

| Facility: DAEC | | Date of Exam: 04/16/12 | | | | | | | | | | | | | | | |
|----------------------------------|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-------|----|----|-------|---|
| 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 & Plant Evaluations | 1 | 3 | 3 | 4 | | | | 3 | 4 | | | 3 | 20 | 3 | 4 | 7 | |
| | 2 | 1 | 2 | 1 | | | | 1 | 1 | | | 1 | 7 | 2 | 1 | 3 | |
| | Tier Totals | 4 | 5 | 5 | | | | 4 | 5 | | | 4 | 27 | 5 | 5 | 10 | |
| 2. Plant Systems | 1 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 26 | 3 | 2 | 5 | |
| | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 12 | 0 | 1 | 3 | |
| | Tier Totals | 4 | 3 | 3 | 3 | 5 | 3 | 3 | 3 | 3 | 4 | 4 | 38 | 4 | 4 | 8 | |
| 3. Generic Knowledge & Abilities | | | | 1 | | 2 | | 3 | | 4 | | 10 | 1 | 2 | 3 | 4 | 7 |
| | | | | 2 | | 3 | | 3 | | 2 | | | 2 | 2 | 2 | 1 | |

- Note
1. Ensure that at least two topics from every applicable K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the Tier Totals in each K/A category shall not be less than two).
 2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by 1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
 3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to section D.1.b of ES-401, for guidance regarding 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 KAs 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/A's
 8. 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. 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 10CFR55.43

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 1

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|---|--|------|----|
| 295021 Loss of Shutdown Cooling / 4 | | | | | X | | AA2.01 - Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING: Reactor water heatup/cooldown rate | 3.6 | 76 |
| 295028 High Drywell Temperature / 5 | | | | | X | | EA2.02 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Reactor pressure | 3.9 | 77 |
| 295016 Control Room Abandonment / 7 | | | | | X | | AA2.03 - Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT: Reactor pressure | 4.4 | 78 |
| 295031 Reactor Low Water Level / 2 | | | | | | X | 2.2.12, Knowledge of surveillance procedures | 4.1 | 79 |
| 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1 | | | | | | X | 2.4.6, Emergency Procedures / Plan: Knowledge of EOP mitigation strategies. | 4.7 | 80 |
| 295003, Partial or Complete Loss of AC / 6 | | | | | | X | 2.4.4, Emergency Procedures / Plan: Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures. | 4.7 | 81 |
| 295006 SCRAM / 1 | | | | | | X | 2.4.35 - Emergency Procedures / Plan: Knowledge of local auxiliary operator tasks during emergency and the resultant operational effects. | 4.0 | 82 |
| 295025 High Reactor Pressure / 3 | X | | | | | | EK1.02 - Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Reactor vessel integrity | 4.1 | 39 |

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 1

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|---|----|----|----|----|----|---|--|------|----|
| 295026 Suppression Pool High Water Temp. / 5 | X | | | | | | EK1.01 - Knowledge of the operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Pump NPSH | 3.0 | 40 |
| 295021 Loss of Shutdown Cooling / 4 | X | | | | | | AK1.02 - Knowledge of the operational implications of the following concepts as they apply to LOSS OF SHUTDOWN COOLING: Thermal stratification | 3.3 | 41 |
| 295031 Reactor Low Water Level / 2 | | X | | | | | EK2.13 - Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following: ARI/RPT/ATWS: Plant-Specific | 4.1 | 42 |
| 295019 Partial or Total Loss of Inst. Air / 8 | | X | | | | | AK2.08 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Plant ventilation | 2.8 | 43 |
| 295004 Partial or Total Loss of DC Pwr / 6 | | X | | | | | AK2.01 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF D.C. POWER and the following: Battery charger | 3.1 | 44 |
| 295006 SCRAM / 1 | | | X | | | | AK3.01 - Knowledge of the reasons for the following responses as they apply to SCRAM: Reactor water level response | 3.8 | 45 |
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | | | X | | | | AK3.05 - Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Reduced loop operating requirements: Plant-Specific | 3.2 | 46 |

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 1

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|---|----|----|----|----|----|---|---|------|----|
| 295024 High Drywell Pressure / 5 | | | X | | | | EK3.07 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Drywell venting | 3.5 | 47 |
| 295028 High Drywell Temperature / 5 | | | | X | | | EA1.03 - Ability to operate and/or monitor the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell cooling system | 3.9 | 48 |
| 295005 Main Turbine Generator Trip / 3 | | | | X | | | AA1.01 - Ability to operate and/or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP: Recirculation system: Plant-Specific | 3.1 | 49 |
| 600000 Plant Fire On-site / 8 | | | | X | | | AA1.06 - Ability to operate and / or monitor the following as they apply to PLANT FIRE ON SITE: Fire alarm | 3.0 | 50 |
| 295037 SCRAM Conditions Present and Reactor Power Above APRM Downscale or Unknown / 1 | | | | | X | | EA2.06 - Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Reactor pressure | 4.0 | 51 |
| 295018 Partial or Total Loss of CCW / 8 | | | | | X | | AA2.04 - Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: System flow | 2.9 | 52 |
| 295023 Refueling Accidents / 8 | | | | | X | | AA2.01 - Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS: Area radiation levels | 3.6 | 53 |
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | | | | | | X | 2.1.1, Conduct of Operations: Knowledge of conduct of operations requirements | 3.8 | 54 |

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 1

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|---|----|----|----|----|-----|-----|---|------|----|
| 295003 Partial or Complete Loss of AC / 6 | | | | | | X | 2.1.20 - Conduct of Operations: Ability to interpret and execute procedure steps. | 2.7 | 55 |
| 295038 High Off-site Release Rate / 9 | | | | | | X | 2.4.45 - Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm. | 4.1 | 56 |
| 700000 Generator Voltage and Electric Grid Disturbances | | | | | X | | AA2.02 - Ability to determine and/or interpret the following as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES: Voltage outside the generator capability curve. | 3.5 | 57 |
| 295016 Control Room Abandonment / 7 | | | X | | | | AK3.03 - Knowledge of the reasons for the following responses as they apply to CONTROL ROOM ABANDONMENT: Disabling control room controls | 3.5 | 58 |
| K/A Category Totals | 3 | 3 | 4 | 3 | 4/3 | 3/4 | Group Point Total: | 20/7 | |

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 2

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|---|---|------|----|
| 295029 High Suppression Pool Water Level / 5 | | | | | X | | EA2.01 - Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Suppression pool water level | 3.9 | 83 |
| 295009 Low Reactor Water Level / 2 | | | | | | X | 2.4.45 - Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm. | 4.3 | 84 |
| 295012 High Drywell Temperature / 5 | | | | | X | | AA2.01 - Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell temperature | 3.9 | 85 |
| 295009 Low Reactor Water Level / 2 | X | | | | | | AK1.05 - Knowledge of the operational implications of the following concepts as they apply to LOW REACTOR WATER LEVEL: Natural circulation | 3.3 | 59 |
| 295014 Inadvertent Reactivity Addition / 1 | | X | | | | | AK2.01 - Knowledge of the interrelations between INADVERTENT REACTIVITY ADDITION and the following: RPS | 3.9 | 60 |
| 295015 Incomplete SCRAM / 1 | | | X | | | | AK3.01 - Knowledge of the reasons for the following responses as they apply to INCOMPLETE SCRAM: Bypassing rod insertion blocks | 3.4 | 61 |
| 295008 High Reactor Water Level / 2 | | | | X | | | AA1.02 - Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL: Reactor water cleanup (ability to drain): Plant-Specific | 3.3 | 62 |

BWR Examination Outline
Emergency and Abnormal Plant Evolutions - Tier 1 Group 2

| EAPE#/Name Safety Function | K1 | K2 | K3 | A1 | A2 | G | K/A Topic(s) | Imp. | Q# |
|---|----|----|----|----|-----|-----|---|------|----|
| 295035 Secondary Containment High Differential Pressure / 5 | | | | | X | | EA2.02 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Off-site release rate: Plant-Specific | 2.8 | 63 |
| 295034 Secondary Containment Ventilation High Radiation / 9 | | | | | | X | 2.4.2 - Emergency Procedures / Plan: Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions. | 4.5 | 64 |
| 295020 Inadvertent Cont. Isolation / 5 & 7 | | X | | | | | AK2.12 - Knowledge of the interrelations between INADVERTENT CONTAINMENT ISOLATION and the following: Instrument air/nitrogen: Plant-Specific | 3.1 | 65 |
| K/A Category Totals | 1 | 2 | 1 | 1 | 1/2 | 1/1 | Group Point Total: | 7/3 | |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 215005 APRM / LPRM | | | | | | | | X | | | | A2-08 - Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions: Faulty or erratic operation of detectors/systems | 3.2 | 86 |
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | | | | | X | | | | A2.03 - Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: System Logic Failures | 3.0 | 87 |
| 239002 SRVs | | | | | | | | | | | X | 2.4.18 - Emergency Procedures / Plan: Knowledge of the specific bases for EOPs. | 4.0 | 88 |
| 211000 SLC | | | | | | | | | | | X | 2.2.25 - Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | 4.2 | 89 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|-----------------------------------|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 217000 RCIC | | | | | | | | X | | | | A2.15 - Ability to (a) predict the impacts of the following on the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Steam line break | 3.8 | 90 |
| 217000 RCIC | X | | | | | | | | | | | K1.03 - Knowledge of the physical connections and/or cause- effect relationships between REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) and the following: Suppression pool | 3.6 | 1 |
| 205000 Shutdown Cooling | X | | | | | | | | | | | K1.01 - Knowledge of the physical connections and/or cause- effect relationships between SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) and the following: Reactor pressure | 3.6 | 2 |
| 300000 Instrument Air | | X | | | | | | | | | | K2.01 - Knowledge of electrical power supplies to the following: Instrument air compressor | 2.8 | 3 |
| 263000 DC Electrical Distribution | | X | | | | | | | | | | K2.01 - Knowledge of electrical power supplies to the following: Major D.C. loads | 3.1 | 4 |

BWR Examination Outline
Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|-----------------------------------|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 209001 LPCS | | | X | | | | | | | | | K3 01 - Knowledge of the effect that a loss or malfunction of the LOW PRESSURE CORE SPRAY SYSTEM will have on following: Reactor water level | 3.8 | 5 |
| 215004 Source Range Monitor | | | X | | | | | | | | | K3.02 - Knowledge of the effect that a loss or malfunction of the SOURCE RANGE MONITOR (SRM) SYSTEM will have on following: Reactor manual control: Plant-Specific | 3.4 | 6 |
| 262001 AC Electrical Distribution | | | | X | | | | | | | | K4.06 - Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Redundant power sources to vital buses | 3.6 | 7 |
| 261000 SGTS | | | | X | | | | | | | | K4.02 - Knowledge of STANDBY GAS TREATMENT SYSTEM design feature(s) and/or interlocks which provide for the following: Charcoal bed decay heat removal | 2.6 | 8 |
| 206000 HPCI | | | | | X | | | | | | | K5.06 - Knowledge of the operational implications of the following concepts as they apply to HIGH PRESSURE COOLANT INJECTION SYSTEM: Turbine speed measurement: BWR-2,3,4 | 2.6 | 9 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|--------------------|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 218000 ADS | | | | | X | | | | | | | K5.01 - Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM: ADS logic operation | 3.8 | 10 |
| 215003 IRM | | | | | | X | | | | | | K6.02 - Knowledge of the effect that a loss or malfunction of the following will have on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM: 24/48 volt D.C. power: Plant-Specific | 3.6 | 11 |
| 239002 SRVs | | | | | | X | | | | | | K6.04 - Knowledge of the effect that a loss or malfunction of the following will have on the RELIEF/SAFETY VALVES: D.C. power: Plant-Specific | 3.0 | 12 |
| 212000 RPS | | | | | | | X | | | | | A1.11 - Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: System status lights and alarms | 3.4 | 13 |
| 215005 APRM / LPRM | | | | | | | X | | | | | A1.07 - Ability to predict and/or monitor changes in parameters associated with operating the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM controls including: APRM (gain adjustment factor) | 3.0 | 14 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 211000 SLC | | | | | | | | X | | | | A2.03 - Ability to (a) predict the impacts of the following on the STANDBY LIQUID CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. power failures | 3.2 | 15 |
| 400000 Component Cooling Water | | | | | | | | X | | | | A2.03 - Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: High/low CCW temperature | 2.9 | 16 |
| 203000 RHR/LPCI: Injection Mode | | | | | | | | | X | | | A3.02 - Ability to monitor automatic operations of the RHR/LPCI: INJECTION MODE (PLANT SPECIFIC) including: Pump start | 4.0 | 17 |
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | | | | | | X | | | A3.03 - Ability to monitor automatic operations of the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF including: SPDS/ERIS/CRIDS/GD S: Plant-Specific | 2.5 | 18 |
| 262002 UPS (AC/DC) | | | | | | | | | | X | | A4.01 - Ability to manually operate and/or monitor in the control room: Transfer from alternative source to preferred source | 2.8 | 19 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 264000 EDGs | | | | | | | | | | X | | A4.02 - Ability to manually operate and/or monitor in the control room: Synchroscope | 3.4 | 20 |
| 259002 Reactor Water Level Control | | | | | | | | | | | X | 2.4.50 - Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. | 4.2 | 21 |
| 262002 UPS (AC/DC) | | | | | | | | | | | X | 2.4.3 - Emergency Procedures / Plan: Ability to identify post-accident instrumentation. | 3.7 | 22 |
| 262001 AC Electrical Distribution | | | | | | | | | | | X | 2.1.7 - Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. | 4.4 | 23 |
| 264000 EDGs | | | | | X | | | | | | | K5.06 - Knowledge of the operational implications of the following concepts as they apply to EMERGENCY GENERATORS (DIESEL/JET): Load sequencing | 3.4 | 24 |
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | | | | | | | X | | A4.04 - Ability to manually operate and/or monitor in the control room: System indicating lights and alarms | 3.5 | 25 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 1

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|---------------------|----|----|----|----|----|----|----|-----|----|----|-----|---|------|----|
| 211000 SLC | X | | | | | | | | | | | K1.03 - Knowledge of the physical connections and/or cause- effect relationships between STANDBY LIQUID CONTROL SYSTEM and the following: Plant air systems: Plant-Specific | 2.5 | 26 |
| K/A Category Totals | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2/3 | 2 | 3 | 3/2 | Group Point Total: | 26/5 | |

BWR Examination Outline
 Plant Systems - Tier 2 Group 2

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|---------------------------------|----|----|----|----|----|----|----|----|----|----|---|---|------|----|
| 223001 Primary CTMT and Aux. | | | | | | | | X | | | | A2.11 - Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Abnormal suppression pool level | 3.8 | 91 |
| 288000 Plant Ventilation | | | | | | | | | | | X | 2.2.40 - Equipment Control: Ability to apply technical specifications for a system. | 4.7 | 92 |
| 215001 Traversing In-core Probe | | | | | | | | | | | X | 2.4.41 - Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications. | 4.6 | 93 |
| 290002 Reactor Vessel Internals | X | | | | | | | | | | | K1.01 - Knowledge of the physical connections and/or cause-effect relationships between REACTOR VESSEL INTERNALS and the following: Main steam system | 3.2 | 27 |
| 202001 Recirculation System | | X | | | | | | | | | | K2.03 - Knowledge of electrical power supplies to the following: Recirculation system valves | 2.7 | 28 |

BWR Examination Outline
 Plant Systems - Tier 2 Group 2

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|--|----|----|----|----|----|----|----|----|----|----|---|--|------|----|
| 219000 RHR/LPCI: Torus/Pool Cooling Mode | | | X | | | | | | | | | K3.01 - Knowledge of the effect that a loss or malfunction of the RHR/LPCI: TORUS/SUPPRESSION POOL COOLING MODE will have on following: Suppression pool temperature control | 3.9 | 29 |
| 201002 RMCS | | | | X | | | | | | | | K4.07 - Knowledge of REACTOR MANUAL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: Timing of rod insert and withdrawal cycles (rod movement sequence timer) | 2.5 | 30 |
| 202002 Recirculation Flow Control | | | | | X | | | | | | | K5.01 - Knowledge of the operational implications of the following concepts as they apply to RECIRCULATION FLOW CONTROL SYSTEM: Fluid coupling: BWR-3,4 | 2.8 | 31 |
| 216000 Nuclear Boiler Inst. | | | | | | X | | | | | | K6.03 - Knowledge of the effect that a loss or malfunction of the following will have on the NUCLEAR BOILER INSTRUMENTATION: Temperature Compensation | 2.8 | 32 |
| 201003 Control Rod and Drive Mechanism | | | | | | | X | | | | | A1.02 - Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROD AND DRIVE MECHANISM controls including: CRD drive pressure | 2.8 | 33 |

BWR Examination Outline
Plant Systems - Tier 2 Group 2

| System #/Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | K/A Topic(s) | Imp. | Q# |
|---|----|----|----|----|----|----|----|-----|----|----|-----|---|------|----|
| 271000 Off-gas | | | | | | | | X | | | | A2.11 - Ability to (a) predict the impacts of the following on the OFFGAS SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Offgas system low flow | 2.8 | 34 |
| 214000 RPIS | | | | | | | | | X | | | A3.02 - Ability to monitor automatic operations of the ROD POSITION INFORMATION SYSTEM including: Alarm and indicating lights | 3.2 | 35 |
| 241000 Reactor/Turbine Pressure Regulator | | | | | | | | | | X | | A4.13 - Ability to manually operate and/or monitor in the control room: Turbine inlet pressure | 2.9 | 36 |
| 256000 Reactor Condensate | | | | | | | | | | | X | 2.4.31 - Emergency Procedures / Plan: Knowledge of annunciator alarms, indications, or response procedures. | 4.2 | 37 |
| 201006 RWM | | | | | X | | | | | | | K5.10 - Knowledge of ROD WORTH MINIMIZER SYSTEM (RWM) (PLANT SPECIFIC) design feature(s) and/or interlocks which provide for the following: Withdraw error: P-Spec(Not-BWR6) | 3.2 | 38 |
| K/A Category Totals | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1/1 | 1 | 1 | 1/2 | Group Point Total: | 12/3 | |

| Facility: | | Date: | | | | |
|--------------------------|--------|--|-----|----|----------|----|
| Category | KA # | Topic | RO | | SRO-Only | |
| | | | IR | Q# | IR | Q# |
| 1. Conduct of Operations | 2.1.17 | Ability to make accurate, clear and concise verbal reports. | 3.9 | 66 | | |
| | 2.1.20 | Ability to interpret and execute procedure steps. | 4.6 | 67 | | |
| | | | | | | |
| | | | | | | |
| | 2.1.20 | Ability to interpret and execute procedure steps. | | | 4.6 | 94 |
| | 2.1.43 | Ability to use procedures to determine the effects on reactivity of plant changes, such as RCS temperature, secondary plant, fuel depletion, etc. | | | 4.3 | 99 |
| | | | | | | |
| | | | | | | |
| | | Subtotal | | 2 | | 2 |
| 2. Equipment Control | 2.2.39 | Knowledge of less than or equal to one hour technical specification action statements for systems. | 3.9 | 68 | | |
| | 2.2.22 | Knowledge of limiting conditions for operations and safety limits. | 4.0 | 69 | | |
| | 2.2.6 | Knowledge of the process for making changes to procedures. | 3.0 | 75 | | |
| | | | | | | |
| | 2.2.5 | Knowledge of the process for making design or operating changes to the facility. | | | 3.2 | 95 |
| | 2.2.1 | Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity. | | | 4.4 | 98 |
| | | | | | | |
| | | Subtotal | | 3 | | 2 |

| | | | | | | |
|--------------------------------|--------|---|-----|----|-----|-----|
| 3. Radiation Control | 2.3.11 | Ability to control radiation releases. | 3.8 | 70 | | |
| | 2.3.12 | Knowledge of Radiological Safety Principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. | 3.2 | 71 | | |
| | 2.3.14 | Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. | 3.4 | 74 | | |
| | | | | | | |
| | 2.3.13 | Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc. | | | 3.8 | 96 |
| | 2.3.5 | Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. | | | 2.9 | 100 |
| | | | | | | |
| | | | | | | |
| Subtotal | | | | 3 | | 2 |
| 4. Emergency Procedures / Plan | 2.4.34 | Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects. | 4.2 | 72 | | |
| | 2.4.13 | Knowledge of crew roles and responsibilities during EOP usage. | 4.0 | 73 | | |
| | | | | | | |
| | 2.4.8 | Knowledge of how abnormal operating procedures are used in conjunction with EOP's. | | | 4.5 | 97 |
| | | | | | | |
| | | | | | | |
| Subtotal | | | | 2 | | 1 |
| Tier 3 Point Total: | | | | 10 | | 7 |