument air system pressure as it applies to a partial or total loss of instrument air. | 3.6 | 78 |
| 295021 Loss of Shutdown Cooling / 4 | | | | | | | | | |
| 295023 Refueling Acc / 8 | | | | | | | | | |
| 295024 High Drywell Pressure / 5 | | | | | | | | | |
| 295025 High Reactor Pressure / 3 | | | | | | 1 | (G.2.2.44) Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions while experiencing a high reactor pressure condition.. | 4.4 | 79 |
| 295026 Suppression Pool High Water Temp. / 5 | | | | | | 1 | (G.2.1.27) Knowledge of system purpose and function regarding systems used to control suppression pool water temperature | 4.0 | 80 |
| 295027 High Containment Temperature / 5 | | | | | | | | | |
| 295028 High Drywell Temperature / 5 | | | | | | 1 | (G.2.4.50) Ability to verify alarm setpoints and operate controls identified in the alarm response manual regarding High Drywell Temperature. | 4.0 | 81 |
| 295030 Low Suppression Pool Wtr Lvl / 5 | | | | | | | | | |
| 295031 Reactor Low Water Level / 2 | | | | | | | | | |
| 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1 | | | | | | 1 | (G.2.4.35) Knowledge of local auxiliary operator tasks during an emergency and the resultant operator effects during an ATWS condition. | 4.0 | 82 |
| 295038 High Off-site Release Rate / 9 | | | | | | | | | |
| 600000 Plant Fire On Site / 8 | | | | | | | | | |
| 700000 Generator Voltage and Electric Grid Disturbances / 6 | | | | | | | | | |
| K/A Category Totals: | | | | | 2 | 5 | Group Point Total: | | 20/7 |

| ES-401 | BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (SRO) | | | | | | | Form ES-401-1 | |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------|--------|--------|--------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----|
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
| 295002 Loss of Main Condenser Vac / 3 | | | | | | | | | |
| 295007 High Reactor Pressure / 3 | | | | | | | | | |
| 295008 High Reactor Water Level / 2 | | | | | | | | | |
| 295009 Low Reactor Water Level / 2 | | | | | | | | | |
| 295010 High Drywell Pressure / 5 | | | | | | | | | |
| 295011 High Containment Temp / 5 | | | | | | 1 | (G.2.2.38) Knowledge of conditions and limitations in the facility license regarding High Containment Temperature. | 4.5 | 83 |
| 295012 High Drywell Temperature / 5 | | | | | | | | | |
| 295013 High Suppression Pool Temp. / 5 | | | | | | | | | |
| 295014 Inadvertent Reactivity Addition / 1 | | | | | | | | | |
| 295015 Incomplete SCRAM / 1 | | | | | | | | | |
| 295017 High Off-site Release Rate / 9 | | | | | | | | | |
| 295020 Inadvertent Cont. Isolation / 5 & 7 | | | | | | | | | |
| 295022 Loss of CRD Pumps / 1 | | | | | | 1 | (G.2.4.6) Knowledge of EOP mitigation strategies regarding the loss of CRD pumps | 4.7 | 84 |
| 295029 High Suppression Pool Wtr Lvl / 5 | | | | | | | | | |
| 295032 High Secondary Containment Area Temperature / 5 | | | | | | | | | |
| 295033 High Secondary Containment Area Radiation Levels / 9 | | | | | | | | | |
| 295034 Secondary Containment Ventilation High Radiation / 9 | | | | | | | | | |
| 295035 Secondary Containment High Differential Pressure / 5 | | | | | | | | | |
| 295036 Secondary Containment High Sump/Area Water Level / 5 | | | | | | 1 | (G.2.4.9) Knowledge of low power/shutdown implications in accident mitigation strategies with respect to secondary containment high sump/area water level. | 4.2 | 85 |
| 500000 High CTMT Hydrogen Conc. / 5 | | | | | | | | | |
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|----------------------------|--|--|--|--|---|---|--------------------|-----|
| K/A Category Point Totals: | | | | | 0 | 3 | Group Point Total: | 7/3 |
|----------------------------|--|--|--|--|---|---|--------------------|-----|

| ES-401 | BWR Examination Outline Plant Systems - Tier 2/Group 1 (SRO) | | | | | | | | | | | Form ES-401-1 | | |
|------------------------------------------|-----------------------------------------------------------------|--------|--------|--------|--------|--------|--------|----|--------|--------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|
| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A2 | A 3 | A 4 | G | K/A Topic(s) | IR | # |
| 203000 RHR/LPCI: Injection Mode | | | | | | | | | | | | | | |
| 205000 Shutdown Cooling | | | | | | | | | | | | | | |
| 206000 HPCI | | | | | | | | | | | | | | |
| 207000 Isolation (Emergency) Condenser | | | | | | | | | | | | | | |
| 209001 LPCS | | | | | | | | 1 | | | | (A2.10) Ability to predict the impact of high suppression pool temperature on LPCS and based on those predictions, use procedures to correct, control, or mitigate the consequences of this condition. | 3.4 | 86 |
| 209002 HPCS | | | | | | | | | | | 1 | (G.2.4.49) Ability to perform without reference to procedures those actions that require immediate operation of system components and controls related to HPCS. | 4.4 | 87 |
| 211000 SLC | | | | | | | | | | | | | | |
| 212000 RPS | | | | | | | | | | | | | | |
| 215003 IRM | | | | | | | | | | | | | | |
| 215004 Source Range Monitor | | | | | | | | | | | | | | |
| 215005 APRM / LPRM | | | | | | | | | | | | | | |
| 217000 RCIC | | | | | | | | | | | | | | |
| 218000 ADS | | | | | | | | | | | | | | |
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | | | | | 1 | | | | (A2.10) Ability to predict the impact of loss of coolant accidents on NSSSS and based on those predictions use procedures to correct, control, or mitigate the consequence of this condition. | 4.2 | 88 |
| 239002 SRVs | | | | | | | | | | | | | | |
| 259002 Reactor Water Level Control | | | | | | | | | | | 1 | (G.2.4.1) Knowledge of EOP entry conditions and immediate action steps regarding reactor water level control | 4.8 | 89 |
| 261000 SGTS | | | | | | | | | | | | | | |
| 262001 AC Electrical Distribution | | | | | | | | | | | | | | |
| 262002 UPS (AC/DC) | | | | | | | | | | | | | | |
| 263000 DC Electrical Distribution | | | | | | | | | | | | | | |

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|--------------------------------|--|--|--|--|--|--|--|---|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| 264000 EDGs | | | | | | | | | | | | | | |
| 300000 Instrument Air | | | | | | | | | | | | | | |
| 400000 Component Cooling Water | | | | | | | | 1 | | | | (A2.01) Ability to predict the impact of a loss of CCW pump and based on those predictions, use procedures to correct, control, or mitigate the consequences of this condition. | 3.4 | 90 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| K/A Category Point Totals: | | | | | | | | 3 | | | | Group Point Total: | | 26/5 |

| ES-401 | BWR Examination Outline Plant Systems - Tier 2/Group 2 (SRO) | | | | | | | | | | | | Form 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 | K/A Topic(s) | IR | # |
| 201001 CRD Hydraulic | | | | | | | | | | | 1 | (G.2.4.11) Knowledge of abnormal condition procedures associated with CRD hydraulics. | 4.2 | 91 |
| 201002 RMCS | | | | | | | | | | | | | | |
| 201003 Control Rod and Drive Mechanism | | | | | | | | | | | | | | |
| 201004 RSCS | | | | | | | | | | | | | | |
| 201005 RCIS | | | | | | | | | | | | | | |
| 201006 RWM | | | | | | | | | | | | | | |
| 202001 Recirculation | | | | | | | | | | | | | | |
| 202002 Recirculation Flow Control | | | | | | | | | | | | | | |
| 204000 RWCU | | | | | | | | | | | | | | |
| 214000 RPIS | | | | | | | | | | | | | | |
| 215001 Traversing In-core Probe | | | | | | | | | | | | | | |
| 215002 RBM | | | | | | | | | | | | | | |
| 216000 Nuclear Boiler Inst. | | | | | | | | | | | | | | |
| 219000 RHR/LPCI: Torus/Pool Cooling Mode | | | | | | | | 1 | | | | (A2.10) Ability to predict the impact of nuclear boiler instrument failures on RHR pool cooling mode and based on those predictions, use procedures to correct, control or mitigate the consequences of this condition. | 3.2 | 92 |
| 223001 Primary CTMT and Aux. | | | | | | | | | | | | | | |
| 226001 RHR/LPCI: CTMT Spray Mode | | | | | | | | | | | | | | |
| 230000 RHR/LPCI: Torus/Pool Spray Mode | | | | | | | | | | | | | | |
| 233000 Fuel Pool Cooling/Cleanup | | | | | | | | | | | | | | |
| 234000 Fuel Handling Equipment | | | | | | | | | | | | | | |
| 239001 Main and Reheat Steam | | | | | | | | | | | | | | |
| 239003 MSIV Leakage Control | | | | | | | | | | | | | | |
| 241000 Reactor/Turbine Pressure Regulator | | | | | | | | | | | | | | |
| 245000 Main Turbine Gen. / Aux. | | | | | | | | | | | | | | |
| 256000 Reactor Condensate | | | | | | | | | | | 1 | (G2.4.31) Knowledge of the alarms, indications, or response procedures associated with reactor condensate. | 4.1 | 93 |
| 259001 Reactor Feedwater | | | | | | | | | | | | | | |
| 268000 Radwaste | | | | | | | | | | | | | | |
| 271000 Offgas | | | | | | | | | | | | | | |
| 272000 Radiation Monitoring | | | | | | | | | | | | | | |
| 286000 Fire Protection | | | | | | | | | | | | | | |
| 288000 Plant Ventilation | | | | | | | | | | | | | | |
| 290001 Secondary CTMT | | | | | | | | | | | | | | |
| 290003 Control Room HVAC | | | | | | | | | | | | | | |

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|---------------------------------|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|---|--------------------|------|
| 290002 Reactor Vessel Internals | | | | | | | | | | | | | | | | | | | | | | | |
| K/A Category Point Totals: | | | | | | | | 1 | | | | | | | | | | | | | 2 | Group Point Total: | 12/3 |

| Facility: | | Date of Exam: | | | | |
|-----------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------|------------|----------|
| Category | K/A # | Topic | RO | | SRO-Only | |
| | | | IR | # | IR | # |
| 1. Conduct of Operations | 2.1.23 | Ability to perform specific system and integrated plant procedures during all modes of plant operation. | | | 4.4 | 94 |
| | 2.1.42 | Knowledge of new and spent fuel movement procedures. | | | 3.4 | 95 |
| | 2.1. | | | | | |
| | 2.1. | | | | | |
| | 2.1. | | | | | |
| | 2.1. | | | | | |
| | Subtotal | | | | | |
| 2. Equipment Control | 2.2.43 | Knowledge of the process used to track inoperable alarms. | | | 3.3 | 96 |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | 2.2. | | | | | |
| | Subtotal | | | | | |
| 3. Radiation Control | 2.3.6 | Ability to approve release permits. | | | 3.8 | 97 |
| | 2.3.15 | Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. | | | 3.1 | 98 |
| | 2.3. | | | | | |
| | 2.3. | | | | | |
| | 2.3. | | | | | |
| | 2.3. | | | | | |
| | Subtotal | | | | | |
| 4. Emergency Procedures / Plan | 2.4.28 | Knowledge of procedures relating to a security event (non-safeguards information). | | | 4.1 | 99 |
| | 2.4.49 | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. | | | 4.4 | 100 |
| | 2.4. | | | | | |
| | 2.4. | | | | | |
| | 2.4. | | | | | |
| | Subtotal | | | | | |
| Tier 3 Point Total | | | | 10 | | 7 |

| Facility: <u>River Bend Station</u> | | Date of Examination: <u>12/1/2008</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------|
| Examination Level: RO <input checked="" type="checkbox"/> SRO <input type="checkbox"/> | | Operating Test Number: 2008-NRC |
| Administrative Topic (see Note) | Type Code* | Describe activity to be performed |
| Conduct of Operations | R, N | Determine the amount of decay heat in the core. KA 2.1.20 |
| Conduct of Operations | R, N | Determine when hot shutdown boron weight has been injected into the core. KA 2.1.25 |
| Equipment Control | R, M | Determine effect of fuse removal. KA 2.2.15 |
| Radiation Control | Field,N | Demonstrate ability to use a frisker. KA 2.3.5 |
| Emergency Procedures/Plan | | NA |
| NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required. | | |
| * Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected) | | |

| Facility: <u>River Bend Station</u> | | Date of Examination: <u>12/1/2008</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|
| Examination Level: RO <input type="checkbox"/> SRO <input checked="" type="checkbox"/> | | Operating Test Number: 2008-NRC |
| Administrative Topic (see Note) | Type Code* | Describe activity to be performed |
| Conduct of Operations | R, M | Determine alternate decay heat removal method. KA 2.1.25 |
| Conduct of Operations | R, N | Determine plant safety index during shutdown conditions (SOPP). KA 2.1.23 |
| Equipment Control | R, N | Determine TS implications of an I&C STP KA 2.2.40 |
| Radiation Control | Field, N | Demonstrate ability to use a frisker. KA 2.3.5 |
| Emergency Procedures/Plan | R, D | Determine Protective Action Recommendations. KA 2.4.44 |
| NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required. | | |
| * Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected) | | |

Control Room/In-Plant Systems Outline [Form ES-301-2](#)

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------|
| Facility: <u> River Bend Station </u> | Date of Examination: <u> 12/1/2008 </u> | |
| Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> | Operating Test No.: <u> 1 </u> | |
| Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF) | | |
| System / JPM Title | Type Code* | Safety Function |
| a. Restart Recirculation Pump A in FAST speed following a trip (with low suction temperature alarm in before start | A, S, D | 1 |
| b. Secure HPCS after automatic initiation (with a failure of the minimum flow valve to open). | A, S, D, EN | 2 |
| c. Prevent injection of Low Pressure ECCS systems during an ATWS using Enclosure 27. | C, D, L, E, EN | 4 |
| d. Rotate divisions of HVK (with a failure of the oncoming division) | A, S, N, EN | 9 |
| e. Perform Main Turbine Bypass Valve monthly surveillance | S,D | 3 |
| f. Reset APRM power supplies following a loss of RPS Bus A | C, D, E | 7 |
| g. Respond to SBO by Shedding DC loads. | C, D, L, E | 6 |
| h. Defeat Primary Containment Vent and Purge isolation interlocks using Enclosure 25. | C, D, E, EN | 5 |
| In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U) | | |
| i. AOP-50 Att 6, Align IAS Diesel Air Compressor Backup to SVV Header with failure to pressurize header | A, E, N, R | 3 |
| j. Perform local manual start of the Div 3 DG per SOP-0052 | D, EN | 6 |
| k. Perform Emergency manual start of FPW-P1A | A, D, E, | 8 |
| @ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room. | | |
| * Type Codes | Criteria for RO / SRO-I / SRO-U | |
| (A)lternate path | 4-6 / 4-6 / 2-3 | |
| (C)ontrol room | | |
| (D)irect from bank | ≤ 9 / ≤ 8 / ≤ 4 | |
| (E)mergency or abnormal in-plant | ≥ 1 / ≥ 1 / ≥ 1 | |
| (EN)gineered safety feature | - / - / ≥1 (control room system) | |
| (L)ow-Power / Shutdown | ≥ 1 / ≥ 1 / ≥ 1 | |
| (N)ew or (M)odified from bank including 1(A) | ≥ 2 / ≥ 2 / ≥ 1 | |
| (P)revious 2 exams | ≤ 3 / ≤ 3 / ≤ 2 (randomly selected) | |
| (R)CA | ≥ 1 / ≥ 1 / ≥ 1 | |
| (S)imulator | | |

Control Room/In-Plant Systems Outline [Form ES-301-2](#)

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------|
| Facility: <u> River Bend Station </u> Exam Level: RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/> | Date of Examination: <u> 12/1/2008 </u> Operating Test No.: <u> 1 </u> | |
| Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF) | | |
| System / JPM Title | Type Code* | Safety Function |
| a. Restart Recirculation Pump A in FAST speed following a trip (with low suction temperature alarm in before start | A, S, D | 1 |
| b. Secure HPCS after automatic initiation (with a failure of the minimum flow valve to open). | A, S, D, EN | 2 |
| c. Prevent injection of Low Pressure ECCS systems during an ATWS using Enclosure 27. | C, D, L, E, EN | 4 |
| d. Rotate divisions of HVK (with a failure of the oncoming division) | A, S, N, EN | 9 |
| e. Perform Main Turbine Bypass Valve monthly surveillance | S,D | 3 |
| f. Reset APRM power supplies following a loss of RPS Bus A | C, D, E | 7 |
| g. Respond to SBO by shedding DC loads | C, D, L, E | 6 |
| h | | |
| In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U) | | |
| i. AOP-50 Att 6, Align IAS Diesel Air Compressor Backup to SVV Header with failure to pressurize header | A, E, N, R | 3 |
| j. Perform local manual start of the Div 3 DG per SOP-0052 | D, EN | 6 |
| k. Perform Emergency manual start of FPW-P1A | A, D, E, | 8 |
| @ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room. | | |
| * Type Codes | Criteria for RO / SRO-I / SRO-U | |
| (A)lternate path | 4-6 / 4-6 / 2-3 | |
| (C)ontrol room | | |
| (D)irect from bank | ≤ 9 / ≤ 8 / ≤ 4 | |
| (E)mergency or abnormal in-plant | ≥ 1 / ≥ 1 / ≥ 1 | |
| (EN)gineered safety feature | - / - / ≥1 (control room system) | |
| (L)ow-Power / Shutdown | ≥ 1 / ≥ 1 / ≥ 1 | |
| (N)ew or (M)odified from bank including 1(A) | ≥ 2 / ≥ 2 / ≥ 1 | |
| (P)revious 2 exams | ≤ 3 / ≤ 3 / ≤ 2 (randomly selected) | |
| (R)CA | ≥ 1 / ≥ 1 / ≥ 1 | |
| (S)imulator | | |

Control Room/In-Plant Systems Outline [Form ES-301-2](#)

| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------|
| Facility: <u> River Bend Station </u> | | Date of Examination: <u> 12/1/2008 </u> |
| Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/> | | Operating Test No.: <u> 1 </u> |
| Control Room Systems [@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF) | | |
| System / JPM Title | Type Code* | Safety Function |
| a. Restart Recirculation Pump A in FAST speed following a trip (with low suction temperature alarm in before start | A, S, D | 1 |
| b. Secure HPCS after automatic initiation (with a failure of the minimum flow valve to open). | A, S, D, EN | 2 |
| c. Prevent injection of Low Pressure ECCS systems during an ATWS using Enclosure 27. | C, D, L, E, EN | 4 |
| d. | | |
| e. | | |
| f. | | |
| g. | | |
| h. | | |
| In-Plant Systems [@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U) | | |
| i. AOP-50 Att 6, Align IAS Diesel Air Compressor Backup to SVV Header with failure to pressurize header | A, E, N, R | 3 |
| j. Perform local manual start of the Div 3 DG per SOP-0052 | D, EN | 6 |
| k. | | |
| <p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p> | | |
| * Type Codes | Criteria for RO / SRO-I / SRO-U | |
| (A)lternate path | 4-6 / 4-6 / 2-3 | |
| (C)ontrol room | | |
| (D)irect from bank | ≤ 9 / ≤ 8 / ≤ 4 | |
| (E)mergency or abnormal in-plant | ≥ 1 / ≥ 1 / ≥ 1 | |
| (EN)gineered safety feature | - / - / ≥ 1 (control room system) | |
| (L)ow-Power / Shutdown | ≥ 1 / ≥ 1 / ≥ 1 | |
| (N)ew or (M)odified from bank including 1(A) | ≥ 2 / ≥ 2 / ≥ 1 | |
| (P)revious 2 exams | ≤ 3 / ≤ 3 / ≤ 2 (randomly selected) | |
| (R)CA | ≥ 1 / ≥ 1 / ≥ 1 | |
| (S)imulator | | |

| Facility: | | River Bend Station | | Date of Exam: | | 12/1/2008 | | Operating Test No.: | | Team A | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|-------------|---------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-----------------------|----------------------------------------|---|---|
| A P P L I C A N T | E V E N T T Y P E | Scenarios | | | | | | | | | | | T O T A L | M I N I M U M (*) | | |
| | | 1 | | | 2 | | | 3 | | | 4 | | | | | |
| | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | | | |
| | | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | | B O P | R | I |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R1 Ellis | RX | | 4 | | | | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | | | 1 | | | | | | | 1 | 1 | 1 | 1 |
| | I/C | | 2,3,7 | | | 3,4,7,8 | | | | | | | 7 | 4 | 4 | 2 |
| | MAJ | | 5 | | | 6 | | | | | | | 2 | 2 | 2 | 1 |
| | TS | | NA | | | NA | | | | | | | NA | 0 | 2 | 2 |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R2 Blanchard | RX | | | | 2 | | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | 1 | | 1 | | | | | | | 2 | 1 | 1 | 1 |
| | I/C | | | 2,3,6,7 | | 4,5 | | | | | | | 6 | 4 | 4 | 2 |
| | MAJ | | | 5 | | 6 | | | | | | | 2 | 2 | 2 | 1 |
| | TS | | | NA | | NA | | | | | | | NA | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> <input checked="" type="checkbox"/> U1 Polan | RX | | | | | | | | | | | | | 1 | 1 | 0 |
| | NOR | 1 | | | 1 | | | | | | | | 2 | 1 | 1 | 1 |
| | I/C | 2,3,6,7 | | | 3,4,5,7,8 | | | | | | | | 9 | 4 | 4 | 2 |
| | MAJ | 5 | | | 6 | | | | | | | | 2 | 2 | 2 | 1 |
| | TS | 2 | | | 3,4 | | | | | | | | 3 | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> <input type="checkbox"/> | RX | | | | | | | | | | | | | 1 | 1 | 0 |
| | NOR | | | | | | | | | | | | | 1 | 1 | 1 |
| | I/C | | | | | | | | | | | | | 4 | 4 | 2 |
| | MAJ | | | | | | | | | | | | | 2 | 2 | 1 |
| | TS | | | | | | | | | | | | | 0 | 2 | 2 |

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

| Facility: | | River Bend Station | | Date of Exam: | | 12/1/2008 | | Operating Test No.: | | Team B | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|-------------|---------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-----------------------|----------------------------------------|---|---|
| A P P L I C A N T | E V E N T T Y P E | Scenarios | | | | | | | | | | | T O T A L | M I N I M U M (*) | | |
| | | 1 | | | 2 | | | 3 | | | 4 | | | | | |
| | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | | | |
| | | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | | B O P | R | I |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/> I1 Hall | RX | | 4 | | | | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | | | | 1 | | | | | | 1 | 1 | 1 | 1 |
| | I/C | | 2,3,7 | | | | 2,3,4,5,6,9 | | | | | | 9 | 4 | 4 | 2 |
| | MAJ | | 5 | | | | 8 | | | | | | 2 | 2 | 2 | 1 |
| | TS | | NA | | | | 2,3 | | | | | | 2 | 0 | 2 | 2 |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R3 Coykendal | RX | | | | 2 | | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | 1 | | 1 | | | 1 | | | | 3 | 1 | 1 | 1 |
| | I/C | | | 2,3,6,7 | | 4,5 | | | 4,5,6,9 | | | | 10 | 4 | 4 | 2 |
| | MAJ | | | 5 | | 6 | | | 8 | | | | 3 | 2 | 2 | 1 |
| | TS | | | NA | | NA | | | NA | | | | NA | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/> U2 Reynolds | RX | | | | | | | | | | | | 2 | 1 | 1 | 0 |
| | NOR | 1 | | | | 1 | | | | | | | 2 | 1 | 1 | 1 |
| | I/C | 2,3,6,7 | | | | 3,4,5,7,8 | | | | | | | 9 | 4 | 4 | 2 |
| | MAJ | 5 | | | | 6 | | | | | | | 2 | 2 | 2 | 1 |
| | TS | 2 | | | | 3,4 | | | | | | | 3 | 0 | 2 | 2 |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> SRO-U <input type="checkbox"/> R4 Toups | RX | | | | | | | 7 | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | | | | 1 | | | | | | 1 | 1 | 1 | 1 |
| | I/C | | | | | | 3,4,7,8 | | 2,3,6 | | | | 7 | 4 | 4 | 2 |
| | MAJ | | | | | | 6 | | 8 | | | | 2 | 2 | 2 | 1 |
| | TS | | | | | | NA | | NA | | | | NA | 0 | 2 | 2 |

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

| Facility: | | River Bend Station | | Date of Exam: | | 12/1/2008 | | Operating Test No.: | | Team C | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|-------------|---------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-------------|-----------------------|----------------------------------------|---|---|
| A P P L I C A N T | E V E N T T Y P E | Scenarios | | | | | | | | | | | | T O T A L | M I N I M U M (*) | | |
| | | 1 | | | 2 | | | 3 | | | 4 | | | | | | |
| | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | | | | |
| | | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | B O P | | R | I | U |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R5 McCoy | RX | | 4 | | | | | | | | | | 1 | 1 | 1 | 0 | |
| | NOR | | | | | 1 | | | | | | | 1 | 1 | 1 | 1 | |
| | I/C | | 2,3,7 | | | 3,4,7,8 | | | | | | | 7 | 4 | 4 | 2 | |
| | MAJ | | 5 | | | 6 | | | | | | | 2 | 2 | 2 | 1 | |
| | TS | | NA | | | NA | | | | | | | NA | 0 | 2 | 2 | |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R6 Bibb | RX | | | | 2 | | | | | | | | 1 | 1 | 1 | 0 | |
| | NOR | | | 1 | | 1 | | | | | | | 2 | 1 | 1 | 1 | |
| | I/C | | | 2,3,6,7 | | 4,5 | | | | | | | 6 | 4 | 4 | 2 | |
| | MAJ | | | 5 | | 6 | | | | | | | 2 | 2 | 2 | 1 | |
| | TS | | | NA | | NA | | | | | | | NA | 0 | 2 | 2 | |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> <input checked="" type="checkbox"/> U3 Carter | RX | | | | | | | | | | | | 0 | 1 | 1 | 0 | |
| | NOR | 1 | | | 1 | | | | | | | | 2 | 1 | 1 | 1 | |
| | I/C | 2,3,6,7 | | | 3,4,5,7,8 | | | | | | | | 9 | 4 | 4 | 2 | |
| | MAJ | 5 | | | 6 | | | | | | | | 2 | 2 | 2 | 1 | |
| | TS | 2 | | | 3,4 | | | | | | | | 3 | 0 | 2 | 2 | |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> <input type="checkbox"/> | RX | | | | | | | | | | | | | 1 | 1 | 0 | |
| | NOR | | | | | | | | | | | | | 1 | 1 | 1 | |
| | I/C | | | | | | | | | | | | | 4 | 4 | 2 | |
| | MAJ | | | | | | | | | | | | | 2 | 2 | 1 | |
| | TS | | | | | | | | | | | | | 0 | 2 | 2 | |

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

| Facility: | | River Bend Station | | Date of Exam: | | 12/1/2008 | | Operating Test No.: | | Team D | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------|-------------|---------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|-------------|-----------------------|----------------------------------------|---|---|
| A P P L I C A N T | E V E N T T Y P E | Scenarios | | | | | | | | | | | T O T A L | M I N I M U M (*) | | |
| | | 1 | | | 2 | | | 3 | | | 4 | | | | | |
| | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | C R E W P O S I T I O N | | | | | |
| | | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | B O P | S R O | A T C | | B O P | R | I |
| RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> R7 Linton | RX | | | | | | | 7 | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | 1 | | | 1 | | | | | | 2 | 1 | 1 | 1 |
| | I/C | | | 2,3,6,7 | | | 3,4,7,8 | | | 2,3,6 | | | 11 | 4 | 4 | 2 |
| | MAJ | | | 5 | | | 6 | | | 8 | | | 3 | 2 | 2 | 1 |
| | TS | | | NA | | | NA | | | NA | | | NA | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/> I2 Cox | RX | | | | | 2 | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | 1 | | | | 1 | | | 1 | | | | 3 | 1 | 1 | 1 |
| | I/C | 2,3,6,7 | | | | 4,5 | | | 2,3,4,5,6,9 | | | | 12 | 4 | 4 | 2 |
| | MAJ | 5 | | | | 6 | | | 8 | | | | 3 | 2 | 2 | 1 |
| | TS | 2 | | | | | | | 2,3 | | | | 3 | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input checked="" type="checkbox"/> SRO-U <input type="checkbox"/> I3 Umshler | RX | | 4 | | | | | | | | | | 1 | 1 | 1 | 0 |
| | NOR | | | | 1 | | | | | 1 | | | 2 | 1 | 1 | 1 |
| | I/C | | 2,3,7 | | 3,4,5,7,8 | | | | | 4,5,6,9 | | | 12 | 4 | 4 | 2 |
| | MAJ | | 5 | | 6 | | | | | 8 | | | 3 | 2 | 2 | 1 |
| | TS | | | | 3,4 | | | | | | | | 2 | 0 | 2 | 2 |
| RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/> | RX | | | | | | | | | | | | | 1 | 1 | 0 |
| | NOR | | | | | | | | | | | | | 1 | 1 | 1 |
| | I/C | | | | | | | | | | | | | 4 | 4 | 2 |
| | MAJ | | | | | | | | | | | | | 2 | 2 | 1 |
| | TS | | | | | | | | | | | | | 0 | 2 | 2 |

Instructions:

- Check the applicant level and enter the operating test number and Form ES-D-1 event numbers for each event type; TS are not applicable for RO applicants. ROs must serve in both the "at-the-controls (ATC)" and "balance-of-plant (BOP)" positions; Instant SROs must serve in both the SRO and the ATC positions, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position. If an Instant SRO *additionally* serves in the BOP position, one I/C malfunction can be credited toward the two I/C malfunctions required for the ATC position.
- Reactivity manipulations may be conducted under normal or *controlled* abnormal conditions (refer to Section D.5.d) but must be significant per Section C.2.a of Appendix D. (*) Reactivity and normal evolutions may be replaced with additional instrument or component malfunctions on a 1-for-1 basis.
- Whenever practical, both instrument and component malfunctions should be included; only those that require verifiable actions that provide insight to the applicant's competence count toward the minimum requirements specified for the applicant's license level in the right-hand columns.

| Facility: <u> River Bend Station </u> | | Scenario No.: <u> 1 </u> | | Op-Test No.: <u> 1 </u> | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--|
| Examiners: <u> TBD </u> | | Operators: <u> SRO </u> | | | |
| | | <u> ATC </u> | | | |
| | | <u> BOP </u> | | | |
| Initial Conditions: Reactor power 100% | | | | | |
| Turnover: TS LCO 3.0.3 is in effect from Tech Spec 3.5.1 Condition H. Required to restore once ECCS system to service or be in Mode 3 in 6 hours. Div 2 RHR line fill tripped 1 hour ago while LPCS pump breaker was out of service for breaker inspection. LPCS pump breaker has been returned to cubicle and requires a breaker functional check to declare operable. Perform breaker functional to exit LCO 3.0.3 | | | | | |
| Event No. | Malf. No. | Event Type* | Event Description | | |
| 1 | | N (BOP,SRO) | Perform breaker functional on LPCS in accordance with SOP-0032 Section 4.4 | | |
| 2 | B21002B | I (ALL) | Level transmitter B21-ESN080B fails high. | | |
| 3 | MSS005A | C (ALL) | B21-RVF051D fails open | | |
| 4 | | R (ATC) | Lower reactor power to 90% with recirculation flow control. | | |
| 5 | MSS001 | M (ALL) | Steam leak in the drywell following SRV closure following removal of fuses per AOP-0035. Steam leak progresses into steamline rupture. | | |
| 6 | HPCS002 | C (BOP, SRO) | E22-MOVF004 fails to open on HPCS initiation signal. | | |
| 7 | ED003H | C (ALL) | Loss of ENS-SWG1A due to bus fault (after EOP entry). | | |
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| | | | | | |
| | | | | | |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor | | | | | |

| Facility: <u>River Bend Station</u> | | Scenario No.: <u>2</u> | Op-Test No.: <u>2</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------|--------------------------------------------------------------------|
| Examiners: <u>TBD</u> | | Operators: <u>SRO</u> | |
| | | <u>ATC</u> | |
| | | <u>BOP</u> | |
| Initial Conditions: <u>Reactor power 75%.</u> | | | |
| Turnover: <u>Outboard seal replacement is complete on FWS-P1A. Start FWS-P1A then commence power ascension to 85% at 2% per hour using reactor recirculation flow. CNM-P1B is tagged out. Expected back this shift. NNS-SWG1C aligned to NNS-SWG1A due to maintenance on NNS-ACB24. CNM-P1B is tagged out for motor inspection.</u> | | | |
| Event No. | Malf. No. | Event Type* | Event Description |
| 1 | | N (ALL) | Start FWS-P1A per SOP-0009. |
| 2 | | R (ATC) | Raise power with reactor recirculation flow. |
| 3 | RMS014A | I (BOP,SRO) | RMS-RE14A upscale failure. |
| 4 | CRD001B | C (ALL) | CRD Pump B trips |
| 5 | FWS017D | I (ATC,SRO) | Steam line flow input to Feedwater Level Control Systems fails low |
| 6 | ED001 | C (ALL) | Loss of offsite power. |
| 7 | RCIC003A | I (BOP, SRO) | RCIC controller failure (After EOP entry) |
| 8 | HPCS003 | C (BOP, SRO) | HPCS DG fails to start on initiation signal |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor | | | |

Facility: River Bend Station Scenario No.: 3 Op-Test No.: 3

Examiners: TBD Operators: CRS – Control Room Supervisor
ATC – At The Controls Operator
UO – Unit Operator (BOP)

Initial Conditions: Reactor power 100%.

Turnover: Div 1 DG monthly run is in progress. Diesel has been running at full load for > 1 hour. After turnover, unload and secure diesel in accordance with STP-309-0201 (currently at Step 7.3.2.) CCS-P1A tagged out for breaker inspection. Div 1 DG is inoperable.

| Event No. | Malf. No. | Event Type* | Event Description |
|--------------------------------------------------------------|--------------------|-----------------|--------------------------------------------------------------|
| 1 | | N (BOP,SRO) | Unload and secure Div 1 DG. |
| 2 | NMS011F | I (ATC, SRO) | APRM 'F' upscale failure |
| 3 | CRDM XXXX | C (ATC,SRO) | Single rod scram on APRM failure. |
| 4 | MSS MOV111 | C (SRO,BOP) | MSS-MOV111 fails shut |
| 5 | MSS MOV112 | C (SRO, BOP) | MSS-MOV112 thermals trip |
| 6 | TMS003 | C (ALL) | Turbine High Vibration |
| 7 | | R (ATC) | Insert Reactor Scram |
| 8 | RPS001A | M (ALL) | Anticipated Transient Without Scram (failure to de-energize) |
| 9 | SLC001A SLC002B | C (BOP,SRO) | SLC pumps both fail |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor | | | |

Facility: River Bend Station Scenario No.: Back-up Op-Test No.: Back-up

Examiners: TBD Operators: SRO
_____ ATC
_____ BOP

Initial Conditions: Reactor power 100%. RHR A is in suppression pool cooling line-up and Containment Low Volume Purge is in service. Both to support upcoming RCIC testing. SOP-0035 completed up through Step 4.2.4. STP-057-0700 is in progress.

Turnover: Run RCIC per SOP-0035.

| Event No. | Malf. No. | Event Type* | Event Description |
|--------------------------------------------------------------|--------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1 | | N (SRO, BOP) | Start RCIC per SOP-0035 |
| 2 | B21005 | I (BOP,SRO) | B21-PTN078A failure. (TS) |
| 3 | FWS006C | C (ATC,SRO) | FWR-FV2C fails open. |
| 4 | ED004A | C (BOP,SRO) | NJS-SWG1K Bus Fault (TS) |
| 5 | RCIC004 | M (ALL) | RCIC Steam Leak in the RCIC Room |
| 6 | | R (ATC) | Insert a manual reactor scram in accordance with EOP-0003 before RCIC room temperature reaches Maximum Safe Operating Temperature |
| 7 | RPS001B | C (ATC) | RPS fails to insert control rods. Rods will be inserted with Alternate Rod Insertion. |
| 8 | RCIC007 RCIC008 | C (UO,CRS) | RCIC Inboard and Outboard Containment Isolation Valve (E51-F063 & E51-F064 Fail to Close |
| | | | |
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| | | | |
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| | | | |
| | | | |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor | | | |