

| Facility: Fort Calhoun | | Rev 1 | | Date of Exam: 08/03/2007 | | | | | | | | | | | | | | | |
|---|-------------|------------------------|-----|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----------------|----|-------|----|---|---|
| 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. | | | | N/A | | | | | N/A | | | | 18 | 2 | 4 | 6 | | |
| | 2. | | | | N/A | | | | | N/A | | | | 9 | 0 | 4 | 4 | | |
| | Tier Totals | | | | N/A | | | | | N/A | | | | 27 | 2 | 8 | 10 | | |
| 2. Plant Systems | 1. | | | | | | | | | | | | | 28 | 2 | 3 | 5 | | |
| | 2. | | | | | | | | | | | | | 10 | 0 | 1 | 2 | | |
| | Tier Totals | | | | | | | | | | | | | 38 | 3 | 5 | 8 | | |
| 3. Generic Knowledge and Abilities Categories | | | | | 1 | 2 | 3 | 4 | | | | | | 10 | 1 | 2 | 3 | 4 | 7 |
| | | | | | | | | | | | | | | | 2 | 2 | 1 | 2 | |

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

| Tier | SROGroup | System/Mode | SystemTitle | A2 | G | Row Summa |
|------|----------|-------------|--|----|---|-----------|
| 1 | 1 | 000025 | Loss of Residual Heat Removal System | | 1 | 1 |
| 1 | 1 | 000038 | Steam Generator Tube Rupture | 1 | | 1 |
| 1 | 1 | 000054 | Loss of Main Feedwater | | 1 | 1 |
| 1 | 1 | 000056 | Loss of Off-Site Power | | 1 | 1 |
| 1 | 1 | 000057 | Loss of Vital AC Electrical Instrument Bus | 1 | | 1 |
| 1 | 1 | CE-E02 | Reactor Trip Recovery | | 1 | 1 |
| 1 | 2 | 000003 | Dropped Control Rod | | 1 | 1 |
| 1 | 2 | 000051 | Loss of Condenser Vacuum | | 1 | 1 |
| 1 | 2 | 000074 | Inadequate Core Cooling | | 1 | 1 |
| 1 | 2 | CE-A11 | RCS Overcooling | | 1 | 1 |

PWR SRO Written Examination Outline (ES-401-2)

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| System/Mode | System Title | KA Number | Title | SRO Value | 10 CFR 55 | |
|-------------|--------------|--|--------|--|-----------|----------------------|
| Tier | 1 | Group | 1 | | | |
| 76 | 000025 | Loss of Residual Heat Removal System | 2.4.30 | : Knowledge of which events related to system operations/status should be reported to outside agencies. | 3.6 | 43.5 / 45.11 |
| 78 | 000038 | Steam Generator Tube Rupture | EA2.07 | Ability to determine or interpret the following as they apply to a SGTR:: Plant conditions, from survey of control room indications | 4.8 | 43.5 / 45.13 |
| 77 | 000054 | Loss of Main Feedwater | 2.1.32 | : Ability to explain and apply all system limits and precautions. | 3.8 | 41.10 / 43.2 / 45.12 |
| 79 | 000056 | Loss of Off-Site Power | 2.4.04 | : Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 4.3 | 41.10 / 43.2 / 45.6 |
| 80 | 000057 | Loss of Vital AC Electrical Instrument Bus | AA2.16 | Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:: Normal and abnormal PZR level for various modes of plant operation | 3.1 | 43.5 / 45.13 |
| 81 | CE-E02 | Reactor Trip Recovery | 2.1.33 | : Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 4.0 | 43.2 / 43.3 / 45.3 |

PWR SRO Written Exam Outline (ES-401-2)

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| System/Mode | System Title | KA Number | Title | SRO Value | 10 CFR 55 |
|-------------|--------------------------|-----------|---|-----------|----------------------|
| Tier | 1 | Group | 2 | | |
| 000003 | Dropped Control Rod | 2.1.14 | : Knowledge of system status criteria which require the notification of plant personnel. | 3.3 | 43.5 / 45.12 |
| 000051 | Loss of Condenser Vacuum | 2.1.32 | : Ability to explain and apply all system limits and precautions. | 3.8 | 41.10 / 43.2 / 45.12 |
| 000074 | Inadequate Core Cooling | 2.4.06 | : Knowledge symptom based EOP mitigation strategies. | 4.0 | 41.10 / 43.5 / 45.13 |
| CE-A11 | RCS Overcooling | 2.1.33 | : Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 4.0 | 43.2 / 43.3 / 45.3 |

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| Tier | SROGroup | System/Mode | SystemTitle | A2 | G | K5 | Row Summa |
|------|----------|-------------|--|----|---|----|-----------|
| 2 | 1 003000 | | Reactor Coolant Pump System | | 1 | | 1 |
| 2 | 1 004000 | | Chemical and Volume Control System | 1 | | | 1 |
| 2 | 1 026000 | | Containment Spray System | | 1 | | 1 |
| 2 | 1 061000 | | Auxiliary / Emergency Feedwater System | 1 | | | 1 |
| 2 | 1 103000 | | Containment System | | 1 | | 1 |
| 2 | 2 002000 | | Reactor Coolant System | | 1 | | 1 |
| 2 | 2 034000 | | Fuel Handling Equipment System | | | 1 | 1 |
| 2 | 2 056000 | | Condensate System | | 1 | | 1 |

PWR SRO Written Exam Outline (ES-401-2)

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| System/Mode | System Title | KA Number | Title | SRO Value | 10 CFR 55 | |
|-------------|--------------|--|--------|--|-----------|----------------------------|
| Tier | 2 | Group | 1 | | | |
| 86 | 003000 | Reactor Coolant Pump System | 2.1.33 | : Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 4.0 | 43.2 / 43.3 / 45.3 |
| 87 | 004000 | Chemical and Volume Control System | A2.03 | Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Boundary isolation valve leak | 4.2 | 41.5 / 43.5 / 45.3 / 45.5 |
| 88 | 026000 | Containment Spray System | 2.4.06 | : Knowledge symptom based EOP mitigation strategies. | 4.0 | 41.10 / 43.5 / 45.13 |
| 89 | 061000 | Auxiliary / Emergency Feedwater System | A2.03 | Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Loss of dc power | 3.4 | 41.5 / 43.5 / 45.3 / 45.13 |
| 90 | 103000 | Containment System | 2.2.25 | : Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | 3.7 | 43.2 |

PWR SRO Written Exam Outline (ES-401-2)

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| System/Mode | System Title | KA Number | Title | SRO Value | 10 CFR 55 |
|-------------|---------------------------------------|-----------|---|-----------|----------------------|
| Tier | 2 | Group | 2 | | |
| 91 | 002000 Reactor Coolant System | 2.4.06 | : Knowledge symptom based EOP mitigation strategies. | 4.0 | 41.10 / 43.5 / 45.13 |
| 92 | 034000 Fuel Handling Equipment System | K5.02 | Knowledge of the operational implication of the following concepts as they apply to the Fuel Handling System:: Limiting of load | 2.6 | 41.5 / 45.7 |
| 93 | 056000 Condensate System | 2.4.04 | : Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 4.3 | 41.10 / 43.2 / 45.6 |

PWR SRO Written Exam Outline (ES-401-3)

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| System/Mode | System Title | Cat 1 | Cat 2 | Cat 3 | Cat 4 | Points |
|---|----------------------------------|----------|----------|----------|----------|----------|
| Generic Knowledge and Abilities Tier 3 | | | | | | |
| 00000 | Generic Knowledges and Abilities | 2 | 2 | 1 | 2 | 7 |
| | | 2 | 2 | 1 | 2 | 7 |

Grand Total of Generic K&A Selection:

| | | | | |
|----------|----------|----------|----------|----------|
| 2 | 2 | 1 | 2 | 7 |
|----------|----------|----------|----------|----------|

PWR SRO Written Examination Outline (ES-401-3)

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| System/Mode | System Title | KA Number | Title | SRO Value | 10 CFR 55 | |
|-------------|--------------|----------------------------------|--------|---|-----------|----------------------|
| Tier | 3 | Group | 4 | | | |
| 94 | 000000 | Generic Knowledges and Abilities | 2.1.05 | : Ability to locate and use procedures and directives related to shift staffing and activities. | 3.4 | 41.10 / 43.5 / 45.12 |
| 95 | 000000 | Generic Knowledges and Abilities | 2.1.14 | : Knowledge of system status criteria which require the notification of plant personnel. | 3.3 | 43.5 / 45.12 |
| 96 | 000000 | Generic Knowledges and Abilities | 2.2.08 | : Knowledge of the process for determining if the proposed change, test, or experiment involves an unreviewed safety question. | 3.3 | 43.3 / 45.13 |
| 97 | 000000 | Generic Knowledges and Abilities | 2.2.10 | : Knowledge of the process for determining if the margin of safety, as defined in the basis of any technical specification is reduced by a proposed change, test or experiment. | 3.3 | 43.3 / 45.13 |
| 98 | 000000 | Generic Knowledges and Abilities | 2.3.10 | : Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. | 3.3 | 43.4 / 45.10 |
| 99 | 000000 | Generic Knowledges and Abilities | 2.4.10 | : Knowledge of annunciator response procedures. | 3.1 | 41.10 / 43.5 / 45.13 |
| 100 | 000000 | Generic Knowledges and Abilities | 2.4.30 | : Knowledge of which events related to system operations/status should be reported to outside agencies. | 3.6 | 43.5 / 45.11 |

Enhanced Form ES-401-4 Record of Rejected K/As from SRO Outline

| Tier/Group | Randomly Selected K/A | Description | Reason for Rejection |
|------------|-----------------------|---|---|
| 1/1 | 000015 2.4.49 | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. | Removed from SRO outline during exam development because this K/A will be tested during simulator scenario #1. Replaced with randomly selected K/A 000025 2.4.30. |
| 1/1 | 000065 2.2.22 | Knowledge of limiting conditions for operations and safety limits. | No LCOs or safety limits associated with Instrument Air |
| 1/2 | 000024 AA2.03 | Ability to determine and interpret the following as they apply to the Emergency Boration:Correlation between boric acid controller setpoint and boric acid flow | Rejected during exam development. Can not develop question that discriminates at the SRO level. Replaced with CE-A11 2.1.33. |
| 1/2 | 000076 2.4.49 | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. | No immediate actions associated with high RCS activity |
| 1/2 | CE-A13 2.4.30 | Knowledge of which events related to system operations/status should be reported to outside agencies. | No specific reporting requirements |
| 2/2 | 041000 2.2.22 | Knowledge of limiting conditions for operations and safety limits. | No associated LCOs or safety limits |
| 2/2 | 075000 2.4.49 | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. | No associated immediate actions. |
| 3/4 | 000000 2.1.06 | Ability to supervise and assume a management role during plant transients and upset conditions. | Low RO importance. No FCS specific priority. Will be evaluated for SROs during simulator scenarios. |